**Syllabus**

***Corporate Finance 3310***

***Spring 2019***

***Baylor University***

***Professor Don Cunningham***

Homepage: <http://business.baylor.edu/Don_Cunningham>

***(Reading and problem assignments below will occasionally be updated after the course begins. Therefore always clear your computer cache to access the most recent version of the syllabus.)***

**Professor:** Don Cunningham, PhD

**Office Hrs:** 1 - 3pm Monday

1 - 2 pm Tuesday & after class at 3:20

11 – 2 pm Thursday & after class at 3:20

 Other times by appointment

**Office:** Graduate Center – 4th floor

**E-Mail:** don\_cunningham@baylor.edu

**Telephone:** 254-710-6152 (office)

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 **COURSE MATERIAL**

**Textbook:** Principles of Corporate Finance by Brealey, Myers, and Allen – Concise Edition 2nd edition (Syllabus refers to chapters and problems in 2nd edition, however the 1st edition or the 9th edition of the extended/non-concise edition is essentially the same material. )

**GRADING AND EXAM WEIGHTING**

Exam 1 25%

Exam 2 25%

Final Exam 30%

5 homework assingments (2% each) 10%

Class participation 10%

 Total 100%

OR - if you make a C or worse on Exam 1 or 2 – you may opt to retake your lowest exam during final exams and your course grade will be weighted:

Lowest score from exam 1 and 2 12.5%

Retake of lowest exam at Final 12.5%

Highest score from exam 1 and 2 25%

Final exam 30%

5 homework assingments (2% each) 10%

Class participation 10%

 Total 100%

**Class Participation:**

Class participation counts 10%. At the end of the module I will assign a numerical grade for participation based on my assessment of whether you were:

* Thoughtful and engaging with subject content questions = 90 - 100,
* Responding with appropriate answers to my questions = 85 - 90,
* Asking other questions = 80 - 85
* Present, taking notes, unable to answer content questions = 70 - 80
* Not present = < 70

**Movies offering insight on financial decision-making:**

*Corporate finance is the study of how managers make investment and financing deicisions for publicly traded firms. Several movies explore these topics and provide insight. The first is the* **The Founder (2016),** *which is a biographical drama about Ray Kroc’s founding of McDonalds. In fact, I find it is so applicable that I will use McDonalds as our example ‘firm’ throughout the semester. In a similar vein, but more historical, you might enjoy the PBS series* ***The Men who Built America.***

*Two moives providing fictional depicitions of capital markets and “marginal investors” are* **Wall Street (1987)***and* **Other People’s Money (1991).** *These movies explore capital market functions and how “marginal investors” can dominate managerial decisions in publicly-traded firms. Finally,* **The Big Short** **(2016)** *explores our final topic-derivatives and hedging.*

**Class Schedule/Assignments**

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| --- |
|  |
|  **Learning Objectives** **Week 1 - 1/15 & 17 Develop a Framework of Corporate Finance** * Construct a Framework of Corporate Finance Study
* Integrate Finance, Accounting, and Economics
* Identify the Purpose for which a Firm Exists
* Develop Fisher’s Model of the Firm
* Develop goal(s) for achieving Firm’s purpose
* Differentiate between Preference and Rationality
* Formulate Fisher’s Separation Principle
* Resolve firm governance to adjust for SH preferences
* Formulate the best cost/benefit analysis technique that adjusts for preferences and time

**Week 2 1/22 & 24 Time value factors*** Practice applying Fisher’s Model & NPV rule
* Extend Fisher’s Model to multiple time periods
* Derive a set of Present Value (PV) Factors
* Apply PV Factors to value Annuities, Lump Sums, and extend to stocks and bonds

**Week 3 1/29 & 31 Apply time value factors*** Apply NPV analysis in a Personal Setting-Refinancing
* Compare and Contrast Individual’s Refinancing

 Decision with Firm’s Investment Decision* Formulate and synthesize the Separation Principle in the context of an individual’s Refinancing Decision

**Week 4 2/6 & 7 Firm’s Investment decisions** * Simulate a Firm’s Investment Decision
* Formulate various Cost/Benefit analysis tecniques (Cash Flow, Profitability, Rate of Return, IRR, and NPV) and evaluate best technique for managing the Firm

 **week 5 - Exam 1 on Tues. Feb. 12th** **Week 5 – TH - 2/14 Individual investors’ investment decision (portfolio theory)** * Compare and Contrast Firms’ Investment Decision with Individual Investors’ Investment Decision
* Articulate Individual Investor’s Investment Goal
* Define expected return E(R)
* Define Risk
* Simulate an Investor’s investment opportunities
* Calculate E(R) and Risk for simulated stocks
* Calculate E(R) and Risk for a simulated portfolio of stocks
* Compare and contrast E(R) and Risk of individual

 stocks with E(R) and Risk of portfolios* Develop a graphical representation of a portfolio’s E(R) to risk ratio
* Examine the impact of weighting proportions and

 Correlations on the portfolio’s E(R) to risk ratio* Examine the impact of including the Rf security in portfolio
* Examine the Impact of leverage on E(R) and risk of portfolios
* Hypothesize an Optimal Investment Strategy

 for individual investors **Week 6 2/19 & 21 Pricing (rate of return for) Systemtic vs Unique risk (CAPM)** * Return Exam 1
* Differentiate riskless E(R) from risky E(R)
* Differentiate “unique” risk from “systematic” risk
* Formulate a measure of Systematic Risk
* Hypothesize a price for systematic risk
* Compose a total E(R) model for any individual security
* Compare and Contrast E(R) of individual securities with E(R) of well diversified portfolios
* Devise solutions to simulated investment exercises

 **Week 7 2/26 & 28 How Managers Use Efficient markets, Portfolio theory, and CAPM to make firm investment decisions** * Review historical perspective of EMH
* Compare the characteristics of Perfect Markets to Efficient Markets
* Draw conclusions on causes for price patterns in Perfect versus efficient markets
* Discuss the paradox of efficiency, legality, and the purpose of Insider Trading Laws
* Equate LHS and RHS of Firm’s Balance Sheet to Portfolios
* Critique GAAP-based financial statement issues
* Critique tax issues with debt versus equity
* Critique diversification issues
* Evaluate the pricing efficience of LHS and RHS of Balance sheet
* Assess quality of information from LHS versus RHS accounts
* Formulate a cost for Debt Capital
* Formulate a cost for Equity Capital

**Week 8 3/5 & 3/7 Continue WACC, & NPV*** Apply WACC to determine McDonal’s Cost of Capital
* Apply CAPM in WACC
* Evaluate a McDonald’s project using its WACC
* Convert project Income statement to cash flow statement
* Evaluate salvage and capital gains taxes

 **Spring Break 3/11 thru 3/15** **Week 9 3/19 & 3/21 Complete NPV analysis of McDonald’s Project using WACC**  **Exam 2 on Tuseday March 26th** **Week 10 – Th - 3/ 28 Begin firm’s financing impact on WACC and NPV (Capital Structure Policy)*** Identify arguments for why some think financing with debt is “good” policy
* Identify arguments for why some think financing with debt is “bad” policy
* Identify financial variables that measure the “good” (benefit) and the “bad” (cost) reasons for incurring debt

**Week 11 4/2 & 4/4 Continue Capital Structure Policy*** Return Exam 2
* Create a firm and use debt (leverage) to finance assets
* Simulate the impact of leverage on: NI, NOI, ROA, ROD, Int Exp, ROE, βD, βE, Shs o/s, EPS, WACC, DIV, & g, and PSt
* Evaluate impact of debt policy on major financial variables and determine whether an optimal capital structure strategy exists

 **Diadeloso Holiday – April 9** **Week 12 - TH - 4/ 11 Capital Structure Policy – Debt versus Equtiy Financing*** Define Dividend Policy
* Develop “Dividends are Good” argument
* Determine best cost/benefit analytics to evaluate dividend policy, considering Time Value of Money, CAPM, WACC, and Goal of the Firm
* Simulate a firm, raise dividends, and utilize best analytics to determine if “Dividends are Good”
* Investigate the impact of Stock Buybacks
* Investigate the impact of Stock splits
* Develop “Dividends are Bad” tax argument
* Develop Dividend tax conversion strategy
* Consider Dividends as Signals
* Consider the impact of corporate governance on Dividend policy

**Week 13 4/10 & 12 Tax Effect of Debt on Capital Structure Policy** * Demonstrate the interest tax subsidy argument for debt
* Re-examine the interest tax subsidy argument in light of taxes paid by bondholders
* Hypothesize a shift in subsidy over time (aka the bondholder surplus)
* Simulate the tax subsidy over time and its impact on the value of the firm
* Infer impact of Merton’s tax argument for homeowners with mortgages
* Formulate summary arguments for financing with debt vs equity
* Consider additional factors that might affect with debt versus equity decision
* Evaluate Agency Costs
* Evaluate Signaling
* Evaluate employee behavioral issues
* Consider financial slack

**Week 14 4/19 Derivatives** * Review Derivative terminology
* Develop graphical presentations of long call, long put, short call, short put
* Explore investor motivations and expected returns for each derivative position
* Compare a Call option to a levered investment with a numerical example
* Formulate a terminal Payoff matrix for single securities and single derivatives
* Combine securities and derivatives and compare combination payoffs to single holding payoffs
* Utilize a long stock and short call (s) combination to derive an option pricing model

**Week 15 4/24 & 26 Hedging and Speculating Derivative Applications*** Practice Hedging, speculating and pricing derivatives

