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# **Chapter 1: Questions**

1. **MNC Definition**. What are MNCs? Provide three examples of MNCs from (a) US, (b) non-US but developed nation, and (c) emerging markets. In your estimate, which category of countries has long-standing (i.e., listed for a long period of time) and which category has young firms?

**Answer**: MNCs are large firms conducting business in multiple countries through subsidiaries and affiliates. US examples are IBM, Boeing and Xerox. Non-US developed country examples are Philips (Netherlands), British Petroleum (United Kingdom) and Daimler Benz (Germany). Emerging markets examples are Haier (China), Vale (Brazil) and Tata (India). US and developed market MNCs have been around a lot longer than emerging markets MNCs.

2. **Globalization**. Define globalization. What forms of globalization are of greater interest to the business person? What forms are of greater interest to the general person? Explain differences in the two lists.

**Answer**: Globalization is the movement of money, people or goods across borders. A business person would be interested in the movement of goods (as producers) and money (as investors). A general person would probably be less interested in the movement of money and more interested in the movement of people (migration issues). For example, migration is a political and cultural issue and not solely an economic issue.

3. **Movement of Goods**. Is the movement of goods—one form of globalization also known as international trade—a recent phenomenon? Use your knowledge of 'business history' as well as current affairs in answering this question.

**Answer**: International trade has occurred for thousands of years. See reference to the ancient Silk route in the chapter. But recent trends show acceleration in trade.

4. **Global Agreements and Globalization**. What kind of global agreements lead to globalization? Are these multilateral or bilateral agreements? What are typical features of these agreements?

**Answer**: Agreements that are between large numbers of countries that systematically break down barriers are ones that leads to globalization. These agreements typically have enforceable provisions and have an organization that oversees contact between nations. For example, the WTO oversees global trade.

5. Freedom and Growth. Is there a connection between freedom and economic growth? Use historical as well as contemporary examples to support your answer.

**Answer**: There does appear to be a connection between freedom and economic growth. China would be a contemporary example. The Chinese are experiencing much greater economic as well as political freedom in recent years. Over this time, the Chinese economy has done very well.

6. **Impact of Technology**. "Technology and innovation inevitably lead to globalization." Support this statement by providing at least two recent examples.

**Answer**: A common example is the Internet which created new products and services as well as new business models (new ways to connect various parties in a business setting). A rather simple but nevertheless powerful example concerns the use of Internet to connect MNCs with foreign affiliates. Virtual private networks (VPN) can be created to seamlessly connect all partners and to reduce communication costs. Innovation in air transportation has led to globalization in high tech industries such as semi-conductors: products can be shipped quickly from manufacturing countries to consuming countries.

7. **Transportation**. What are innovations in transportations in recent decades? What are recent trends? In your answer address all forms of transportations.

**Answer**: Innovations include containerization in sea shipping and overall improvements in air shipping. Recent trends indicate a greater reliance on air shipping.

8. **Comparative Advantage Theory**. Explain the comparative advantage theory of trade with an example. Distinguish between the classical and neo-classical versions of this theory.

**Answer**: According to the comparative advantage theory, countries trade with one other because of advantages in producing certain products relative to others. For example, India has relative advantages in producing textile products compared with airplanes. The US has relative advantages in producing airplanes compared with low-tech agricultural machinery. Italy has relative advantages in providing tourism related services, and so on. The classical theory focuses on technologies that generate efficiencies (that is, low cost) for certain products. The neo-classical theory focuses on factor abundance, that is, certain countries are endowed with more of a certain input factor.

9. **Trade Theory**. Most theories of trade do not explain why a country might simultaneously export and import the same product. For instance, the US is simultaneously an exporter and importer of airplanes. What theory explains this phenomenon?

**Answer**: The new trade theory explains the phenomenon of a country simultaneously being the exporter and importer of a product. This is attributable to producers wishing scale (hence they focus on a particular version of a product) and consumers wishing variety (hence they demand various versions of a product).

