Set 1 Questions

1. Which of the following statements is *most likely* true?
   A. Market value of an asset is impacted by the size of its cash flows only.
   B. Market values of an asset is impacted by discount rates only.
   C. Market value of an asset can be affected by interest rates, risk premiums, size and magnitude of future cash flows.

2. Which of the following statements is *most likely* true?
   A. Equity markets always reflect the expectations of market participants hence actual results are unlikely to affect market values.
   B. The effect of new information on asset values depends on whether that information was built into market expectations or not.
   C. All else equal, positive earnings surprises are likely to bring down market value because investors were not expecting the result.

3. Which of the following will *most likely* lead to higher real risk-free interest rates?
   A. A low GDP growth forecast.
   B. Decrease in expected volatility in GDP growth.
   C. Increase in expected volatility in GDP growth.

4. Which of the following statements is *least likely* true?
   A. The higher the utility investors attach for current consumption relative to future consumption, the higher the real rate.
   B. Marginal utility of consumption is lower during bad economic times.
   C. Investors increase their savings rate when uncertainty about future income increases.

5. A decrease in forecasted GDP growth rate can lead to:
   A. higher long term interest rates.
   B. a decrease in marginal utility of future consumption.
   C. lower real government bond yields.

6. Risk premiums for inflation uncertainty are:
   A. higher for short term bonds.
   B. higher for long term bonds.
   C. same for short term and long term bonds.

7. Long term government bonds are trading at 9%. The bond yield reflects an expected inflation of 3% and premium for inflation uncertainty of 1%. The break-even inflation rate embedded in the government bond yield is *closest* to:
   A. 3%.
   B. 1%.
   C. 4%.

8. Which of the following statement is *most likely* true?

A. Credit spreads tend to rise during bad economic periods and fall during good economic periods.
B. When credit spreads narrow, risk-free bonds will outperform risky bonds.
C. Higher-rated bonds benefit more from falling credit spreads than lower-rated bonds.

9. Which of the following industries' credit spread would *most likely* increase during economic downturns?
A. Consumer staples industry.
B. Food industry.
C. Automotive industry.

10. A cyclical industry will *most likely* show:
A. a rise in earnings during good economic times and fall in earnings during bad economic times.
B. stable earnings in relation to business cycle.
C. no relation between earnings and business cycle.

11. Which of the following statements is *most likely* true?
A. Equities are generally a good hedge for bad consumption outcomes.
B. Relative to bonds, equities provide a better hedge against bad consumption outcomes.
C. Equity investors require a risk premium because equities are normally a poor hedge against bad consumption outcomes.

12. Which of the following statements is *most likely* true?
A. Valuation multiples tend to fall during economic expansion.
B. Equity risk premium fall during good economic times.
C. Credit spreads increase during good economic times.

13. Which of the following strategies will *most likely* require the highest equity risk premium during economic downturns?
A. Small-cap strategy.
B. Mid-cap strategy.
C. Large-cap strategy.

14. How is economic analysis useful for sector rotation strategies?
A. To determine impact of macro-economic factors on earnings of different companies within an industry.
B. To evaluate the relative performance of different types of sectors over the business cycle.
C. To take long-short bets on stocks within an industry.

15. Which of the following statements about real estate is *most* likely true?
A. Real estate is not affected by business cycle because rental income remains steady regardless of economic conditions.
B. The required return on commercial real estate is likely to be close to return on fixed income instruments as the nature of their cash flows is similar.
C. The discount rate for real estate is likely to include a premium for lack of liquidity.

Set 1 Solutions

1. **C** is correct. The market value of an asset can be affected by default-free interest rates, risk premiums, the size and the magnitude of its future cash flows. Section 2.1. LO.a.

2. **B** is correct. New information which is different from expectations affects asset values. Section 2.2. LO.b.

3. **C** is correct. Interest rates are positively related to expected volatility in GDP growth due to higher risk premiums when volatility is high. Section 3.2. LO.c.

4. **B** is correct. Marginal utility of consumption is higher during bad economic times. Section 3.1. LO.c.

5. **C** is correct. Lower future GDP growth rates cause interest rates to decline and marginal utility of future consumption to increase. Lower GDP growth rates lead to lower real government bond yields. Section 3.3.1. LO.d.

6. **B** is correct. All else constant longer term bonds have higher premiums for inflation uncertainty. Section 4. LO.d.

