

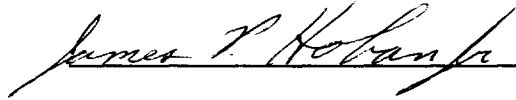
The Functions of the Stock Market

An Honors Thesis (ID499)

by

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A handwritten signature in cursive script, reading "James P. Hoban", written over a horizontal line.

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Introduction

Through my studies of financial institutions, my greatest interest has been of the stock markets. As a culmination to my studies here at Ball State, I have studied at great depth, the functions of this financial institution. Rather than focusing on one area of the stock exchange, I have chosen to explore all areas. My purpose in doing this was to tie together all of what I have learned about the stock market in my finance classes, into one paper, thereby looking at the stock market as a whole rather than as a group of segmented pieces.

I begin my paper by discussing the importance of markets in general and then moving more specifically into a discussion of the stock exchange. This segment is divided into discussions of national and regional exchanges as well as the over the counter market. One will note that the discussion of the New York Stock Exchange is far more detailed than that of the other stock exchanges discussed. I have chosen to do this because the New York Stock Exchange is the most well-known stock exchange in the U.S. Therefore, it has a greater impact on our financial decisions here in the United States than do the others.

Following the discussion of the exchanges is a detailed explanation of a wide variety of investment instruments that are used today. This helps to lay the groundwork for a later discussion of recent investment innovations.

Because of their great importance to the functioning of the exchange, an analysis of the functions of each member follows the description of the investment instruments. This segment focuses on the specialist because of the many important functions he serves.

Were it not for the desire of a company to issue stock, no exchange would be necessary. Therefore, a detailed description of the underwriting and initial distribution process has been done. This discussion leads directly to a description of a typical trading process, from issuance to clearing house.

3. Low transactions costs - in this instance, the lower the transactions costs, the more efficient the market is considered to be.
4. Rapid adjustment of prices to new information so that the current price reflects all available information. This attribute is characteristic of the efficient markets hypothesis. (Riley 75)

Perhaps the most important attribute of a market is its ability to determine prices. The prices are determined by people who are interacting in the marketplace. Those people who are determining the prices are determining what the true value of a commodity or security should be.

Because of the speculative buying, any inaccurate price is quickly driven back to the price that truly realizes the value of the security. Therefore, prices in the markets adjust themselves, because of supply and demand, to changes in the basic values of the commodity or security. (Meeker 375)

Exchanges

The above discussion of markets leads us to a discussion of the exchanges, which are a form of an organized market. It is important to distinguish between primary and secondary markets. In primary markets, new securities are sold. The proceeds go to the issuing unit as new capital. (Riley 76) The secondary market is much more important for our purposes. When an investment issue has already been sold to the public, and it is traded between current and potential owners, it is normally done through the secondary markets. The proceeds of this sale go to the current owner of the security rather than the issuer. This market provides liquidity to the owners of the securities. If it were not for the secondary market, the primary market would be severely damaged. The stock exchange is an example of a secondary market.

The stock exchange is an elaborate system that enables investors to acquire or

dispose of securities at prices that are “fair and equitable”.The stock exchange is a building where trading in securities takes place. It is also an association of brokers and dealers who own this building and conduct trading operations inside it. The exchange should not be confused with the other companies or individuals which are located near it. (Meeker 332)

In order for an exchange to develop there must be a large demand for the commodities traded at the exchange. Those commodities that are traded must be produced in large quantities. The product must also be easily graded and standardized, and it must be non-perishable. (Meeker 364)

Organized markets such as stock exchanges have an elaborate organization, comprehensive rules, and extensive mechanical equipment. They are useful to our society because of the great economic purposes which they serve:

- They provide negotiability in that the articles in which they deal are instantly negotiable and instantly salable at all times.
- The securities that are traded are acceptable as collateral for loans at banks.
- Because of the dealers in the securities trying to raise and lower prices, the fairest price of the security can result.
- An artificially controlled market can be prevented if the market is regulated efficiently. By this means, a free and open market can be established.
- Because the exchanges restrict membership, and because of the rigid regulations, the exchanges can maintain less fraudulent trading mechanisms than might otherwise develop. It would also be difficult to establish a fake security because of the strict regulations for being listed.
- The exchange offers a plethora of securities for investors to buy.
- The exchange stabilizes investment in the securities by providing information on prices, securities, and companies.

-The exchange serves as a source of capital in that it stimulates large amounts of capital into industry. Because so many investors can give even a small amount of money, a large sum can be established that can help out borrowers. This makes it possible for a corporation to undertake large expenditure programs because it gives them a way to finance them. (Meeker 19)

-Because the amount of production by corporations rarely equals the amount of consumption done by consumers, the exchange allows for the carrying of surplus production over consumption.

-The exchange is often used as a business barometer. Many people watch the prices of securities because they utilize them as an index to future conditions in trade and industry.

-Because of the many speculators, a conservative investor can at (nearly) all times, get rid of a risky security, thereby sustaining the risks of industry and trade. By this respect an organized market "...provides a means whereby the individual can always avoid or limit losses, and pass along risks which are greater than he feels justified in assuming, to speculators whose business it is to assume them." (Meeker 389)

Although the Stock Exchange does perform the economic functions mentioned above, the average investor does not normally take these things into consideration when buying or selling a stock. Instead, he or she thinks of the exchange as a means of investing excess funds.