10. **Trade Theory**. Looking at the past few decades, the US has show strength in various industries—steel, automobiles, consumer electronics to name a few—only to see other countries ultimately prevail. What theory would explain this empirical fact? Are there current areas of US industrial strength destined to follow the same pattern in the next 10-

#### 20 years?

**Answer**: The product cycle theory explains this phenomenon. Over time overseas competitors gains knowledge and experience and challenge a firm first in its foreign markets and later even in its home markets. It is hard to make firm predictions of industries that will be affected in this way. But current indications are that traditional US strengths such as consulting services, computer hardware and software might be challenged by overseas firms.

11. Location Theory. Using theories of industry agglomeration explain (a) the location of business process (human resources, accounting, etc.) outsourcing firms in Bangalore, India and (b) the location of financial services firms in NY City.

**Answer**: Outsourcing firms locate in Bangalore because of the ready supply of Englishspeaking and competent software professionals. The city also has relatively better infrastructure (power, roads, air connection) compared to other Indian cities, but it appears that congestion has taken its toll. Financial services firms locate in NY City because of the strength of the NYSE and other exchanges as well as top financial, information services and legal talent from the numerous top universities in the region. Partly the city's strength stems from its head start: the NYSE was established centuries ago.

12. **MNC Theory**. What is the OLI model? How is the knowledge capital model different from the OLI model? Based on your judgment of global business conditions as well as your understanding of these models, do you expect more or fewer MNCs in the future?

**Answer**: The OLI model refers to the three advantages enjoyed by an MNC: ownership, location and internalization advantages. (See section 1.3 for a full description of this theory) The knowledge-capital model focus on one particular view of ownership advantages: the MNC owns valuable knowledge (patents, etc.) that can leveraged in activities across borders. (See section 1.3)

13. **MNC Risks**. "MNCs face greater risks than purely domestic firms." What are some of the arguments supporting and disproving this statement?

**Answer**: The fact that MNCs face currency risk (they deal with multiple currencies), economic risk (they operate in multiple countries) and political and regulatory risk (again, from multiple jurisdictions) would suggest that MNCs face more risks than purely domestic firms. But MNC are also large and diversified (across products and geographies), so they may also be less vulnerable to shocks.

14. **MNC Agency Costs.** Explain why MNCs face greater levels of agency costs than purely domestic firms?

**Answer**: MNCs may face greater agency costs because they are geographically dispersed (opportunity for business unit managers to act in sub-optimal ways), engage in a wider

range of business activity (sub-optimal behavior is easier to hide in this complex setting) and are more decentralized (more authority is given to lower level managers).

15. Centralization vs. Decentralization. Are most MNCs centralized or decentralized? What are some pros and cons of choosing one organizational form over another?

**Answer**: Most MNCs appear to be decentralized. An advantage of decentralization is that information relevant to making decisions at a particular unit need not be transmitted to higher levels; the unit can make its own decisions quickly and efficiently. An advantage of centralization is that unit managers can be better controlled by top management and agency costs can be reduced.

16. **Comparative Corporate Governance**. Define the term corporate governance. What are some differences between corporate governance in the US and in Asia?

**Answer**: The term corporate governance refers to the rules, processes and laws regulating and controlling firms. The US model is geared toward public financing and arms-length transactions. The Asian model is more of a private contracting model, where for instance, banks rather than bondholders provide financing. Also, Asian firms are usually dominated by families.

17. **Corporate Governance Issues**. What is tunneling? In what scenarios does one encounter tunneling? What are consequences for the firm encountering this problem? What are consequences for the growth rate of an economy where tunneling is rampant?

**Answer**: Tunneling is the expropriation of corporate assets by majority owners. For example, corporate assets may be sold at below market value to other entities owned by the majority owners. Tunneling tends to occur in under-developed markets (e.g., Eastern Europe) where the legal system is not strong enough to protect the rights of minority shareholders. Tunneling tends to inhibit investments in businesses and can put a damper on economic growth.

