

## Schweser Printable Answers - Session Economics: Economics for Valuation

Test ID#: 1362403

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### Question 1 - #8537

Willie Muller is a senior loan officer with a money center bank in New York. He has many multinational clients, including several who do a large percentage of their business with customers in Germany. Recent political developments in Europe have led to uncertainty regarding future exchange rates. The risk management team at Muller's bank is concerned about the potential impact that increased volatility in exchange rates may have on his clients' operations. The bank's loans are denominated in U.S. dollars; however, these particular clients conduct their operations primarily in Euros. Since the clients bear the exchange rate risk, Muller and his risk management team are concerned about their clients' exposure and the implications to the bank. Any negative impact to earnings could ultimately impair the ability of his clients to repay their outstanding loans. Muller has been asked to assess the bank's exposure to Muller's customers under a variety of economic scenarios.

In order to better understand his clients' foreign exchange risk, Muller undertakes a review of the factors that underlie exchange rates including the principle of purchasing power parity (PPP). To do so, he must factor in the interrelationships between exchange rates, interest rates, and inflation rates. Also of importance are growth projections for the German economy, and how these might be affected by government policy. Muller begins to gather information that he believes may be useful in his analysis. He discovers that over the past two years, the price level in the U.S. has increased from 100 to 112 while the price level in Germany has increased from 100 to 104. Also, he notes that the current \$/ spot quote is 0.9808, while the one-year forward rate is 0.9906.

#### Part 1)

Muller recalls that the change in the real exchange rate between the U.S. and Germany is equal to the change in the nominal exchange rate minus the actual inflation differential between the two countries. This version of PPP is called:

- A) the law of one price.
- B) absolute purchasing power parity.
- C) relative purchasing power parity.
- D) international purchasing power parity.

Your answer: A was incorrect. The correct answer was C) relative purchasing power parity.

**Relative PPP depends on the ratio of the growth rates in prices (i.e. inflation) in the two countries.**

#### Part 2)

All of the following are valid reasons for the failure of PPP **EXCEPT**:

- A) forward rates are unreliable and thin.
- B) measurement of inflation varies across countries.
- C) transaction costs prevent arbitrage.
- D) import taxes constrain the movement of goods.

Your answer: A was incorrect. The correct answer was A) forward rates are unreliable and thin.

**Forward rates, and the liquidity of the forward market will not have a bearing on the correctness of PPP. The other items listed will cause actual exchange rates to deviate from what is predicted by PPP.**

#### Part 3)

Muller observes that the \$/ spot exchange rate was 0.9857 two years ago. What does a comparison of the spot rate predicted by PPP with the current spot rate, i.e., 0.9808, tell us about changes in the relative cost advantage of U.S. exporters vs. German exporters? Since the spot rate predicted by the PPP relationship is:

- A) \$1.0615 per euro, U.S. exporters have a competitive advantage relative to German exporters.

- B) \$1.0615 per euro, U.S. exporters have a competitive disadvantage relative to German exporters.
- C) \$0.9153 per euro, U.S. exporters have a competitive disadvantage relative to German exporters.
- D) \$0.9153 per euro, U.S. exporters have a competitive advantage relative to German exporters.

Your answer: A was incorrect. The correct answer was B) \$1.0615 per euro, U.S. exporters have a competitive disadvantage relative to German exporters.

PPP indicates that the current spot rate should be  $0.9857 (112/104) = 1.0615$ , compared with the actual spot rate of 0.9808. Hence, the U.S. dollar is stronger than it should be. This means that American goods have become more expensive relative to German goods, putting U.S. exporters at a relative disadvantage.

Part 4)

The generalized Fisher effect holds that real interest rates must be the same across borders. However, validity of the generalized Fisher effect requires:

- A) capital market segmentation.
- B) perfectly efficient market.
- C) significant restrictions on the international flow of funds.
- D) capital market integration.

Your answer: A was incorrect. The correct answer was D)

capital market integration.

In order for the generalized Fisher theorem to hold, capital markets must be integrated. That is, capital must be allowed to flow freely across borders. In general, the capital markets of developed countries are integrated. However, in many less developed countries, we can observe currency restrictions and other regulation that inhibit integration.

Part 5)

Muller is also interested in assessing the economic growth prospects for Germany. Suppose labor's share of German gross domestic product (GDP) is 60 percent and capital's share is 40 percent. Assuming technology is constant, what growth rate could be expected from a 2 percent increase in labor and a 3 percent increase in capital?

- A) 1.2%.
- B) 3.0%.
- C) 5.0%.
- D) 2.4%.

Your answer: A was incorrect. The correct answer was D) 2.4%.