There are three classes of securities buyer: 1) Pure investors who hold onto the security to receive income accrued in the form of dividends, 2) Speculative investors who hold onto a security for the income but want to sell the security at a profit, and 3) Pure speculators who want to sell the investment quickly to earn a profit. (Meeker 443)

Perhaps it would be helpful to define the term investment and compare it to other terms with which it is often confused.

Investments can be defined as “The conversion of money or circulating capital into some species of property from which an income or profit is expected to be derived in the ordinary course of trade or business.” (Meeker 396) This can be compared to speculation which can be defined as “[The engagement of participating] in the buying and selling of commodities or effects in order to profit by a rise or fall in the market value.” (Meeker 396) The difference between investment and speculation is that investment is done to benefit from income. Speculation is done to obtain a desirable difference between the price at which the security is bought and that at which it is sold. An example of each may make the distinction more clear:

A savings account is a pure investment - there is no chance for a rise in the principal, there can only be gain in income (accrued interest). A commodity would be a pure speculative investment, no interest or dividends would be received, one can only hope that the price would rise so that they could sell the security at a higher price than that at which it was bought. A stock however, is a combination of an investment and a speculation security. It has the properties of both because there is a chance for capital appreciation in the form of a rise in price, but income can also be accrued in the form of dividends. (Meeker 397)

Although some people think that speculation is negative, in reality it is very important during all early phases of new businesses. This is because it finances those projects that are believed to yield high returns. The stock speculator is a necessary person in absorbing and segregating industry risks which allows less risky investment opportunities to be available to more conservative investors. (Meeker 429) In fact, it can be said that the main virtue of the stock exchange is that it serves as a speculative market for securities, thereby providing these opportunities to industry.

Specific Exchanges

Now that the purpose of the stock exchange has been set forth, it is necessary to narrow our focus to the specific exchanges. These exchanges can be placed into three primary groups: The national exchanges, the regional exchanges, and the over the counter market.

Included in the category of National Exchanges are the New York Stock Exchange, the American Stock Exchange, the Tokyo Stock Exchange, and the London Stock Exchange. These exchanges are "...considered national exchanges because of the large amount of securities they list, the wide geographic dispersion of the firms listed, and their diverse clientele of buyers and seller." (Riley 872)

Regional stock exchanges differ from national exchanges in terms of size and geographic emphasis. This category includes such exchanges as Midwest, San Francisco, Boston and Dublin. Both of these kinds of exchanges have a specified group of members and the prices are determined by an auction process. In each case buyers and sellers submit bid and ask prices for a given stock to a central location for that stock. The stocks are sold to the highest bidder and bought from the lowest asker. (Riley 82)

NYSE-The New York Stock Exchange is the largest organized securities market in the U.S. It was organized in 1817 as the New York Stock and Exchange Board, its name changed to the current one in 1863. Because the NYSE is the exchange that we are most concerned with, the historical background and explanation of this particular exchange will be more detailed than that for the rest of the exchanges.

In 1772 a general meeting place had been established at the end of Broadstreet for dealings in meal and slaves. This area became known as the

Exchange. As time went on, a great deal of speculation was being done in government securities, the United States Bank and the Bank of North America. Because such heavy trading had developed, it became apparent that a regular market had to be formed. As a result, about ten individuals became interested in the profession of acting as brokers and agents for those investors who were interested in these securities. Thus, the NYSE had been established. (Meeker 28) These first brokers finally went under roof in 1817 and as they became more highly organized, they renamed themselves as the New York Stock and Exchange Board. Their first constitution was dated March 8, 1817. (Meeker 28) At that time trading was permitted in 30 stocks. There were seven member firms and 13 individual brokers who were present. In addition to the government securities and the banks that were listed, marine and fire insurance and state and municipal obligations were also traded. This was due in part to the War of 1812; the country needed a lot of financing to pay for their war debts.

There was no permanent home for the group of traders until 1827. At that time they moved into the Merchants Exchange building. They stayed there until the Great Fire of 1835 forced them to move to many non-permanent places. By 1857, 70,000 shares changed hands and the Exchange decided it needed a large, permanent place to stay. In 1863 the New York Stock Exchange building was organized. This same year the name "New York Stock Exchange" was also adopted. Also at this time three minor exchanges were created. 1) a room adjacent to the "Big Board" which based its transactions on the quotations that could be overheard, 2) an open-air exchange, and 3) the "Coal Hole Exchange" on 23 William St.

The stock ticker was first utilized in 1867. This led to the widespread publicity of trading. In 1878 telephone wires were installed in the exchange to further expedite the transferral of trading information.

The New York Stock Exchange is an example of the classic continuous market.

There are three important words that are used to describe the New York Stock Exchange. These words are depth, breadth, and resiliency. Depth refers to a market that has buy and sell orders for the asset traded in that market that continuously exist both above and below the market price. Breadth refers to a market in which bid and asked orders exist in substantial volume. Resiliency refers to the ability of a price to return to normal relatively quickly if the cause of the movement was the size of the block bought or sold.

