**Final exam breakdown Winter 2022**

Concept/Def Quant

Ch 1 1 0

Ch 2 1 0

Ch 3 0 4

Ch 4 0 2

Ch 5 1 6

Ch 6 2 2

Ch 7 2 3

Ch 8 1 1

Ch 9 1 6

Ch 11 2 5

Ch 12 0 4

Ch 13 0 2

Ch 14 2 0

Ch 15 2 0

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Total 15 35

**Final Exam Review Outline**

***In addition to the outline below, know all vocabulary from text and all problems we worked in class.***

**Chapter 1 – Intro to Finance**

Sub-Specialties of Finance

1. Corporate Finance
2. Investments
3. Institutions

Careers within Finance - careers-in-finance.com

1. Commercial Banking
2. Corporate finance
3. Financial planning
4. Insurance
5. Investment Banking
6. Money management
7. Real estate
8. Hedge funds
9. Private equity

Careers-in-business.com

1. Marketing
2. Operations/supply chain
3. Accounting
4. OB/HR
5. Strategic mgmt

**Chapter 2 – Accounting from a Finance Perspective**

What is accrual based accounting?

– based on matching principle of revenue and expenses.

Why is historical cost important?

* How our books read.

Go over big two:

Balance Sheet

LHS, RHS

Income Stmt

Basic flow

How does IS carry over to BS? Go over NI = DIV + RE

Stmt Cash Flows

Operations, Investing, Financing

We will focus on free cash flow –

Don’t need to construct here, will do in Acc 200

We will interpret these financial statements, not construct them in this class.

Earnings management

Be able to identify the strategies, you do not need to be able to do them.

1. Watch Inventories: LIFO switch to FIFO and vice versa
2. Beware of Rising Receivables: Trade off of loose standards and sales
3. Uncover extraordinary expenses: Pass off as one-time shocks
4. Investigate Asset Sales: Example given sale-leaseback
5. Who’s skimping on Research: R&D example of myopic strategy
6. When is revenue really not: Revenue recognition changes
7. Spot out of balance growth: Unusual sales jump should have good explanation

**Chapter 3 – Ratios, DuPont, FCF, EVA**

Review of Standard Ratios

Liquidity Ratios

Current Ratio = CA/CL

Quick Ratio = (CA-Inv)/CL

ACP = AR/Daily Credit Sales

AR Turn = Credit Sales/AR

Inv Turn = COGS/Inv

Efficiency Ratios

TAT=S/TA

FAT=S/FA

OIROI=EBIT/TA

Financing Ratios

DR=TD/TA

D-E=TD/TE

TIE=EBIT/Int Expense

Profitability Ratios

ROA=NI/TA

ROE=NI/TE

Gross Marg=GP/S

Op Marg=EBIT/S

NM=NI/S

DuPont Equation

Various breakdowns to get to levers

Measures of FCF

Go over FCFF and FCFE.

Explain intuition on when to use which one and what they are.

1. FCFF = EBIT – Cash Tax Payments + Depreciation – CAPEX – Increases in NWC

[Note: Capex is gross Change PPE]

1. FCFE = NI + Depreciation – CAPEX – Increases in NWC + Increases in Net Long-Term Debt

EVA

Go over equation and explain NOPAT and costly capital in detail

EVA = NOPAT – [WACC × (Costly Capital)]

**Chapter 4 Forecasting**

% of Sales Method – should understand intuition from text – know concepts and work-out problems

Disclaimer: Can use target ratios to determine forecasts of some accounts (and other methods)

Steps for % of Sales Method

1. Project sales revenues (most important step, shout-out to marketing)
2. Forecast change in spontaneous balance sheet accounts
3. Deal with discretionary accounts
4. Calculate retained earnings

New RE on BS = Old RE on BS + Change in RE

Change in RE = Projected NI – Projected Dividends

Examples of computing change in RE (use projected numbers):

If dividends are given as cash:

NI – Dividends

If dividends are given as a percent (Div/NI):

NI \* (1 – (Cash Dividends)/NI))

Sometimes you have to compute NI.

