Learning Module 1: Market Organization & Structure

LOS 1a: explain the main functions of the financial system

Achievement of Purposes

People use the financial system for various reasons, which can be broken down into six main purposes. However, regardless of the purpose, the financial system is more efficient when transactions are performed in liquid markets.

1. Saving

Both individuals and companies alike set aside money in the present to have more to spend in the future. Individuals typically save during their working years so they can withdraw money later on to fund their retirement. Corporations may save money collected from customers to repay suppliers or lenders, purchase new equipment, or acquire other companies. Money can be saved in a broad range of investment vehicles: from low-risk treasury bills to higher-risk corporate bonds and stocks. Investors that put money into riskier investments expect to be compensated with higher returns.

2. Borrowing

In contrast to saving, borrowing involves receiving money in the present that will be repaid in the future. People can borrow money through secured loans, like most car loans and mortgages; for example, the lender can sell the asset posted as collateral if the borrower defaults. On the other hand, student loans or credit card debt is typically unsecured. Since there is no collateral to be recovered if the borrower fails to pay, lenders will typically charge a higher interest rate on unsecured loans to compensate for the greater downside risk. In addition, companies oftentimes utilize both debt and equity to fund current and future investments. Finally, governments also borrow money to finance current spending by issuing bills, notes, and loans repaid with future taxes or revenue earned by government projects.

3. Raising Equity Capital

Companies use investment banks to assist in raising equity capital, where investors trade cash for a share of ownership in the company. While equities don't promise investors a fixed payment in the future, investors expect payments in the form of future dividends or capital gains. In addition, analysts help investors accurately value company shares, while regulatory reporting requirements and accounting standards aim to ensure that a company's financial statements do not mislead investors.

4. Managing Risks

To manage risks, investors use forward contracts, futures contracts, options contracts, insurance contracts, and other derivatives. These contracts serve to offset the effect of adverse price movements in assets that a party may need to buy or sell in the future. For example, an airline may enter into a forward contract to buy jet fuel at a certain price on some fixed date in the future, hedging the risk of rising prices. The party on the other side of the trade may be the fuel supplier, hedging the risk of falling prices. While their risks are opposite, both parties achieve their purposes with a single transaction.

5. Exchanging Assets for Immediate Delivery (Spot Market Trading)

People and companies use the spot market to trade a currency to acquire other currencies or commodities, which will be delivered immediately when the transaction occurs.

6. Information-Motivated Trading

While both investors and information-motivated traders ultimately try to buy low and sell high, information-motivated traders are different in that they expect to earn excess returns from their informational advantage in addition to the normal returns traditional investors earn for the risk of holding an asset over time. Information-motivated traders believe the information they have allows them to buy undervalued companies and sell overvalued companies, expecting to profit when the share prices more accurately reflect the intrinsic value of the companies.

Active investment managers all participate in information-motivated trading to beat their benchmark or the return earned by "buy and hold" investors taking similar risks. In theory,

active managers can gain an information edge over other market participants by hiring skilled professionals and conducting thorough research on potential investments. Investors are also information-motivated traders when they allocate funds with the expectation of earning conditional returns greater than the unconditional returns they would earn in the same asset class.

Determining Appropriate Rates of Return

Since savers are on the opposite end of transactions with borrowers and equity sellers, the rate of return must be set at the point where both parties are satisfied. The cost of moving money through time, or the equilibrium interest rate, is the rate at which aggregate supply for funds through savings equals aggregate demand. Savers won't supply capital if too low of a rate is offered, and borrowers won't demand capital if too high of a rate is offered. To determine the rate of return, the equilibrium interest rate must be adjusted depending on the risk characteristics, terms, and liquidity of the security.

Efficient Capital Allocation

Efficient capital allocation allows the market's scarce capital to be allocated to only the most productive investments. A market is efficient when market participants have access to accurate information. When investors are thorough in their analysis of available information, they improve the efficiency of the market by simply acting in their own best interests. For example, well-informed investors will not make a loan to someone with poor credit without being appropriately compensated with a higher rate of return, nor will they invest in projects unless the value of future cash flows exceeds the cost.

Question

As the portfolio manager of an equity fund, you decide to allocate a percentage of the fund's capital to invest in the common stock of ABC after its share price plummeted on lower-than-expected earnings. You believe that ABC's stock is currently undervalued due to an overreaction of the market to the earnings announcement. In this instance, you were using the financial system for:

A. Saving.
B. Managing Risk.
C. Information-Motivated Trading.

Solution

The correct answer is **C**.

You were acting as an information-motivated trader because you traded with the intention of earning excess profit from information that had not been priced into the market.

