SIMON FRASER UNIVERSITY
Faculty of Business Administration

Midterm Examination

BUS 419-D100   18-3
Advanced Derivative Securities

Rules for Submission: Answers to questions in Part I are to be typed, single spaced, of maximum length 1 page **each** for all questions (4 pages total), with 1" margins and type point not less than 12. (This assignment is typed in 12 point.) All answers in Part II are to fit on one page (one page total). Violations will be subject to deductions. Assignments are due in class Oct. 24, 2018. Be sure to answer all parts of each question.

PART I. ESSAY QUESTIONS. Answer each Question; 20 pts. per question -- 10 pts. for a) and 10 points for b).

1.a) Discuss the early history of contracting for future delivery, from Bronze Age Mesopotamia until the emergence of exchange traded derivative security contracts on the 17th century Amsterdam Exchange. Be sure to discuss: the mechanics of trading in ancient markets; the evolution of 'free standing derivatives' in 16th century Antwerp; and, the *rescontre* method of contract settlement developed in Amsterdam.
b) Detail the time line from the beginning of derivative security trading in joint stocks in England following the Glorious Revolution until the emergence of futures contract trading on the Chicago Board of Trade in the 19th century Be sure to explain: the role of 'derivative' securities during the Mississippi scheme and the South Sea bubbles; the mechanics of early futures trading in Japan; and, the development of the necessary preconditions for futures trading on the CBoT.

2.a) Describe the evolution of derivative security trading from the Progressive era at the end of te 19th century until the creation of the Chicago Board Options Exchange. In your answer be sure to discuss: the evolution of commodity markets in the US and Canada; the role of derivative securities in the collapse of stock and commodities markets during the Great Depression; and, to identify arguments made by populists against trading of commodity derivatives and the subsequent restrictions that were placed on trading derivative securities on both stocks and commodities.
b) Discuss the evolution of derivative security markets from 1973 to the present. In your answer be sure to detail the emergence of financial derivatives and the subsequent exchange consolidation and demutualization process; and, to examine the details and lessons from some recent derivative debacles.

3a) 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. Does your answer depend on the commodity under consideration?
b) 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 return in gold futures will widen relative to the return implied in copper futures. How would you design a trade to profit on your predictive ability in this case?

4 a) Explain the arbitrage transactions underlying any two commodities (financial, soft or hard) with traded CME contracts. 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).

b) From the information in the following table of forward rates and interest rates from the inter-bank FX market for Oct. 12, 2018 calculate all possible (annualized!) interest rates implied by the covered interest parity condition.

	US$/unit	**CA$/unit**
Britain Spot Pound	1.31513	1.7143
1 month forward	1.31694	1.71485
3 months forward	1.32136	1.71615
6 months forward	1.32727	1.71814
	US$/unit	

(Annualized) International Interest Rates on 2018.10.12
Euro-Deposit Rates

US$	1-month	2.27950 %
	3-month	2.43631
	6-month	2.63525
C$	1-month	1.052 %
	3-month	1.1735
	6-month	1.385

PART II: DEFINITION QUESTIONS: 5 points each (one page restriction -- all answers to fit within one page in total)

1.) Provide a brief description for the following:
a) CFTC   b) ICE   c) coherent risk measure   d) VaR   e) SPAN

BONUS QUESTION (5 points) (no page restriction)

Explain the unusual term structure of futures settlement prices for the Canadian $ in the attached table.

CME Group
How the world advances

Canadian Dollar Futures Settlements

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Quotes	Settlements	Volume	Time & Sales	Contract Specs	Marg

Futures	Options

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	