  **EXAM 3 (Final) Friday**  **May 10th 11:30 – 1:30pm** |   **Textbook and outside Readings,**  **Videos, Simulation Exercises,**  **Projects, and practice exercises**  **Chapters 1 & 2 & Introductions****Chapter 11 – Efficient Capital Markets****Watch the movie *The Founder*** [Foundations of NPV](http://business.baylor.edu/Don_Cunningham/Foundations%20of%20NPV%20-%20Fisher%27s%20Model.pdf)[Notes on Intertemporal Choice](http://business.baylor.edu/don_cunningham/Notes%20on%20Intertemporal%20Choice.pdf)[Old versus New Finance](http://business.baylor.edu/Don_Cunningham/Old%20versus%20New%20Finance.docx) [Quotes from Old vs New Finance](http://business.baylor.edu/Don_Cunningham/Quotes%20from%20Old%20verus%20New%20Finance.docx)[The Financial System](http://business.baylor.edu/Don_Cunningham/The%20Financial%20System.docx)[MIT OCW Intro & PV lecutre video](http://ocw.mit.edu/courses/sloan-school-of-management/15-401-finance-theory-i-fall-2008) [Irving Fisher (1867 - 1947)](http://en.wikipedia.org/wiki/Irving_Fisher)[LearnersTV finance lecuture videos 1-5](http://www.learnerstv.com/Free-Management-Video-lectures-ltv217-Page1.htm)[Financial Terms](http://business.baylor.edu/don_cunningham/Finance%20Terminology.doc)[Marginal Investors – (2014)](http://business.baylor.edu/don_cunningham/Marginal%20Investors%20%282014%29%20-%20Activists%20with%20war%20chests%20near%20%24100%20billion%20-%20MarketWatch.pdf)[James Simons’ Life of Curiosity (2014)](http://business.baylor.edu/don_cunningham/James%20Simons%20-%20A%20Life%20of%20Ferocious%20Curiosity%20-%20NYTimes%20%282014%29.pdf)[Ichan’s Billionaire Trait (2015)](http://business.baylor.edu/Don_Cunningham/Icahn%27s%20Billionaire%20Trait%20%282015%29.docx)[Capitalisms Marginal Heroes –(2015)](http://business.baylor.edu/don_cunningham/Capitalisms%20Unlikely%20Heroes%20-%20Marginal%20Investors.docx)Google & watch Warren Buffet Interviewse.g. [Charlie Rose Interviews W. Buffet](http://business.baylor.edu/don_cunningham/Videos/Embed_CRose.html)[Are You a Born Saver or Spender? (2013)](http://business.baylor.edu/don_cunningham/Are%20you%20born%20a%20saver%20or%20spender%20%282013%29.doc)[Money Buys Happiness (2013)](http://business.baylor.edu/don_cunningham/Money%20Buys%20Happiness%20and%20You%20Can%20Never%20Have%20Too%20Much%20%282013%29.doc) [The Problem with Financial Incentives 2011)](http://business.baylor.edu/don_cunningham/The%20Problem%20with%20Financial%20Incentives%20--%20Wharton%20%282011%29.pdf)[The Meaning of Wealth around the World (2010)](http://business.baylor.edu/don_cunningham/The%20Meaning%20of%20Wealth%20Around%20the%20World%20%282010%29.pdf) Watch *Other People’s Money (1991)*Watch *Wall Street (1987)*Fisher Handout problems 1 & 2 attached**Chapters 3, 4, and 5**[*PV Factors*](http://business.baylor.edu/don_cunningham/PVFactors.xls) - excel worksheet[Class Case: Should You Refinance](http://business.baylor.edu/don_cunningham/Should%20You%20Refinance.doc) [Refinance (1.0)](http://business.baylor.edu/don_cunningham/Refinance%201.0.xls) - excel worksheet[Chapter 2 Solutions](http://business.baylor.edu/don_cunningham/CHAPTER_2.docx)[Chapter 3 Solutions](http://business.baylor.edu/don_cunningham/CHAPTER_3.docx)[Chapter 4 Solutions](http://business.baylor.edu/don_cunningham/CHAPTER_4.docx)[Chapter 5 Solutions](http://business.baylor.edu/don_cunningham/CHAPTER_5.docx)[Chapter 6 Solutions](http://business.baylor.edu/don_cunningham/CHAPTER_6.docx)**Homework set #1 due - Use PV factors excel worksheet to work Homework problem set #1 (problems are below this class schedule)** *[Projects](http://business.baylor.edu/don_cunningham/projects.xls)* [- excel worksheet](http://business.baylor.edu/don_cunningham/projects.xls)[*Projects Analysis*](http://business.baylor.edu/Don_Cunningham/projects%20analysis.xls) – excel worksheet[Ways to Measure Performance (2009)](http://business.baylor.edu/don_cunningham/Ways%20to%20Measure%20Performance_old.pdf)[AVG vs Geometric mean Returns - sprdsheet](http://business.baylor.edu/Don_Cunningham/AVG%20vs%20Geometric%20returns.xlsx)**Homework set #2 due – Refinancing Decision (variables given in class) using excel worksheet****Chapters 7 & 8**[Portfolio](http://business.baylor.edu/don_cunningham/PORTFOLIO.xls) - excel worksheet [LVN – Risk and Return](http://www.showme.com/sh/?h=VkX6WVU)[LearnersTV lecture video – Risk and Return](http://www.learnerstv.com/video/Free-video-Lecture-7156-Management.htm)[MIT OCW leture video on Risk and Return](http://ocw.mit.edu/courses/sloan-school-of-management/15-401-finance-theory-i-fall-2008/video-lectures-and-slides/risk-and-return/)[MIT OCW lecture video on Portfolio Theory](http://ocw.mit.edu/courses/sloan-school-of-management/15-401-finance-theory-i-fall-2008/video-lectures-and-slides/portfolio-theory/) [*Buffet’s Bet Against Hedge Funds (2016)*](http://business.baylor.edu/Don_Cunningham/Buffet%27s%20Bet%20Against%20Hedge%20Funds.docx)[*Stock Picking Still a Loser’s Game (2018)*](http://business.baylor.edu/Don_Cunningham/Stock%20Picking%20is%20still%20a%20Loser%27s%20Game%20%282018%29.docx)[*The Man Fund Managers Hate (2000)*](http://business.baylor.edu/don_cunningham/The%20Man%20your%20fund%20manager%20hates.doc)[Portfolio – Efficient Frontier tab](http://business.baylor.edu/don_cunningham/PORTFOLIO.xls)[Harry Markowitz](http://en.wikipedia.org/wiki/Harry_Markowitz) 1990 Nobel Prize[*Lifecycle Investing*](file:///L%3A%5CLifecycle%20Investing.docx)[*Leverage for the Long Run*](http://business.baylor.edu/Don_Cunningham/Leverage%20for%20the%20Long%20Run%20-%202016%20Charles%20Dow%20Award%20Winner%20-%20February%202016.docx)*–Dow Award (2016)*[*Leveraged ETF Myths (2017)*](http://business.baylor.edu/Don_Cunningham/Leveraged%20ETF%20Myths%205.2017.docx)[*Personal Leverage – Diversification Across Time*](http://business.baylor.edu/don_cunningham/Diversification%20Across%20Time.pdf)[Warren Buffet on Personal Leveraging (2015)](http://business.baylor.edu/don_cunningham/Warren%20Buffet%20on%20Personal%20Leverage%20%282015%29.docx)[Warren Buffet Advice to LeBron (2015)](http://business.baylor.edu/don_cunningham/Warren%20Buffett%20Investment%20Advice%20to%20LeBron%20James%20%282015%29.docx)[Alcoa Splits Apart (2015)](http://business.baylor.edu/don_cunningham/Alcoa%20Splits%20Apart%209.28.15.docx)**Chapters 7 & 8** *[Average long-run returns (nominal)](http://business.baylor.edu/don_cunningham/Average%20returns%20%28nominal%29%20over%20long%20time%20periods.pdf)**[Average long-run returns (real)](http://business.baylor.edu/don_cunningham/Average%20returns%20%28real%29%20over%20long%20periods.pdf)*Ch 7: 4, 5, 7, 8, 11, 13, 21Ch 8: 5, 8[Chapter 7](http://business.baylor.edu/don_cunningham/Chap007.doc) Problem Solutions[Chapter 8](http://business.baylor.edu/don_cunningham/CHAPTER_8.docx) Problem Solutions**Chapter 11***[An Interview with Eugene Fama (2010)](http://business.baylor.edu/don_cunningham/Interview%20with%20Eugene%20Fama%20%282010%29.pdf)**[An Interview with Robert Shiller (2014)](http://business.baylor.edu/don_cunningham/Interview%20%20-%20Robert%20Shiller%20%282014%29.pdf)*[*Richard Thaler Wins Nobel (2017)*](http://business.baylor.edu/Don_Cunningham/Richard%20Thaler%20Wins%20the%20Nobel%20in%20Economics%20for%20Killing%20Homo%20Economicus.docx)*Technical Analysis is Behavioral (2013)**R*ead a few articles from an internet search of “Fama wins the Nobel Prize. Also search for Behavorial Finance and read a few of the articles. Visit [www.ifa.com](http://www.ifa.com) This information-packed website is maintained by IFA investment advisory firm affiliated with DFA mutual funds. Investments and information are based on efficient market research. David Booth, DFA founder, endowed the University of Chicago business school with $300 million in 2008. He was a PhD student under Eugene Fama in the 1970’s.Power Lunch video on Insider Trading at:https://finance.yahoo.com/video/legalize-insider-trading-180500540.html[*Marginal Investors (2014)*](http://business.baylor.edu/don_cunningham/Marginal%20Investors%20%282014%29%20-%20Activists%20with%20war%20chests%20near%20%24100%20billion%20-%20MarketWatch.pdf)[Legal Insider Trading (2015)](http://business.baylor.edu/Don_Cunningham/Inseder%20Tradeing_A%20legal%20loophole_8k%20Trading%20Gap%209.15.15.docx)[*Why Actively Managed Funds aren’t Dead (2014)*](http://business.baylor.edu/Don_Cunningham/Why%20actively%20managed%20funds%20aren%27t%20Dead%20%20%282014%29.docx)[*Are Stock Prices Determined by Facts or Human Nature (2011)*](http://business.baylor.edu/don_cunningham/Are%20stock%20prices%20determined%20by%20facts%20or%20human%20nature_%20-%20USATODAY.com.pdf)[*To Beat Index Funds, Luck is Best Hope (2009)*](http://business.baylor.edu/don_cunningham/To%20beat%20index%20funds%2C%20luck%20is%20your%20only%20hope%20Mutual%20Understanding%20-%20MarketWat.pdf)[*The Dreaded Head & Shoulder (2016)*](http://business.baylor.edu/Don_Cunningham/The%20dreaded%20Head%20%26%20Shoulder%20pattern%202.9.16.docx)[*Now’s the time to buy Stocks (2016)*](http://business.baylor.edu/Don_Cunningham/Now%27s%20the%20time%20to%20buy%20Stocks%20by%20Brusch%202.9.16.docx)[*Index Funds Win Again (2009)*](http://business.baylor.edu/don_cunningham/Index%20Funds%20Win%20Again%20-%20NYTimes_com.mht)[*Can Money Managers Beat the Market? (2008)*](http://business.baylor.edu/don_cunningham/Can%20any%20Money%20Manager%20beat%20the%20market%20%282008%29.pdf)[*Economists Debate Market Efficiency (2004)*](http://business.baylor.edu/don_cunningham/Economists%20Debate%20Market%20Efficiency.pdf)[*Prosecution of Mike Milken (1994)*](http://business.baylor.edu/don_cunningham/Ch%2013%20-%20Prosecution%20of%20Mike%20Milken.pdf)[*Efficient to Behavioral Finance (2002)*](http://business.baylor.edu/don_cunningham/Efficient%20to%20Behavorial%20Finance.pdf)[*The Man Your Fund Manager Hates (1999)*](http://business.baylor.edu/don_cunningham/The%20Man%20your%20fund%20manager%20hates.doc)[*How the Really Smart Money Invests (1998)*](http://www.yeske.com/clippings/fortune-dfa/dfa.htm)[*The SEC's Fight with Itself (1987)*](http://business.baylor.edu/don_cunningham/SEC%27s%20Fight%20with%20Itself.pdf)Ch 11: Q: 4, 6, 7, 8 PQ: 9, 10, 11, 14, 16[Chapter 11](http://business.baylor.edu/don_cunningham/CHAPTER_11.docx), Solutions**Chapter 9**[How Firms Estimate Cost of Capital (2011)](http://business.baylor.edu/don_cunningham/How_Firms_Estimate_Cost_of_Capital_%282011%29.pdf)[AVG vs Geometric mean Returns - sprdsheet](http://business.baylor.edu/Don_Cunningham/AVG%20vs%20Geometric%20returns.xlsx)[Pure Play Method (2002)](http://business.baylor.edu/don_cunningham/Pure%20Play%20Method.pdf)Use data from Yahoo finance, Netadvantage, Treasury.gov to calculate McDonald’s WACCNetadvantage at Baylor libraries: <https://www.baylor.edu/lib/>[Treasury Yields](http://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yield) @treasury.gov [Fama and French Three Factor Model](http://business.baylor.edu/don_cunningham/Fama_and_French_Three_Factor_Model.doc)<http://www.finra.org/Investors/index.htm>[*Average long-run returns (nominal)*](http://business.baylor.edu/don_cunningham/Average%20returns%20%28nominal%29%20over%20long%20time%20periods.pdf)[*Average long-run returns (real)*](http://business.baylor.edu/don_cunningham/Average%20returns%20%28real%29%20over%20long%20periods.pdf) Data link for finding industry Betas : [*http://pages.stern.nyu.edu/~adamodar/New\_Home\_Page/data.html*](http://pages.stern.nyu.edu/~adamodar/New_Home_Page/data.html)**Homework problem #3 – Calculate Coca Cola’s WACC and do NPV calculation ( I will give you the project income statement)** **Chapter 13**[Capital Structure lecture video](http://www.learnerstv.com/video/Free-video-Lecture-7165-Management.htm)-LearnersTV[Personal Leverage – Diversifying Across Time](http://business.baylor.edu/don_cunningham/Diversification%20Across%20Time.pdf)[Optimal Financial Leverage - Investopedia](file:///C%3A%5CUsers%5Cdon_cunningham%5CDownloads%5COptimal%20Financial%20Leverage%20-%20Investopedia.docx)[ROE as function of D/E](http://casey/web/Don_Cunningham/ROE_as_function_of_debt.xlsx)[*Quotes from popular press articles on Debt*](http://business.baylor.edu/don_cunningham/Quotes%20from%20Articles%20on%20Capital%20Structure.doc)[*Starbucks Using Oldest Trick in the Book*](http://business.baylor.edu/Don_Cunningham/Starbucks%20using%20oldest%20trick%20in%20book%20to%20boost%20stock%20price%20-%20Leverage%20-2017.docx) *(2017)*[*How Corporate Finance Got Smart (1998)*](http://business.baylor.edu/don_cunningham/How%20Corporate%20Finance%20Got%20Smart%20%281998%29.pdf)[*Hard Lessons from the Debt Decade (1990)*](http://business.baylor.edu/don_cunningham/Hard%20Lessons%20from%20the%20Debt%20Decade.pdf)[*How Firms Estimate Cost of Capital (2011)*](http://business.baylor.edu/don_cunningham/How_Firms_Estimate_Cost_of_Capital_%282011%29.pdf)[*Dividend Recapitalization - Debt Markets Offer Big Payday at HCA (2011)*](http://business.baylor.edu/don_cunningham/Dividend%20Recapitlalization%20-%20Debt%20Markets%20Offer%20Chance%20at%20Big%20Payday%20at%20HCA%20%282011%29.pdf)*[Finding Balance Sheet Beauties (2002)](http://business.baylor.edu/don_cunningham/Finding%20Balance%20Sheet%20Beauties%20%282002%29.pdf)*[*After the Revolution – CFO Magazine (1998)*](http://business.baylor.edu/don_cunningham/After%20the%20M%26M%20Revolution%20%28CFO%20Magazine%201998%29.pdf)[*Kiplinger’s Way to Buy Stocks – Debt Ratio*](http://business.baylor.edu/don_cunningham/Kiplinger_com%20Basics%20Kiplinger%27s%20Way%20to%20Buy%20Stocks%2C%20page%207%20Debt-equity%20ratio.htm)Chapter 13 problems Ch 13: 2, 5, 9, 10, 15, 16, 19[Lecture video - solving problem 2](http://www.showme.com/sh/?h=6qE0Que)[Chapter 13](http://business.baylor.edu/don_cunningham/Chap013.doc), Solutions**Homework problem #4 Capital Structure impact on financial variables of firm (I will give changes to McDonald’s balance sheet for your calculations)** **Chapter 12**[Dividend Policy - LearnersTV lecture video](http://www.learnerstv.com/video/Free-video-Lecture-7164-Management.htm)[*Top Ten Dividend Quotes by Famous Investors*](http://business.baylor.edu/don_cunningham/Top%2010%20Dividend%20Quotes.docx)*[Ichan Pushes Apple on Buyback (2013)](http://business.baylor.edu/don_cunningham/Icahn%20Pushes%20Apple%20on%20Buyback.pdf)**[Buyback Craze, Firms Rush to Buy (2013)](http://business.baylor.edu/don_cunningham/In%20Buyback%20Craze%2C%20Companies%20Rush%20to%20Buy%20High%20_%20Yahoo%21%20Finance%20%282013%29.pdf)**[J. P. Morgan Ups Dividend - Prices Surge (2012)](http://business.baylor.edu/don_cunningham/J.P.%20Morgan%20ups%20dividend%20-%20Bank%20stocks%20surge%20%282012%29.pdf)*[*GE Slashes Dividends by 50% (2017)*](http://business.baylor.edu/Don_Cunningham/General%20Electric%20slashes%20dividend%20by%2050%25%20%2011.13.17.docx)See: [www.dividend.com](http://www.dividend.com)*[Apple Sets Dividend and Stock Buyback (2012)](http://business.baylor.edu/don_cunningham/Apple%20sets%20dividend%2C%20stock%20buyback%20%282012%29.pdf)**[Should Apple Pay a Dividend (2012)](http://business.baylor.edu/don_cunningham/Should%20Apple%20Pay%20A%20Dividend%20-%20Forbes%20-2012.pdf)*[*Kiplinger’s Way to Buy Stocks – Dividend*](http://business.baylor.edu/don_cunningham/Kiplinger_com%20Basics%20Kiplinger%27s%20Way%20to%20Buy%20Stocks%2C%20page%204%20Dividend%20yield.htm)*[A very Bullish Development – Disney’s Div Hike (2011)](http://business.baylor.edu/don_cunningham/A%20very%20bullish%20development%20-%20Disney%20Divident%20Hike%20%2812-2011%29.pdf)*[*Buybacks aren't always a good thing (2011)*](http://business.baylor.edu/don_cunningham/Buybacks_aren%27t_always_a_good_thing_%282011%29_-_USATODAY.com.pdf) [*Conoco ups Dividends and Buybacks (2011)*](http://business.baylor.edu/don_cunningham/Conoco%20ups%20dividend%2020%20pct%2C%20sets%20stock%20buyback%20%282011%29%20_%20Reuters.pdf)[*Why I Love Dividends (2006)*](http://business.baylor.edu/don_cunningham/21441918.pdf) [*Dividend and capital gains tax rates*](http://business.baylor.edu/don_cunningham/Dividend%20Tax%20Rates.docx)[*Stepped up basis – the Angel of Death*](http://business.baylor.edu/don_cunningham/Stepped%20up%20Basis%20-%20The%20Angel%20of%20Death.docx)[*How to Avoid Inheritance Tax*](http://business.baylor.edu/don_cunningham/How%20to%20Avoid%20Inheritance%20taxes.pdf)[*Div Policy, Div Initiations, and Governance (2006)*](http://business.baylor.edu/don_cunningham/Dividend%20Policy%2C%20Dividend%20Initiations%20and%20Goverance.PDF)[*Dividend Policy, Agency Costs, and Earned Equity (2004)*](http://business.baylor.edu/don_cunningham/Dividend%20Policy%2C%20Agency%20Costs%2C%20and%20Earned%20Equity.PDF)[Dividend Conversion Game (excel worksheet)](http://business.baylor.edu/don_cunningham/Dividend%20Conversion%20Game.xls)Ch 12: 2, 14, 23, 26[Chapter 12](http://business.baylor.edu/don_cunningham/Chap012.doc), Solutions**Chapter 14**[“Debt and Taxes,”](http://business.baylor.edu/Don_Cunningham/Debt%20and%20Taxes%20%281977%29.pdf) (1978) by Merton Miller, *Journal of Finance*, Presidential Address to American Finance AssociationCompare muni versus corporate bond rates at:<http://finance.yahoo.com/bonds/composite_bond_rates>Handout exercise on Debt and Taxes[*In Defense of the Mortgage Interest Deduction (1992)*](http://business.baylor.edu/Don_Cunningham/Defense%20of%20Mortgage%20Interest%20Deduction.PDF) [*When and when not a Tax Break for Borrowing (2014)*](http://business.baylor.edu/don_cunningham/When%20you%20get%20a%20tax%20break%20for%20borrowing%20and%20when%20you%20don%27t.docx)[*Taking Aim at the Mortgage Tax Break (2010)*](http://business.baylor.edu/Don_Cunningham/Taking_Aim_at_the_Mortgage_Tax_Break_%282010%29_-_NYTimes.com.pdf) [*Estimating the Tax Benefits of Debt (2001)*](http://business.baylor.edu/Don_Cunningham/Estimating%20Tax%20Benefits%20of%20Debt.pdf)[CEO Leverage and Corporate Leverage (2012)](http://business.baylor.edu/Don_Cunningham/CEO%20leverage%20and%20corporate%20leverage.pdf)[Marriott's Move to Shed Debt (1992)](http://business.baylor.edu/Don_Cunningham/Mariott%27s%20Move%20to%20Shed%20Debt.PDF)Ch 14: 18, 19, 20, [Chapter 14](http://business.baylor.edu/don_cunningham/Chap014.doc), Solutions**Chapter 16, 17**[An excellent tutorial on derivatives](http://www.cboe.com/LearnCenter/Tutorials.aspx) – From Chicago Board of Exchange[*Untangling the Derivatives Mess (1995)*](http://money.cnn.com/magazines/fortune/fortune_archive/1995/03/20/201945/index.htm)[*CDOs in Plain English (2004)*](http://business.baylor.edu/don_cunningham/CDOs%20in%20Plain%20English.pdf)*,* [*Option Returns (2000)*](http://business.baylor.edu/don_cunningham/Option%20Returns.pdf)*,* [*Extraco Advertisement*](http://business.baylor.edu/don_cunningham/Extraco%20Advertisement.pdf), [*The Reckoning-How the Thundering Herd Faltered (2008)*](http://business.baylor.edu/don_cunningham/The%20Reckoning_How%20the%20Thundering%20Herd%20Faltered.doc)*Black Scholes Mod***PQ** 13,16,21,22,23,27**Ch 17 Q 6, 7****PROBLEM SOLUTIONS** [Chapter 16](http://business.baylor.edu/don_cunningham/C016problems.docx) [Chapter 17](http://business.baylor.edu/don_cunningham/Chap017.docx)**Homeowork problem #5 arbitraging, speculating, and hedging with derivatives (I will provide specifics)**  |