LOS 1b: describe classifications of assets and markets

Assets

Securities: includes both debt and equity securities. Securities may be further classified as public or private securities, depending on if they are traded on a public exchange.

Currencies: monies issued by national monetary authorities.

Contracts: agreements to trade other assets in the future.

Commodities: precious metals, energy products, industrial metals, and agricultural products.

Real Assets: all tangible properties, such as real estate, airplanes, airports, machinery, timberland, and pipelines.

Markets

Spot Markets: traded contracts require immediate delivery.

Primary Market: funds flow from the purchaser to the issuer.

Secondary Market: funds flow between traders.

Money Markets: trades debt instruments maturing in one year or less.

Capital Markets: trades instruments maturing in over one year, such as bonds and equities. Corporations usually finance their operations through the capital markets.

Traditional Investment Markets: transactions involve only direct or indirect investments in publicly traded debts and equities.

Alternative Investment Markets: includes private markets investments, which are more difficult to trade and value. To compensate for the limited liquidity, investors in these markets expect to earn a greater risk-adjusted return than they would in traditional investments.

Question

A direct investment in an industrial warehouse is an example of a:

A. Security.
B. Contract.
C. Real asset.

Solution

The correct answer is C.

Since the investment is in a tangible property (real estate), it would be considered a real asset.

LOS 1c: describe the major types of securities, currencies, contracts, commodities, and real assets that trade in organized markets, including their distinguishing characteristics and major subtypes

Fixed Income

Fixed income investments include promises to repay borrowed money and a variety of other instruments with payment schedules. People, companies, and governments create fixed-income instruments when they borrow money. While there is no consensus definition on the exact cut-offs, fixed-income securities are often classified based on maturity date as short-term (less than one or two years), intermediate-term (two to five years), and long-term (greater than five years). Fixed income investments include:

- **Notes:** fixed income instruments, usually with a maturity of ten years or less.
- **Bonds:** fixed income instruments, usually with a maturity of more than ten years.
- **Convertible bonds:** can be converted into the issuing corporation's stock by the holder after a specified amount of time.
- **Bills/Securities of Deposit/Commercial Paper:** Short-term securities, usually maturing in a year or less, issued by governments, banks, and corporations.
- **Repurchase Agreements:** short-term lending instruments in which the borrower sells an instrument and promises to buy it back at a higher price.
- **Money Market Instruments:** debt instruments maturing in one year or less, purchased by money market funds and corporations seeking a return on short-term cash balances.

Equities

Equities represent ownership rights in companies and include:

- **Common Stock:** shareholders have a right to company dividends if the board of directors declares a dividend, elect the company's board of directors, and a share of the proceeds if the company is liquidated.
- **Preferred Stock:** shareholders have no voting rights but generally have the right to a regular dividend and have priority over common shareholders to liquidation proceeds. Cumulative preferred equity are preferred shares that require a company to repay any omitted preferred dividends before dividends are paid to common shareholders.
- **Warrants:** securities issued by a corporation that gives the holder the option to buy a company's securities (usually common stock) at the exercise price at any time before the warrant's expiration.

Pooled Investments

Pooled investments represent indirect ownership of assets held by an entity by purchasing shares, units, depository receipts, or limited partnership interests. Pooled investments are typically used to gain access to skilled investment management and/or to diversify an investor's portfolio efficiently. Pooled investments are made up of two types of investment vehicles: open-ended and closed-ended funds.

Open-ended funds issue new shares and redeem existing shares at the fund's net asset value (usually daily), and investors are typically able to trade their shares directly with the fund. On the other hand, closed-ended funds issue shares in primary market offerings, and those limited shares are traded in the secondary market. Since shares of closed-ended funds are not redeemable at their net asset value, shares may trade at a discount or premium to NAV. Pooled investment include:

- **Mutual Funds:** open-ended and closed-ended investment vehicles that pool money from many investors for investment in a portfolio of securities.
- **Exchange-traded funds (ETFs):** open-ended funds that investors can trade in the secondary markets. ETFs rarely trade at significant discounts or premiums because a

class of investors known as authorized participants can trade directly with a fund and profit from any differences between the NAV and market price.

- **Asset-backed Securities:** securities whose values and income payments are derived from a pool of assets, such as mortgage bonds, credit card debt, or car loans.
- **Hedge Funds:** usually organized as limited partnerships in which the managers are the general partners, and the qualified investors are the limited partners. Hedge funds employ various strategies and are subject to different regulatory requirements depending on the jurisdiction. Defining characteristics of most hedge funds include the use of leverage to boost fund returns and a fee structure that charges a performance fee when positive returns are achieved in addition to the standard management fee.