7. **C** is correct. The break-even inflation rate consists of expected inflation and risk premium for uncertainty of inflation. Hence break-even inflation rate is equal to 3% + 1% = 4%. Section 4.4.1. LO.e.

8. **A** is correct. During bad economic periods credit spreads rise and during good economic periods credit spreads fall. Risky bonds benefit more from narrowing of credit spreads than risk-free bonds. Hence, lower-rated bonds benefit more than higher-rated bonds when credit spreads narrow. Section 5.2. LO.f.

9. **C** is correct. The automotive industry is a cyclical industry hence spreads get affected during economic downturns. Section 5.2. LO.g.

10. A is correct. Cyclical industries have earnings that are sensitive to the state of the economy. Section 6.2. LO.h.

11. **C** is correct. Equities generally do well in good economic times and bad in poor economic times and therefore have poor consumption hedging ability. Hence equity investors require an equity risk premium which is positive. Hence A is incorrect. Bonds provide a better hedge against poor economic outcomes. Hence B is incorrect. Section 6.1. LO.i.

12. **B** is correct. Equity risk premium fall during good economic times causing valuation multiples to increase. Credit spreads narrow during good economic times. Section 6.4. LO.j.

13. **A** is correct. Small-cap stocks tend to underperform large and mid-cap stocks during an economic downturn. Hence investors demand a higher equity risk premium in small stocks. Section 6.5. LO.k.

14. **B** is correct. Economic analysis is useful in understanding the impact of the economic cycle on sector performance and returns. It helps predict the timing of sector downturns/upturns for reallocation. A and C are incorrect as these refer to within sector strategies. Section 6.5. LO.l.

15. **C** is correct. The discount rate for real estate includes a liquidity premium as it can take time to enter or exit real estate at its fair value. Real estate returns also include a premium for risk which is similar to an equity risk premium as their value is affected by a host of economic factors. Real estate values are sensitive to economic cycles. Section 7. LO.m.

Set 2 Questions

The following information relates to questions 1 - 3.

Abe Harold, an equity analyst has recently joined Greenfield Advisers, a global economic consulting firm that provides economic updates of the global economy, and forecasts the macroeconomic variables impacting various financial markets. Cathy Huang, Harold's supervisor knows that he is still relatively new to macro forecasting models, therefore discusses with him macroeconomic variables used in forecasting models. Huang first questions him about the key components of a discount rate. Harold responds, "The uncertainty about future cash flows is indicated in the discount rate which is composed of three components:

I. The return required by an investor on a real default-free fixed-income security analogous to the expected return on an inflation-linked bond issued by a developed economy government.
II. The additional return required for investing in a real default-free investment.
III. The additional premium required to compensate for the uncertainty about the asset's future cash flows."

Huang then shows Harold some of the factors (refer to Exhibit 1) that influence a country's economic cycle and how they affect policy interest rates and fixed-income markets.

Exhibit 1: Important Economic Observations

Country	Factors
China	An aggregate increase in borrowing
	Positive output gap
USA	Volatile inflation expectations
	Increasing equity risk premiums
Japan	Increase in marginal utility from consumption
	Increase in individual saving levels

Huang next asks Harold, about the relationship of current interest rates with inflation expectations. Harold explains, "The difference between yields on a default-free real bond and a default-free nominal bond of the same maturity reflects both future inflation expectations of investors plus a risk premium for the uncertainty of future inflation."

1. Which of Harold's responses regarding the discount rate's components is *least likely* correct?
   A. I.
   B. II.
   C. III.

2. Based on Exhibit 1, which country should *most likely* have a policy rate above the neutral rate?
   A. China.
   B. USA.
   C. Japan.

3. Is Harold’s response to Huang’s question about current rates and inflation expectations *most likely* correct?
   A. No, it is incorrect with regard to future inflation expectations.
   B. No, it is incorrect with regard to uncertainty of future inflation.
   C. Yes.

The following information relates to questions 4 – 6.

Sabeen Shah is an equity analyst at Saddat and Shafi Securities (SSS), a global investment firm. Shah prepares a newsletter for the clients, which includes responses to commonly asked questions, a commentary on the economic factors impacting the global financial markets and investment recommendations based on economic forecasts. In the upcoming newsletter, Shah responds to questions about economic factors that are driving P/E multiples higher in USA. Shah writes that decreasing volatility in USA's real GDP growth, a rise in inflation expectations, and fall in equity risk premium are the possible contributors.

