Securities Markets and Equity Investments

Study Sessions 13 & 14

Weight on Exam	10%
SchweserNotes™ Reference	Book 4, Pages 196–319

Study Session 13: Market Organization, Market Indices, and Market Efficiency

Market Organization and Structure

Cross-Reference to CFA Institute Assigned Reading #45

The three main functions of the financial system are to:

1. Allow entities to save and borrow money, raise equity capital, manage risks, trade assets currently or in the future, and trade based on their estimates of asset values.

2. Determine the returns (i.e., interest rates) that equate the total supply of savings with the total demand for borrowing.

3. Allocate capital to its most efficient uses.

Assets and Markets

Financial assets include securities (stocks and bonds), derivative contracts, and currencies. **Real assets** include real estate, equipment, commodities, and other physical assets.

Debt securities are promises to repay borrowed funds. **Equity securities** represent ownership positions.

Public securities are traded on exchanges or through securities dealers and are subject to regulatory oversight. Securities that are not traded in public markets are referred to as **private securities.** Private securities are often illiquid and not subject to regulation.

Derivative contracts have values that are derived from the values of other assets. **Financial derivative contracts** are based on equities, equity indexes, debt, debt indexes, or other financial contracts. **Physical derivative contracts** derive their values from the values of physical assets such as gold, oil, and wheat.

Markets for immediate delivery are referred to as **spot markets**. Contracts for the future delivery of physical and financial assets include forwards, futures, and options.

The **primary market** is the market for newly issued securities. Subsequent sales of securities are said to occur in the **secondary market**.

Money markets refer to markets for debt securities with maturities of one year or less. **Capital markets** refer to markets for longer-term debt securities and equity securities that have no specific maturity date.

Traditional investment markets refer to those for debt and equity. **Alternative markets** refer to those for hedge funds, commodities, real estate, collectibles, gemstones, leases, and equipment. Alternative assets often are more difficult to value, illiquid, and require investor due diligence.

Types of Securities

Fixed income securities typically refer to debt securities that are promises to repay borrowed money in the future.

Convertible debt is debt that an investor can exchange for a specified number of equity shares of the issuing firm.

Equity securities represent ownership in a firm and include common stock, preferred stock, and warrants.

- **Common stock** is a residual claim on a firm's assets.
- **Preferred stock** is an equity security with scheduled dividends that typically do not change over the security's life and must be paid before any dividends on common stock may be paid.
- **Warrants** are similar to options in that they give the holder the right to buy a firm's equity shares at a fixed exercise price prior to the warrant's expiration.

Pooled investment vehicles include mutual funds, depositories, and hedge funds. The investor's ownership interests are referred to as *shares, units, depository receipts,* or *limited partnership interests.*

- **Mutual funds** are pooled investment vehicles in which investors can purchase shares, either from the fund itself (open-end funds) or in the secondary market (closed-end funds).
- **Exchange-traded funds** (ETFs) and **exchange-traded notes** (ETNs) trade like closed-end funds, but have special provisions for in-kind creation and redemption.
- **Asset-backed securities** represent a claim to a portion of the cash flows from a pool of financial assets such as mortgages, car loans, or credit card debt.
- **Hedge funds** are organized as limited partnerships, and purchase is usually restricted to investors of substantial wealth and investment knowledge.

Contracts

Financial contracts are often based on securities, currencies, commodities, or security indexes (portfolios). They include futures, forwards, options, swaps, and insurance contracts.

Forward contracts are agreements to buy or sell an asset in the future at a price specified in the contract at its inception and are not typically traded on exchanges or in dealer markets.

Futures contracts are similar to forward contracts except that they are standardized as to amount, asset characteristics, and delivery time, and are traded on an exchange.

In a **swap contract**, two parties make payments that are equivalent to one asset or portfolio being traded for another. In a simple *interest rate swap*, floating rate interest payments are exchanged for fixed rate payments over multiple settlement dates. A *currency swap* involves a loan in one currency for the loan of another currency for a period of time. An *equity swap* involves the exchange of the return on an equity index or portfolio for the interest payment on a debt instrument.

