SIMON FRASER UNIVERSITY
Faculty of Business Administration

FINAL EXAM

BUS 417- E100 Security Analysis 20-3
Prof. Geoffrey Poitras

Academic Honesty: This assignment is individual work. Students are required to follow requirements of S10.01, especially Appendix A (see class web page for link).

Rules for Submitting Final Exam: Answers to questions are to be typed (except for equations and question 4B), single spaced, of length 1 page ***each*** for all questions, 8½"x11" standard paper, with 1" margin and type point not less than 12. (This assignment is typed in 12 point.) For questions with multiple parts, answer all parts of the question. Violations will be subject to deductions. Assignment is due in my email (poitras7@sfu.ca) no later than 7PM on Sat. Dec. 12, 2020.

EXAM DURATION: FORTY-EIGHT HOURS

DO ALL PARTS OF ALL QUESTIONS: Each question is worth 25 total points – for questions with two parts 10 points for part i) and 15 points for part ii)

1. The relative value or 'Wall Street' approach to security analysis ignores the importance of calculating an *intrinsic value* and comparing this value to the observed market price to identify if the security is eligible for purchase. Instead, relative value security selection aims to determine the 'best' stock to purchase in a given sector, without evaluating whether securities in the sector are fairly priced. Using this approach, identify the 'best' security from **THREE** different sectors that were examined during the in-class presentations. (Hint: Be sure to explain the relative value rationale for each of the stocks selected.) The three sectors to be examined are determined by selecting one sector from a grouping of {US Retail, E-Commerce and Payments}; a second sector from a grouping of {Global Airlines; Canadian Healthcare and REITs}; and a third sector from a grouping of {US Entertainment; Global Gadgets and Social Media}.

2a) Philip Fisher makes the following observation in Developing an Investment Philosophy (1980):

> "For those primarily seeking major appreciation of their capital, de-emphasize the importance of dividends. The most attractive opportunities are most likely to occur in the profitable, but low or no dividend payout groups. Unusual opportunities are much less likely to be found in situations where a high percentage of profits is paid to stockholders."

Comment on the implications of this statement for the selection of common stocks. In your answer be sure to provide an assessment of the validity of the statement as well as a discussion of the potential bias in the security selection process that adhering to this observation could produce.

b) Graham and Dodd (1934) makes the claim that: "All security analysis involves the analysis of financial statements". However, in some cases financial statements can have substantive limitations

in revealing essential information required to arrive at an accurate assessment for security analysis purposes. With this in mind, identify potential limitations that appear in the financial statements of Apple (AAPL), Netflix (NFLX) and Home Depot (HD). (Hint: Be sure to identify and discuss the relevant financial statements and line items involved.)

3a) "The search for the 'correct' way to value common stocks, or even one that works, has occupied a huge amount of effort over a long period of time....the implementation of a system to selectively value or select common stocks is a difficult task. This is a task that a valuation model purports to accomplish."

Describe the discounted dividend cash flow valuation models conventionally used to analyze common stocks. What are the implications of using alternative definitions of dividends? How do these models differ from valuation models that discount variables other than dividends?

b) Describe the development of the three general approaches to equity security analysis from 1920 to the present. In your answer be sure to identify: seminal contributions to the different approaches to the subject; the relevance of important historical events; and, to provide an overview of the essential elements of these possible approaches

4. CHOICE QUESTION: DO EITHER A) or B)

4A) Warren Buffett has observed:

> "Academics ... like to define investment 'risk' differently, averring that it is the relative volatility of a stock or portfolio of stocks – that is, their volatility as compared to a large universe of stocks. Employing data bases and statistical skills, these academics compute with precision the 'beta' of a stock, its relative volatility in the past – and then build arcane investment and capital-allocation theories around this calculation. In their hunger for a single statistic to measure risk, however, they forget a fundamental principle: It is better to be approximately right than precisely wrong."

Comment on the implications of this statement for the analysis and valuation of equity securities. In your answer be sure to provide an assessment of the validity of the statement as well as a discussion of how investment strategy would have to be formulated if the statement were correct.

4B) (Show Calculations, attach spreadsheet if used to solve the problem; no page constraint)

The Canada Pension Plan (Canada Pension Plan, RSC 1985, c. C-8) is a complicated defined benefit plan that has a number of provisions, such as adjustments for 'drop-out years', that impact the required number of contribution years, and the difference between amounts contributed and the maximum contributions required to receive the maximum pension payment. In addition, the plan allows for pension payments to be started at any time between age 60 and age 70, with appropriate adjustment in the payment amount. For a male age 65 that is ineligible for 'drop-out provisions' that reduce the number of maximum contribution years to receive the full benefit, 39 qualifying years of maximum contributions is required for the full benefit of $14,110 per year ($1,175.83/mo.).

Using the maximum contribution amounts from the following Table and assuming investment returns applicable for each of the following intervals:

1981-1990	10.5%
1991-2000	7.5%
2001-2010	4.5%
2011-2019	2.5%

a) Calculate the amount that would have been earned (from 1981 to 2019) if the CPP contributions given in the Table below had been invested instead of being paid into CPP. (Hint: The calculation involves starting from 1981 and accumulating investment in a fund to arrive at a final total in 2019.)

Using the calculation from a) for an individual that has made the maximum contributions detailed in the Table, solve for the following:

b) Assuming arithmetically declining survival rates and a maximum possible age of 95, calculate the implied interest for this individual electing to receive the maximum CPP pension payment at age 65 of $14,110 per year ($1,175.83/mo.) (Hint: This is the same type of calculation as that for Assignment #1, 2b)

c) If this individual opts to defer taking the CPP until age 70 when the annual payment would be $20,036 (no further CPP contributions are required or made after 2019), calculate the implied interest rate assuming arithmetically declining survival rates and a maximum possible age of 95.

d) At a current interest rate of 2.5% what is the breakeven age at which deferring CPP until age 70 has the same present value as taking CPP at age 65. (Hint: This involves using the cash flows from b) and c) above and doing a present value calculation for age 65.)

Table: Maximum Canada Pension Plan Contributions, 1986-2019

1981	$239.40
1982	$268.20
1983	$300.60
1984	$338.40
1985	$379.80
1986	$419.40
1987	$444.60
1988	$478.00
1989	$525.00
1990	$574.20
1991	$632.50
1992	$696.00
1993	$752.50
1994	$806.00
1995	$850.50

1996	$925.82
1997	$993.22
1998	$1,068.80
1999	$1,186.50
2000	$1,329.90
2001	$1,496.40
2002	$1,673.20
2003	$1,801.80
2004	$1,831.50
2005	$1,861.20
2006	$1,910.70
2007	$1,989.90
2008	$2,049.30
2009	$2,118.60
2010	$2,163.15
2011	$2,217.60
2012	$2,306.70
2013	$2,356.20
2014	$2,425.50
2015	$2,479.95
2016	$2,544.30
2017	$2,564.10
2018	$2,593.80
2019	$2,668.05

https://www.canada.ca/en/revenue-agency/services/tax/businesses/topics/payroll/payroll-deductions-contributions/canada-pension-plan-cpp/cpp-contribution-rates-maximums-exemptions.htm

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BONUS (5 points)

You are in the market for a house. Your effective all-in market borrowing rate for a second mortgage with a 4 year term from a bank is 3.69%. The vendor of one of the houses you are considering purchasing is willing to undertake a $500,000 second mortgage, with a 4 year term at 1.69%, and a 30 year amortization period. The asking price on the house is $900,000. What adjustment to the sales price of the house is warranted if, as part of the purchase, you take up the vendor's second mortgage offer?