As of the end of 1987, 1647 companies were listed on the New York Stock Exchange with a total of 2244 stock issues. On an average day \$5-6 billion worth of stock was traded in more than 1500 stocks. However, three-fifths of the trading took places in two hundred of these stocks. The total market value of the stock was \$2200 billion. From these numbers it can be seen what a large role the stock exchange plays in our society.

The number of shares traded daily on the NYSE has rapidly expanded as shown in the following table:

1940 -	751,000 shares	
1950 -	1,980,000 shares	
1960 -	3,042,000 shares	
1970 -	11,564,000 shares	
1980 -	44,871,000 shares	
1987 -	188,938,000 shares	(Riley 1984)

American Stock Exchange-Although the NYSE is by far the largest exchange in the United States, the American Stock Exchange, another national exchange, also plays a significant role. This exchange, which was started by a group of traders who traded unlisted stocks on a street corner, had an average daily volume of 14 million shares a day at the end of 1987. 950 stock issues were listed. Although they list only two-thirds the amount of stocks on the NYSE, and the volume is approximately one-

fourth that of NYSE, they do play an important role in providing liquidity to traders.

(Riley 84)

International Markets-International markets are extremely important to the trading process because they make a more active and broad market.

Tokyo Stock Exchange-The Tokyo Stock Exchange (TSE) is now the largest exchange in the world in terms of value of equity trading. Although there are eight exchanges in Japan, about 83% of the trading in that country is done at TSE. There are currently about 1640 companies listed on the exchange with a market value of about \$2200 billion. The average daily share volume was almost 200,000,000 in 1987.

(Riley 84)

The London Stock Exchange- The London Stock Exchange trades both listed and unlisted stocks. The listed stocks total 4900 issues from 2600 companies (much larger than TSE or NYSE), but the market value is only \$1900 million (much lower than either TSE or NYSE).

24-Hour global trading-The times that these exchanges are in operation are such that it would be possible to implement 24-hour global trading. In such a setting, there would be a continuous market where investment firms “pass the book” around the world. (Riley 88) In looking at the actual hours of trading , it is easy to see how this could be accomplished.

	local time	24 hr. EST clock
NYSE	9:30-16:00	0930-1600
TSE	9:00-11:00	2300-0100
	13:00-15:00	0300-0500
LSE	8:15-16:15	0215-1015

It can be seen that trading may start in New York and continue until 1600 in the afternoon, (10:00 p.m. in London and 6:00 a.m. in Tokyo), being picked up by Tokyo late in the evening and continuing until 5:00 in the morning and continuing in London until NYSE starts.(Riley 88)

Despite the fact that 24 hour trading would allow for a more active and broad market, there would be some problems with it. First, most of the movement in stock prices takes place overnight because traders are able to reflect on the previous days activities. 24-hour trading would eliminate this opportunity. Also, the legal regulations and settlement systems are very different at each exchange. Therefore, it seems that a global market in corporate securities won't be established for some time. (Mayer 269)

Over the Counter Market-In the over-the-counter market, bids and offers flow through a mainframe in Connecticut and out to computer screens across the country. NASDAQ screens are given only to members of the National Association of Securities Dealers. The OTC includes trading in all stocks not listed on one of the exchanges, but can include trading in stocks that are listed. Any stock can be traded on OTC as long as someone indicates a willingness to make a market.

This market is different from an organized exchange in that it is a negotiated market rather than an auction market. In a negotiated market, investors directly negotiate with dealers. In an auction market, investors work through their brokers.

There are three segments of the OTC market:

- 1) NASDAQ/NMS- in this segment, stocks that are traded not only qualify to be on the NASDAQ system but also have a large market value, trading activity, and a minimum number of market makers.
- 2) NASDAQ- in this segment, the stock traded qualifies for NASDAQ, but are not large enough for NMS.
- 3) The third segment is comprised of a group of stocks that don't qualify for NASDAQ,

but are quoted in the “pink sheets” published by the National Quotation Bureau. (Riley 89)

A person who receives NASDAQ services can utilize one of three levels:
level 1- provides a representative quote for firms that want a current quote but do not want to buy or sell.

level 2- provides instantaneous current quotations by all market-makers

level 3- used by market-makers, gives the same services as level 2 with the added benefit of being able to enter and change their own quotations.

The Fourth Market-The fourth market involves direct trading of securities with no broker intermediary. In nearly all of the cases, the two parties are institutions. This market evolved because of the large brokerage fees that are charged to financial institutions.

Types of investments

During the past 15 years there has been a major explosion of investment alternatives. These have developed for two main reasons: The newly organized exchanges for options and futures and the globalization of the markets.

A need has developed for these alternative investments because of a desire for diversification (“owning alternative investments with different return patterns over time with the intent that when one investment is yielding a low or negative rate of return, another will enjoy above normal returns”). (Riley 29) This should lead to relatively stable earnings over time.

Let us first explain the types of securities that are currently being traded and then move into a discussion of new investment instruments.

There are two broad categories of investments: public and political organizations, and private business organizations. Of the public and political organization se-

curities, most are fixed-income securities. "Fixed income investments have a fixed payment schedule wherein the investor is promised specific payments at predetermined rates." (Riley 31) Some examples of fixed income securities are savings accounts, certificates of deposit, Treasury Bills, money market certificates, U.S. Treasury securities, U.S. Agency securities, municipal bonds, and corporate bonds.