Currencies

There are approximately 175 currencies worldwide, some of which are considered reserve currencies – currencies held by banks and other monetary authorities in large quantities. Primary reserve currencies include the US dollar and the euro. Secondary reserve currencies include the British pound, the Japanese yen, and the Swiss franc.

Contracts

Contracts are agreements to trade other assets in the future, many of which are derivatives. Derivative contracts are assets that derive their value from the prices of underlying assets. Derivatives are classified by the nature of their underlying assets. For instance, a contract based on the price of gold would be considered a physical derivative, while a contract based on Costco's stock price or the S&P 500 would be considered a financial derivative – or, more specifically, an equity derivative. Types of contracts include:

- **Forward Contracts:** agreements to trade the underlying asset in the future at a price agreed upon today, often used by traders to hedge the risk of adverse price movements. There are two primary issues with trading in forwards: counterparty risk and limited

liquidity. Counterparty risk describes the risk that the other party will fail to honor the terms of the contract. Forward contracts have limited liquidity because the other party's consent is needed before the contract can be traded.

- **Futures Contracts:** similar to forward contracts, but not hindered by the same problems. The buyer of a futures contract will receive the physical delivery or its cash equivalent at the specified date; the seller will deliver the asset or its cash equivalent. Since clearinghouses ensure that no trader is harmed by another trader’s default, there is no counterparty risk. Additionally, futures contracts are standardized, so obligations can be eliminated by taking an offsetting position (a buyer selling the same futures contract or a seller buying the same futures contract).

- **Swap Contracts:** agreements to exchange payments of periodic cash flows that depend on future asset prices or interest rates. Variable payments are based on a pre-determined variable interest rate like the London Interbank Offered Rate (Libor). Commonly used swaps include interest rate swaps, commodity swaps, currency swaps, and equity swaps.

- **Option Contracts:** call options (put options) allow the buyer to purchase (sell) an underlying instrument at a set strike price before a specified date. If the market price of the underlying security rises above the strike price, the call holder can exercise the option at a profit. Conversely, if the underlying security price falls below the strike price, the put holder profits from exercising the option. European-style contracts allow the holder to exercise only on the maturity date, while American-style contracts allow the holder to exercise the options early.

- **Credit Default Swaps:** insurance contracts that promise payment of principal if a company defaults on its bonds. A company’s bondholders may invest in related credit default swaps to hedge against the company’s risk of default, or well-informed traders may choose to invest in a company’s credit default swaps without bond exposure to essentially bet on the company’s default.

Commodities

Commodities include precious metals, energy products, industrial metals, agricultural products, and carbon credits. Exposure to commodities can be achieved directly through the spot markets or indirectly through the forward and futures markets. The producers and processors of industrial metals and agricultural products are the primary users of the commodity spot markets because they tend to have an informational edge and access inexpensive storage.

On the contrary, information-motivated traders often trade in the commodities forward or futures markets to hopefully profit from future price movements without paying for storage of the underlying assets.

Real Assets

Real assets are investments in tangible properties, usually held by operating companies. Investors find real assets attractive due to their potential income and tax benefits and low correlation to other asset classes. However, direct investments in real assets are usually quite costly as investors must either maintain the property themselves or hire a manager to do it for them. No two real assets are exactly the same, making real assets difficult to value and trade.

These issues play into the hands of information-motivated traders targeting undervalued investments acquired from less informed sellers. But, the excess returns generated by these traders may be partially or completely offset by the additional costs of finding and managing the undervalued properties.

Financial intermediaries like real estate investment trusts (REITs) and master limited partnerships (MLPs) securitize real assets and passing through most of their net income after management fees to investors. These investment vehicles allow investors to gain indirect exposure to real assets without the same shortcomings of direct investments.

Question 1

Louis Reed, a wheat farmer, wants to protect himself against the risk of falling wheat prices without sacrificing all the upside if wheat prices spike. What should Reed *most likely* do to achieve this goal?

A. Buy put options.
B. Buy call options.
C. Sell futures contracts.

Solution

The correct answer is **A**.

The sale of futures contracts would successfully hedge against declining wheat prices but would obligate Louis Reed to sell at the agreed-upon price even if market prices were higher at the time. The purchase of call options would allow him to capture more upside if wheat prices increased while still leaving him fully exposed if prices fell. The purchase of put options would allow Reedto sell his wheat at a set price without obligating him to do so in the event that the market price exceeded the strike price at the time of maturity.

Question 2

Short Term Capital Management (STCM) generates extraordinary returns by identifying small market inefficiencies and employing a high amount of leverage. Since the fund's inception, STCM's managers have become incredibly wealthy due in large part to the performance-based fees charged to fund investors. STCM is most likely a:

A. Hedge fund.
B. Mutual fund.
C. Exchange-traded fund.

Solution

The correct answer is **A**.

