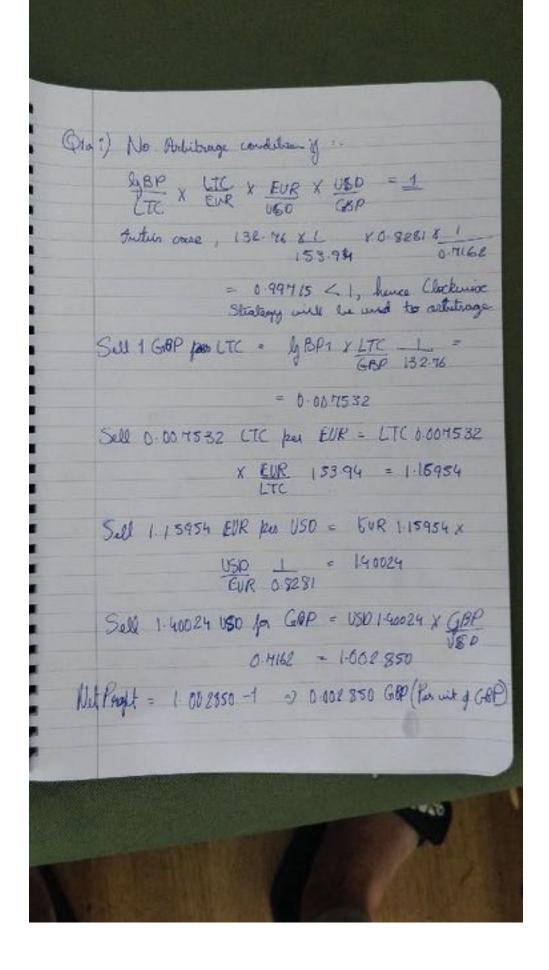
Q4) a) Empirically, we observe that, in certain time periods, when the value of stocks goes up, the value of bonds goes down. What can explain this negative correlation between changes in stock and bond prices? Could such effects have destabilizing effects in the stock market?

This inverse relationship between the equity and debt markets has been studied comprehensively, and it is the result of investors hedging against volatility. In cycles of economic downturn, when the stock market tends to move downwards, both retail and institutional investors tend to invest in bonds and commodities such as gold. This is known as the flight to safety phenomena where investors are especially cautious about risk during these economic downturns, leading them to pull their money our of the stock market, which leads to the equity market falling, and investing this money in debt instruments, which results in the debt market rallying. This is especially true for 'rare events' such the .com bust, the 2008 financial crisis, and the Covid pandemic. This suggests that the prices of bonds are impacted by the willingness of investors to hold stocks.

Yet, to argue to that this relationship has a destabilising effect on the market implying that the act of money leaving the stock market leads to the money entering the stock market is flawed. Investors pulling out of the stock market would result in the market falling, irrespective of whether they later invest in bonds. Although, the existence of bonds as a safe hedge against volatile stock markets could be said to influence investors decision to exist the stock market when risk increases.



ASK Special =) Q1a) 1) 132.86 × 100 × 0.8283 × 1 = 10006 Bid Speal = 132.16 X 1 X 0.82 79 X 1 = 0.9943 Clockwise Strategy => Sell 1 GBP for ITC = 0.00 452 600 LTC (Buy LTC at 182k) -) Sell 0.00 4 5264 LTC per EUR 1 0.0045264 × 154.04 = 115942 (By EUR) =) Sell 1.15942 EUR pay USD 1.15942 X 1 = 1.3 9945 (By 180 et Bab) = = Sell & 1.39945 USD for UBP 1.39945 X 0.4158 = 1.00194 (Sell, at bid) Net Pogt - 1.00194 -1 = 000194 (per wit 6BP)