All U.S. Treasury securities are fixed-income investments. The difference between the categories of treasury securities are their maturity. T-bills mature in less than one year. T-notes mature in one to ten years. T-Bonds mature in more than ten years. All Treasury securities are considered riskless in terms of default and are very liquid.

U.S. Agency securities are sold by various agencies of the government to support various programs. Two of the more popular agency securities are FNMA (Federal National Mortgage Association) and GNMA (Government National Mortgage Association). Close in characteristics to treasury securities, these are virtually default free and fairly liquid, however they sell at a slight premium to treasury securities. (Riley 32)

Municipal securities are issued by municipalities (states, cities, etc.) These can be of two forms: general obligation- paid by the taxes generated in the municipality, or revenue- paid from revenue generated by a particular project. The riskiness of these securities depends upon the riskiness of the undertaken project. A strong benefit of municipalities is that they are tax-exempt. (Riley 32)

Let us now move into a discussion of private organization issues, focusing on bonds, stock, options and futures.

Bonds-The U.S. bond market is the dominant sector of the world bond market, but overall its size has been decreasing. Bonds can take many forms, but probably the most common form is the corporate bond. These are issued by a corporation to raise

capital for the institution in order to finance projects. These can be broken down in terms of issuer, quality, maturity, or by the contractual promise made to the investor. All bonds include an indenture which is a legal document that explains the obligations of the issuer in regards to payment restrictions and features such as call provisions and sinking funds. (Riley 33)

A debenture is a promise to pay interest and principal without collateral. This means that the lender is dependent upon the success of the borrower to receive the promised payment. A mortgage bond is similar to a debenture, but specific assets are pledged as backing. An income bond has a stipulated coupon and interest payment schedule, but the company has an obligation to pay the interest only if they have earned the money by the payment date. A convertible bond can be converted into common stock of the issuing company. Zero coupon bonds bear no interest but there is a payment of principal at maturity. Obviously these bonds sell at a discount.

There are also a number of international bonds: Eurobonds are international bonds that are denominated in a currency other than that of the country of the issuer. Yankee bonds are sold in the U.S. and are denominated in U.S. dollars, but are issued by a borrower of a different nationality, these eliminate any exchange rate risk. International domestic bonds are sold by an issuer within the country of issue, in that country's currency; the problem with this is that there is exchange rate risk.

Stock-When compared to fixed income securities, common stock is a relatively risky investment. Common stock represents ownership of a firm. Shareholders are able to attend shareholder's meetings, and can vote on the proceedings of the company. (Meeker 20) It can be classified by business lines (industrial firm, utilities, etc.), by operating performance (growth companies, cyclical companies, etc.), or by earnings potential.

Options-A more recent type of investment is the option. These began in the

1980's and may be an attractive investment for some. They offer limited risk, but unlimited potential gain. When you buy an option you have a right, but not an obligation, to buy a security or commodity, or a futures contract for a security or commodity at a price fixed at the moment of purchasing the option. (Mayer xviii)

Futures- Another fairly recent investment instrument is the futures contract. Futures contracts are commodity contracts for the delivery of a commodity at a future date. Financial futures are futures contracts on financial instruments such as Treasury bills and Treasury bonds. These instruments help an investor hedge against volatile interest rates. (Riley 41)

Futures markets are different from cash markets in that they don't offer the underlying commodity. Instead, they offer a trade contract to purchase or sell the commodity in the future. Unlike stocks, futures cannot be bought on margin. Therefore, commodity exchanges require that investors mark to the market every night. (Mayer xxv)

Investment Companies- Another investment instrument that is becoming very popular is the investment company. Through the use of this investment, an investor need not try to diversify his or her portfolio by buying individual stocks, instead they simply buy a share in the investment company that owns a large number of individual securities. These companies sell shares in themselves and use that money to buy investments. (Mayer 37)

There are many types of investment companies: A money market fund invests in high quality instruments like T-Bills, high-grade commercial paper, and large CD's. (Mayer 38) Bond funds invest in various long-term government, municipal, or corporate bonds. Common stock funds invest in a variety of common stocks depending upon the investment objective of the investment company. These instruments offer an affordable way for the small investor to have a very diverse portfolio.

Members of the Exchange

Were it not for the various members of the stock exchange, it would not be possible for the exchange to function. Their importance can be seen by looking at the amount of money that they generate: In 1972 the members of the NYSE earned two-thirds of the entire industry's revenue. Therefore, it is important to describe each type of member and explain his or her functions.

There are four categories of membership in listed exchanges: 1) the commissioned broker, 2) the floor broker, 3) the registered trader, and 4) the specialist.