If Net Profit Margin (NI/S) is given:

NI = Projected sales \* NI/S

Some vocab:

Payout ratio = (Cash Dividends)/NI)

Plowback ratio = (1 – (Cash Dividends)/NI))

1. Determine total financing need/assets (BS Equation intuition)
2. Calculate DFN (EFN) = (Projected LHS – Projected RHS)

If DFN > 0, then the firm will need to raise external capital.

If DFN < 0, then the firm will have sufficient capital for the future period.

Practice % of sales problem

How Reduce DFN?

1. Reduce growth
2. Review fixed assets
3. Review dividends
4. Price changes (usually results in growth reduction)

How fast can a firm grow? SGR = ROE (1-b) -> ties into DuPont Identity (4 drivers)

SGR in words: Maximum sales growth without issuing new equity and maintaining constant D/E ratio.

**Topic 5 TVM**

Time lines to introduce

FV = PV \* (1+r)n

PV = FV/(1+r)n

Calculator button: 3 solve 4 : FV, PV, n i/y 🡪 Examples (lottery)

Annuities

Calculator button: 4 solve 5 : Same 4 buttons above plus PMT 🡪 Examples (car buying) [watch the signs]

Perpetuity: PV = PMT/i

Effective yield (APY, EAR) : EY = (1 + i/m)m-1

**Lesson 6 – Bonds**

Bond Vocab:

Par/Face/Maturity Value

Coupon Rate

Maturity

Annual vs. Semi-annual

Fixed income

Muni

How do these bond characteristics lead to valuing the bond?

DCF equation for bond – gain intuition on DCF.

Important not a black box.

Convert equation into buttons on the calculator.

5 Keys to remind of five key points of a bond

Current Yield vs. YTM vs. Coupon Rate

Inverse price/yield relationship

Coupon vis-à-vis discount rate/market yield

Bond ratings

Investment vs. Junk - cutoff

**Ch. 7 Equity**

Difference/similarity between debt (chapter 6) and equity (chapter 7)? Fixed income vs. residual claim.

Bankruptcy order of claimants

Preferred stock – hybrid security.

Intuition of math.

Remember perpetuity:

Vps = D/kps

Common stock

Single holding period return

Capital gains + Dividend if in $.

Capital gains yield + dividend yield if in %.

Projected dividend + stock price in the future discounted back to today is Vo or intrinsic value.

Gordon model Vo = D1/(kcs – g) where D1 = Do(1+g) – Break down equation

Two stage growth model: Stage 1- Individual growth rates discounted back. Last stage – Gordon model. Known as terminal value.

If dividends aren’t available – as in Google box, go with FCF instead.

Make sure cash flow measure, discount rate, and growth rate are aligned.

Can solve for any of the missing variables.

**Chapter 8. Risk and Return**

Risk and Return – a little statistics (YouTube if need refresher/other look)

Return

Annualized return = (P1-Po + CF1)/Po \* 360/holding period [Banker year]

Expected Return = ∑ptRt (weighted average)

Risk

Nominal Return = Real Rate + Inflation (estimate)

1+Nominal = (1+Real) \* (1+ Inflation) (exact)

Total Risk

Risk is not just downside – can be upside too.

σ 2= (Σ(Ri − Rmean)2 × pi

Sharpe/Treynor Ratio

Market Risk = Systematic risk = Nondiversifiable risk = beta risk

How strongly the asset correlates with the market.

Draw scatter plot for beta

RRR = Rf + Risk Premium

CAPM = Rf + Beta(Rm-Rf)

Draw SML

Diversifiable, unsystematic, firm specific, idiosyncratic risk

Can be mitigated via diversification.

