

SIMON FRASER UNIVERSITY
Faculty of Business Administration

Midterm Examination

BUS 419-D100

22-2

Advanced Derivative Securities

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

Rules for Submission: Answers to questions in Part I are to be typed with maximum length of **400 words** for **each** question. All answers in Part II are to fit on one page (one page total). There is no page constraint for Part III. Violations will be subject to deductions. Assignments are due to be submitted to poitras9@sfu.ca by the start of class session June 30, 2022. Be sure to answer all parts of each question.

PART I. ESSAY QUESTIONS. Answer each Question; 25 pts. per question.

1. Discuss the early history of contracting for future delivery, from Bronze Age Mesopotamia until the emergence of the commodity derivative markets in the US and Canada during the 19th century. Be sure to discuss: the mechanics of trading in ancient markets; the evolution of ‘free standing derivatives’ in 16th century Antwerp; the details of exchange traded derivative security contracts on the 17th century Amsterdam Exchange including the *rescontre* method of contract settlement; the role of ‘derivative’ securities during the Mississippi scheme and the South Sea bubbles; the mechanics of early futures trading in Tokugawa-period Japan; and the emergence of futures contracting on the Chicago Board of Trade in the 19th century and subsequent evolution of commodity derivative markets in the US and Canada.

2. Detail the evolution of derivative securities trading from the collapse of stock and commodity markets during the Great Depression to the present. Be sure to explain: the regulatory developments for derivative securities markets following the collapse of stock and commodities markets during the Great Depression; the creation of the Chicago Board Options Exchange and IMM and subsequent emergence of financial derivatives; the exchange consolidation and demutualization process; and, the role of derivative securities in the financial collapse of 2008-9. In addition, discuss the details and lessons from at least two derivative debacles that have happened since the beginning of the 21st century. In your answer be sure to describe the mechanics of the trades involved and the motivations of those engaged in the debacle.

3. Derive the profit profile for a spread trade with equal position sizes. What factors determine the profitability of this trade? Derive the profit profile for a tailed spread and explain how this trade is different from one with one-to-one position sizes. (Hint: Do not use snapshots.) Explain the arbitrage transactions underlying a specific financial futures contract (e.g., a stock index) and a specific commodity futures contract (e.g., wheat or crude oil) traded on the CME. What assumptions are being made about both the execution of the arbitrages and the underlying securities or commodities? (Hint: Discuss the implications of executing the both the short and long arbitrage

trades). What factors determine the profitability of: a butterfly in crude oil; a soy crush spread; and, a currency tandem? (Hint: Use the profit profile for the trades to identify the factors and determine the positions needed when factors change in a particular direction.) Assume that you are convinced that the spread between the implied carry returns in silver futures and copper futures will widen. How would you design a trade to profit on your predictive ability in this case?

PART II: DEFINITION QUESTIONS: 3 points each (one page restriction -- all answers to fit within one page in total). Provide a brief description for the following:

a) Commodity Exchange Act b) VIX c) coherent risk measure d) VaR e) SPAN

PART III COVERED INTEREST PARITY (10 points) (no page restriction)

Calculate all possible (annualized) CIP-implied interest rates for the Financial Post, Mar. 4, 2010 quotes

	US\$/£	C\$/£
Britain Spot Pound	1.5101	1.5572
1 month forward	1.5098	1.5568
3 months forward	1.5092	1.5563
6 months forward	1.5082	1.5559
	¥/US\$	¥/C\$
Japan Spot Yen	88.44	85.69
1 month forward	88.42	85.68
3 months forward	88.40	85.64
6 months forward	88.38	85.54
	C\$/US\$	US\$/C\$
U.S. dollar	1.1753	0.8508
1 month forward	1.1742	0.8516
3 months forward	1.1721	0.8532
6 months forward	1.1690	0.8554

International Interest Rates on 2010.03.04

Euro-Deposit Rates (Bid; annualized)

US\$	1-month 0.14
	3-month 0.23
	6-month 0.57
C\$	3-month 0.33
Yen	3-month 0.20
£	3-month 0.53

BONUS: (5 points)

Explain the unusual term structure of futures settlement prices for the Canadian \$ in the attached table (below)



Canadian Dollar Futures Settlements

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Trade Date: Wednesday, 25 Feb 2015 (Final)

Month	Open	High	Low	Last	Change	Settle	Estimated Volu
MAR 15	.8001	.8061	.7999	.8049	+.0050	.8044	
JUN 15	.7996	.8050	.7995	.8027	+.0048	.8035	
SEP 15	.7992	.8042B	.7992	-	+.0044	.8028	
DEC 15	.8020	.8029B	.8020	-	+.0042	.8025	
MAR 16	.8022	.8027B	.8022	-	+.0041	.8027	
JUN 16	-	.8007B	-	-	+.0039	.8035	
SEP 16	-	-	-	-	+.0036	.8043	
DEC 16	-	-	-	-	+.0034	.8051	
MAR 17	-	-	-	-	+.0033	.8060	
JUN 17	-	-	-	-	+.0034	.8076	
SEP 17	-	-	-	-	+.0035	.8091	
DEC 17	-	-	-	-	+.0036	.8106	
MAR 18	-	-	-	-	+.0037	.8121	
JUN 18	-	-	-	-	+.0037	.8136	
SEP 18	-	-	-	-	+.0038	.8151	