Using GOAL to Study for Exam CM2! Actuarial University Quickly access the Hub for additional **QUESTION 6 OF 8** Question # learning. Written Answer Flag problems for This problem features a written answer component. Please write out your solution using your preferred method. When you are ready to review, record review your work and score yourself, click the following button. notes, and email a Reveal / Review Written Answer Scoring professor for help. Written answers must be graded if you wish to include them in your GOAL Score during Practice sessions. Information Reveal answers Shares of ABC Ltd. are currently priced at \$130. The share price can either move up by 10% in each six-month period, or move downward and review to 10% in each six-month period. score yourself. The continuously-compounded risk-free rate of interest is 5% p.a. Question - Part A Difficulty: Advanced 3 [4 marks] (i) Construct a Binomial Model to model the share price of the company every six months for a period of 5 year. Background information to get Question - Part B Difficulty: Advanced 3 you started. [2 marks] (ii) Calculate the risk-neutral probability of an up step at each node. Question - Part C Difficulty: Advanced 1 View difficulty level. [4 marks] (iii) Construct a binomial tree that shows the risk-neutral probability of the stock price reaching each node. Information Exam style questions with An exotic derivative is written on the shares of ABC Ltd. The derivative pays the square of Share price at time 5, only if the share price at points system for easy scoring. Question - Part D Difficulty: Advanced 3 [4 marks] (iv) Calculate the arbitrage-free price of the derivative. Not sure where to Help Me Start begin? Some questions feature "Help Me Start" to See the solution below! guide you in the right direction. Question - Part A Difficulty: Advanced 3 [4 marks] (i) Construct a Binomial Model to model the share price of the company every six months for a period of 5 year. Self Assessment & Solution - Part A Excel solutions for See tab (i) of the 'Solution spreadsheet' for the calculation and grading rubric. calculations. Self Assessment Score: \$ 130.00 Grade your 1.1 0.9 \$ 337.19 performance [4] for correct tree \$ 278.67 using the self [2] for two mistakes \$ 200.00 assesment. \$ 184.68 \$ 171.30 \$ 157.30 \$ 128.70 \$ 117.00 \$ 114.67 Dive into \$ 93.82 solutions for each question. \$ 55.96 \$ 55.40 \$ 50.36 Question - Part B Difficulty: Advanced 1 [2 marks] (ii) Calculate the risk-neutral probability of an up step at each node. Self Assessment & Solution - Part B See tab (ii) of the 'Solution spreadsheet' for the calculation and grading rubric. Self Assessment Score: 2.00 ♦ \$ 130.00 0.9 [2] for correct tree 5% \$ 200.00 0.626576 Question - Part C Difficulty: Advanced 3 [4 marks] (iii) Construct a binomial tree that shows the risk-neutral probability of the stock price reaching each node. Self Assessment & Solution - Part C Excel solutions for See tab (iii) of the 'Solution spreadsheet' for the calculation and grading rubric. calculations. Self Assessment Score: 4.00 ♦ S0 \$ 130.00 Grade your 1.1 0.9 performance 0.014885 5% [2] for two mistakes using the self \$ 200.00 [0] for more than two mistake 0.037915 assesment. 0.154132 0.245992 0.392597 0.367437 0.28162 0.247099 0.343025 0.467957 0.328476 0.256188 0.209799 0.176718 0.139446 0.130509 0.114511 0.100028 0.087767 Dive into 0.019445 0.027298 0.029807 0.014311 0.011893 solutions for 0.002712 0.005076 0.001013 0.002132 each question. 0.000378 0.000141 Information An exotic derivative is written on the shares of ABC Ltd. The derivative pays the square of Share price at time 5, only if the share price at time 5 is above \$200. Question - Part D Difficulty: Advanced 3 [4 marks] (iv) Calculate the arbitrage-free price of the derivative. Self Assessment & Solution - Part D Price = 10,035.89See tab (iii) of the 'Solution spreadsheet' for the calculation and grading rubric. Self Assessment Score: 4.00 ♦ \$ 130.00 S0 1.1 \$ 337.19 1,060.41 d 0.9 5% 76,109.71 4,230.62 \$ 200.00 50,949.47 7,595.31 \$ 184.68 \$ 101.15 \$ 55.40 \$ 45.33 \$ 10,035.89 [1] for Price Rate a problem or Rate this problem **I**♥ Inadequate give feedback.