A **call option** gives the option buyer the right (but not the obligation) to buy an asset. A **put option** gives the option buyer the right (but not the obligation) to sell an asset.

An **insurance contract** pays a cash amount if a future event occurs.

Credit default swaps are a form of insurance that makes a payment if an issuer defaults on its bonds.

Currencies, Commodities, and Real Assets

Currencies are issued by a government's central bank. Some are referred to as **reserve currencies**, which are those held by governments and central banks worldwide and include the dollar and euro, and secondarily the British pound, Japanese yen, and Swiss franc.

Commodities trade in spot, forward, and futures markets. They include precious metals, industrial metals, agricultural products, energy products, and credits for carbon reduction.

Examples of **real assets** are real estate, equipment, and machinery. Although they have been traditionally held by firms for their use in production, real assets are increasingly held by institutional investors both directly and indirectly.

Brokers, Dealers, and Exchanges

Brokers help their clients buy and sell securities by finding counterparties to trades in a cost efficient manner.

Block brokers help with the placement of large trades.

Investment banks help corporations sell common stock, preferred stock, and debt securities to investors. They also provide advice to firms, notably about mergers, acquisitions, and raising capital.

Exchanges provide a venue where traders can meet. Exchanges sometimes act as brokers by providing electronic order matching.

Alternative trading systems (ATS), which serve the same trading function as exchanges but have no regulatory function, are also known as **electronic communication networks** or **multilateral trading facilities**. ATS that do not reveal current client orders are known as *dark pools*.

Dealers facilitate trading by buying for or selling from their own inventory.

Some dealers also act as brokers. **Broker-dealers** have an inherent conflict of interest. As brokers, they should seek the best prices for their clients, but as dealers, their goal is to profit through prices or spreads. As a result, traders typically place limits on how their orders are filled when they transact with broker-dealers.

Dealers that trade with central banks when the banks buy or sell government securities in order to affect the money supply are referred to as **primary dealers**.

Investment Positions

An investor who owns an asset, or has the right or obligation under a contract to purchase an asset, is said to have a **long position.** A **short position** can result from borrowing an asset and selling it, with the obligation to replace the asset in the future (a short sale). The party to a contract who must sell or deliver an asset in the future is also said to have a short position. In general, investors who are long benefit from an increase in the price of an asset and those who are short benefit when the asset price declines.

In a **short sale**, the short seller (1) simultaneously borrows and sells securities through a broker, (2) must return the securities at the request of the lender or when the short sale is closed out, and (3) must keep a portion of the proceeds of the short sale on deposit with the broker. Short sellers hope to profit from a fall in the price of the security or asset sold short. The repayment of the borrowed security or other asset is referred to as "covering the short position."

Margin Transactions

Margin purchase transactions involve paying for part of the cost of a security, a loan for the rest from a broker, and leaving the securities on deposit with the broker as collateral. Currently a maximum of 50% of the purchase price can be borrowed. A minimum of 50% of the purchase price must be deposited in cash which is referred to as the *initial margin.*

The *equity* in a margin account for a long position is the market value of the securities minus the loan amount. At any point in time, the *margin percentage* in an account is the equity in the account as a percentage of the market value of the securities held. *Maintenance margin*, or minimum margin, is the minimum percentage of equity permitted; if the margin percentage falls below this minimum, more cash or securities must be deposited in order to maintain the position.

To calculate the rate of return on a margin transaction, divide the gain or loss on the security position by the margin deposit.

The following formula indicates how to calculate the stock price that will trigger a margin call based on the initial price, P_0 (for a long position).

$$\text{trigger price (margin purchases)} = P_0\left(\frac{1-\text{initial margin\%}}{1-\text{maintenance margin\%}}\right)$$

Bid and Ask Prices

Securities dealers provide prices at which they will buy and sell shares. The **bid price** is the price at which a dealer will buy a security. The **ask** or **offer price** is the price at which a dealer will sell a security. The difference between the bid and ask prices is referred to as the **bid-ask spread** and is the source of a dealer's compensation. The bid and ask are quoted for specific trade sizes (**bid size** and **ask size**).