Using the growth accounting equation, the expected growth rate would be:

$$\begin{aligned}\Delta Y/Y &= [(1 - \theta) \times \Delta N/N] + (\theta \times \Delta K/K) + \Delta A/A \\ &= [0.6 \times (2\%)] + [0.4 \times (3\%)] + 0 \\ &= 2.4\%\end{aligned}$$

Part 6)

Muller knows that government policies can have a significant impact on economic growth. Which of the following policies is *least likely* to foster economic growth?

- A) Foster technological advancement.
- B) Emphasize the development of human capital.
- C) Encourage high population growth.
- D) Pass laws that encourage higher rates of savings.

Your answer: A was incorrect. The correct answer was C) Encourage high population growth.

It is *lower*

population growth that is likely to promote economic growth. Technological advancement, higher levels of human capital, and higher rates of savings are also important factors that tend to promote economic growth.

#### Question 2 - #46505

James Willingham, CFA, is an equity portfolio manager and partner in a large investment firm in New York. The firm hires a group of new college graduates each year for its internship program, in which the interns rotate through each of the investment departments of the firm for a six week period to gain insight into the different areas of the firm's operations. The interns attended top universities around the country and have studied the basic theories of finance, but for the most part have no practical experience working with investments.

Willingham, as head of the domestic equity desk, is responsible for the supervision of the interns while they are in his department. Over the past several years, Willingham has noticed that although the interns are selected from a highly qualified pool of candidates, they seem to not have a firm working knowledge of some of the basic economic principles necessary to successfully manage an investment portfolio. Willingham has written a sample case study for the interns to analyze to strengthen their skills when assessing equities for investment. He feels that it will provide knowledge that will be useful as they rotate through each of the departments of the firm.

The case study begins with a review of the most common measures of economic activity: gross domestic product (GDP), gross national income (GNI) and net national income (NNI). Willingham believes it is very important to understand the differences in the composition of the three measures in order to meaningfully compare and contrast the reported results among different countries. He formulates sample data for a country in order for each of the interns to practice calculating the different measures of a country's productivity.

#### Sample Data (year ending 12/31/05)

NNI	\$45,000,000
Net property income from abroad	\$7,250,000
Depreciation	\$3,875,000
Indirect taxes	\$2,465,000
Subsidies	\$2,935,000

Willingham also expects the interns to have a full working knowledge of the three components of GDP: output, expenditure, and income. He believes that knowing the interrelationship of these three measures, how they are derived, and how they should be interpreted is crucial for assessment of a country's economy as well as the effect it can have on an individual stock.

Part 1)

Among the three most widely used measures of economic activity:

- A) GNI is theoretically the most accurate, although not widely used because of the difficulty in quantifying the economic cost of depreciation.
- B) there is typically very little difference between the GDP and NNI of a country.
- C) GDP understates economic activity to the greatest degree because the production of the underground economy is not included in the measure.
- D) GDP only counts production from within a country's geographic boundaries, while GNI includes productivity of a country's citizens regardless of where assets are located.

Your answer: A was incorrect. The correct answer was D) GDP only counts production from within a country's geographic boundaries, while GNI includes productivity of a country's citizens regardless of where assets are located.

There is typically very little difference between GDP and GNI, in spite of the fact that they are two distinct measures of a country's productivity.

Part 2)

Calculate the GDP based upon the information given above:

- A) \$48,375,000.
- B) \$45,470,000.
- C) \$41,625,000.
- D) \$37,750,000.

Your answer: A was incorrect. The correct answer was C) \$41,625,000.

Working backwards:  $\text{NNI} + \text{depreciation} - \text{net property income from abroad} = \text{GDP}$   
 $\$45,000,000 + \$3,875,000 - \$7,250,000 = \$41,625,000$

Part 3)

Utilizing the information given above, which of the following measures of productivity should produce the highest number, all other things being equal?

- A) GNI.
- B) GDP at market prices.
- C) NNI.
- D) GDP at factor cost.

Your answer: A was incorrect. The correct answer was A) GNI.

This can be solved intuitively and without calculations. GNI equals GDP plus net property income from abroad, so assuming a positive income number, GNI will be higher than GDP at either factor cost or market prices. NNI is simply GNI minus depreciation, so GNI will be higher than NNI.

Part 4)

Assume that a United States-owned company operates a production facility in India, and produces \$25,000,000 of goods per year at that location. Which of the following statements regarding the production of the facility is *most* accurate?