The commission broker is an employee of a member firm who buys or sells for the customers of the firm, they do this on a commissioned basis. The floor broker is a member of an exchange who acts as a broker on the floor for other members. He is not connected with a member firm. He is on the floor to help out brokers of other commission houses when they are too busy, which helps to smooth out trading. Registered traders buy and sell for their own account. They are professional speculators who trade in stocks for very small, quick profits. They help to maintain a continuous market. They also help to stabilize prices because they trade at such close prices. (Meeker 100)

Perhaps the most important member of the exchange is the specialist. The typical specialist will handle about 15 stocks. His principal business has always been to serve as a broker for other brokers in his stock. Commission brokers rely on him so they don't have to spend a long time working on one order, they can get on with the rest of their business by executing their order through a specialist. (Meeker 109) The specialist can also engage in trading for himself, but precedence must be given to customer's orders. On the NYSE, there are approximately 55 specialist firms that are responsible for handling 1500 or so common stocks. (Mayer 36) One-third of the people

on the floor are specialists. Their paperwork is done by a clearinghouse. They very often have no need for any office space, and they have very low expenses.

The specialist performs a very important function in that he provides liquidity to the market. He has two main functions: 1) He acts as a broker who handles limit or special orders placed with member firms. 2) He acts as a dealer to maintain a fair and orderly market. He has to buy and sell for his own account when there is not enough public supply or demand. In this function he serves to lessen the spread between bid and ask prices. The function he serves depends upon the type of stock he is assigned to: For a high-volume trading stock, the specialist acts as a broker handling special orders, for a low volume stock, he acts mostly as a dealer, making a liquid market. (Meeker 100) In his functions he acts as the market-maker and does practically no business with the public.

One of the specialist's most important functions is to choose the price at which trading will begin. This is important because market orders will be executed at whatever price he chooses. The specialist is only allowed to change prices at the opening in the direction indicated by the balance of overnight trades. If he desires to set the price more than two points or 10% away from last night's closing price, he must get the approval from a member of the Board of Exchange. (Mayer 204)

An example of a specialist's function follows: market orders from the public can come to the floor from IBM cards sent through a printer at the post or through direct transmission to a screen at the post. The brokers offer this sell or buy order to the traders at the post and if it is not filled within three minutes, the specialist must buy or sell from the current inventory. (Mayer 205)

The specialist used to have a book in which the records were maintained of the orders that brokers had left with him. Many times these were limit orders. Currently, at about one-third of the posts, the book hangs on a hook by the post. But the other two-

thirds have resorted to a computerized book that allows them to more quickly send the orders through when the stock has reached the desired price.

Regulatory Committees

Now that the basic groundwork of the exchange has been explained, it is important to understand how the exchange is regulated. The governing committee consists of 40 members plus the president and treasurer. Ten are elected each year by the entire membership of the exchange. The Governing Committee has the power to discipline members. They determine if a member will be expelled or suspended. The rules of the exchange are ethical rather than legal.

The Committee on Stock List is another very important Committee. They are in charge of examining any submitted applications for listing after the required forms have been completed. These forms consist of a list of requirements to be met, a questionnaire, and a distribution statement. This necessary information is used to help the investor make a decision concerning investment in the stock. The questionnaire gets information concerning the general information of the security such as: How often are reports made to shareholders? and, Are there any concentrated holdings of the security? The distribution statement determines the number of shares held by the ten largest stockholders. This statement is not concerned with who the shareholders are, but instead it is utilized to determine how easily a free and open market can be made for the security. It also minimizes the possibilities of corners on the market of the security. Once the Committee on Stock List examines these applications and recommends that the stock be listed, the trading can begin the next day. (Meeker 452)

There was no government intervention of the market until after the Crash of 1907. At that time, Governor Charles Evan Hughes of New York set up a committee to investigate the practices of the exchange. That committee recommended that a mini-

mum 20% margin be set. (Mayer 215) The exchange continued to run as a “private club”, not having to answer to anyone until 1934 when the Securities and Exchange Act was implemented. This law allowed the SEC to implement any regulations they felt necessary. The SEC is still the dominant regulatory force of the exchanges.

Issuing a Stock

When a company would like to sell more stocks or bonds to raise more capital, it can do one of two things. It can privately place the stock or bond directly to an investor, or it can work through an investment banking team. If the latter is chosen, the company and the underwriter can have one of three kinds of arrangements: negotiation, competitive bid, or best efforts.

Negotiated bid is the most common sort of arrangement. In this case the underwriter helps the issuer prepare the bond issue with the understanding that they have the exclusive right to sell the issue.

Competitive bids usually involve a sealed bid, the issue is then sold to the group of underwriters who submit the lowest interest-cost bid that will complete the offering in the way the company desires.

In a best-efforts arrangement, the investment banker doesn't underwrite the issue because he doesn't buy it. This is normally used for speculative new issues. In this arrangement the investment banker merely gives his best efforts towards selling the issue.

No matter which arrangement is chosen, the issue is normally fairly large. Small issues of securities are not normally listed because it is too easy to manipulate the price or to corner the market. (Meeker 459) If the issue is very large, it will be handled by a syndicate, which is a group of firms that share the risks, profits, and expenses of underwriting the issue.

After the underwriting process is complete, the public offering must be made.

This is often done through the newspapers. In the advertisement, the number of shares, the price of the shares, and the date they will be available is printed.

However, the underwriters responsibilities are not complete yet. The underwriters need to see that their issues are initially distributed among investors and that other investors can readily buy them at all times. They also need to be concerned with whether or not the investors can sell the security quickly.