Hedge funds are often highly leveraged and usually charge performance-based fees, while mutual funds and ETFs are generally unleveraged and charge only a management fee as a percent of total assets.

LOS 1d: describe types of financial intermediaries and services that they provide

Financial intermediaries help entities achieve their goals by providing products and services that help connect buyers and sellers. The key financial intermediaries are defined below.

Brokers: agents who fill orders for their clients, helping reduce their client's transaction costs by efficiently matching them with someone else willing to take the other side of their trades.

Block Brokers: provide brokerage service to large traders. Large orders typically cause the market to move against the trader: large buy orders trade at a premium, and large sell orders trade at a discount. Block brokers serve to manage large orders so that their clients lose the least amount of money due to adverse movements in the market.

Investment Banks: primarily help corporate clients in issuing a wide range of securities, including common stock, preferred stock, notes, and bonds, in addition to assisting their clients with potential takeover targets.

Exchanges: provide places where traders can meet to arrange their trades. Over time, exchanges have progressed to usually arranging the trades for their traders based on orders coming in from brokers and dealers. In addition, exchanges usually regulate the issuers and members to promote an efficient marketplace and derive their authority from their national or regional governments.

Alternative Trading Systems/Electronic Communications Networks/ Multilateral Trading Facilities: trading venues that function like exchanges but do not exercise regulatory authority over their subscribers except with respect to the conduct of their trading in their trading systems. Many alternative trading systems are known as dark pools because orders are not shown to other market participants.

Dealers: fill their clients' orders by trading with them. Unlike brokers, dealers directly buy from or sell to their clients, hoping to find another client to take the opposite side of the trade.

Broker-dealers: describes an entity that is both a broker and a dealer. Broker-dealers have an inherent conflict of interest in that a broker aims to acquire the best price for their clients, but a

dealer maximizes their profit by buying from their clients at low prices and selling to their clients at high prices.

Securitizers: Banks and investment companies can create new financial products by purchasing and repackaging various securities or assets. Mortgage-backed securities are among the most common securitizations and allow investors to purchase a diversified portfolio of mortgages. For many mortgage-backed securities and other securitizations, the financial intermediary splits the securities into different classes, or tranches, which have different rights to the cash flows from the asset pool. This helps the intermediary tailor securitizations to the risk/return profile of different investors. In addition to the diversification benefits, securitization also greatly improves liquidity in the mortgage market that can pass through to homeowners in the form of lower interest rates. Securitizations are often set up in special purpose vehicles/entities to better protect investors if the intermediary goes into bankruptcy.

Depository Institutions: commercial banks, savings and loan banks, credit unions, and similar institutions raise funds from depositors and other investors and lend them to borrowers. Depositors benefit from the banks' transaction services and interest payments on their deposits, while the bank benefits by obtaining funds without finding and raising capital from investors. Other financial intermediaries, like acceptance corporations, discount corporations, payday advance corporations, and factors provide secured loans for borrowers financed by the sale of commercial paper, bonds, and shares to investors. Depository banks and financial corporations can be considered securitized asset pools backed by a diversified portfolio of loans with depositors holding the most senior tranche (most protected against losses) and the institutions' shareholders holding the most junior tranche (least protected).

Insurance Companies: help people and companies hedge their risks by underwriting contracts that pay out in the event of losses from a wide variety of causes. Insurance companies basically transfer the risk from the buyers of the insurance contracts to the insurance company's creditors and shareholders. Common problems with insurance contracts include fraud, moral hazard (losses are more likely when people know they're insured), and adverse selection (those who buy insurance may be more prone to losses).

Arbitrageurs: aim to profit through buying an asset in one market and selling an identical or

similar asset in another market at a higher price. Thus, arbitrageurs provide liquidity to buyers and sellers across different markets. In efficient markets, opportunities for pure arbitrage – or profiting from the purchase or sale of an identical asset in different markets – are rare because market participants can easily acquire the best prices. Instead, arbitrageurs often take part in replication: purchasing and selling risk in different forms using securities and contracts.

Clearinghouses: arrange the final settlement of trades in guaranteeing contract performance in futures markets and acting only as escrow agents in other markets. To protect against losses, clearinghouses require members to have adequate capital and post margins. In addition, clearinghouse members trade on behalf of brokers and dealers that are non-members and similarly ensure that the non-members have enough capital to back their trades.

Question

If a corporation wants to protect against potential losses from fire damage to a newly constructed factory, it would most likely make use of what financial intermediaries?

A. Arbitrageurs.
B. Investment banks.
C. Insurance companies.

Solution

The correct answer is **C**.

The corporation could effectively hedge against this risk by buying a fire insurance policy from an insurance company.