|  |
| --- |
|  |

Finance Terminology

# The purpose of Corporate finance is to ask Why do Firms exist? And to determine What is the Goal of the firm?

# “The Players” in Corporate Finance (aka the theory of the firm)

Firms/corporations/companies – publicly traded vs. privately held – their balance sheet

Shareholders – average vs marginal shareholder - their balance sheet

Banks/banking – what is their pupose?

## **Real Asset Markets vs. Capital markets - what is the difference**

## **THE ACTIVITIES of “the players”**

Investing (by shareholder vs. by the firm)-left hand side of the balance sheet

Saving/lending

Borrowing/leveraging-right hand side of the balance sheet

# MEASURES OF PERFORMANCE (i.e. in achieving the goal of the firm)

From Economics, Accounting, Finance

Liquidity

Profitability

Return (rate of return)

Wealth creation—maximum wealth creation

Future Value vs. Present value—Discounting

 Which is more valuable: 1100 in one year or 1200 in two years?

 Which has highest rate of return, which is more valuable: 1100 in one yr or 1200 in one yr?

Net present value

Stock price

# WHICH MEASURE MUST DOMINATE- What does “better-off” mean?

Preferences(irrationality) vs Rationality

Preferences for liquidity, safety, returns, risk, profitability, others

Rationality

Irrationality

**How marginal shareholders versus the averae (majority) shareholders impact the Goal of the firm?**

**How do Capital markets (i.e. stock and debt markets) differ from retail markets and what if impact on the Firm achieving its Goal?**

Chapter 2 Handout Problem #1

All numbers are in $ millions

4

5

3.75

3

1

1.6

2.6

4

The straight line represents lending and borrowing opportunities in capital markets. The curved line represents real asset investment opportunities (i.e. not occurring in capital markets). All investments, savings, and borrowing, (whether in capital markets or not in capital markets) are in the same riskclass. Suppose a firm is created and raises 2.6 million in cash for investment purposes. Answer the following questions.

1. What is the interest rate in the economy? By what other names might we refer to this interest rate?
2. How much should the company invest in order to make its shareholders happiest?
3. How much will this investment be worth next year?
4. What is the average rate of return on this investment? Should the firm continue to invest, given this average rate of return?
5. What is the marginal rate of return on this invesmtne?
6. What is the PV of the firm’s investment? What is another name for this PV?
7. What is the NPV of this investment? What is another name for this NPV?
8. What is the PV of the shareholder’s investment? What is another name of this PV.
9. How much does the shareholder want to consume today and how much tomorrow?
10. How could the firm satisfy the shareholder’s spending preferences in time periods today and next year?
11. If the firm has a zero dividend policy, demonstrate how the shareholder’s preferences for spending could still be satisfied?
12. Suppose the shareholder wanted to spend (consume) $3 million today. Demonstrate how they could achieve this spending without the firm paying dividends ? How much will they have to spend next year? Show this on the gaph.
13. Use Shareholder and firm balance sheets to represent the answers to questions 2, thru 11.

Chapter 2 Handout Problem #2

Draw a figure like the one in problem #1 representing the following situation:

1. A firm starts out with $10 million in cash.
2. The rate of interest is 10 percent
3. To maximize NPV the firm invests today $6 million in real assets. This leaves $4 million which can be paid out to the shareholders.
4. The NPV of the investment is $2 million.

Answer the following questions:

1. How much cash is the firm going to receive in year 1 from its investment?
2. What is the marginal return from the firm’s investment?
3. Who inside the firm will calculate the marginal return on this investment? How?
4. What is the value of the shareholder’s investment before the investment plan is announced? What is the value after the announcement? How long does it take for this value change to occur?
5. Suppose shareholders want to spend $6 million today. How can they do this?
6. If they spend $6 million today, how much will they have to spend next year?
7. Could they plan to spend more today (e.g. $8 million)? Would they spend more or less in total as a result? Would one spending pattern create more or less wealth than the other? What is their wealth?

## **CHAPTER 1**

**Goals and Governance of the Firm**

8. We can imagine the financial manager doing several things on behalf of the firm’s stockholders. For example, the manager might:

* 1. Make shareholders as wealthy as possible by investing in real assets with positive NPVs.
	2. Modify the firm’s investment plan to help shareholders achieve a particular time pattern of consumption.
	3. Choose high- or low-risk assets to match shareholders’ risk preferences.
	4. Help balance shareholders’ checkbooks.

 But in well-functioning capital markets, shareholders will vote for *only one* of these goals. Which one? Why?

11. Why would one expect managers to act in shareholders’ interests? Give some reasons.

**Chpater 2**

**Homework Problem Set #1**

 **Decision Making with Present Values**

***(Print this problem set. Provide well-labled answers including r, n, factor name and factor value with detailed calculations in the space between problems. Use the excel PV factors worksheet to calculate your answers. If you need more space for your answers then you may add more space between problems)***

## *Basic*

1. An investment costs $1,548 and pays $138 in perpetuity. If the interest rate is 9%, what is the invesment’s PV? What is the investment’s NPV?
* A parcel of land costs $500,000. For another $800,000 you can build a motel on the property. The land and motel should be worth $1,500,000 next year. Common stocks in the same risk class offer a 10% expected rate of return. Should you buy the land and construct the motel? Why or Why not?

*Intermediate*

* What is the present value (PV) of a *firm’s* investment in $ 1 million U.S. Treasury Bonds yielding 5%, with a coupon rate also of 5%, and maturing in 30 years. What is the present value (PV) and net present value (NPV) of these bonds? The firms assets earn 15% (ROA), the S&P 500 is expected to earn 12%, and treasury bills yield 3%. (*Hint:* What is the opportunity cost of capital? Ignore taxes.) Show calculations for your answer.
* 14. A factory costs $800,000. You anticipate that it will produce a net cash inflow from operations of $170,000 a year for 10 years, and have zero value at the end of the 10th year. If equivalent riskclass factories earn 14% (i.e. opportunity cost of capital), what is the NPV of this factory.
* 17. A factory costs $400,000. It will produce an inflow after operating expenses of $100,000 in year 1, $200,00 in year 2, and $300,000 in year 3. The opportunity cost of capital is 12%. Calculate its NPV. How is the NPV calculation for this factory different from the calculation for the the factory in the previous problem?
* 19. As the winner of the breakfast cereal competition, you can choose one of the following prizes. If the interest rate is 12%, which is the best prize?
1. $100,000 now.
2. $180,000 at the end of five years.
3. $11,400 a year forever.
4. $19,000 for each of 10 years.
5. $6,500 next year and increasing thereafter by 5% a year forever.
* Norman Gerrymander has just received a $1 million bequest and he has four alternative investments. How should he invest?

a. Investment in one-year US government securities yielding 5%.

b. A loan to his nephew Gerald, who has for years aspired to open a big Cajun restaurant. Gerald has arranged a one-year bank loan for $900,000 at 10%, but wants a $1 million loan from Norman at 9%.

c. Investment in the stock market. The expect return in 12%.

d. Investment in real estate, which Norman judges is about as risky as the stock market. The opportunity would cost $1 million and is forecast to be worth 1.1 million in one year.

* 21. David and Helen Zhang are saving to buy a boat in five years. They estimate the boat will cost $20,000 and they can earn 10% a year on their savings, how much do they need to put aside at the end of each year, 1 thru 5, to have enough money to buy the boat in 5 years?