18. **Monitoring Systems**. Consider a firm based in Korea (you may want to think of Samsung Electronics). Based on your understanding of global corporate governance norms assess the efficacy of internal and external controls for this firm in comparison to a US firm.

**Answer**: Internal controls may be weakened by family control or by a large entrenched shareholder. One interesting problem (not mentioned in text) occurs when the controlling shareholder has a greater proportion of voting rights compared to cash flow rights. External controls may also not be as good because of deficiencies in financial markets: for example, the market for corporate control is underdeveloped in Korea. On the flipside the Korean firm may be controlled beneficially by its large creditors (banks).

# **Chapter 1: Extensions**

1. **Bilateral Trade between Developed Nations**. The US Department of State web information on Ireland (see <a href="http://www.state.gov/r/pa/ei/bgn/3180.htm">http://www.state.gov/r/pa/ei/bgn/3180.htm</a>, downloaded July 28, 2008) states the following regarding its imports/exports from/to the US:

In 2005, U.S. exports to Ireland were valued at \$9 billion, while Irish exports to the U.S. totaled \$28 billion, according to the U.S. Department of Commerce. The range of U.S. exports includes electrical components and equipment, computers and peripherals, drugs and pharmaceuticals, and livestock feed. Irish exports to the United States represent approximately 20% of all Irish exports, and have roughly the same value as Irish exports to the UK (inclusive of Northern Ireland). Exports to the United States include alcoholic beverages, chemicals and related products, electronic data processing equipment, electrical machinery, textiles and clothing, and glassware. According to Ireland's Central Statistical Office, Irish exports to the United States from January to September 2006 rose by 7% compared to the same period in 2005, while Irish imports from the United States from January to September 2006 fell by 14% compared to the same period in 2005.

Use theories of international trade to explain this bilateral trade relationship. In your opinion is this a large volume of trade?

**Answer**: This is not a particularly large volume of trade, possibly explained by the fact that Ireland is not close to the US and is a relatively small country. The products listed appear to conform to the theory of comparative advantage. Ireland exports alcoholic beverages (Bushmills whisky and Guinness beer). The US exports computers and drugs. Irish exports of alcoholic beverages also conform to the product cycle theory: after saturating local markets, MNCs target foreign markets.

 Bilateral Trade and Entities. The US Department of State web information on Mexico (<u>http://www.state.gov/r/pa/ei/bgn/35749.htm</u>, accessed July 28, 2007) states the following:

Mexico is among the world's most open economies, but it is dependent on trade with the U.S., which bought about 82% of its exports in 2007. Top U.S. exports to Mexico include electronic equipment, motor vehicle parts, and chemicals. Top Mexican exports to the U.S. include petroleum, cars, and electronic equipment.

Does this list provide clues about the types of entities conducting cross-border trade between the US and Mexico? Explain.

**Answer**: Gravity theory strongly explains the strong Mexican exports to the US. Interestingly, motor vehicle parts are flowing to Mexico and cars are returning. Perhaps these are MNC such as GM and Ford with affiliates in Mexico. Mexican labor is much cheaper than US labor so MNCs in many industries take advantage by setting up Mexican operations. 3. **Bilateral Trade between Developed and Developing Nation**. The US Department of State web information on Peru (<u>http://www.state.gov/r/pa/ei/bgn/35762.htm</u>, accessed July 28, 2007) states the following:

Peru registered a trade surplus of \$8.8 billion in 2006. Exports reached \$23.7 billion, partially as a result of high mineral prices. Peru's major trading partners are the U.S., China, EU, Chile and Japan. In 2006, 23.0% of exports went to the U.S. (\$5.9 billion) and 16.0% of imports came from the U.S. (\$2.9 billion). Exports include gold, copper, fishmeal, petroleum, zinc, textiles, apparel, asparagus and coffee. Imports include machinery, vehicles, processed food, petroleum and steel. Peru belongs to the Andean Community, the Asia-Pacific Economic Cooperation (APEC) forum, and the World Trade Organization (WTO).

Uses theories of trade to explain this data.