LOS 1e: compare positions an investor can take in an asset

A position in an asset describes how much of the asset an investor owns. The investor can either have a long position, meaning the investor owns the asset or has borrowed money to purchase the asset, or the investor can have a short position, meaning the investor sold the asset without owning it.

Contracts

An investor generally has a long position in a contract if they will take physical delivery of the underlying asset or its cash equivalent and a short position if they are liable for delivery of the asset.

For options contracts specifically, the long investor has the right to exercise the option, and the short investor must satisfy the obligation if exercised. Describing option positions in this way can be confusing in the case of put options, which give the holder the right to sell the underlying asset. So an investor that purchases a put option has a long position in the option but is considered to have short exposure to the underlying asset. For example, if an information-motivated trader believes that Apple's stock is overvalued, he can effectively bet against the stock by buying put options on the stock. Since the trader has the right to exercise the option, he has a long position in the puts. However, because the long put position effectively bets on a decrease in Apple's share price, the trader is considered to have short exposure to Apple's stock.

For swap contracts, the long side benefits from an increase in the price of the underlying asset. In currency contracts, an investor has a long position in the currency being bought and a corresponding short position in the currency being sold.

Short Positions

An investor can take a short position by borrowing shares of a stock from a securities lender and then selling them. Securities lenders require short sellers to post the proceeds from the stock

sale as collateral for the loan. The proceeds are then invested in short-term securities, with interest being returned to the short seller at the rebate rate. In some cases, the rebate rate may be negative – meaning the short seller is paying the lender to invest the sale proceeds, but usually, the rebate rate is 10 basis points less than the overnight lending rate. The difference between the overnight lending rate and the rebate rate is the loan fee that the securities lender receives for its services.

While the losses from a long position are limited to the price paid for the security, losses from shorting a stock are theoretically unlimited because the short seller is obligated to return the security, which doesn't have a price cap. Similarly, the long investor stands to benefit from unlimited gain potential while the short seller can only gain the total proceeds from the initial sale (if the stock price of the shorted security drops to zero, the short seller eliminates their obligation for free).

Leveraged Positions

In many markets, traders can borrow securities through margin loans at the cost of paying the call money rate on the loan. Similar to a down payment on a house, the borrower must put up a minimum of their own equity, the initial margin requirement, in the purchase. To protect brokers against losses in leveraged positions, traders must keep an amount of equity in their positions that is greater than or equal to the maintenance margin requirement (usually 25%). If share prices fall and equity drops below the maintenance margin requirement, the trader will receive a margin call to restore equity back to the required level. If additional equity is not contributed, the broker will close out the position to prevent further losses.

Question

A trader sells 10,000 put options on the stock of ZYX. What is this trader's position relative to the option and exposure to ZYX's stock?

A. Long position in the put options, short exposure to ZYX's stock.
B. Short position in the put options, long exposure to ZYX's stock.
C. Short position in the put options, short exposure to ZYX's stock.

Solution

The correct answer is **B**.

Since the trader sold the options, she is obligated to fulfill the contract if the option is exercised and therefore has a short position in the put options. However, the trader stands to lose if the price of ZYX falls below the strike price of the options as she will be obligated to buy ZYX shares above market price. So the options trader is betting against a price decline in the stock and thus has long exposure to the stock.

LOS 1f: calculate and interpret the leverage ratio, the rate of return on a margin transaction, and the security price at which the investor would receive a margin call

Leverage Ratio

The relation between risk and borrowing can be measured by the leverage ratio. The maximum leverage ratio calculates financial leverage if the trader's equity position is equal to the initial margin requirement.

$$\text{Leverage ratio} = \frac{\text{Total value of the position}}{\text{Equity value of the position}}$$

$$\text{Maximum leverage ratio} = \frac{1}{\text{Minimum margin requirement}}$$

Return on Margin Transaction

Calculating the rate of return on a margin transaction is the same as calculating the rate of return on an unlevered transaction; it simply involves one extra step to calculate and subtract out the margin interest paid. The rate of return should be calculated based on the initial equity investment, not the total purchase price of assets. Upfront costs such as commission should be included in the initial equity amount.

Example of a Margin Transaction

A trader purchases $100,000 worth of a highly volatile stock at a leverage ratio of 2.5, receives a special dividend of $800 after six months, and sells the stock exactly one year after purchase at $200,000. The commission is $10 at purchase. The trader is charged 8% interest on the borrowed money.

To get the rate of return, we just have to find the profit (or loss) and divide it by the initial equity investment.

Let's first calculate the amount of money the trader had to borrow in order to make this transaction.