* 27. You have just read an advertisement stating “ Pay us $100 a year for 10 years and we will pay you $100 a year thereafter in perpetuity.” If this is a fair deal, what is the rate of interest?

* 30. Several years ago *The Wall Street Journal* reported that the winner of the Massachusetts State Lottery prize had the misfortune of being both bankrupt and in prison (for fraud). The prize winner was to be paid $9,420,713 in 19 equal annual installments. (Initially, there were 20 installments, but the winner had already received the first payment). The bankrupty court judge ruled that the prize should be sold off to the highest bidder and the proceeds used to pay off the creditors.
1. If the interest rate was 8%, how much would you bid for the prize?
2. Enhance Reinsurance Company was reported to have offered $4.2 million. What rate of return was that company expecting to earn if it won the bid?

* 31. Suppose you take out a mortgage to purchase a $500,000 house that requires you to pay $70,000 at the end of each year for the next eight years. The interest rate is 8%.
1. What is the initial mortgage loan amount?
2. Calculate for each year the loan balance that remains outstanding, the interest payment on the loan, and the reduction in the loan balance, i.e. prepare a mortgage amortization schedule.
3. Would you be “better-off” or “worse-off” with a mortgage for 16 years, rather than 8 years? Why?
4. After one year, if interest rates in the economy increase to 10%, what is the mortgage value? Is the value different for the borrower than for the lender?
5. Who is happier, the lender or the borrower if rates rise to 10%? Why.
6. After one year, under what condition is the value of the mortgage and the balance outstanding exactly the same?

* Kangaroo auto is offering free credit on a $10,000 car. You can pay $1000 down and then $300 per month ($9,000 ÷ 30 months) for 30 months. Turtle Motors, next door, does not offer free credit but will sell you the same car for $9,000 with 100% financing at 8% for 30 months. What are your monthly payments at Turtle Motors? Which offer is the best offer?

## **CHAPTER 5**

**Net Present Value and Other Investment Criteria**

*Intermediate*

8. Consider the following projects:

|  |
| --- |
| Cash Flows($) |
| Project | C0 | C1 | C2 | C3 | C4 | C5 |
| A | -1000 | 1000 | 0 | 0 | 0 | 0 |
| B | -2000 | 1000 | 1000 | 40000 | 1000 | 1000 |
| C | -3000 | 1000 | 1000 | 0 | 1000 | 1000 |

1. If the opportunity cost of capital is 10%, which projects have a positive NPV?
2. Calculate the payback period for each project.
3. Which project(s) would a firm using the payback rule accept if the cutoff period were three years?
4. Calculate the discounted payback period for each project.
5. Which project(s) would a firm using the discounted payback rule accept if the cutoff period were three years?

12. Mr. Cyrus Clops, the president of Gaint Enterprises, has to make a choice between two possible investments:

|  |
| --- |
| Cash Flows ($ thousands) |
| Project | C0 | C1 | C2 | IRR(%) |
| A | -400 | 250 | 300 | 23 |
| B | -200 | 140 | 179 | 36 |

The opportunity cost of capital is 9%. Mr. Clops is tempted to take B, which has higher IRR.

1. Explain to Mr. Clops why this not the correct procedure
2. Show him how to adapt to the IRR rule to choose the best project.
3. Show him that this project also has the higher NPV.

15. Borghia Pharmaceuticals has $1 million allocated to capital expenditures. Which of the following projects should the company accept to stay within the $1 million budget? How much does the budget limit cost the company in terms of its market value? The opportunity cost of capital for each project is 11%?

|  |  |  |  |
| --- | --- | --- | --- |
| Project | Investment ($ thousands) | NPV ($ thousands) | IRR(%) |
| 1 | 300 | 66 | 17.2 |
| 2 | 200 | -4 | 10.7 |
| 3 | 250 | 43 | 16.6 |
| 4 | 100 | 14 | 12.1 |
| 5 | 100 | 7 | 11.8 |
| 6 | 350 | 63 | 18.0 |
| 7 | 400 | 48 | 13.5 |

## **CHAPTER 7**

**Introduction to Risk and Return**

## *Basic*

4. True or False?

 a. Investors prefer diversified companies because they are less risky.

 b. If stocks were perfectly positively correlated, diversification would not reduce

 risk.

 c. Diversification over a large number of assets completely eliminates risk.

 d. Diversification works only when assets are uncorrelated.

 e. A stock with a high standard deviation may contribute less risk to a portfolio than a stock with a

 lower standard deviation.

 f. A stock with a high standard deviation may have an expected return that is less than than a stock with a

 lower standard deviation.

 g. The contribution of a stock to the risk of a well-diversified portfolio depends on its market risk.

 h. A well-diversified portfolio with a beta of 2.0 is twice as risky as the market portfolio.

 i. An undiversified portfolio with a beta of 2.0 is less than twice as risky as the market portfolio.

5. In which of the following situations would you get the largest reduction in risk by spreading your investment across two stocks?

 a. The two shares are perfectly correlated.

 b. There is no correlation.

 c. There is modest negative correlation.

 d. There is perfect negative correlation.

7. Suppose the standard deviation of the market return is 20%.

 a. What is the standard deviation of returns on a well-diversified portfolio with a beta of 1.3?

 b. What is the standard deviation of returns on a well-diversified portfolio with a beta of 0?

 c. A well-diversified portfolio has a standard deviation of 15%. What is its beta?

 d. A poorly diversified portfolio has a standard deviation of 20%. What can you say about its beta?

8. A portfolio contains equal investments in 10 stocks. Five have a beta of 1.2; the remainder have a beta of 1.4. What is the portfolio beta?

 a. 1.3.

 b. Greater than 1.3 because the portfolio is not completely diversified.

 c. Less than 1.3 because diversification reduces beta.

## *Intermediate*

11. Each of the following statements is dangerous or misleading, Explain why.

1. A long-term United Staes government bond is always absolutely safe.
2. All investors should prefer stocks to bonds because stocks offer higher long-run rates of return.
3. The best practical forecast of future rates of return on the stock market is a 5- or 10-year average of historical returns.

13. Lonesome Gulch Mines has a standard deviation of 42% per year and a beta of +.10. Amalgamated Copper has a standard deviation of 31% a year and a beta of +.66. Explain why Lonesome Gulch is the safer investment for a diversified investor. Which stock has the highest expected return for the diversified investor and for the poorly diversified investor?

*Challenge*

21. Here are some historical data on the risk characteristics of Dell and McDonald’s:

|  |  |  |
| --- | --- | --- |
|  | **Dell** | **McDonald’s** |
| β (beta) | 1.41 | .77 |
| Yearly standard deviation of return (%) | 30.9 | 17.2 |

 Assume the standard deviation of the return on the market was 15%.

1. The correlation coefficient of Dell’s return versus McDonald’s is .31. What is the standard deviation of a portfolio invested half in Dell and half in McDonald’s?
2. What is the standard deviation of a portfolio invested one-third in Dell, one-third in McDonald’s, and one-third in risk-free Treasury bills?
3. What is the standard deviation if the portfolio is split evenly between Dell and McDonald, and is financed at 50% margin, i.e., the investor puts up only 50% of the total amount and borrows the balance from the broker? Hint: Consider its E(R) and the source of its risk premium.
4. What is your expected return and risk if you own the market portfolio, and you finance it with 2/3 debt? Assume E(Rm) is 10% and Rf is 3% and σm is 20%.

## **CHAPTER 8**

**Portfolio Theory and Capital Asset Pricing Model**

## *Basic*

1. True or False?
2. The CAPM implies that if you could find an investment with a negative beta, its expected return would be less than the riskfree interest rate.
3. The expected return on an investment with a beta of 2.0 is twice as high as the expected return on the market.

 c. If a stock lies below the security market line, it is undervalued.

## *Intermediate*

9. True or False? Explain or qualify as necessary.

1. Stock must have highly variable returns to have high expected returns.
2. Stock with highly variable returns have high expected returns.
3. The CAPM predicts that a security with a beta of 0 will offer a zero expected return.
4. An investor who puts $10,000 in Treasury bills and $20,000 in the market portfolio will have a

net worth beta of 2.0.

1. Investors demand higher expected rates of return from stocks with returns that are very sensitive to fluctuations in the stock market.

15. The Treasury bill rate is 4%, and the expected return on the market portfolio is 12%. Using the capital asset pricing model:

1. Draw a graph similar to the figure 8.6 showing how the expected return varies with beta.
2. What is the risk premium on the market?
3. What is the required return on an investment with a beta 1.5?
4. If an investment with a beta of .8 offers an expected return of 9.8%, does it have a positive NPV?
5. If the market expects a return of 11.2% from stock X, what is its beta?

## **CHAPTER 11**

**Efficient Markets and Behavioral Finance**

## Quiz Questions

4. True or False?

 a. Financing decisions are less easily reversed than investment decisions.

.

 c. The semi-strong form of the efficient-market hypothesis states that prices reflect all

 publicly available information.

 d. In efficient markets the expected return on each stock is the same.

6. True or False?

 a. Analysis by security analysts and investors helps keep markets efficient.

 b. Psychologists have found that, once people have suffered a loss, they are

 more relaxed about the possibility of incurring further losses. See CNN Fear and Greed Index.

 c. Psychologists have observed that people tend to regard recent events as

 representative of what might happen in the future.

 d. If the efficient –market hypothesis is correct, managers will not be able to

 increase stock prices by creative accounting that boosts reported earnings.

7. Geothermal Corporation has just received good news: its earnings increased by 20% from last year’s value. Most investors are anticipating an increase of 25%. Will Geothermal’s stock price increase or decrease when the announcement is made?

8. Here again are the six lessons of market efficiency. For each lesson give an example showing the lesson’s relevance to financial managers.

 a. Markets have no memory.

 b. Trust market prices.

 c. Read the entrails

 d. There are no financial illusions.

 e. The do-it-yourself alternative.

 f. Seen one stock, seen them all.