Shah also comments on the Russian economy which is showing signs of recovering from recession. Shah makes the following recommendations for investors in the Russian markets: The yield curve will steepen now therefore buy small-cap stocks versus large-cap stocks. In addition, rotate from value stocks into growth stocks over the coming months.

Shah’s colleague, Rabia Brohi covers commercial real estate for SSS. Brohi explains her pricing model for valuing commercial real estate investments to Shah so that it can be communicated to SSS’s clients. Shah reviews Brohi’s model which consist of the following elements:

- Expected cash flows from rents with the sale or redevelopment option as leases expire
- A risk premium that is analogous to the equity risk premium
- A risk premium to incorporate the credit risk of corporate bonds
- An actively traded securities’ equity risk premium

4. Shah’s response regarding USA is *least likely* correct with respect to:
   A. decrease in volatility in GDP growth.
   B. rise in inflation expectations.
   C. fall in equity risk premium.

5. Shah’s investment recommendations are *least likely* correct with respect to:
   A. the yield curve shape.
   B. trade involving buying small-cap stocks versus large-cap stocks.
   C. trade involving growth stocks versus value stocks.

6. Which element of Brohi’s model is *least likely* correct?
   A. The equity risk premium for actively traded securities.
   B. A risk premium similar to the equity risk premium.
   C. Expected cash flows from rents with the redevelopment option.

The following information relates to questions 7 – 9.

Jeffery Chan is a fixed-income analyst at InfoCredit, a credit advisory and investment management firm. During the weekly meeting with the investment committee, Chan feels that the US Federal Reserve Board (Fed) will not likely raise the federal funds rate (FFR) by 25 bps for at least six months because of weak economic data. InfoCredit expects the monthly non-farm payroll report to confirm the weakness in the economy by showing that US created less than 98,000 jobs this month, in accordance with the consensus expectations. The committee asks Chan what will happen to the short-dated bond prices if the payroll report meets expectations.

The committee discusses the GDP growth forecasts which is expected to be weaker in the future but more volatile as the economy adjusts to a changing interest rate environment. Chan believes these factors will cause downward pressure on short-term government real rates.

Chan forecasts the real one-year risk-free rate to be 0.25% and average inflation over the next year to be 1.25%. As part of his analysis, Chan reviews the current price of a zero-coupon nominal Treasury bond with one year to maturity trading at $97.95 with a par value of $100. Chan observes the difference in market pricing compared to his forecasts.

7. Will the bond prices change if the payroll report is consistent with the expectations?
   A. No.
   B. Yes, the prices will rise.
   C. Yes, the prices will fall.

8. Is Chan *most likely* correct regarding the impact on short-term government real rates?
   A. Yes.
   B. No, incorrect with respect to the impact due to growth.
   C. No, incorrect with respect to the impact due to volatility.

9. The discrepancy in the bond’s price noted by Chan is *most likely* due to:
   A. the credit risk.
   B. inflation uncertainty.
   C. price risk.

The following information relates to questions 10 - 12.

Sandy Murray, a senior credit analyst at HCR, a global investment firm, evaluates three bonds from three different sectors in order to execute a short position for the firm’s fixed-income fund. Murray reviews HCR’s economic outlook, which forecasts the GDP growth rate to be weaker than expected and more volatile. All three bonds mature in five years and are presented in Exhibit 1.

Exhibit 1: Credit Market Outlook

	Economic Sector	**Debt/Capital**	**Enterprise Value/EBITDA**	**Spread to Treasuries(bps)**	**Credit Rating**
Bond 1	Food	30%	8	200	A2
Bond 2	Household & Personal	48%	7	240	Baa2

	Products				
Bond 3	Automobiles	44%	7.6	210	Baa1

Connie Li, a quantitative analyst at the firm, is developing a model that will use economic inputs to provide an equity rotation strategy for equity funds. Li also decides to incorporate a target equity risk premium into the model. She makes the following notes:
Note I. The equity premium should be positive and given the economic outlook quite large.
Note II. The type of product sold or service provided by a company will impact earnings and equity performance.
Note III. Equities demand a lower risk premium because of better consumption-hedging properties than investment grade fixed income securities.