**Answer**: The neo-classical theory of comparative advantage explains these data. Peru is richly endowed with minerals, so it focuses on the extractive industries. Also, lower labor costs enable it to focus on agricultural products.

4. Corporate Governance in Emerging Markets. Pyramidal ownership structures are common in many Asian, European and S. American countries. Usually a founding family will have control over firm A that in turn will have control over other firms. The founding family is thus at the top of the pyramid and can control all firms underneath it. Consider this simple example. A family owns 50% of firm A that in turn owns 50% of firm B that in turn owns 50% of firm C. The family's direct ownership of firm C is 50%×50%×50% and equals 12.5%, by no means a majority. Yet, it is able to control C fully. What are costs and benefits of such an ownership structure?

**Answer**: The benefit of a pyramidal ownership structure is that a capable entrepreneurial family is able to achieve a lot and control many firms. There are many examples of capable entrepreneurial firms in Asia. But this structure will also provide asymmetric power to the family. If it has anti-shareholder inclinations, no one can control it. There are also many examples of families exploiting their power for their own personal or political ends.

# **Chapter 2: Questions**

1. **Foreign Exchange Market**. How large is the foreign exchange market? What drives demand for transactions in this market?

**Answer**: The spot market exceeds USD 600 million of transaction per day. Demand arises from multiple sources such as MNCs, financial institutions, governments and individuals.

2. Foreign Exchange Market. Why is the foreign exchange market a 24-hour market?

**Answer**: It is a 24-hour market to suit the needs of participants in multiple regions. For example, when US participants require transactions each morning, it is mid-day in Europe and evening in Asia.

3. **Bid-Ask Quotes**. What are bid and ask quotations? What are some factors determining the spread between bid and ask values?

**Answer**: Bid and ask quotations refer to the prices at which a foreign exchange dealer (often a bank) is willing is buy (bid) or sell (ask). Ask is greater than bid. The spread is determined by currency volatility (increases risk for dealer) and the trading volume (higher volume means higher profits, so a dealer can afford a smaller spread).

4. **Direct vs. Indirect Quotes**. What are direct and indirect currency quotes? How can direct quotes be converted into indirect quotes? Give examples of currencies that are quoted indirectly in the US.

**Answer**: The direct quote for a foreign currency is in the form of "1 unit of foreign currency = X units of domestic currency." An indirect quote is in the form of "1 unit of the domestic currency = X units of the foreign currency." The inverse of one equals the other. The JPY is an example of a currency that is frequently quoted indirectly (that is, as number of JPY per USD).

5. **Banks in FX Trading**. Give examples of large US banks involved in foreign exchange trading. Globally, which nation's banks are the leading foreign exchange dealers?

**Answer**: The answer appears to be in flux. 2008 data is presented in the text indicates that European banks (e.g., Deutsche Bank, UBS) are leading dealers. Citi (USA) is one of the top 5 dealers.

6. Other Entities in FX Trading. Try using key words such as 'foreign exchange' or 'buy foreign currency' in a search site such as Google. What types of businesses appear in the first page? In particular who are the advertisers in the sponsored links? Can you enter some of these websites and determine the business models of these advertisers? Relate to material learned in this chapter.

**Answer**: Many online-trading FX sites such as forex.com, FXsolutions.com appear on the first page. The business model of these firms is to provide access at near Interbank rates and to reduce the transaction costs of many types of participants. The high trading volume of currency markets enables these businesses.

7. **FX Market Location.** Which location is the most important for foreign exchange trading and why?

**Answer**: According to an exhibit in the text, the UK processes about a third of all currency transactions. London is ideally situated for currency trading because its business hours coincide with business hours in the East as well as in the West.

8. Oil Prices and FX Trading. Assume that the price of oil increases by 40% in a particular year because of political instability in a major oil producing country. Consequently transportation costs rise. Explain how this rise affects the quantity of transactions in the foreign exchange market.

**Answer**: One possible effect is fewer trips by travelers to overseas locations. This can reduce transactions in the currency market. However, there could be portfolio effects also (money flows to cross-border assets) which are difficult to determine.