During the initial trading period, because there is not an automatic free and open market in which to trade, underwriters may need to stabilize the price by placing orders to buy "scale down" (e.g. 98, 97, 96) or sell "scale up" (e.g. 100, 101, 102). This allows an investor to either buy or sell the security at various prices. By doing this, the underwriters help to establish an active market in the security. Note-this can be expensive for the syndicate to do. Although they try to avoid large losses, they usually do incur small losses by doing this. (Meeker 455)

There is some question of the use of scale orders because it is possible that they can fix the price of a security. If the figures around which the price is set is a fair value of the security, no harm is done. However, if the price is unfair, harm can be done in that investors can lose money as the price falls towards its true value.

When these shares are first bought, they start out as "floating supply", in the hands of speculators, but as the issue matures, the floating supply decreases, and more of the security ends up in the hands of investors.

Therefore, the manufacturer of the issue gets his funds from the underwriting house; the underwriter gets his funds by selling the security to subsyndicates and from investors and speculators; the speculators normally get their funds from selling to investors. The process is then complete.

Once this process is complete, the security is able to be traded. In order to gain a strong understanding of the trading process, it is important to understand the kinds of

orders that can be placed: A market order is the most frequent type of order placed; this order tells the trader to buy or sell the set amount at the prevailing price. A limit order is an order placed by a buyer or seller that specifies a given price at which to buy or sell; these are often given to the specialist. A short sale occurs when an investor feels a stock is over priced and therefore is due for a fall in price. The investor then sells a stock that isn't owned by him in order to purchase it later at a lower price. In order to accomplish this the investor has to purchase the stock from another investor through his or her broker. Short-sales can be made only on an uptick so that the price of the sale is higher than the last trade price. The short seller is obligated to pay the dividend to the investor who lent the stock. A stop loss order is made if the investor indicates that he wants to sell a stock if it falls to a certain price. Likewise, a stop buy order is done by those investors who have sold short. It gives a price at which the investor wants to buy. (Riley 97)

Trading Process

When an investor desires to invest in the stock market he tells his account executive to buy a given amount at a given price depending on what kind of order he would like to make (see above). The order gets transferred to the floor broker who has to find another floor broker who wants to sell the same amount at that price. After the trade is completed, the notice is sent to each of the respective clients. However, the trade is not complete until the client has the certificate or agrees to let the broker hold the certificate.

The broker who represents the seller has to get the certificate from him. It is sent through a transfer agent to transfer the stock out of the client's name. The buying broker lets the transfer agent know who the new owner is. This exchange process needs to be completed in 10.5 days, however, in reality, it often takes two to three weeks.

The seller's broker has to deliver the new shares even if the seller is late in delivering them. This means that if the seller is late, the broker may have to buy an equivalent number of shares. The seller can acquire the shares from a customer who has the shares as collateral for a margin account. (Regan 100)

Of the trades that are currently done on stock exchanges, 10% are done in the traditional way of a clerk writing a ticket for the floor broker to execute. 50% are done in block trades of 10,000 shares or more, most of these are arranged upstairs on the telephone than carried to the post to be printed on the tapes. 40% are done when either a buy or sell order arrives at the post through an electronic delivery system. (Mayer 203)

Once the stock trade has been completed, the stock needs to be cleared through the stock clearing corporation. This area of the exchange has 6 specific tasks. 1) to compare the records of the buying and selling firms to make sure that they are consistent, 2) to summarize the total sales and purchases from all other firms for the firm, 3) to net out trades to compute balances of stock and cash requiring actual delivery, 4) to determine settlement prices for net balances, 5) to handle inter-firm deliveries and 6) to handle the settlement by each firm with the clearinghouse of differences between settlement prices and original contract prices.

Trading is heavy on the NYSE when trading starts at 9:30 and when it ends at 4:00. There is heavy trading in the morning because of the large amount of orders that come in overnight from Tokyo and London. Trading is so heavy in the morning in fact, that one-fourth of the day's trading may be done in the first half hour of the day.

Trading is heavy at the end of the day for a possibility of many reasons: Traders may want to close off their existing positions before they leave; Traders may want to hedge their overnight positions in the options or futures markets; or some traders may

be playing games between the stock market and one of the index futures markets. (Mayer 205) The heavy trading at the end of the day causes a large change in prices overnight.

Buying on Margin

A way that an investor can multiply profits (and losses), is by buying on margin. The FED has set a limit of 50% of the total cost of investment that can be margined (individual brokerage firms may have higher rates). Margin is a form of leverage. The stock is paid for partly in cash and the stock is used as collateral. If your stock drops to a point where your account is under-margined, you will receive a margin call, requiring you to add funds to your account. Margin buying increases your risk. A gain is better when buying on margin, but a loss is even worse when buying on margin.

Institutional Investing

A great deal of trading is now done by institutions and they are now so big that it is difficult for them to make money by buying small amounts in small numbers of companies. Instead, they are now buying an index of highly capitalized companies. (Mayer 263) These investors move the market by buying such large blocks of stock and they are crowding out the small investors. (Rowland 50)

In 1986 as much as 90% of the trading could be accounted for by institutional investors. In 1984 they held 27.2 percent of all publicly traded stocks (\$595.7 billion), as compared with only 6.9 percent (\$17.7 billion) in 1954. (Work 75) In fact, these institutions were unheard of until about 1970 when they accounted for about 5% of the trading. (Hooper 81)

Institutional investors make a lot of decisions that affect the individual investor. For example, they sell and trade huge blocks of stock at negotiated prices. This caus-

es changes in prices of the portfolio you hold. The worry of the small investors is that they will be trampled by these large investors. However, this type of trading process is a practically risk free way for institutional investors to earn a yield double that of a Treasury bill. (Laderman 33)

These institutions have aimed their strategy at maximizing returns and minimizing risks. In an effort to achieve this, they have relied a great deal on computers which help to minimize costs. Some of the tools that these computers are used for are portfolio insurance, index arbitrage, and program trading. This last type of trading has caused a great concern amongst individual investors.