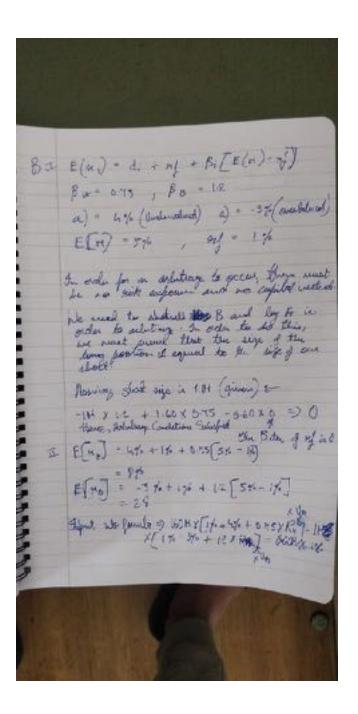
Questien 4 BI 1000, 640 (R, 34, Y= 640 P = 60 + 60 + 50 + 1000 1+66 1+062 1+063 (+1063 () () X () X 1000 () + 1000 - 1000 D writing $= (60 \times 1 + 60 \times 2 + 1060 \times 3)$ 1000 = 2.84 years Mod Dustrian => D* = D- = 2:84 (1+4) 1:06 = 269 years I (queravity =) 1 PX(1+4) 2 ET ((+2++)] =) GO x (12+1) + \$ 60 x (2+2) + 1060 x (32+3) - 1000 x (1062) => 9.84 years

Assuring a 1% increase in X% from 6% to 74% The broad decreases in price P by -2.68 × 0.07 Throw 1000 to (1-2.68 × 0.061) × 1000 Throw 1000 to (using Matified D)

The correlate of the land replies offers price correlate of 1% would replied to :- a 77 9.84 X 0.5 X 1 1/2 = 0.000492 \$ 973.2 X (1.000492) = £ 973.68 The value of liabilities is given as 6H/(1+006)2+ 4H/(408.6)44 = 5.344 +3 = 8.5084 H The Sweeting of liabilities is given as .-2 (5.34) + 4 (3.1684) 3 1100000 = 2.4449 years Had Quatrem :-2.44848/106 = 2.59 years

Let 1/2 be the value of the insulant in 2 years bounds => X2 + X4 = 8.5084 H Dwelte of Portfolio P => Wz Dz + (1- Wz)D4 N2 = 1A2 B. 508h H Model Duratur of 2 year bounds => D 2 106 "on in in lyear bonds => Devation of the fortpolic is the duration of balittles =) $2.59 = W_2 D_2 + (1-W_2)$ P_4 $W_2(E_2/1.06) + 4(1-W_2)$ X(4/1.06) $2.59 = 189 W_2 + (1-W_2)3.597$ $2.59 = 1.89 W_2 + 3.47 - 3.47 W_2$ 1884= 118 = W2 = 06247 Az = 0.6247 x 8.59084 Un = 9.85094 - 5.3407 = 3.1647 H

92 In the CAPM, the variance of nature or such is determined by idionymeratic nink and systematic sink or 2; 2 = 0; 26 m2 + 5 % Net the CAPH assumes that nick is only there it does not take its account other A pariable that nesult in systematic variances which the CAPAN would counciles Schoolyness with Swalles Cof stocks are none services to province conditions as they do not have stability accept asters Albourge there are considered systematic sick, the CAPH does not recome it as such the footfolio of low B/H slocks (Book value Morkette) would generally a > 0 when theread against Carry but x = 0 when theread against FF3 as I no longs captures systematic wisk ø 3



In the previous equation, there are idioryestre suisks thereast that one not healged against. This value it susky since (Fe can be vary lared on the ulility of H and B. € = 0 , Sn = 6.03 , Cov = 0 Var g E; = 0.032 = 00009 65 AI According to Put Call thony, SH = PV(x) +C House 7.71 +86 = 80 /1.05)05 + 10 =) 84.71 = 68.04 Hence Put Call is migriced according to PCT. B Brook could will a call and put which has the same strike priver g 60. S+P= P(x)+C 5 +60 = 60 + c =) (=£6.17 Hence cost of straddle will be 5 + 6.17 = \$11.17 Whise is Browner Profit. But if the stock price increases them the call oftens will be excercised free to which has perofit will becheve by [-(S₇ -x),0] Have if at the true of expending, for the atock price is equal to 60+ 11:17 = 41.17 or greater, then has profit will be got or wake a loss. The teng with price decrease and fut option. Whate Sook toda If the slock price decreases the the put gets will be evericised her to which the payoff will reduce by [-(x-5+)6]. Here yet experience by stock price is 60-11-17 = 48.85 or less, she will BE or experience loss. If pair in 41-14-48.83 mange, who will pight.

C) the stock price take the 'up' value (=30) in =

lyear, then the call often will be in the

money =>

N = max (230-180,0) => 50 But of Satisfe price take down odce (170) is = 1 years, the call often will be att of rought with payof = 0. Henra USO = 230, PL = 50 dso = 140, Pd = 0 Healy rotter = Pu-P1 = 30 = 5 Strike price of REM is 10 = 10 = 12

Fdsfssf