- A) The production of the facility in India would not be included in the GDP measure for the United States.
- B) The production of the facility in India would not be included in the GNI measure for the United States.
- C) The production of the facility in India would not be included in the NNI measure for the United States.
- D) The production of the facility in India would not be included in the GDP measure for India.

Your answer: A was incorrect. The correct answer was A) The production of the facility in India would not be included in the GDP measure for the United States.

GDP only counts the goods and services produced within the geographic boundaries of a country.

Part 5)

In order to convert GDP at factor cost to GDP at market prices, which of the following adjustments should be made to GDP at factor cost?

	<u>Indirect Taxes</u>	<u>Subsidies</u>
A)	Subtract	Subtract
B)	Add	Subtract
C)	Subtract	Add
D)	Add	Add

Your answer: A was incorrect. The correct answer was C)  
 Subtract                      Add

GDP at factor cost is the net of taxes and subsidies, so an adjustment must be made for consistent comparison. Beginning with GDP at factor cost, subtract indirect taxes and add back subsidies to arrive at GDP at market prices.

Part 6)

Which of the following statements regarding the measurement of the productivity of a country is *most* accurate?

- A) Income is presented as an index, with a base year's income set equal to 100, and subsequent years expressed as a percentage of the base year.
- B) The income measure excludes passive income such as trading profits and rental income.
- C) Output is considered to be the most reliable of the three measures, while expenditure is considered to be the least reliable.
- D) The most comprehensive measure of a country's expenditure component is derived by adding all consumption, investment, and export of goods and services.

Your answer: A was incorrect. The correct answer was D) The most comprehensive measure of a country's expenditure component is derived by adding all consumption, investment, and export of goods and services.

Total Final Expenditure (TFE) is used as a proxy for the expenditure component, and is the sum of consumption, investment, and export of goods and services.

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#### Question 3 - #46084

Amelia Andrews, CFA, is the current head of the California Utilities Commission, the agency which has regulatory authority over all utilities providers in the state of California. Andrews has been head of the agency for three years, before which she had spent her twenty year career in various roles at California Electric (CE), the largest producer and distributor of electricity to residential customers in California. Presently, legislators in the state of California are struggling with the issue of how to balance rising consumer demand for electricity with an obsolete production infrastructure that is already producing at levels approaching full capacity. Andrews has scheduled a joint meeting at the Commission's office with state legislators, consumer representatives, and utilities providers to address the issues.

At the meeting, Andrews greets several of her former co-workers, who are still employed by California Electric. The Chief Executive Officer of CE is Andrews's former boss and mentor, as well as occasional golf partner. The CEO of CE is at the meeting to acknowledge consumer concerns about rising electricity prices, but also to explain that CE cannot make any price concession because their existing plants are nearly at full production capacity and new, more efficient plants are several years away from completion. CE's proposal is to maintain the current strategy of passing on gradual price increases to consumers, which will then level off in the next few years as new plants are brought into production. This would allow CE to maintain its current profits margins while still providing excellent service to its customers.

Andrews introduces herself to the representatives of the consumer interest group, which has recently formed in response to the rise in utilities rates. The consumer interest group is represented by three concerned citizens from different cities across the state who volunteered to attend the meeting to voice the opinions of the consumers they represent. Their main goal is to put pressure on the regulatory commission to hold electricity rates constant until the end of the next year, stating that electricity providers have experienced years of profitability and now should be willing to make concessions to the consumers. Also, the representatives will inform meeting participants if consumer demands are not met, consumers are willing to switch to other "alternative" sources of power, even if that means a decrease in the quality of service or a slight increase in price.

Andrews also welcomes to the meeting several California state legislators who are in attendance. One of them, Louis Briggs, has known Andrews professionally for many years and is the person who had originally proposed Andrews for the job as head of the California Utilities Commission. Briggs had sent a note to Andrews before the meeting to say that he would like to help facilitate a smooth negotiation process at the meeting in anticipation of upcoming state-wide elections. He expresses to Andrews that no solution will be attractive to all interested parties, and that each of them should be willing to give up some ground.

After preliminary discussion among the representatives of the three interested parties and listening to each of their concerns, Andrews proposes yet another possible course of action: deregulation. Andrews argues that some degree of deregulation for the utilities industry in California could have many advantages over the current system. She requests that further discussions regarding the pros and cons of her proposal be held.

## Part 1)

In an industry in which a natural monopoly may exist, such as the electric utilities industry, regulators generally attempt to set industry prices at a level where:

- A) participants cannot engage in predatory pricing practices.
- B) long-run average costs equal demand.
- C) no one participant receives excessive monopoly prices.
- D) each participant earns a competitive return on investment.

Your answer: A was incorrect. The correct answer was B) long-run average costs equal demand.