## *Intermediate*

10. How would you respond to the following comments?

 a. “Efficient market, my eye! I know lots of investors who do crazy things.”

 b. “Efficient market? Balderdash! I know at least a dozen people who have made

 a bundle in the stock market.”

 c. “The trouble with the efficient-market theory is that it ignores investors’

 psychology.”

 d. “Despite all the limitations, the best guide to a company’s value is its written-

 down book value. It is much more stable than market value, which depends

 on temporary fashions.”

11. Respond to the following comments:

 a. “The random-walk theory, with its implication that investing in stocks is like

 playing roulette, is a powerful indictment of our capital markets.”

 b. “If everyone believes you can make money by charting stock prices, then

 price changes won’t be random.”

 c. “The random-walk theory implies that events are random, but many events

 are not random. If it rains today, there’s a fair bet that it will rain again

 tomorrow.”

12. Which of the following observations *appear* to indicate market inefficiency? Explain whether the observation appears to contradict the weak, semi-strong, or strong from of the efficient-market hypothesis.

 a. Tax-exempt municipal bonds offer lower pretax returns than taxable

 government bonds.

 b. Managers make superior returns on their purchases of their company’s stock.

 c. There is a positive relationship between the return on the market in one

 quarter and the change in aggregate profits in the next quarter.

 d. There is disputed evidence that stocks that have appreciated unusually in the

 recent past continue to do so in the future.

 e. The stock of an acquired firm tends to appreciate in the period before the

 merger announcement.

 f. Stocks of companies with unexpectedly high earnings *appear* to offer high

 returns for several months after the earnings announcement.

 g. Very risky stocks on average give higher returns than safe stocks.

14. “If the efficient-market hypothesis is true, the pension fund manager might as well

 select a portfolio with a pin.” Explain why this is not so.

16. What does the efficient-market hypothesis have to say about these two statements?

 a. “I notice that short-term interest rates are about 1% below long-term rates. We

 should borrow short-term.”

 b. “I notice that interest rates in Japan are lower than rates in the United States.

 We would do better to borrow Japanese yen rather than U.S. dollars.”

21. Many commentators have blamed the subprime crisis on “irrational exuberance”. What is your view? Expalin briefly.

**Problems encountered when estimating a firm’s Cost of Capital**

 **Accounting data –** Intuition might suggest that a company’s audited financial statements provides the logical source for its cost of capital. This intuition is reinforced by the fact that popular sources of financial information such as Standard & Poor’s and Moody’s include calculations of ROE, ROA, EPS, debt ratio, dividend yield, as well as historical balance sheet and income statement information in their company stock reports. Three major problems are created with this information: 1) returns are based on historical cost rather than market value, 2) returns are short-term rather than long-term, and 3) the debt ratio and equity ratio, used as weighting proportions in WACC calculations, are understated or overstated because their values are historical-cost-based rather than current-market-value based.

**Leverage –**When firms’ finance with debt (i.e. lever-up), the stockholders require an ROE that is greater than the firm’s cost of capital and its bondholders require an ROD that is less than the firm’s cost of capital. Therefore, neither ROE nor ROD alone represent a firm’s cost of capital. However, the firm’s cost of capital can be calculated by taking a weighted average of ROD and ROE-- the so-called WACC. Its calculation effectively “undoes” the leverage of the firm. The WACC equals the firm’s cost of capital for its assets as if they were 100% equity financed.

**Diversification –** Diversification causes the firm’s overall ROA to reflect a mixture of risk-classes. Therefore prospective projects’ returns cannot be evaluated with the firm’s ROA because it is a weighted average of many different risk class projects with differing expected returns. **Do not use a diversified firm’s WACC as the cost of capital for a specific risk-class project.** Instead, the WACC of a “pure-play” publicly traded firm in the same risk-class as the project must be used as the project’s cost of capital.

**Estimating Risk-free rate in the CAPM –** ROE in the WACC is calculated with empical estimates of CAPM
[Rf + *β*e(Rm-Rf)] variables extracted from efficient capital market data. In addition to *β*e, we need estimates of the risk-free rate (Rf ) and the market portfolio rate of return (Rm). These rates of return are estimated from past returns. For example, over the 104 year period from 1900-2004, the average return on treasury bills is 4%, treasury bonds is 5.5%, and common stocks is 11.1%. From these past returns, we could estimate the market risk premium (Rm-Rf ) to be either 7.1% (11.1 – 4.0) if we use treasure bill returns (4%), or 5.6% (11.1 – 5.5) if we use treasury bond rates (5.5%).

For evaluating long-term projects (capital budgeting), a long-term estimate of CAPM is better than a short-term estimate. Disagreements about how to make CAPM a long-term estimate focus on adjustments to Rf. Some argue that the current short-term treasury bill rate is best, others argue that the current long-term treasury bond rate is best. Neither is exactly theoretically correct, because the equity risk premium should capture the extra return of the market for investing long-term (extra time length) and for systematic volatility.

In practice, Rf is typically adjusted by using the current treasury bond rate. If this practice is followed then the market risk premium (Rm-Rf ) is lower (e.g. 5.6% versus 7.1%) based on 104 years of returns from 1900 – 2004. This adjustment lowers the slope of the SML and makes the CAPM a better match with historical evidence. Many studies have shown that CAPM estimates based on treasury bill rates overstates stock returns relative to the market.

An alternative adjustment is to subtract the long-run liquidity premium of 1.5% (historical treasury bond yield of 5.5% minus the historical treasury bill yield of 4 %) from the current treasury bond yield. This adjustment makes Rf an estimated annualized short-term Rf return that is expected to be earned on average over a long-term period. With this adjustment, the market risk premium should be 7.1%, not 5.6%. The slope of the SML steeper, which is more theoretically correct; however, it is less consistent with historical evidence that shows the CAPM overstates stock returns relative to the market.

**Taxes -** Stock Betas are estimated from empirical stock returns (i.e. from data on dividends and capital gains) that accrue to shareholders from after-corporate-tax earnings. As a result, empirically estimated stock betas in the CAPM formula generate an after-corporate-tax ROE. It is incorrect to average an after-tax ROE with a before-tax ROD in the WACC calculation. Such averaging would generate a WACC that is some nonsensical mixture of before-tax and after-tax returns. ROD is easily adjusted for corporate taxes. Because the firm’s interest expense is tax deductible, income that would otherwise be taxed is “sheltered” from taxation by interest expense generated by the firm’s ROD. The firm pays the interest expense, but the expense if effectively lower by the taxes that are saved. The net “after-tax” cost of ROD is ROD(1-Tc). Averaging after-tax ROD with the CAPM estimated ROE generates an after-tax WACC:

 WACC = D/V (1-Tc) ROD + E/V (ROE)where V = (D+E)

**Implied tax benefits of debt -** The adjustment to ROD to an after-tax rate, [ i.e. ROD (1-Tc)], causes many people to interpret this adjustment as a valuable tax deductible benefit of debt. This interpretation suggests debt financing creates value as compared to equity financing. Remember that this adjustment in the WACC calculation simply equates ROD to ROE on an after-tax basis. Therefore, do not interpret this tax adjustment to ROD as a tax advantage over equity. This implication will be investigated in greater detail in our study of Capital Structure Policy.

**Exclude interest expense in NPV analysis when project is debt financed –** From the separation theorem, we know that how a project is financed is an independent and separate decision from the investment decision (i.e. whether the project is acceptable). Using the WACC as the discount rate effectively “undoes” the impact of any debt financing and generates a cost of capital for an all-equity financed project. This is consistent with the separation theorem and correctly values the project independent of the financing decision. Interest expense should be excluded from the estimated project cash flows.

**Instability of Company Betas in the CAPM –** Company betas can vary considerably over time. However, portfolio betas are more stable than individual company betas. Therefore, when estimating the cost of capital for a project it is preferable (i.e. the confidence interval of the estimate is tighter) if industry betas of “pure play” companies are used in the CAPM rather than individual company betas.

**CAPM is a single factor model –** The CAPM implies that stock returns are only a function of the market risk premium (Rm – Rf). Research has demonstrated that at times this relationship is weak. As research continues, we may discover other variables are useful in explaining stock returns. For example, the Fama-French three-factor model, theorizes that stock returns are also driven by firm size (Rs – RL) and undervalued status measured by book-to-market value (RH – RL). Unfortunately, in practice, it is difficult to estimate these factors because reporting agencies such Standard & Poor’s and Moody’s do not report values for these factors in their stock reports.

 **Chapter 9**

. Archimedes Inc. is financed by a mixture of debt and equity. The following information has been extracted from capital markets. Can you fill in the blanks, determine the firm’s cost of capital, and explain its use and relevance in the firm’ strategic planning decisions?

|  |  |  |
| --- | --- | --- |
| rE = \_\_\_ | rD = 12% | rA = \_\_\_ |
| βE = 1.5 | βD = \_\_\_ | βA = \_\_\_ |
| rf = 10% | rm = 18% | D/V = .5 |

**Handout Problem #1**

Amalgamated has three operating divisions: chemical (40 % of assets), food (10% of assets), and electronics (50% of assets). Below are industry averages of companies operating in these areas:

  Debt/(Debt + Equity) ratio ROD

 Chemicals 1.2 .6 .08

 Food 1.5 .4 .07

 Electronics 1.1 .3 .06

Amalgamated's Debt/Asset ratio is .6. Treasury Bills currently yield 1% and treasury bonds currently yield 3.5%. Research from 1900 to 2004 indicates the market liquidity premium is 1.5%, the market risk premium over treasury bills is 7% and over treasury bonds is 5.5%. The corporate tax rate is currently 35%.

1. What Rf and market risk premium could be used in the CAPM and what justification is used for each?

1. Calculate the appropriate discount rate to use in capital budgeting decisions for each of Amalgamated's divisions?

Which division has the riskiest assets?

Does the cost of capital calculation use a before-tax or after-tax ROE? Why?

Does the cost of capital calculation use a before-tax or after-tax ROD? Why?

3. Suppose a 10-year proposed Food project is expected to generate net after-tax income of $ 5 million per year. Its proposed cost is $30 million and annual expenses include $ 1 million of depreciation. The project can be financed with all equity or with 40% debt at an interest rate of 7%.

Assuming the project’s NPV is zero, what is the project’s E(ROE) if Amalgamated finances it with all equity?