The quotation in the market is the highest dealer bid and lowest dealer ask from among all dealers in a particular security. More liquid securities have market quotations with bid-ask spreads that are lower (as a percentage of share price) and therefore have lower transactions costs for investors. Traders who post bids and offers are said to *make a market*, while those who trade with them at posted prices are said to *take the market*.

Execution Instructions

The most common orders, in terms of execution instructions, are market or limit orders. A **market order** instructs the broker to execute the trade immediately at the best available price. A **limit order** places a *minimum* execution price on sell orders and a *maximum* execution price on buy orders. The disadvantage of a limit order is that it might not be filled.

Validity Instructions

Validity instructions specify *when* an order should be executed. Most orders are **day orders**, meaning they expire if unfilled by the end of the trading day. Good-till-cancelled orders remain open until they are filled. **Immediate or cancel** orders (also known as **fill or kill** orders) are cancelled unless they can be filled immediately. **Good-on-close** orders are only filled at the end of the trading day. If they are market orders, they are referred to as **market-on-close** orders. These are often used by mutual funds because their portfolios are valued using closing prices. There are also **good-on-open** orders.

Stop (stop loss) orders are not executed unless the stop price has been reached. A **stop sell order** is placed at a "stop" price below the current market price, executes if the stock trades at or below the stop price, and can limit the losses on a long position. A **stop buy order** is placed at a "stop" price above the current market price, executes if the stock trades at or above the stop price, and can limit losses on a short position.

Primary and Secondary Markets

Primary capital markets refers to the markets for newly issued securities, either:

- **Initial public offerings** (IPOs).
- **Seasoned offerings** (secondary issues).

Secondary financial markets refers to markets where previously issued securities trade.

Market Structures

In **call markets**, orders are accumulated and securities trade only at specific times. Call markets are potentially very liquid when in session because all traders are present, but they are obviously illiquid between sessions. In a call market, all trades, bids, and asks are at prices that are set to equate supply and demand.

In **continuous markets**, trades occur at any time the market is open with prices set either by the auction process or by dealer bid-ask quotes.

There are three main categories of securities markets: *quote-driven markets* where investors trade with dealers, *order-driven markets* where rules are used to match buyers and sellers, and *brokered markets* where investors use brokers to locate a counterparty to a trade.

In **quote-driven markets**, traders transact with dealers (market makers) who post bid and ask prices. Dealers maintain an inventory of securities. Quote-driven markets are thus sometimes called **dealer markets**, **price-driven markets**, or **over-the-counter markets**. Most securities other than stocks trade in quote-driven markets. Trading often takes place electronically.

In **order-driven markets**, orders are executed using trading rules, which are necessary because traders are usually anonymous. Exchanges and automated trading systems are examples of order-driven markets.

In **brokered markets**, brokers find the counterparty in order to execute a trade. This service is especially valuable when the trader has a security that is unique or illiquid. Examples are large blocks of stock, real estate, and artwork. Dealers typically do not carry an inventory of these assets and there are too few trades for these assets to trade in order-driven markets.

Characteristics of a Well-Functioning Financial System

A market is said to be **complete** if:

- Investors can save for the future at fair rates of return.
- Creditworthy borrowers can obtain funds.
- Hedgers can manage their risks.
- Traders can obtain the currencies, commodities, and other assets they need.

If a market can perform these functions at low trading costs (including commissions, bid-ask spreads, and price impacts) it is said to be **operationally efficient**. If security prices reflect all public information associated with fundamental value in a timely fashion, then the financial system is **informationally efficient**. A well-functioning financial system has complete markets that are operationally and informationally efficient, with prices that reflect fundamental values. Furthermore, in informationally efficiently markets, capital is allocated to its most productive uses. That is, markets are also **allocationally efficient**.

Security Market Indices

Cross-Reference to CFA Institute Assigned Reading #46

A **security market index** is used to represent the performance of an asset class, security market, or segment of a market. Individual securities are referred to as the **constituent securities** of an index.

A price index is based on security prices, and the percentage change in a price index is referred to as its **price return**. The price return on an index plus the return from dividends paid on index stocks is referred to as the **total return** of an index.