9. **Eurobonds Market**. What are Eurobonds? How do Eurobonds differ from domestic bonds? What factors led to the birth and growth of Eurobonds? Where are Eurobonds traded?

**Answer**: In Eurobonds there is a mismatch between the country (and region) of issue and the currency denomination of the bond. If bonds are issued in the US and denominated in JPY, they would be categorized as Eurobonds. Section 2.3 explains the birth and growth of this market. Eurobonds are traded in exchanges, with Luxembourg and London being preferred locations.

10. Eurobonds Issue Considerations. Formans is a grocery store chain operating in the Midwest (US). The firm is interested in expanding the number of stores from 200 to 250 in the next three years. Forman's CFO, Ron Mittal, is considering various options for issuing debt. Forman's investment banker raises the possibility of a USD 50 million issue in the Eurobond market. Comment on the viability and desirability of this alternative.

**Answer**: Formans does not fit the profile of the typical issuer. Formans is small, has a modest need of USD 50 million and is not a known business name.

11. **Foreign vs. Eurobonds**. An Australian firm wishes to make a debt issue. Explain to its CFO the difference between foreign bonds and Eurobonds. Which of these two bonds are issued and traded in a more global market? Which market is probably a better market for this firm and why?

Answer: Foreign bonds are issued in a particular country by a foreign issuer and

denominated in the country's own currency. Thus a US firm issuing JPY bonds in Japan is said to issue a foreign bond. But if this same firm issues a USD bond in Japan, that would be a Eurobond. Eurobonds are traded in a more global market. The Australian firm would probably tap a larger market if it issues in USD or EUR in the Eurobond markets.

12. **Eurocurrency Market**. What are Eurocurrency markets? What is the approximate size of this market?

**Answer**: The term Eurocurrency has been applied to an important subset of the international money market where lending and borrowing of currencies occur outside of their respective countries. The Eurodollar is an important component of this market. The chapter provides statistics on cross-border banking and the inference is that the Eurocurrency markets is in tens of trillions USD.

13. **FRN Description**. What are FRNs? What types of issuers might be interested in this instrument?

**Answer**: These are floating rate financial instruments with coupon interest linked to the LIBOR or other indicative rates such as the EURIBOR. Corporation who are not so concerned about exposure to a rise in interest rates and who believe that low short-term rates provide a favorable opportunity may be attracted to FRNs.

14. **Eurodollar Market**. How did the Eurodollar markets develop? Evaluate the current importance of the Eurodollar market.

**Answer**: See 2.2 for the story of how the Eurodollar markets developed. This is an extremely important money market with the LIBOR rate from this market used as a benchmark in financial contracting.

15. **Global Equity Markets**. What are the major stock exchanges in the world? Which one is the largest and why? What are current developments in equity markets?

**Answer**: Section 2.4 has an exhibit showing the leading stock exchanges. The NYSE is the largest exchange owing to the fact that (a) the US equity markets are the largest in the world and (b) the NYSE has engaged in many acquisitions worldwide.

16. **Global Equity Markets**. Why are stock exchanges consolidating? Give an example of a recent attempt at consolidation?

**Answer**: Intense competition in financial markets and the increasing use of technology (for electronic trading) has created ideal conditions for consolidation. In 2007 NYSE combined with Euronext, and, later, in 2008 acquired the American Stock Exchange.

**Global Integration of Markets**. We are living in an era of globalization. In terms of global integration of markets, which has occurred first, (a) market for goods or (b) market for capital?

Explain.