There are different methods of rate regulation for a natural monopoly, but the general goal of regulators is to set prices at a level where long-run average costs intersect the demand curve, providing an element of profit for the producer.

## Part 2)

In general, regulators of a specific industry are held accountable by three separate interested parties, which includes all of the following groups **EXCEPT**:

- A) customers of the industry.
- B) lobbyists and special interest groups.
- C) legislators.
- D) participant firms.

Your answer: A was incorrect. The correct answer was B) lobbyists and special interest groups.

Lobby groups may be funded by various consumer groups or industry participants in order to protect their special interests, but regulators do not answer directly to them.

## Part 3)

The theory that assumes that despite the original purpose behind its establishment, a regulatory agency will be influenced or even possibly controlled by members of the industry that is being regulated is called the:

- A) share-the-gains, share-the-pains theory.
- B) feedback effect.
- C) capture hypothesis.
- D) creative response theory.

Your answer: A was incorrect. The correct answer was C) capture hypothesis.

The capture hypothesis assumes that since industry participants have the most expertise regarding their particular industry, they will fill regulatory positions but still have contact or relationships with members of the industry. Regulators will be "captured" by the very industry they were assigned to regulate and be unable to render impartial decisions.

## Part 4)

California Electric's proposed plan to maintain the current program of passing on gradual price increases to consumers can best be described as:

- A) cost-of-service regulation.
- B) social regulation.
- C) natural monopoly regulation.
- D) rate-of-return regulation.

Your answer: A was incorrect. The correct answer was D) rate-of-return regulation.

CE's plan is designed to protect its current level of profitability. A rate-of-return regulation approach sets industry-wide prices based upon the cost to produce the good or service plus a reasonable rate of the return to the producer/provider.



## Part 5)

If consumers change their electricity consumption in response to the California Utilities Commission's proposal to increase the rates providers are permitted to charge, it can best be described as a:

- A) feedback effect.
- B) creative response.
- C) positive effect of deregulation.
- D) negative effect of social regulation.

Your answer: A was incorrect. The correct answer was A) feedback effect.

[A feedback effect occurs when consumers' behavior is changed as a result of regulation.](#)

## Part 6)

According to the theory of contestable markets, Andrews' proposal of deregulation of the industry should produce which of the following outcomes?

- A) A short-term increase in the level of quality of service because of increased competition.
- B) An increase in market efficiency due to lower barriers to entry and exit.
- C) Unemployment rates will fall as new job openings are created in the industry.
- D) Increased power of unions, providing better pay and working conditions for employees.

Your answer: A was incorrect. The correct answer was B) An increase in market efficiency due to lower barriers to entry and exit.

[A contestable market will operate very efficiently because any excess profits in the industry will attract new entrants, which in turn will increase competition and drive prices back to marginal cost.](#)

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Question 4 - #8460

Paul Wilkes, a U.S. investor, is interested in investing in securities in the Caribbean country of Grenada. He is convinced that current market conditions make the securities of Grenada very attractive relative to those securities of other countries. Wilkes' current portfolio is composed entirely of domestic securities, with an allocation of 60 percent equity and 40 percent fixed income. Wilkes has little experience in global investing, but has decided that the timing is right to invest at least 10 percent of his portfolio in foreign assets. Wilkes is particularly attracted to the high rate of return attainable in the Grenada market, but first needs to determine if the additional risk outweighs the return.

After carefully developing his investment criteria and researching the financial markets of Grenada, Wilkes has narrowed his potential investments down to one choice. The secondary markets for equities issued in Grenada are more illiquid than Wilkes had previously thought. This lack of liquidity in the equities market leads Wilkes to determine that equities would be an inappropriate investment for his portfolio. However, bonds issued by the government of Grenada seem to have a history of good liquidity as well as steady returns, both of which are qualities Wilkes is seeking for his portfolio. Wilkes must now use various methods to determine expected returns for these bonds, given a one-year time horizon, expected changes in the U.S./Grenada exchange rates, and inflation rates. Wilkes also must consider the foreign currency risk premium of the issue, and decide if it is appropriate given the additional exposure.

The currency of Grenada is the Eastern Caribbean Dollar (ECD). The current exchange rate is 2.50 USD/ECD. The ratio of the price levels of American goods to Grenadian goods is also 2.50. Inflation in the U.S. is expected to be 2 percent and 3 percent in Grenada. The end-of-year expected spot exchange rate is 2.75 USD/ECD. The one-year U.S. (risk free) interest rate is 4 percent, and in Grenada it is 8 percent.