Assuming the project’s NPV is zero, what is the project’s E(ROE) if Amalgamated finances it with 40% debt?

Explain any differences in these two E(ROE’s).

What is the NPV of the project if financed with all equity?

What is the NPV of the project if financed with debt and equity?

4. What is Amalgamated's cost of capital ? How would you use it?

**Chapter 9**

**Handout problem #2**

 A pure-play company with PP&E in the same risk-class as the market is considering a 50% expansion in its existing asset base. The executive committee wants to know if a stock issuance is an acceptable source of financing for the expansion. The firm is currently financed with 60% debt, yielding 5%, and 40% stock with a required return of 22.5%. The capital budgeting department projects the expansion will earn 20%. The risk-free rate is 4%, and the expected return on the market is 12%. Should the company issue stock to finance the expansion? Assume the corporate tax rate is zero.

Prove that the required return on the stock is 22.5% and then determine the impact of expansion on the stock’s required return.

## **CHAPTER 12**

**Payout Policy**

## *Basic*

2. Here are several “facts” about typical corporate dividend policies. Which are true and which false?

1. Companies decide each year’s dividend by looking at their capital expenditure requirements and then distributing whatever cash is left over.
2. Managers and investors seem more concerned with dividend changes than with dividend levels.
3. Managers often increase dividends temporarily when earnings are unexpectedly high for a year or two.
4. Companies undertaking substantial share repurchases usually finance them with an offsetting reduction in cash dividends.

## *Intermediate*

9. Which types of companies would you expect to distribute a relatively high or low proportion of current earnings? Which would you expect to have a relatively high or low price-earnings ratio?

1. High-risk companies
2. Companies that have experienced an unexpected decline in profits.
3. Companies that *expect* to experience a decline in profits.
4. Growth companies with valuable future investment opportunities.

14. “Many companies use stock repurchases to increase earnings per share. For example, suppose that a company is in the following position:

|  |  |
| --- | --- |
| Net profit | $10 million |
| Number of shares before repurchase | 1 million |
| Earnings per share | $10 |
| Price-earnings ratio | 20 |
| Share price | $200 |

 The company now repurchases 200,000 shares at $200 a share. The number of shares declines to 800,000 shares and earnings per share increase to $12.50. Assuming the price-earnings ratio stays at 20, the share price must rise to $250.” Discuss.

16. An article on stock repurchase in the *Los Angeles Times* noted: “An increasing number of companies are finding that the best investment they can make these days is in themselves.” Discuss this view. How is the desirability of repurchase affected by company prospects and the price of its stock?

23. Consider the following two statements: “Dividend policy is irrelevant,” and “Stock price is the present value of expected future dividends.” (See Chapter 5.) They *sound* contradictory. This question is designed to show that they are fully consistent.

 The current price of the shares of Charles River Mining Corporation is $50. Next year’s expected earnings are $6 per share and the firm has a dividend polcy of 1/3 payout. The expected rate of return demanded by investors is 12%.

 We can use the perpetual-growth model to calculate stock price:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| P0 = | DIV | = | 2 | = 50 |
| *r - g* | .12 - .08 |

1. What is Charles River and E(ROE)?
2. What should be next year’s stock price if Charles River makes no further investments?
3. How will stockholders receive their required return?
4. What should be next year’s dividend announcement?

Suppose that Charles River Mining announces that it will double dividends to $4. Use the perpetual-growth model to show that current stock price is unchanged. What would be your answers to a, b, c, and d questions under the 100% payout policy?

## **CHAPTER 13**

**Does Debt Policy Matter without Taxes?**

## *Problems*

2. Spam Corp. is financed entirely by 100,000 shares of common stock that has a beta of 1.0. The firm is expected to generate a level, perpetual stream of earnings and dividends. The stock has a price-earnings ratio of 8 and a cost of equity of 12.5%. The company’s stock is selling for $50 a share. The firm is considering a stock repurchase of half its shares, financed by by equal amount of bonds. The debt is risk-free, with a 5% interest rate. The company is exempt from corporate income taxes. Assuming MM are correct, calculate the following items before and after the debt issuance and explain why the following financial variables increased or decreased.

1. E(ROA)
2. NOI
3. The risk of debt
4. The cost of debt
5. The risk of equity
6. The cost of equity
7. NI
8. Shares outstanding
9. EPS
10. Dividends Policy
11. Dividends
12. The firm’s overall cost of capital
13. The stock’s price
14. The P/E ratio

Does it seem appropriate to assume the company’s debt is risk-free when it repurchased half of its stock with a debt issuance? How would the above items change if the debt increased (decreased) in risk?

5. True or false?

1. MM’s financing proposition says that corporate borrowing increases earnings per share but reduces the price-earnings ratio.
2. MM’s financing proposition says that the cost of equity increases with borrowing and that the increase is a function of the D/E ratio of the firm.
3. MM’s financing proposition assumes that increased borrowing does not affect the interest rate on the firm’s debt.
4. Borrowing does not increase financial risk and the cost of equity if there is no risk of bankruptcy.
5. Borrowing increases firm value if there is a clientele of investors with a reason to prefer debt.

9. **Optional – The arbitrage argurment for leverage irrelevance:**

Companies A and B differ only in their capital structure. A is financed 30% debt and 70% equity; B is financed 10% debt and 90% equity. The debt of both companies is risk-free.

Assume E(ROA) is 10% and E(ROD) is 5%. Hint, let assets equal $1000.

1. Rosencrantz owns 10% of the common stock of A. What other investment package would produce identical cash flows for Rosencrantz?
2. Guildenstern owns 20% of the common stock of B. What other investment package would produce identical cash flows for Guildenstern?
3. Show that neither Rosencrantz nor Guildenstern would invest in the common stock of B if the *total* value of company A were 10% less than that of B.

10. Here is a limerick: aka  You Can’t Take Your Cows to Wall Street 

 *There once was a man named Carruthers,*

*Who kept cows with miraculous udders.*

*He said, “Isn’t this neat?*

*They give cream from one teat,*

*And skim milk from each of the others!”*

What is the analogy between Mr. Carruthers’s cows and firms’ financing decisions? What would MM’s proposition 1, suitable adapted, say about the value of Mr. Carruthers’s cows? Explain.

See [*How Corporate Finance Got Smart (1998)*](file:///C%3A%5CUsers%5Cdon_cunningham%5CDownloads%5CHow%20Corporate%20Finance%20Got%20Smart%20%281998%29.pdf)

15. Indicate what’s wrong with the following arguments:

1. “As the firm borrows more and debt becomes more risky, both stockholders and bondholders demand higher rates of return. Thus by *reducing* the debt ratio we can reduce *both* the cost of debt and the cost of equity, making everybody better off.”
2. “Moderate borrowing doesn’t significantly affect the probability of financial distress or bankruptcy. Consequently moderate borrowing won’t increase the expected rate of return demanded by stockholders.”

16. Each of the following statements is false or at least misleading. Exaplin why in each case.

1. “A Capital investment opportunity offering a 10% DCF rate of return is an attractive project if it can be 100% debt-financed at an 8% interest rate.”
2. “The more debt the firm issues, the higher the interest rate it must pay. That is one important reason why firms should operate at conservative debt level.”

24. People often convey the idea behind MM’s proposition 1 by various supermarket analogies, for example, “The value of a pie should not depend on how it is sliced,” or, “The cost of whole chicken should be equal the cost of assembling one by buying two drumsticks, two wings, two breats, and so on.”

 Actually proposition 1 doesn’t work in the supermarket. You’ll pay less for an uncut whole pie than for a pie assembled from pieces purchased separately. Supermarkets charge more for chickens after they cut up. Why? What costs or imperfections cause proposition 1 to fail in the supermarket? Are these costs or imperfections likely to be important for the corporations issuing securities on the U.S or world capital markets? Expalin.

**Chapter 14**

 **Debt with Taxes**

**Handout Problem**

** Where Have All the Gains to Leverage Gone? **

Suppose the investing public consists of three investor groups with the following tax brackets:

 Group Tax Bracket

 A 60%

 B 40%

 C 0 %

These investors can invest in perpetual municipal bonds, perpetual corporate bonds, and common stock.

The corporate tax rate is 50%. Aggregate interest payments on municipal bonds totals $30 million. Aggregate NOI of all corporations totals $300 million.

Each investor group has the same amount of money to invest and their total net worth equals the value of all securities. In other words, all the interest income from muni’s as well as all corporate NOI mentioned above must flow through securities purchased by the three investor groups listed above.

The minimum required rate of return demanded by investors after taxes in this economy is 10%.

1. Suppose all companies are initially financed by common stock. Company X decides to mimic the local municipality and issue bonds to raise capital. The firm will allocate $1 million of its NOI to interest payments on the bonds. Which group of investors will buy the bonds? What will be the rate of interest? What will be the effect of the bond issuance on the value of Company X?
2. What will other companies do after observing the financing actions taken by Company X? Suppose interest payments in the economy now total $150 million. At this point Company Y decides to follow the actions of Company X and issue bonds, also allocating $1 million of its NOI to interest payments on the bonds. Which group of investors will buy the bonds? What will be the rate of interest? What will be the effect of the bond issuance on the value of Company X?
3. Suppose total interest payments in the economy somehow rise to $230 million. Company Z was one of the last firms to issue debt, also allocating $1 million of its NOI to interest payments on the bonds. Which group of investors bought the bonds? What rate of interest did Company Z have to pay on the bonds? What was the effect of the bond issuance on the value of Company Z? What will be the impact of this bond issuance on interest rates and the value of firms that issue bonds in the future?
4. Over time, suppose a few corporations have accumulated excess cash from operations and want to purchase marketable securities to “park” their money. How will all the financing activity settle up? That is, how much debt must be outstanding? What is the value of all companies? What is the interest rate in the economy? What is the impact of leveraging for a company? Show that when all the dust settles, an unlevered firm has no incentive to issue debt and a levered company has no incentive to retire debt with common stock (i.e. capital markets price stock as though both capital structures result in equal tax payments). Now, with markets in equilibrium, would any issuer or investor group benefit from bond issuances or bond investments?