### #1 Currency Conversion:

215,000 USD 395,000 BRL What is BRLUSD? BRLUSD 0.54430 =215,000 / 395,000 What is USDBRL? USDBRL 1.83721 =395,000 / 215,000

## #2 Currency Conversion (Oriental Mercantile Bank):

BidAskSGDUSD0.73520.7358US firm wishes to obtain SGD 2 millionSGD2,000,000How mnay USD are required?USD1,471,600=2,000,000 \* 0.7358

### #3 Currency Conversion (Oriental Mercantile Bank) (continued):

	Bid	Ask				
SGDUSD	0.7352	0.7358				
The firms receives SGD 40,000 from a customer						
SGD	40,000					
What is the converted value in USD?						
USD	29,408	=40,000 * 0.7352				

#### #4 Bid-Ask Spread:

	Bid	Ask	
EURUSD	1.22	1.24	
What is the bid	-ask spread in	absolute terms?	What is the spread in percentage terms?
Spread	0.02	=1.24 - 1.22	
Spread%	1.61%	=0.02 / 1.24	

#### #5 US bank's quotes

	Bid	Ask	
USDJPY	103	104	
What is the bid	-ask spread in	absolute terms?	What is the spread in percentage terms?
Spread	1	=104 - 103	
Spread%	0.9615%	=1 /104	

#6	Comparing Bid-Ask Spreads (Chong Hing Bank):						
		Bid	Ask	Spread	Spread%		
	USDHKD	7.6211	7.6219	0.0008	<mark>0.010%</mark> L	east	
	SGDHKD	5.9998	6.0012	0.0014	0.023%		
	EURHKD	11.1882	11.1895	0.0013	0.012%		

JPYHKD0.07480.07510.00030.399%MostCalculate the bid-ask spread (absolute and percent) and identify the least and most costly spJPY appears most expensive to trade from the Hong Kong perspective

<b>#7</b>	Comparing	Bid-Ask Spread	ls (Chong Hi	ng Bank) (c	ontinued):		
	Convert the	table in question	above into ind	lirect quotes	and re-calcul	ate bid-ask	spreads (ab
		Bid	Ask S	Spread	Spread%		
	HKDUSD	0.131201	0.131215	0.000014	0.010%	Least	
	HKDSGD	0.166633	0.166672	0.000039	0.023%		
	HKDEUR	0.089369	0.089380	0.000010	0.012%		
	HKDJPY	13.315579	13.368984	0.053405	0.399%	Most	
	Calculate the	e bid-ask spread (	(absolute and ]	percent) and	identify the l	east and mo	st costly sp
	See above ta	able. HKD appear	rs more expens	sive to trade	from Japanes	e perspectiv	ve.
	Note: The b	id-ask spread is in	nvariant to the	use of direc	et or indirect q	uotes.	
<b>#8</b>	Evaluation	of Transaction (	Costs:				
	US MNCs e	valuation of alter	natives for sel	ling EUR 2	million.	<b>D</b>	
			Bid	Ask	Commission	Proceeds (U	JSD)
	A	EURUSD	1.4512	1.4519	250	2,902,150	=2,000,000
	В	EURUSD	1.4511	1.4520	100	2,902,100	=2,000,000
	С	USDEUR	0.6890	0.6891	150	2,902,186	=2,000,000
<b>#9</b>	Evaluation	of Transaction (	Costs (continu	ied):			
	Use data fro	m above, bank A	, convert EUR	R 500,000			
			Bid	Ask	Commission	Proceeds	w/o costs
	А	EURUSD	1.4512	1.4519	250	725,350	725,775
	Note: procee	eds w/o costs $=50$	0,000*((1.45)	12+1.4519)/2	2)		
	T-cost	425	=725,775 - 72	25,350			
	T-cost%	0.059%	=425 /725,77	5			
#10	Transaction	n Costs and Banl	k Profits:				
	Use data fro	m above, bank B	, one custome	r purchases ]	EUR 5m, anot	ther sells EU	JR 5m
			Bid	Ask	Commission		
	В	EURUSD	1.4511	1.4520	100		
	What is the	profit made by th	e bank? Break	down profit	s into spread a	and commis	sions.
	From bank's	perspective, cash	n flows are be	low			
	Cust#2	EUR	5,000,000 1	USD	-7,255,400	=-5,000,000	)*1.4511+1
	Cust#1	EUR	-5,000,000 1	USD	7,260,100	=5,000,000	*1.4520+10
	Profit = sum	n of cash flows			4,700		
	Commission	1			200	=2*100	
	spread				4,500		