Also assume that these two currencies are the only ones that exist. The world portfolio risk premium is 6 percent. The security Wilkes is interested in is a government issue that has a world beta of 1.25 and currency exposure of 0.80.

## Part 1)

What is the beginning of period real exchange rate and the end of period real rate, respectively?

- A) 2.50; 2.55.

- B) 2.50; 1.11.
- C) 1.00; 1.11.
- D) 6.25; 6.94.

Your answer: A was incorrect. The correct answer was C)

1.00; 1.11.

Beginning of period real exchange rate:

$$X_0 = S \times P_F / P_D = (2.50 \text{ USD/ECD}) (1.0 P_{\text{Grenada}} / 2.50 P_{\text{US}}) = 1.0 \text{ USD/ECD}$$

End of period real exchange rate:

$$X_1 = (2.75 \text{ USD/ECD}) (1.03 P_{\text{Grenada}} / 2.55 P_{\text{US}}) = 1.11 \text{ USD/ECD}$$

$$P_{\text{Grenada}} = 1 \times 1.03 = 1.03$$

$$P_{\text{US}} = 2.50 \times 1.02 = 2.55$$

Part 2)

Has there been a change in the real exchange rate?

- A) Yes, purchasing power has changed.
- B) No, inflation remained constant.
- C) Not enough information to determine.
- D) No, the inflation differential compensated for the change in the spot rate.

Your answer: A was incorrect. The correct answer was A)

Yes, purchasing power has changed.

The real exchange rate was 1.00 at the beginning of the period, and at the end it is 1.11.

Part 3)

Assume the real exchange rate is expected to be constant. What is the expected exchange rate?

- A) 2.40.
- B) 2.52.
- C) 2.50.
- D) 2.48.

Your answer: A was incorrect. The correct answer was D)

2.48.

If the real rate remains constant, the change in the exchange rate will be the inflation differential. Since the differential is 1 percent, we would expect to see the ECD depreciate by 1 percent against the dollar. Hence, the expected exchange rate is  $= 2.50 \text{ USD/ECD} / (1.01) = 2.475 \text{ USD/ECD}$ .

Part 4)

If the U.S. investor wants to buy a bond in Grenada, what would be the approximate expected return of this bond?

- A) 8%.
- B) 9%.
- C) 7%.
- D) 6%.

Your answer: A was incorrect. The correct answer was C)

7%.

The return on the bond should be approximately equal to the foreign interest rate minus the depreciation of



the foreign currency =  $8\% + (-1\%) = 7\%$ .

Part 5)

What is the foreign currency risk premium (SRP)?

- A) 10.0%.
- B) 6.0%.
- C) -5.1%.
- D) 14.0%.

Your answer: A was incorrect. The correct answer was D)

14.0%.

$$SRP = (E(S_1) - S_0)/S_0 - (r_{DC} - r_{FC})$$

The expected foreign currency appreciation is  $= (2.75 - 2.50) / (2.50) = 0.10$ .

The SRP is the expected foreign currency appreciation minus the interest rate differential:

$$\begin{aligned} SRP &= 10\% - (4\% - 8\%) \\ &= 10\% + 4\% \\ &= 14.0\% \end{aligned}$$

Part 6)

Using the international CAPM (ICAPM), what is the *approximate* expected return on this security?

- A) 14.0%.
- B) 22.7%.
- C) 10.0%.
- D) 12.2%.

Your answer: A was incorrect. The correct answer was B)

22.7%.

The ICAPM in this case would be:

$$E(R_i) = R_0 + (B_i W \times RPW) + (Y_i ECD \times SRPECD)$$

The ECD risk premium is:

$$\begin{aligned} SRPECD &= (E(S_1) - S_0)/S_0 - (r_{DC} - r_{FC}) \\ &= 10\% - (4\% - 8\%) \\ &= 10\% + 4\% \\ &= 14.0\% \end{aligned}$$

Substituting in values, we get:

$$\begin{aligned} E(R_i) &= 0.04 + (1.25 \times 0.06) + (0.80 \times 0.14) \\ &= 0.04 + 0.075 + 0.112 \\ &= 0.2270 \text{ or } 22.70\% \end{aligned}$$

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#### Question 5 - #46083

Brent Bates, CFA, is a portfolio manager for a large money management firm located New York. Analysts at the firm, led by Bates, have been following the development of the economic situation in Mexico after the signing of NAFTA in 1994, which lifted certain restrictions on investment in Mexico commerce by foreign firms. After a period of adjustment, the firm believed the Mexican market presented opportunity for attractive investment returns. The firm has recently purchased a controlling interest in a commercial bank based in Mexico City. One of the first measures to be taken by the firm is to diversify the bank's portfolio through investments in Central and South America. The firm believes that Bates' expertise in the analysis of the

Mexican economy will be beneficial is pursuing other Latin American investment opportunities.