Draw diversification graph

Build up Method

(Typically for smaller firms and under diversified investors). Just one example:

RRR = bond yield + equity risk premium + micro-cap risk premium + start-up risk premium

**Chapter 9. Cost of capital (WACC Attack!)**

Why is cost of capital important?

* Discount rate for TVM and DCF (other uses)

Cost of debt

Think of this as the borrowing rate

Have to control for flotation costs

Has to be after-tax

Cost of equity

**Preferred**

Have to control for flotation costs

* Perpetuity equation kps = D/NPps

**Common**

3 ways to do common

For retained earnings (internal equity), NO flotation costs

1. CAPM -> kcs = Rrf + beta(Rm-Rf)
2. Gordon model

Kcs = D1/P0 + g

1. Build-up method

For external equity -> must use flotation costs

* CAPMexternal = CAPMinternal \*(1+flotation costs %)
* Gordon Model -> Kcs = D1/NP0 + g
* Build up -> \*(1+flotation costs %)

WACC – learn intuition, not memorize individual equations



Can expand to internal and external equity:



and multiple types of debt: (intuition most)



**Lesson 11 Cap Budgeting Decision Criteria**

3 Criteria we prefer: (Intuition)

All cash flows

TVM

RRR/Objective decision rule

Payback – Why do we use it?

Discounted payback

NPV

Go over NPV equation/Intuition

PI – makes up a bit for scaling problem

IRR

Show how IRR is NPV equation with IO on LHS

Actual use in real world graph

Capital budget (Additivity problem)

Can’t use IRR with multiple projects with budget constraint.

Cash flow patterns (e.g., negative signs, order of cash flow, size of project)

IRR has problems in all areas.

Introduce MIRR

Replacement chain (Stacking projects), find common length

Equivalent annual annuity (EAA) Compute NPV, use as PV and then compute and compare PMTs.

Conditions of when to use the EAA or replacement chain... different lives, mutually exclusive and repeatable; otherwise use NPV

**Chapter 12 Cap Budgeting Cash Flow**

Cash Flows

Incremental – cash flows that change because of the project

Incidental – type of incremental – Example, Ford Focus and CAFE (Corporate Average Fuel Economy)

Cars 27.5 mpg Lt Trucks 20.7 mpg Trucks < 8500 22.5 mpg 2008, 23.1 2009, 23.5 2010

Sunk Costs – Example of Finance students switching to Econ

Depreciation

Why do we depreciate – we’d rather expense. (New tax code?)

Various methods, we cover two.

Straight line: Annual deprec = (cost-salvage)/life

MACRs: Annual deprec = cost X percentage where the percentage dictated by gov’t mandate and life. Base cost stays the same.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | 3-year | 5-year | 7-year | 10-year |
| 1 | 0.333 | 0.200 | 0.143 | 0.100 |
| 2 | 0.445 | 0.320 | 0.245 | 0.180 |
| 3 | 0.148 | 0.192 | 0.175 | 0.144 |
| 4 | 0.074 | 0.115 | 0.125 | 0.115 |
| 5 |  | 0.115 | 0.089 | 0.092 |
| 6 |  | 0.058 | 0.089 | 0.074 |
| 7 |  |  | 0.089 | 0.066 |
| 8 |  |  | 0.045 | 0.066 |
| 9 |  |  |  | 0.065 |
| 10 |  |  |  | 0.065 |
| 11 |  |  |  | 0.033 |

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Changes in Working Capital

What is it?

Goes back to incremental on whether to count or not.

Recapture – e.g., %

Tax impacts on Cap Bud cash flows

1. Normal income taxes on EBT for the project
2. Taxes on asset sales. Compare sales price to book value – tax the gains or take the tax shield loss.

Timeline

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Table

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Putting it together

Cap budgeting in 3 steps

Evaluate Cash Flows (this chapter 12)

Assess Project Risk (Chapter 9)

Accept or Reject Project (Chapter 11)

Practice problems.

**Lesson 13 Firm Valuation**

Lesson 13 Firm (Enterprise) Valuation

When might we need to value a firm?