Pair	Quote
USDJPY	108
EURJPY	156
HKDJPY	17
USDEUR	0.69231 =108 / 156
USDHKD	6.35294 =108 / 17

#12	LIBOR deposi	t FV and Effective Rate (Microsoft):
	Amt	2,000,000 USD 000s Note: This equals 2 billion.
	t	90 days
	LIBOR	4.20%
	What is the inte	rest earned by Microsoft? What is FV? What is the effective annual return?
	FV	2,021,000 =2,000,000*(1+4.20%*(90/360))
	Interest	21,000 = 2,021,000 - 2,000,000
	Eff rate	<b>4.33%</b> =(2,021,000 / 2,000,000)^(365/90) - 1
	FV Interest Eff rate	$\begin{array}{l} 2,021,000 \\ = 2,000,000*(1+4.20\%*(90/360)) \\ 21,000 \\ = 2,021,000 - 2,000,000 \\ 4.33\% \\ = (2,021,000 / 2,000,000)^{(365/90)} - 1 \end{array}$

### **#13 LIBOR Deposit Effective rate:**

LIBOR5.40% 180-day rateCalculate the effective annual return. Also calculate the continuously compounded interest 1FV1.027Eff rate5.55%To determine equivalent continous compounded returnSet e^X = 1.0555X5.40%

#14 Inferring LIBOR (Dell):

t	180
Effective rate	3.80%
What is 180-da	y LIBOR (actual/360 convention)?
Suppose FV of	1 in 180 days is X
This means tha	t X^(365/180)-1=3.8%
Solving,	
Х	1.01856 =(1+3.8%)^(180/365)
Interest	0.01856 =1.01856 - 1
Rate (LIBOR)	3.71% =0.01856 * (360/180)
Lets check the	answer
FV	1.01856 = 1 + 3.71% * (180/360)
eff rate	3.80% =(1.01856 / 1)^(365/180) - 1

## **#15 Inferring LIBOR Rate:**

t 270 Effective Rate 4.10% Suppose FV of 1 in 270 days is X

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This means that $X^{(365/270)-1=4.1\%}$					
Solving,					
Х	1.03017 =(1+4.1%)^(270/365)				
Interest	0.03017 =1.03017 - 1				
Rate (LIBOR)	4.02% =0.03017 * (360/270)				
Lets check the answer					
FV	1.03017 = 1 + 4.02% * (270/360)				
Effective Rate	4.10% =(1.03017 / 1)^(365/270) - 1				

#16	LIBOR vs.other rates (Waste Mgt):				
	Amt	20 USD m	il		
	t	180 days			
	Alternative			FV	
	Ι	Cont. comp.	5%	$20.499281 = 20 \exp(5\% (180/365))$	
	II	LIBOR	?	20.499281	
	Determine three	eshold value of LIBOR			
	Int	0.49928 = 20.49928 - 20			
	LIBOR	4.99% =(0.49928/20)*(360/180)			
	Lets check this	s answer by calculating FV			
	FV	20.49928 =20*(1	+4.99	%*(180/360))	

#17	FRN and Expected CF:					
	LIBOR +	40 bp				
	1-yr L	4.20%				
	Year	Rate or Exp Rate				
	1	4.60%				
	Face	175,000				
	Expected CF	8,050 =175,000*4.6%				

Ext#1 FR	N and Expected	CF (adv	anced probl	em, requires term structure knowledge)
Fac	e 1	,000,000	USD	
EU	RIBOR +	60	bp	
1-y	LIBOR	4.00%	Actual LIBC	DR rate
2-y	LIBOR	5.00%	Assumed LI	BOR rate based on proxy
2nd	yr rate	5.769%	=(1+5%)^2	/ (1+4%) - 1
Yea	r Rate		Coup. Paym	ent
	1	4.600%	46,000	=1,000,000*4.6%
	2	6.369%	63,692	=1,000,000*6.369%