Li's equity rotation model can help portfolio managers rotate from small- to large-cap stocks and growth to value stocks. The model will assist the portfolio managers to take targeted sector positions to enhance returns relative to the broader equity market. As Li finalizes the model she backtests it over previous economic cycles to find out potential errors that would need correction or modification. She notices the following results given by the model in the aftermath of recessions:

I. Rotates from consumer staple to consumer discretionary stocks.
II. Rotates from growth stocks into value stocks.
III. Rotates from small-cap stocks to large-cap stocks

10. Based on Exhibit 1 and HCR's economic outlook, the bond *most likely* chosen for a short position is:
    A. Bond 1.
    B. Bond 2.
    C. Bond 3.

11. Which of Li's notes is *least likely* correct?
    A. I.
    B. II.
    C. III.

12. Which results from backtesting the model, is *least likely* satisfactory?
    A. I.
    B. II.
    C. III.

Set 2 Solutions

1. B is correct. One of the key components of the discount rate is the additional return required by investors from investing in nominal default-free investment that is **above** the real default-free investment, because future nominal payments will be affected by inflation. Section 2. LO.a.

2. A is correct. China is experiencing an aggregate increase in borrowing and a positive output gap, which implies that the economy is producing beyond its sustainable capacity. Hence the policy rate should be above the neutral rate. Conversely if the output gap is negative, the policy rate should be below the neutral rate. Section 4.2. LO.d.

3. C is correct. Harold correctly states that the difference between the yields on a real default-free bond and a nominal default-free bond of the same maturity is that the nominal yield will incorporate the inflation expectations of investors over the investment horizon of the two bonds, $\theta_{t,s,}$ plus a risk premium that will be required by investors to compensate them primarily for uncertainty about future inflation, π_t. Section 4.3-4.4. LO.e.

4. B is correct. The high P/E in USA could be due to a number of factors including an increase in expectations of future real earnings growth, fall in interest rates and fall in volatility in GDP real growth rate, a fall (not a rise) in inflation expectations, a fall in equity risk premium etc. Section 6.4. LO.j.

5. C is correct. The yield curve typically steepens when the economy is in recession. But given that value stocks are likely to outperform growth stocks and that small-cap stocks are likely to outperform large-cap stocks in the immediate aftermath of a recession, Shah's strategy regarding growth equities is less likely to be profitable. Section 6.5. LO.k.

6. A is correct. The pricing of commercial real estate should include cash flows received from rent payments with potential redevelopment value when the lease expires. The discount rate for these cash flows should incorporate a risk premium for commercial real estate which is closer to equity investments than fixed-income investments, a liquidity risk premium to account for the illiquidity of a commercial real estate investment, a credit risk premium, a real government bond yield plus a nominal government bond yield. Section 7.2. LO.m.

7. A is correct. Although InfoCredit forecasts lower non-farm payroll figures and weaker economic data, but their expectation is in line with market consensus forecasts. This information is anticipated and thus already reflected in asset prices. Prices would more likely rise or fall if the information is different from what was expected i.e. a surprise relative to what was anticipated. Section 2.2. LO.b.

8. C is correct. Real default-free interest rates should be positively related to GDP growth and positively related to the expected volatility of GDP growth. If there are expected increases in GDP volatility then there would be upward pressure on short-term default-free real rates, all else being held equal. Section 3.2. LO.c.

9. B is correct. Short-term default-free interest rates tend to be very heavily influenced by the inflation environment and inflation expectations over time. The greater uncertainty about the real value of the bond's payoff will cause investors to demand a premium in compensation for this uncertainty and will cause the discrepancy in bond pricing. The break-even inflation rate incorporates both premiums for expectations about inflation and for the uncertainty of the future inflation environment. Section 4.1-4.4. LO.e.

10. C is correct. Bond 3 is in the cyclical industry, it has a lower debt/capital ratio and a tighter spread than Bond 2, hence should be chosen for a short position given the economic outlook for growth. Bond 1 & Bond 2 are in the consumer staples (non-cyclical) industry. Higher-rated issues such as Bond 1 are likely to outperform in the declining growth environment. Section 5. LO. f, g.

11. C is correct. The note regarding equity with better consumption-hedging properties is incorrect. Because of the cyclical nature of the economies and corporate profits, equities are a bad hedge for bad consumption outcomes and that is why require equity risk premiums. A & B are correct notes. Sections 6.1- 6.3. LO.i.

12. C is correct. In the aftermath of a recession, value stocks outperform growth stocks, cyclical (consumer discretionary) stocks tend to outperform non-cyclical (consumer staples) stocks, and small-cap companies are likely to outperform large-cap companies. The model's rotation strategy of shifting from the small-cap to large-cap stocks will not be beneficial for the equity funds. Section 6.5. LO.k.