After the crash of 1987, many forms of computer-assisted trading were not able to use the NYSE order delivery system. This happened because many people felt that it was this type of trading that had caused the crash.

Before making such a judgment, it is important to know the true definition of each of these kinds of trading. Because program trading seems to have caused the greatest worry, it will be examined first.

First let us see what program trading is not. Program trading is not a computer system that seems to carry out a trading decision for a trader. No such system exists. Nor is program trading a computer system that is used in conjunction with a decision support system. This type of system would give a trader "suggestions" regarding which stocks to buy or sell. This type of system does exist. One example is a feature called limit-making which utilizes preprogrammed parameters which signal to a trader when to trade.

The true definition of program trading "...occurs when a trader aims to trade a large group, or basket of stocks, together." (Essinger 49) This sort of trading began in the 1970's when trades of entire portfolios came into use. Computers are used for program trading in order to log completed trades. They are useful because a program

trade can contain a very large amount of stocks and to log these by hand would take a great deal of time. They also allow traders to purchase or sell a big "basket" of securities in response to immediate conditions in the market.

In comparison to program trading, index arbitrage is a strategy whereby a trader attempts "...to make a profit by exploiting small differences between prices of stocks." Recently, this has been occurring between stocks or securities and futures contracts in these stocks or securities. (Essinger 50)

Portfolio insurance helps a trader avoid large losses in a portfolio if the price of a particular stock or basket of stocks falls. By using a computer, the trader can be alerted if the price of a given security were to fall or rise to a predetermined amount. Computers are especially helpful when the portfolio contains a large amount of stocks.

Although index arbitrage and portfolio insurance are both important types of computer-aided trading strategies, they are not the same as program trading. The one characteristic that differentiates program trading is that it always involves a basket or portfolio of trades.

Program trading should be utilized whenever it would be easier to trade a basket of stocks than individual stocks. Therefore, program trading is most useful when a large amount of securities are to be traded. An example of a program trade would be to sell short an overpriced futures contract while owning the underlying stocks. By doing this, the investor locks in a high return with no risk.

Program trading is used only by large institutions. The U.S. seems to be the only country that utilizes this sort of trading. "According to the NYSE, between January and September, 1987, an average of 15,000 program trading orders passed through the Exchange per day, and on October 19, 1987, a total of 61,000 program trades passed through the NYSE. (Essinger 52) (Note-the NYSE includes index arbitrage and portfolio insurance in their definition of program trading.)

One of the problems that people have with program trading is that the stocks are bought to gain a short-term yield rather than for the investment of long-term economic growth. This defeats the economic function of the stock market: "To allocate capital that can fund long-term economic growth (Business Week 118)

Although many people blame computer assisted trading for Black Monday, there are some people who believe that computer trading kept the downfall from being disastrous. Robert Gartland believes that computers prevented the Exchange from being "buried in paper" when the 604 million shares changed hands that day (Essinger 52) He also noted that portfolio trades, index arbitrage, and portfolio insurance had accounted for only 12% of the transactions that day as opposed to 25-33% on a normal trading day. (Essinger)

However, there are those people who feel that computer aided trading had a large impact on the fall in prices on October 19, 1987. Adrian Norman feels that portfolio insurance, which alerted traders of falls in prices, caused these traders to sell when they might otherwise not have. As these traders sold, the prices fell even lower, thus contributing to more selling. (Essinger 53)

The general consensus among traders is that computer aided trading helps rather than hinders markets. They also are somewhat skeptical of the ideas that program trading leads to higher volatility in stock prices. In fact, when eight of the large players in program trading halted that area of trading (on their own), they claimed that they had done so because of public pressure. When asked to address the decrease in volatility after their halting of program trading, Lou Margolis, managing director of Salomon Brothers claimed "All claims I have seen that this temporary withdrawal from index arbitrage has lessened market volatility are based on inadequate evidence."

The future of computer trading is assured however, because of the support it receives from the people at the top. Alan Greenspan, chairman of the U.S. Federal

Reserve Bank feels that this form of arbitrage stabilizes the market prices during a declining market. (Essinger 55) As a form of arbitrage, this sort of trading helps to smooth out price differentials.

Technology and the Stock Exchange

Technology is changing the Exchange and how it functions. The following is a discussion of the new forms of strategies that have been or may be implemented in the stock exchanges.

Inter-market Trading Systems (ITS)- This system is currently available. It consists of a central computer facility with inter-connected terminals in the participating market centers. The number of issues included in the system have been growing substantially as has the volume traded.