Index Weighting Methods

A **price-weighted index** is the arithmetic average of the prices of its constituent securities. The divisor of a price-weighted index must be adjusted for stock splits and for changes in the composition of the index so that the index value is unaffected by such changes.

$$\text{price-weighted index} = \frac{\text{sum of stock prices}}{\text{number of stocks in index}}$$

A given percentage price change on a high-priced stock will have a greater impact on index returns than it will on a low-priced stock. Weights based on prices are considered somewhat arbitrary, and the weights of all index stocks must be adjusted when an index stock splits. A portfolio with equal numbers of shares of each index stock will match the performance of a price-weighted index.

An **equal-weighted index** is calculated as the arithmetic average of the returns of index stocks and would be matched by the returns on a portfolio that had equal dollar amounts invested in each index stock. When stock prices change, however, portfolio weights change and the portfolio must be rebalanced periodically to restore equal weights to each index security. Compared to a price-weighted index, an equal-weighted index places more (less) weight on the returns of low-priced (high-priced) stocks. Compared to a market capitalization-weighted index, an equal-weighted index places more (less) weight on returns of stocks with small (large) market capitalizations.

In a **market capitalization-weighted index** (or **value-weighted index**), returns are weights based on the market capitalization of each index stock (current stock price times the number of shares outstanding) as a proportion of the total market capitalization of all the stocks in the index. A market capitalization-weighted index does not need to be adjusted when a stock splits or pays a stock dividend.

$$\text{current index value} = \frac{\text{current total market value of index stocks}}{\text{base year total market value of index stocks}} \times \text{base year index value}$$

A **float-adjusted market capitalization-weighted index** is constructed like a market capitalization-weighted index. The weights, however, are based on the proportionate value of each firm's shares that are available to investors to the total market value of the shares of index stocks that are available to investors. Firms with relatively large percentages of their shares held by controlling stockholders will have less weight than they have in an unadjusted market-capitalization index.

The advantage of market capitalization-weighted indexes of either type is that index security weights represent proportions of total market value.

An index that uses **fundamental weighting** uses weights based on firm fundamentals, such as earnings, dividends, or cash flow. An advantage of a fundamental-weighted index is that it avoids the bias of market capitalization-weighted indexes toward the performance of the shares of overvalued firms and away from the performance of the shares of undervalued firms.

Rebalancing and Reconstitution

Rebalancing refers to periodically adjusting the weights of securities in an index or portfolio to their target weights, and it is important for equal-weighted indexes as portfolio weights change as prices change.

Index **reconstitution** occurs when the securities that make up an index are changed. Securities are deleted if they no longer meet the index criteria and are replaced by securities that do.

Index Types

Equity indexes can be classified as follows:

- *Broad market index.* Provides a measure of a market's overall performance and usually contains more than 90% of the market's total value.
- *Multi-market index.* Typically constructed from the indexes of markets in several countries and is used to measure the equity returns of a geographic region, markets based on their stage of economic development, or the entire world.
- *Multi-market index with fundamental weighting.* Uses market capitalization-weighting for the country indexes, but then weights the country index returns in the global index by a fundamental factor (e.g., GDP).
- *Sector index.* Measures the returns for an industry sector such as health care, financial, or consumer goods firms.
- *Style index.* Measures the returns to market capitalization and value or growth strategies. Some indexes reflect a combination of the two (e.g., small-cap value fund).

Many different **fixed income indexes** are available to investors. The fixed income security universe is much broader than the universe of stocks. Also, unlike stocks, bonds mature and must be replaced in fixed income indexes. As a result, turnover is high in fixed income indexes.

Because fixed income securities often trade infrequently, index providers must often estimate the value of index securities from recent prices of securities with similar characteristics.

Illiquidity, transactions costs, and high turnover of constituent securities make it both difficult and expensive for fixed income portfolio managers to replicate a fixed income index.

Commodity indexes are based on futures contract prices for commodities such as grains, livestock, metals, and energy. Different indexes have significantly different commodity exposures and risk and return characteristics.

Real estate indexes can be constructed using returns based on appraised values, repeat property sales, or the performance of Real Estate Investment Trusts (REITs).

Most **hedge fund indexes** equally weight the returns of the hedge funds included in the index.