Sample Midterm Exam #1

MGT 295F - Winter 2016

Empirical Methods in Finance

1 Multiple Choice Questions (10 questions, 3 points each)

1. If the value effect is explained by risk, then the value minus growth portfolio should

   a Have positive market beta

   b React positively to a sudden increase in dividend yield

   c Have high expected return in the periods of high GDP growth

   d Have lower returns than the CAPM predicts in the periods of increasing market volatility

2. Mispricing or apparent mispricing should be stronger for

   a Volatile firms, small firms, firms with low price impact

   b Small firms, firms with high Roll measure, firms with low institutional ownership

   c Low volatility firms, firms with low bid-ask spread, firms with high Amihud measure

   d High uncertainty firms, firms with high institutional ownership, illiquid firms

3. Assuming that the value effect is caused by risk, you would expect the realized returns to the HML factor to be

   a *Positively* correlated with future labor income and *positively* correlated with future Treasuries yield

   b *Negatively* correlated with future labor income and *positively* correlated with future Treasuries yield

   c *Positively* correlated with future labor income and *negatively* correlated with future Treasuries yield

   d *Negatively* correlated with future labor income and *negatively* correlated with future Treasuries yield

4. You are creating a multifactor model with the momentum factor. The momentum factor is the portfolio long in winner firms and short in loser firms. You can interpret this model as the ICAPM

   a Only if momentum is mispricing

   b Only if momentum is risk

   c The ICAPM does not allow the use of the momentum factor

   d You can use the momentum factor in the ICAPM irrespective of whether you think momentum is risk or mispricing

5. A portfolio generates an annual return of 17%, a beta of 1.2 and a standard deviation of 19%. The market index return is 12% and has a standard deviation of 16%. The risk free rate is 4% per annum. The portfolio return is positively correlated with changes in GDP growth.

   a The portfolio beats the CAPM prediction, but not necessarily the ICAPM prediction

   b The portfolio underperforms the CAPM prediction, but not necessarily the ICAPM prediction

   c The portfolio beats both the CAPM prediction and the ICAPM prediction

   d The portfolio underperforms both the CAPM prediction and the ICAPM prediction

6. Consider the economy with two stocks, A and B, with the Roll measures of 2% and 1%, respectively, and two investors, X and Y, with the investment horizons of 2 and 4 years, respectively. If the net-of-cost expected return to A and B is 10% per year, then in the equilibrium, in which one investor holds one stock

   a Expected returns to A and B are 11.99% and 11%

   b Expected returns to A and B are 11% and 10.49%

   c Expected returns to A and B are 10.5% and 10.25%

   d Expected returns to A and B are 10.99% and 10.5%

7. Consider the economy with two stocks, A and B, with the Amihud measures of 0.25% and 0.1%, respectively, and two investors, X and Y, with the usual trade size of $7 million and $3 million, respectively. If the net-of-cost expected return to A and B is 12% per year, then in the equilibrium, in which one investor holds one stock

   a X holds B and receives the abnormal return of 0.014%

   b X holds B and receives the abnormal return of 0.7%

   c Y holds A and receives the abnormal return of 0.99%

   d Y holds A and receives the abnormal return of 1.74%

8. Accrual anomaly, first discovered by Sloan (TAR, 1996), finds that low (high) accruals firms have positive (negative) alphas. What of the following suggests that liquidity risk can be an explanation of the accrual anomaly?

   a High accruals firms lose value when market illiquidity goes up

   b High accruals firms become less liquid when market gains

   c Low accruals firms become more liquid when market illiquidity goes up

   d Low accruals firms covary positively with the factor that buys illiquid firms and shorts liquid firms

9. If a certain anomaly is risk, then the correlation between the *expected* returns to the arbitrage portfolio that is trying to exploit it and earn a positive CAPM alpha and the *lagged* value of implied volatility of the S&P 500 options (aka the VIX index) should be

   a Negative

   b Positive

   c Positive in expansions and negative in recessions

   d Impossible to tell

10. Stocks that lost a significant chunk of value in the recent six to twelve months (recent losers) are known to underperform for another year. Assuming that this effect is mispricing, you would expect that

    a Recent losers will have *positive* returns around earnings announcements, *and even more so if* they were highly volatile before they started losing value

    b Recent losers will have *negative* returns around earnings announcements, *and even more so if* they were highly volatile before they started losing value

    c Recent losers will have *positive* returns around earnings announcements, *but less so if* they were highly volatile before they started losing value

    d Recent losers will have *negative* returns around earnings announcements, *but less so if* they were highly volatile before they started losing value

2 Short Questions (5 questions, 10 points each)

1. Investment-to-capital ratio is known to be higher during expansions (firms invest a lot if demand is high). What is the expected sign of the correlation between expected market return and the lagged value of the aggregate investment-to-capital ratio to be? Explain.

2. You are trying to explain the negative alphas of initial public offerings (IPOs) using Conditional CAPM. What will be your hypothesis about the relation between the CAPM beta of IPOs and lagged values of GDP growth and unemployment rate? Explain.

3. Taking the Carhart model as a benchmark, the performance of Fund M in 2005 was abnormally poor. The manager defends his performance by saying that he was hedging you against the increases in market volatility and default risk. What should have happened to market volatility and default risk during 2005 to make it a valid defense?

4. You come across a study that claims to have explained the value effect by liquidity risk. The main evidence in the study is that the alpha of the value-minus-growth strategy is reduced if one controls for the "Roll factor" that buys firms with high Roll measure and shorts firms with low Roll measure. What is wrong with the liquidity *risk* interpretation? What is the correct interpretation of the evidence? What should the study change to make the method consistent with the interpretation?

5. Consider an economy with two stocks A and B with the Roll measures of 2.5% and 1.2%, respectively, and three investors X. Y, and Z with the investment horizons of 2, 4, and 5 years, respectively. What are the two possible equilibria in this economy? Assume that the expected before-cost returns to A and B are 10 and 13%, respectively.

3 Long Question (4 parts, 5 points each)

This question refers to the ICAPM, estimated for Vanguard International Value (VTRIX) fund using the data from January 1999 to December 2009. The numbers in brackets are standard errors.

$$Ret_t - RF_t = \underset{(0.24)}{0.35} + \underset{(0.05)}{0.88}\,(MKT_t - RF_t) + \underset{(6.55)}{1.21}\,\Delta TB_t - \underset{(2.88)}{5.86}\,\Delta DIV_t$$

Looking at the coefficient on the change in the dividend yield, does the fund look riskier than what its market beta implies? Explain.

If dividend yield increases by 1% and the expected inflation decreases by 3%, by how much will the fund beat/trail the CAPM?

Your colleague suggests that the Vanguard fund is a good investment, because the ICAPM above estimates that its alpha is positive. Give two objections.

Another colleague suggest that you throw in the change in GDP as the fourth factor. What sign of the slope on GDP growth would suggest that the fund is even riskier than what you would think looking at the regression above?