We can find the equity investment by dividing the full $100,000 purchase by the leverage ratio of 2.5.

$$\text{Equity investment} = \frac{\$100,000}{2.5} = \$40,000$$

And the remainder has to be borrowed:

$$\text{Borrowed amount} = \$100,000 - \$40,000 = \$60,000$$

The amount that the trader will have to pay in interest over one year is the interest rate on the loan multiplied by the loan amount:

$$\text{Interest paid} = \$60,000 \times 8\% = \$4,800$$

Moving on to the profit calculation:

Sale Price	$200,000
Purchase Price	−$100,000
Realized Gain (Loss)	$100,000
Purchase commission	−$10
Dividend	$800
Margin interest	−$4,800
Sale commission	−$10
Return	$95,980

To find the total initial equity investment, just take the $40,000 calculated above and tack on the small commission on purchase of $10:

$$\text{Equity investment plus commission} = \$40,000 + \$10 = \$40,010$$

Finally, we can calculate the rate of return on this trade:

$$\text{Rate of return} = \frac{\$95,980}{\$40,010} = 239.89\%$$

Margin Call Price

A margin call will take place when equity drops below the maintenance margin requirement. After the purchase of a security on margin, any changes in that security's price will be reflected completely in equity. There is a simple formula that can be used to find the margin call price:

$$\text{Margin call price} = \frac{\text{Debt}}{1 - \text{Maintenance quad margin}}$$

Example of a Margin Call Price

You have been provided the following information:

- Purchase price per share: $30
- Leverage ratio: 2.0
- Maintenance margin: 25%

Remember, the equity investment can be found by dividing the total purchase price by the leverage ratio:

$$\text{Equity investment} = \frac{\$30}{2} = \$15$$

So, this trade involves $15 of equity and $15 of debt, and we need to find at what price a margin call would take place:

$$\text{Margin call price} = \frac{\$15}{1 - 0.25} = \frac{\$15}{0.75} = \$20$$

Question

What is a trader’s maximum leverage ratio, given an initial margin requirement of 40%?

A. 1.00

B. 2.50

C. 4.00

Solution

The correct answer is **B**.

As shown above, the maximum leverage ratio is equal to 1 divided by the initial margin requirement.

Maximum leverage ratio = $\frac{1}{0.4} = 2.5$

LOS 1g: compare execution, validity, and clearing instructions

The bid prices represent the amounts at which dealers are prepared to buy, while the ask prices, or offer prices, indicate the amounts at which they are willing to sell. Ask prices consistently exceed bid prices.

Dealers also specify the quantities they are willing to trade at these prices, known as bid sizes and ask sizes, depending on whether they are associated with bids or offers.

The highest bid in the market is referred to as the best bid, and the lowest ask is known as the best offer. The market bid–ask spread is the difference between the best bid and the best offer.

Execution Instructions

Execution instructions is defined as how to fill the order. Here are many ways how orders can get filled:

- Market order: obtain the best price immediately available.
- Limit order: same as the market order, except the price, must be no higher than a specified amount for buy orders and no lower than a specified amount for sell orders.
- Marketable limit order: When the price is placed above the best offer for buy orders or below the best bid for sell orders.
- Behind the market: buy (sell) order placed below (above) the best bid (offer).
- Standing limit orders: limit orders waiting to trade.
- Inside the market: the price gap between the best offer and best bid.
- All-or-nothing order (AON): trades only if the entire order can be filled.
- Hidden order: exposed only to brokers or exchanges that receive them.
- Display size: amount of the order shown to the public.

- Iceberg orders: a large order that is divided into smaller, undisclosed parts. It helps to prevent the market from reacting strongly to a large order, reducing the risk of slippage and adverse price movements.

Validity Instructions

Validity instructions is defined as when the order may be filled, with examples below:

- Day order: order is good only for the day on which it is submitted.
- Good-till-canceled order (GTC): usually limited to a few months but can stay open for longer.
- Immediate or cancel order (IOC): good only upon receipt by broker or exchange
- Good-on-close order (Market-on-close): can only be filled at the close of trading.
- Good-on-open order (Market-on-open): can only be filled at the open of trading.
- Stop order (stop-loss order): sell orders are only executed if a trade occurs at or below the stop price; buy orders are only valid once the price rises above stop price.

Clearing Instructions

Clearing is defined as how to arrange the final settlement of the trade. Unlike other instructions, clearing instructions are not attached to each order. Instead, clearing instructions simply indicate what entity is responsible for clearing and settling the trade and if the sale is a long sale or short sale.

Question

A trader submits a buy order at the beginning of the day on 10,000 shares of a stock trading at $48 per share. The stock gradually rises to $52 per share by market close. The trader acquired 5,000 shares of the stock over the day at a price between $50 and $51 per share, and the order was still valid when the market opened the next day. What order did the trader *most likely* submit?