Bates has identified two potential investments, both of which he believes will be in alignment with his firm's investment criteria, and is ready to present his recommendations to the firm's managing directors. One of Bates' recommended investment opportunities is a company located in Country A, the largest country in South America, while the other is headquartered in Country B, a smaller Central American nation. Knowing that the firm's partners have limited knowledge of the nuances of the Latin American economies, Bates decides to take a "macro" approach to his presentation by providing broad economic information about the current situations in the two countries.

Bates begins with the company located in Country A, which is one of the largest manufacturers of women's shoes in South America. The country's economy has battled extremely high rates of inflation in the past. Over the past decade, tough policies enacted by its government appear to have controlled inflation while at the same time allowed measurable growth in real GDP. In the past ten years, Country A's real GDP per labor hour has increased from \$8.00 per labor hour to \$8.64 in this time period. Over the same time period, investment in new capital increased from \$18.00 per labor hour to \$18.90 per labor hour.

The company located in Country B has been operating in a much different economic climate than the first company. After a history of low productivity and a predominantly rural-based economy, the government of Country B has attempted to stimulate national productivity through a series of policies designed to promote more industrial commerce. Country B has established a multi-part system of incentives to encourage economic growth. Formerly state-run enterprises are increasingly being transferred into private ownership. The government of Country B has encouraged more foreign investment through less restrictive investment regulations. Also, interest rates are being carefully managed through accommodative fiscal and monetary policies to encourage growth.

Part 1)

According to the classical growth theory, Country A's recent growth in real GDP:

- A) is directly attributable to a decreased opportunity cost for women to enter the workplace.
- B) can be explained by technological advances which are driven by increased competition from imports from the Asian region.
- C) is a result of the recent decrease in interest rates intensifying peoples' incentives to discover new production methods that increase profitability.
- D) will lead to an explosion in population growth that will eventually erase any gains in GDP per labor hour.

Your answer: A was incorrect. The correct answer was D) will lead to an explosion in population growth that will eventually erase any gains in GDP per labor hour.

A key component of the classical growth theory is that growth in GDP is always temporary. When real GDP per capita rises above a subsistence level, population will grow, driving GDP per capita back down to its original level.

Part 2)

In general, which of the following factors is credited with being the *largest* contributor to a country's sustained economic growth?

- A) Investment in human capital.
- B) Discovery of new technologies.
- C) Increased domestic rate of saving.
- D) Investment in new capital.

Your answer: A was incorrect. The correct answer was B) Discovery of new technologies.

The discovery of new technologies has contributed more to sustained economic growth than either saving and investment in new capital or increased investment in human capital.

Part 3)

The amount of Country A's increase in GDP per labor hour that can be attributed to the change in capital per labor hour is apporximately:

- A) 2.50%.
- B) 3.33%.
- C) 1.67%.
- D) 5.00%.

Your answer: A was incorrect. The correct answer was C) 1.67%.

According to the “one-third” rule, at a given level of technology, a one percent increase in capital per labor hour results in a one-third of one percent increase in real GDP per labor hour. If capital labor per hour grew by 5%, then the capital growth contribution to the increase in GDP is 1.67% ( $1/3 \times 5\%$ ).

Part 4)

If in the next year, Country A's investment in new capital increases by an additional \$.90 per labor hour, which of the following statements is *most* accurate? Assume the level of technology remains unchanged.

- A) GDP per labor hour will increase, and the increase will be greater than the increase resulting from the previous decade's \$.90 increase in investment in new capital.
- B) GDP per labor hour will increase, and the increase will be less than the increase resulting from the previous decade's \$.90 increase in investment in new capital.
- C) GDP per labor hour will increase by the same amount as from the previous decade's \$.90 increase in investment in new capital.
- D) GDP per labor hour will increase, and the increase will be two-thirds of the increased investment in new capital.

Your answer: A was incorrect. The correct answer was B) GDP per labor hour will increase, and the increase will be less than the increase resulting from the previous decade's \$.90 increase in investment in new capital.

In accordance with the law of diminishing returns, at a given level of technology, the increase in GDP per labor hour will decrease as incremental capital per labor hour is added.

Part 5)

Country B has implemented policies to ensure that an adequate incentive system is in place to foster economic development in the country. Which of the following are the three components necessary for a country to establish such a system?

- A) Markets, property rights and investment in human capital.
- B) Markets, property rights and monetary exchange.
- C) Monetary exchange, investment in human capital and discovery of new technologies.
- D) Property rights, monetary exchange and investment in human capital.

