AGEC 4213 Worksheet
Completed in class on August 29, 2013

Name _____

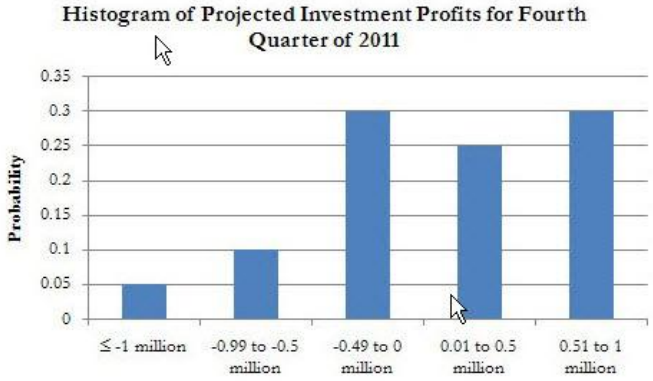
(A) Understanding Value-at-Risk (VaR)

(A.1) *[This doesn't refer to any graph or data, it's just a conceptual question.]* Using a threshold of 8%, a firm predicts that its VaR for next quarter is a loss of one million dollars. This means that there is a _____% chance that losses will be $_____ or more next quarter.

(A.2) The histogram below shows the projected profits for the fourth quarter of 2011. If the firm uses a threshold of 5%, its VaR is $_____, which means there is a _____% chance that losses will be $_____ or more. If regulations require the firm to keep collateral equal to its VaR, it must keep $_____ of collateral for next quarter.

(A.3) The histogram below shows the projected profits for the fourth quarter of 2011. If the firm uses a threshold of 15%, its VaR is $_____, which means there is a _____% chance that losses will be $_____ or more. If regulations require the firm to keep collateral equal to its VaR, it must keep $_____ of collateral for next quarter.

(A.4) The histogram below shows the projected profits for the fourth quarter of 2011. If the firm uses a threshold of 10%, its VaR is $_____, which means there is a _____% chance that losses will be $_____ or more. If regulations require the firm to keep collateral equal to its VaR, it must keep $_____ of collateral for next quarter.



(B) Collateral

(B.1) When a firm is required to keep X amount of dollars of collateral, what exactly is that collateral? That is, give some examples. Why would a firm be required to keep collateral?

(B.2) Suppose that someone wants to invest recklessly by borrowing money from others and investing it in the housing market, and wants to hold as little collateral as possible because if the investment loses money he doesn't plan to pay back his lenders anyway. If regulations require him to hold an amount of collateral equal to VaR, does he want...

a) An accurate VaR
b) An inaccurate, low VaR
c) An inaccurate, high VaR?

(C) VaR—the number that killed us

You plan to invest in a business where a student from my class is selected at random to shoot ten free-throw shots, and the profits you make goes by the equation: Profits = {(# successful shots) – 2}*100.

In case you lose money, you are required to hold collateral, but because you are reckless you want to hold as little collateral as possible. The government requires you to hold an amount of collateral equal to your VaR, and though the VaR must be calculated from data, you are given discretion over how the VaR is calculated. Discuss ways you can manipulate the data and/or VaR calculation to make it a low number.