A. GTC, stop 48, limit 51buy order.
B. GTC, stop 50, limit 51 buy order.
C. Day, stop 50, limit 51 buy order.

Solution

The correct answer is **B**.

Since no shares were purchased at prices between $48 per share and $50 per share, it's unlikely the trader had a stop order at $48. Given that the order was not canceled at the end of the day, it could not be a day order. Therefore, the most likely option is GTC, stop 50, limit 51 buy order.

LOS 1h: compare market orders with limit orders

Market orders obtain the best price being offered in the market, so traders submitting marker orders are simply taking the market price. Limit orders will only buy below or sell above a given price. Suppose a trader’s limit order specifies a price between the bid and offer prices. In that case, that trader is considered to make the market as other market participants may accept the better price being offered.

Question

Alphabet Inc. (GOOG)	December 14, 2016
Open	$797.40
High	$804.00
Low	$794.01
Close	$797.07

If a trader had submitted a buy order for a single GOOG share at market open, what order would *most likely* result in the best one-day return?

A. Market order.

B. Limit order at $793.

C. Limit order at $795.

Solution

The correct answer is **C**.

The limit buy order at $795 would be filled as the price dropped to a $794.01 low, and the trader would have a small unrealized gain at market close, but the limit buy order at $793 would not be executed and thus result in neither a gain nor loss as no transaction would take place. At the beginning of the day, the market order would likely result in a purchase of the GOOG share at about $797.40, and the trader would end the day with a small loss.

LOS 1i: define primary and secondary markets and explain how secondary markets support primary markets

The sale of securities by the issuer to investors occurs in the primary markets, while the sale of securities between private investors occurs in the secondary markets.

Primary Markets

Initial public offerings (IPO) describe the issuer’s first sale of a security to the public, while additional units are called seasoned offerings. The issuer usually hires an investment bank to assist in the sale of securities by finding investors (book building).

Investment banks take part in two main types of offerings: underwritten offerings, in which the investment bank agrees to buy any unsold securities at the price negotiated with the issuer, and best-effort offerings, in which the issuer will not sell as much as expected if the investment bank fails to attract enough interest in the offering. Investment banks hired to assist in the sale of securities generally have a conflict of interest in that the issuer wants to maximize the sale price of their securities, but the investment bank can reduce its risk of having to buy overpriced securities and indirectly help its other clients by offering lower prices.

To sell new issues of seasoned securities directly to the public, corporations sometimes use a shelf registration – spreading out the sale of additional securities over time as capital is needed and avoiding the common downward price pressure caused by a single large offering.

Corporations may also issue additional securities through dividend reinvestment plans (DRPs) where existing shareholders may opt to reinvest their dividends in new shares from the issuer or through a rights offering where existing shareholders are offered options to purchase new shares at a discount.

Corporations can also offer their securities to private qualified investors through private placements, usually with investment banks' help. Qualified investors are generally assumed to conduct thorough due diligence before making investments, and thus less disclosure is generally needed for private placements. However, private investors usually demand a higher rate of

return due to the inherent lack of liquidity of the private securities.

Secondary Markets

Transactions of existing securities (usually not involving the issuer) take place in the secondary markets. The secondary markets support the primary markets by offering liquidity to the initial investors in a security. This liquidity helps issuers attract more demand for their security offerings in the primary markets, leading to higher initial sale prices and a lower cost of capital.

Question

What is a likely benefit of a corporation issuing new securities in a private placement instead of an initial public offering?

A. Lower cost of capital.
B. Cheaper offering costs.
C. More liquidity for investors.

Solution

The correct answer is **B**.

Since less disclosure is usually required of issuers, private placements tend to have lower offering costs than public offerings. However, because private placement securities are less liquid, investors demand a higher return on their capital resulting in lower security prices and therefore a higher cost of capital for the corporation.

LOS 1j: describe how securities, contracts, and currencies are traded in quote-driven, order-driven, and brokered markets

Quote-Driven Markets/Over-the-Counter (OTC) Markets

In quote-driven markets, customers trade at prices quoted by dealers that generally work for commercial banks, investment banks, broker-dealers, or trading houses. Most trades in these markets are conducted through proprietary computer communications networks or by phone.

Order-Driven Markets

Order-driven markets arrange trades using rules to match buy orders to sell orders submitted by customers or dealers. Almost all exchanges use order-driven trading systems, and every automated trading system is an order-driven system. Two sets of rules characterize order-driven market mechanisms: order matching rules, which match buy and sell orders, and trade pricing rules, which determine the price of the matched trades.