Your answer: A was incorrect. The correct answer was B) Markets, property rights and monetary exchange.

The three most basic components necessary for a country's economic growth are markets, property rights and monetary exchange. Markets allow for the exchange of information among buyers and sellers. Property rights give assurance that no entity can confiscate savings and investments of a country's citizens. Monetary exchange facilitates the efficient exchange of goods and services among individuals.

Part 6)

According to the basic principles of the new growth theory, the government of Country B will succeed in fostering new economic development in their country through:

- A) an increase in capital accumulation.
- B) a decrease in real interest rates.
- C) control of population growth.
- D) an increase in labor productivity.

Your answer: A was incorrect. The correct answer was B) a decrease in real interest rates.

The new growth theory contends that the two main catalysts of growth are the creation of knowledge capital and lower real interest rates.

## Question 6 - #8554

Bob Bowman, CFA, is an analyst who has been recently assigned to the currency trading desk at Ridgeway Securities, a hedge fund management firm based in New York. Ridgeway's stellar reputation as a top tier hedge fund manager has been built upon many years of its portfolio outperforming both the market and its peer group. Ridgeway's portfolio is globally diversified, with less than 35 percent of its assets currently invested in U.S. securities. Ridgeway seeks to enhance its portfolio returns through the active use of currency futures that correspond to its investments. From time to time, Ridgeway will also take advantage of arbitrage opportunities that arise in the currency markets.

In his new position, Bowman will be reporting to the head currency trader, Jane Anthony. Among Bowman's new responsibilities, he will be performing an ongoing analysis of global currency rates. His analysis is expected to include projections of future exchange rates and a sensitivity analysis of exchange rates in a variety of interest rate scenarios. Using his projections as a starting point, he will then be expected to suggest possible trading strategies for Ridgeway. Bowman knows that his analysis will begin with the underlying principles of the five basic international parity relationships. However, he does realize that certain principles will be more useful than others when applied to a "real-world" situation. To test his knowledge of the subject, Anthony has asked Bowman to prepare a presentation on the interrelationships between exchange rates, interest rates, and inflation rates. For the presentation, Bowman will need to prepare a brief analysis of current market conditions and formulate some basic trading strategies based upon his projections. He also will need to demonstrate his ability to calculate predicted spot rates for currencies, given some basic inflation rate and interest rate assumptions.

Bowman begins his task by gathering the following current market statistics:

- 1 year U.S. Interest Rates = 8%
- 1 year U.K. Interest Rates = 10%
- 1 year \$/ forward rate = 1.70
- Current \$/ spot rate = 1.85

## Part 1)

Bowman knows that if the forward rate is *lower* than what interest rate parity indicates, the appropriate strategy would be to borrow:

- A) pounds, convert to dollars at the forward rate, and lend the dollars.
- B) pounds, convert to dollars at the spot rate, and lend the dollars.
- C) dollars, convert to pounds at the forward rate, and lend the pounds.
- D) dollars, convert to pounds at the spot rate, and lend the pounds.

Your answer: A was incorrect. The correct answer was B) pounds, convert to dollars at the spot rate, and lend the dollars.

If the forward rate is *lower* than what the interest rate parity indicates, the appropriate strategy would be: borrow pounds, convert to dollars at the spot rate, and lend dollars.

## Part 2)

Bowman also knows that if the forward rate is *higher* than what interest rate parity indicates, the appropriate strategy would be borrow:

- A) dollars, convert to pounds at the spot rate, and lend the pounds.
- B) pounds, convert to dollars at the spot rate, and lend the dollars.
- C) pounds, convert to dollars at the forward rate, and lend the dollars.
- D) dollars, convert to pounds at the forward rate, and lend the pounds.

Your answer: A was incorrect. The correct answer was A) dollars, convert to pounds at the spot rate, and lend the pounds.

If the forward rate is *higher* than what interest rate parity indicates, the appropriate strategy would be: borrow dollars, convert to pounds at the spot rate, and lend the pounds.

## Part 3)

Based on the information above, Bowman would like to calculate the forward rate implied by interest rate parity. The answer is:

- A) 1.67 \$/.
- B) 1.82 \$/.
- C) 1.88 \$/.
- D) 1.89 \$/.

Your answer: A was incorrect. The correct answer was B) 1.82 \$/.

Given the above relationship, interest rate parity *does not hold*.

(If interest parity held,  $1.70 = 1.85 * (1.08 / 1.10)$ , but  $1.85 * (1.08 / 1.10) = 1.82$ .)