*Chapter 14 Problems*

1. The present value of interest tax shields is often written as TcD, where D is the amount of debt and Tc is the marginal corporate tax rate. Under what assumptions is this present value correct?

3. What is the relative tax advantage of corporate debt if the corporate tax rate is Tc= .35, the personal tax rate is Tp= .35, but all equity income is received as capital gains and escapes tax entirely (TpE= 0)? How does the relative tax rate advantage change if the company decides to pay out all equity income as cash dividends that are taxed at 15%?

4. “The firm can’t use interest tax shields unless it has (taxable) income to shield.” What does this statement imply for debt policy? Explain briefly.

5. Miller’s tax adjustment model indicates that managers of non-profit hospitals should issue bonds at what rate?

6. In 2010, House Speaker Nancy Pelosi blasted the president’s budget deficit commission on its suggestion to eliminate the [mortgage interest tax break](file:///C%3A%5CUsers%5Cdon_cunningham%5CDownloads%5CTaking_Aim_at_the_Mortgage_Tax_Break_%282010%29_-_NYTimes.com.pdf), saying it would force middle-class homeowners to subsidize tax breaks for the wealthy. Apply Miller’s tax model and discuss.
See also: [A Defense of the Mortgage Interest Deduction (1992)](http://business.baylor.edu/don_cunningham/Defense%20of%20Mortgage%20Interest%20Deduction.PDF)

7. This question tests your understanding of financial distress

1. What are the costs of going bankrupt? Define these costs carefully.
2. “ A company can incur costs of financial distress without going bankrupt.” Expain how this can happen
3. Expalin how conflicts of interests between bondholders and stockholders can lead to financial distress.

*Intermediate*

18.. Let us go back to circular File’s market-value blance sheet

|  |  |  |  |
| --- | --- | --- | --- |
| Net working capital | $20 | $25 | Bonds outstanding |
| Fixed asstes | 10 | 5 | Common stock |
| Total assets | $30 | $30 | Total Value |

Who gains and who loses from the following maneuvers?.

1. Circular scrapes up $5 in cash and pays a cash dividend.
2. Circular halts operations, sells its fixed assets, and converts net working capital into $20 cash. Unfortunately the fixed assets fetch only $6 on the secondhand market. The $26 cash is invested in treasury bills.
3. Circular encounters an acceptable investment opportunity, NPV= 0, requiring an investment of $10. The firm borrows to finance the project. The new debt has the same security, seniority, etc as the old.
4. Suppose that the new project has NPV= $2 and is financed by an issue of preffered stock.
5. The lenders agree to extend the maturity of their loan from one year to two in order to give Circular a chance to recover.

19. The Salad Oil Storage(SOS) company has financed a large part of its facilties with long-term debt. There is a significant risk of default, but the company is not on the ropes yet. Explain:

1. Why SOS stockholders could lose by investing in a positive-NPV project financed by an equity issue.
2. Why SOS stockholders could gain by investing in a negative-NPV project financed by cash.
3. Why SOS stockholders could gain from paying out a large cash dividend.

20 . a. Who benefits from the fine print in the bond contracts when the firm gets into financial trouble? Give a one-sentence answer

1. Who benefits from the fine print when the bonds are issued?

21. Summarizing – What have we learned in finance? If stock price is driven by EPS then discuss whether management can increase EPS (and thus dividends and stock price) by:

1. Increasing risk class of assets?
2. Increasing speed of cash flow from investments?
3. Increasing return for a given risk class?
4. Increasing NI by changing accounting methods?
5. Increasing DIV by increasing payout ratio?
6. Increasing DIV if payout policy is set and held at a fixed level?
7. Increasing Div if firm is poorly managed?
8. Increasing EPS with leverage?
9. Increasing the tax subsidy from the interest deduction with more leverage?
10. Minimizing bond covenants to extract gains from the bondholders?
11. Increasing leverage to make management/employees work harder?

**Capstone Handout Problem**

**EPS, CAPM, Dividend Policy, Capital Structure Policy, BTWACC, ATWACC, and NPV Analysis**

**Chapter 14**

A 100% equity financed firm is considering a strategic 50% expansion of its core business. For simplicity assume 10 shares at $10 per share. The firm is a “pure play” and the expansion will be in the same core business (i.e. same risk class).

If the project is financed entirely with bonds, the firm’s investment bankers project that the bonds will float at a yield of 6%.

Currently, before expansion, the firm’s stock has a beta (***βe***) of 2. The firm’s dividend policy is 30% payout.. The risk-free rate is currently 5%. The expected return on the market is 12%. Management's fundamental strategic question is whether **financing with cheap debt (6% bonds) versus expensive equity (stock) will create value for the shareholders**.

The CFO assigns you the task of assembling a team and preparing an analysis of the proposed expansion with debt financing. You are specifically instructed to address the impact on the firm’s EPS, dividends, and stock price. To help with your analysis consider the following.

Without taxes:

1. What is E(ROA), NOI, WACC, E(ROE), EPS and dividends before expansion?
2. What is the risk class of bonds issued for expansion?
3. What is EPS after expansion?
4. What are dividends after expansion?
5. What is WACC before and after expansion?
6. What is the stock price before and after expansion?

With Taxes:

1. What woud happen to the stock price if the firm were in a 40% tax bracket, top personal tax bracket is 40%, and municipal bonds in the same riskclass are yielding 3.6%?
2. What interest rate and interest expense is the firm willing to pay.
3. What interest rate and interest expense must they pay.
4. What is the PV of the difference
5. What is ATWACC before and after expansion
6. What is PV of ATNOI
7. What would happen to the stock price if the top corporate tax rate were 50%.

## CHAPTER 16

**Understanding Options**

## *Quiz Questions*

1. Complete the following passage:

 A \_\_\_\_\_\_\_\_ option gives its owner the opportunity to buy a sock at a specified price that is generally called the \_\_\_\_\_\_\_\_\_ price. A \_\_\_\_\_\_\_\_ option gives its owner the opportunity to sell stock at a specified price. Options that can be exercised only at maturity are called \_\_\_\_\_\_\_\_\_ options.

3. Suppose that you hold a share of stock and a put option on that share. What is the payoff when the option expires if (**a**) the stock price is below the exercise price? (**b**) the stock price is above the exercise price?

5. There is another strategy involving calls and borrowing or lending that gives the same payoffs as the strategy described in Quiz Question 3. What is the alternative strategy?

10. How does the price of a call option respond to the following changes, other things equal? Does the call price go up of down?

 a. E(R) increases

 b. Beta increases

 c. risky interest rate increases.

 d Stock price increases.

 e. Exercise price is increased.

 f. Risk-free rate increases.

 g. Expiration date of the option is extended.

 h. Volatility of the stock price falls.

 i. Time passes, so the option’s expiration date comes closer.

## *Practice Questions*

13. “The buyer of the call and the seller of the put both hope that the stock price will rise. Therefore the two positions are identical.” Is the speaker correct? Illustrate with a position diagram.

16. In March 2007, a four-month call on the stock of Amazon.com, with an exercise price of $40.00, sold for $2.85. The stock price was $39. The risk-free interest rate was 5.3%.

1. What much should a put sell for?
2. Suppose a $1.00 change in the stock results in a $.40 change in the call and a one month time passage decreases the call price by $.50. How could you use the call to perfectly hedge a long stock position in Amazon? What would be the amount of your investment in this position?
3. What would be your dollar gain or loss in one month if the stock priced increased by $1 or decreased by $1.
4. How could you hedge with the put?

17. Go to **finance.yahoo.com**. Check out the delayed quotes for Google (Goog) for different exercise prices and maturities.

 a. Confirm that higher exercise prices mean lower call prices and higher put prices.

 b. Confirm that longer maturity means higher prices for both puts and calls.

 c. Choose a Google put and a call with the same exercise price and maturity. Confirm that put-call parity holds (approximately). *Note*: You will have to use an up-to-date risk-free interest rate.

20. Which *one* of the following statements is correct?

 a. Value of put + present value of exercise price = value of call + share price.

 b. Value of put + share price = value of call + present value of exercise price.

 c. Value of put – share price = present value of exercise price – value of call.

 d. Value of put + value of call = share price – present value of exercise price.

22. a. If you can’t sell a share short, you can achieve exactly the same final payoff by a combination of options and borrowing or lending. What is this combination?

 b. Now work out the mixture of stock and options that gives the same final payoff as

 investment in a risk-free loan.

23. The common stock of Triangular File Company is selling at $90. A 26-week call option written on Triangular File’s stock is selling for $8. The call’s exercise price is $100. The risk-free interest rate is 10% per year.

 a. Suppose that puts on Triangular stock are not traded, but you want to buy one. How do you do it?

 b. Suppose that puts *are* traded. What should a 26-week put with an exercise price of

 $100 sell for?

 c. How could you use this one 1 put to hedge a long position in 1 share of Triangular File

Company stock? What would be your loss if Triangular stock fell $5 after 1 month?

d. Futures on Triangular are not traded, but you want to buy one. How could you do it?

e. How could you use this “future” to hedge a long position in 1 share of Triangular stock? What would be your loss if Triangular stock fell $5 after 1 month?

(for c and d assume the Black-Scholes model correctly forecasts the option values)

27. Is it more valuable to own an option to buy a portfolio of stocks or to own a portfolio of options to buy each of the individual stocks? Say briefly why.

28. Based on the information below, which stock has the highest expected return and which stock has the highest priced at-the-money call option:

 Pioneer Gypsum Global Mining

 Beta .65 1.22

 Std dev .32 .20

 Stock Price $100 $100

## CHAPTER 17

**Valuing Options**

## Quiz Questions

6. Use the Black-Scholes formula and Appendix A: Present Value Table 6 (page A-5) to value the following options:

1. A call option written on a stock selling for $60 per share with a $60 exercise price. The
2. stock’s standard deviation is 6% per month. The option matures in three months. The risk-free interest rate is 1% per month.
3. A put option written on the same stock at the same time, with the same exercise price and expiration date.

 Now for each of these options find the combination of stock and risk-free asset that would replicate the option.

7. “An option is always riskier than the stock it is written on.” True or false? How does the risk of an option change when the stock price changes?