Order Matching Rules

Order-driven trading systems rank buy and sell orders by price (often along with secondary criteria), matching the highest-ranking orders (if possible) at the minimum order amount. If there is a remaining size in a buy (sell) order, the trading system will match it with the sell (buy) order that is next in the rankings. The first rule in the order precedence hierarchy is price priority, followed by secondary precedence rules, which determine how to rank orders of the same price. The first order to arrive at the best price usually has priority over other orders, though sometimes trading systems trade displayed quantities before hidden quantities of the same price.

Trade Pricing Rules

Call markets commonly use the uniform pricing rule, in which all trades execute at the same price, and the market chooses the price that maximizes the quantity traded. Continuous trading

markets use the discriminatory pricing rule, which determines the price base on the limit price of the first order or quote (the standing order). Crossing networks, trading systems matching buyers and sellers willing to trade at prices obtained from other markets, use the derivative pricing rule: usually the midpoint of the best bid and ask quotes for the underlying asset.

Brokered Market

Brokers arrange trades among their clients for unique instruments with limited liquidity as such instruments would not generate enough orders in order-driven markets. Trades in this market usually take place between a small number of people or institutions.

Question

What market would an art collector use to sell a number of valuable paintings?

A. Brokered market.
B. Order-driven market.
C. Quote-driven market.

Solution

The correct answer is **A**.

Since there would not be enough liquidity for unique art pieces to have a quote-driven or order-driven market, the paintings would need to be sold in a brokered market.

LOS 1k: describe characteristics of a well-functioning financial system

A well-functioning financial system has complete markets with effective financial intermediaries and financial instruments allowing:

- Investors to move money from the present to the future at a fair rate of return;
- Borrowers to easily obtain capital;
- Hedgers to offset risks; and
- Traders to easily exchange currencies and commodities.

The financial system has complete markets if the contracts or assets required to resolve these issues can be traded. Well-functioning financial systems are characterized by financial instruments that help people solve financial problems, liquid markets with low trading costs (operationally efficient), timely financial disclosures resulting in market prices that reflect available information (informationally efficient), and therefore prices that move primarily with changes in fundamental value instead of liquidity demands. Well-functioning markets ultimately lead to efficient allocations, which use resources where they are most valuable.

These are the attributes that characterize sound financial systems:

- Pricing that is consistent with fundamental values and any changes in the fundamental values is what largely cause price variations.
- Governments and companies making timely financial disclosures.
- Markets with cheap trading fees and high liquidity.
- The presence of developed markets where financial instruments that assist individuals in resolving their financial issues are traded.

Question

Which of the following is *least likely* a characteristic of a well-functioning financial system?

A. Instruments that solve financial problems.
B. Market prices that always equal fundamental value.
C. Markets where assets can be easily traded at low cost.

Solution

The correct answer is **B**.

Informational efficiency in well-functioning financial systems should allow investors to estimate fundamental values and cause price changes to correlate with changes in fundamental value. However, fundamental value estimates in well-functioning financial systems will not necessarily always match actual fundamental value.

LOS 1l: describe objectives of market regulation

The objectives of market regulation are to control fraud, control agency problems, promote fairness, set mutually beneficial standards, prevent undercapitalized financial firms from making excessively risky investments, and to ensure that long-term liabilities are funded.

1. **Control Fraud**: market regulators put systems in place to prevent fraud as financial customers aren't always sophisticated enough to do so themselves.
2. **Control Agency Problems**: regulators solve agency problems by setting minimum standards of competence for agents like the CFA or GIPS.
3. **Promote Fairness**: regulators aim to reduce profits that insiders could extract from the markets. Laws against insider trading, for instance, help to level the playing field.
4. **Set Mutually Beneficial Standards**: regulators help analysts easily compare companies by requiring compliance with accounting standards set by IASB, FASB, and others.
5. **Prevent Excessive Risk**: regulators require financial firms to maintain minimum levels of capital so that the firms honor their commitments and so that the firm's owners have some "skin in the game."
6. **Ensure Liabilities are Funded**: regulators watch over insurance companies and pension funds to ensure adequate reserves are maintained to cover liabilities because managers of these entities tend to underestimate long-term liabilities, especially when there is an incentive not to do so.

Question

As a market becomes more regulated, what would probably become more common?

A. The collapse of financial firms.
B. Insiders with an edge over other market participants.
C. Conservative liability estimates by insurance companies and pension funds.

Solution

The correct answer is **C**.

Regulation should promote fairness and therefore reduce the advantage that insiders have over less sophisticated investors. Also, by preventing excessive risks, financial firms should have a higher margin of error and thus be less likely to become insolvent. Since unregulated insurance companies and pension funds have a tendency to utilize aggressive liability estimates (usually in order to maximize reported profit), more regulation would probably encourage these entities to become more conservative in their estimates.