Therefore, an arbitrage opportunity exists.

To determine whether to borrow dollars or pounds, express the foreign rate in hedged US\$ terms (by manipulating the equation for IRP). We get:

$(1.70 / 1.85) * 1.10 = 1.0108$ , which is less than 1.08 (U.S. rate), so we should start by borrowing British pounds and lending U.S. dollars.

Arbitrage steps:

(1) Today:

- a. borrow 5,000 @ 10%
- b. buy \$9,250 with the proceeds of the loan. ( $5000 * 1.85$ )
- c. lend \$9,250 @ 8%
- d. buy 5,500 one year in the future @ 1.70 \$/. This guarantees your loan repayment of  $5,000 * 1.1 = 5,500$ .

(2) One year later, close out your position:

- a. Collect the proceeds of your loan:  $\$9,990 = \$9,250 * 1.08$ .
- b. Buy 5,500 with your forward contract. Cost =  $5,500 * 1.70 = \$9,350$ .
- c. Pay off your loan of 5,500.
- d. Reap your profits:  $\$9,990 - \$9,350 = \$640$ .

## Part 4)

A junior colleague asks Bowman for the mathematical equation that describes interest rate parity. Which of the following equations **CORRECTLY** describes interest rate parity? ( $S_0$  is the spot exchange rate expressed in dollars per unit of foreign currency,  $F_{0,T}$  is the forward exchange rate, and  $r_{US}$  and  $r_{FX}$  are the risk-free rates in the U.S. and foreign country.)

- A)  $F_{0,t} = S_0 [(1+r_{FX}) / (1+r_{US})]$ .
- B)  $F_{0,t} = S_0 [(1+r_{US}) / (1+r_{FX})]$ .
- C)  $S_0 = F_{0,t} [(1+r_{US}) / (1+r_{FX})]$ .
- D)  $S_1 = F_{0,t} [(1+r_{US}) / (1+r_{FX})]$ .

Your answer: A was incorrect. The correct answer was B)  $F_{0,t} = S_0 [(1+r_{US}) / (1+r_{FX})]$ .

*Interest Rate Parity*

Interest rates between countries and their exchange rates (spot and futures) must be in equilibrium at all times or else there will be arbitrage opportunities. Interest rate parity says that:

$$F_{0,t} = S_0 [(1+r_{US}) / (1+r_{FX})]$$

Where:

$S_0$  = the current exchange rate in the spot market.

$F_{0,t}$  = the current exchange rate in the forward of futures market.

$r_{US}$  = the risk-free interest rate in the U.S.

$r_{FX}$  = the risk-free interest rate in the foreign market.

*Note: the above currency quotes are expressed in \$/FX.*

#### Part 5)

Now, suppose Bowman has the following information available to him: the current spot exchange rate for Indian Rupees is \$0.02046. Inflation over the next 5 years is expected to be 3 percent in the U.S. and 5 percent in India. Bowman must calculate the U.S. Dollar / Indian Rupee expected future spot exchange rate in 5 years implied by purchasing power parity (PPP). The answer is:

- A) \$0.01858.
- B) \$0.02010.
- C) \$0.02250.
- D) \$0.01946.

Your answer: A was incorrect. The correct answer was A) \$0.01858.

The purchasing power parity PPP assumption is that the future spot exchange rate will change exactly as the inflation rates affect the values of each currency. For the computation, raise the U.S. inflation rate to the 5th power (because of 5 years) and divide it by the Indian inflation rate raised to the 5th power. Then multiply the result by the spot exchange rate.  $((1.03)^5 / (1.05)^5) * 0.02046 = \$0.01858$ .

#### Part 6)

Bowman routinely calculates the expected spot rate for the Japanese Yen per U.S. dollar. He knows that the current spot exchange rate is \$189.76 Yen/USD. He is also aware that the interest rates in Japan, Great Britain, and the U.S. are 8 percent, 4 percent, and 5 percent respectively. Calculate the expected spot rate for Yen/USD in a one year period.

- A) 187.95 Yen / USD.
- B) 189.76 Yen / USD.
- C) 195.18 Yen / USD.
- D) 184.49 Yen / USD.

Your answer: A was incorrect. The correct answer was C) 195.18 Yen / USD.

The exact methodology of the covered interest rate parity (IRP) is:

expected spot rate in one period (FC/DC) = spot rate today (FC/DC)  $\times [(1 + R_{FC}) / (1 + R_{DC})]$ .

Setting up this equation gives us  $E(S_1) = 189.76 \text{ Yen/USD} \times (1.08 / 1.05) = 195.18 \text{ Yen/USD}$ .

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