Three methods

1. Replacement Cost (or just Cost) method

Tangible assets pretty easy to value

Intangible assets hard to value

Debt pretty easy to value

Can then back out equity value

What types of firms good for?

2. DCF methods

FCFF - WACC

FCFE – Ke

Difference? FCFF method – market debt = FCFE method

What types of firms good for?

3. Comparable multiples (comps) method

PE

P/S

M/B

P/EBITDA – entrepreneurial finance

What types of firms good for?

Caveats (CFA, some debate)

Salary

Liquidity (40-50%)

Control (30-35%)

Event Study

House appraisal example

**Ch 14. Entrepreneurial Finance**

Differences between Corp and Entrep Finance

Utility maximization vs. wealth maximization

Lifestyle small business vs. new ventures

Five major business entities

When considering type of entity:

Filing/tax requirements

Equity units – ease of transfer

Liability protection

Max # owners

Sole Prop

Partnership

LLC

S-Corp

C-Corp

Giving birth to a firm – 2 things needed

Piercing the veil

Financing a new venture

Life-Cycle Diagram

Bootstrapping

Trade credit

Factoring

Friends and family – accredited investors

LLC to invest FFF

Crowdfunding

Professional investors (Angels, VCs, PE)

Draw VC diagram

4 reasons high VC discount rates

Harvesting

Lifestyle perpetual harvest

Selling-out

IPO

Beware of Fraud:

Solicitation

Accredited investors

**Chapter 15**

Know the four areas in the text for Chapter 15

Car and House buying strategies (read through and be familiar)

Personal Investing (understand risky and non-risky part of portfolio

Be familiar with the email exchange pertaining to negotiating an offer

Understand cash and term life insurance and which the best option is normally

Buying a House

Steps to buy a house

Go through closing docs and explain

Know appropriate vs. inappropriate debt.

Home mortgage [“Get a modest home and pay off the mortgage quickly”]

Education [“…pay it back. And do so promptly, even at the sacrifice…”]

Transportation [“needed first car”]

Business [“But be wise, and do not go beyond your ability to pay.”]

Know the Survival Advice – Human Capital

Market yourself as aggressively as possible

Lower your expectation for material things

Refuse to be part of the entitlement generation

Practice the FILO work principle

Understand short term vs. long term investing

Know the examples of short term investments

Checking, savings, money market, CDs

Know the non-risky and risk parts of long-term investing

Tax-sheltered *investment vehicle*: Traditional IRA, Roth IRA, 401K, SEP IRA, 529 Plans, etc.

Think of these as your grocery cart that give tax advantages

Biggest consideration on IRAs:

Roth – use after-tax dollars. Never pay tax again.

Traditional – use before-tax dollars. Pay tax when withdraw.

Biggest consideration on 401K/403B:

Get the match!!

Your first employer will most likely have a match. Be ready!!

Defined contribution vs. Defined benefit

Defined contribution = 401K-like self-directed

Defined benefit = old-fashion pension, not many left

Money is locked-up and will have penalties if withdrawn early.

*Investment assets* (inside the vehicle)

Like groceries inside the shopping cart

Can be virtually any asset you choose (stocks, bonds, ETFs, mutual funds, bank accounts, whatever your risk likes).

Index mutual fund

Very low administration costs/fees

A computer simply tracks an index like the S&P 500, Russell 3000, Wilshire 5000

Actively managed mutual fund

More expensive than index funds

Loads (front end and back end)

12b-1 and other management fees

Try to beat benchmark (e.g., growth, value, small-cap, emerging markets, industry (like technology), bonds)

Understand why broad equity index funds are a good option for long-term investing.

Stocks have historically outperformed other assets.

With time diversification, the probability of loss in the stock market over 10-30 years is very small.

Active managers fail to outperform simple index mutual funds more often than not.

The fees from active managed funds destroy a lot of wealth for the investor.