Problems have been found with this system:

- there is not capability for automatic execution at the best market. Instead, the market-maker must be contacted in order for an order to be placed. The bid or offer may have already been executed by the time the order is received.
- the broker is not required to trade at the best market, so the customer may not get the best price if the broker doesn't feel it is convenient to use this system. (Riley 111)

Central Limit Order Book (CLOB)- If utilized, this would contain all limit orders for all exchanges. This is very controversial because the specialists who normally take care of these orders do not want to share their responsibility. The technology for this system is available, but the question of when and if it will be utilized has not been answered.

Super-Dot- This is an electronic order-routing system. This system allows market and limit orders in NYSE listed securities to be sent directly to either the post where the securities are traded, or to the member firm's booth. After the execution of the order, a report is sent to the member firm office through the same system. Market orders of up to 2,099 shares, and limit orders in round and odd lots of up to 30,099 can be entered. As of the end of 1987, an average of 154,000 orders a day were transmitted through this system.

Opening Automated Report System- This is the opening feature of Super-Dot. It is designed to accept member firms' pre-opening market orders up to 5,099 shares and provides rapid, systematic execution and immediate reporting. This service is of benefit to the specialist in setting the market price.

Super-Dot's Market Order System- This system accepts member firms' post-opening orders to 2,099 shares. It guarantees that all execution reports will be delivered within three minutes.

Limit Order System- This system electronically files orders that are to be executed when and if a specific price is reached. It accepts limit orders up to 99,999.

Electronic Display Book System- This replaces the specialists' hand-written book with electronically generated display screens. It helps eliminate processing errors. At the end of 1987 over 100 were in use. (Riley 113)

All of these technologies have been designed to aid the fast execution of orders. Much less time will be devoted to paperwork, and more time will be devoted to the maintenance of a free and open market.

Another proposed change in the stock exchange has been strongly opposed by the NYSE. This is the idea of a competitive market. This idea has been proposed to force dealers to make better markets in terms of bids and asks. If they did not want to do this they would be priced out of the market. The NYSE opposes the idea be-

cause it says that a central market provides the best market because all orders are forced to one location. In order to enforce this idea, they have established Rule 390. This says that a member must obtain permission from the exchange in order to carry out a transaction in a stock that is listed off the exchange. They claim to have done this to protect the auction market. They feel that if this is not done, members will be tempted to trade on or off the exchange and that many orders would be matched by brokers from the holdings of their own customers and trades wouldn't come to the floor. (Riley 112) The SEC feels that in order for the market to be fair and open there cannot be rules such as 390. The only remaining question is how to eliminate the rule.

Investment Innovations

More innovations have been made in the area of investment instruments. This is important because as the number of investment instruments increases, more funds are likely to become available to help finance production and promote a desirable allocation of the funds among several industries. (Dice 3) Although new instruments are being made nearly every day, a few of the most recent and interesting will be discussed here.

Unbundled Stock Units- This idea, which was developed by Shearson, Lehman, Hutton, allows investors who have different investment objectives to buy the same investment instrument. The security is made up of a bond, a preferred share and an equity warrant. Someone interested in current income could buy the right to collect dividends, another would be able to bet on a future rise in stock price and another can use the investment to collect any dividend increases. (Egan 69)

CARD's- Certificates for Amortizing Revolving Debts- This innovation was begun by Salomon Brothers. They devised a security made up of unsecured loans, namely credit card receivables. The only backing for these securities is the promise of

the borrower to pay. These are considered virtually default free because of the reserve fund that is created from the profits made on the receivables. (Sloan 32)

Paperless Securities- This simply refers to the many companies who are beginning to issue debt in a global book-entry form, thereby saving the expense of physical certificates, transfer agents, paying agents, and registrars. The U.S. government has already switched to full book-entry as have many federal and municipal agencies, it seems likely that corporate debt will be next.

Some of the benefits to the issuer are that certificate printing costs would be eliminated; handling, storage and shipping costs for the certificates would be cut; ongoing transfer costs would be eliminated; many problems along the lines of redemption costs, rate setting and remarketing would be substantially reduced. An approximation by the SEC states that issuers could save about \$200,000 on a present-value basis over the life of a typical \$100 million 20 year debt issue. (Apfel 29)

Puttable Stock- In this sort of issue, which was invented by Drexel Burnham Lambert, the investor buys a package composed of a share of common stock and a "right" entitling the holder to claim more stock if the market price falls below a certain level. The right in this unit cannot be exercised before expiration unlike options which can be exercised any time before expiration. At a predetermined time the issuer guarantees a floor value for each holder's position, this means that if the market value falls below the floor the issuer has to make up the difference by giving additional shares of common stock. These are much like convertibles in that the holder can participate in a rise in the price of a share, yet enjoy a reduced downside risk.

Conclusion

From this paper it can be seen what an important function our stock exchanges serve. Were it not for this secondary market for securities, the primary market would be severely damaged. Were that to happen, corporations would find that financing would be difficult to obtain. Indeed, the stock market is necessary for the accumulation of financing that is necessary to sustain our economic growth. We must do everything possible to keep our exchanges functioning as free and open markets.

My hope is that the reader is able to now have a greater knowledge and appreciation of the stock market as a whole. Although this paper has provided information on many areas of the exchange, I feel that it provides enough information that the reader has a greater interest in this area of finance and may desire to explore this financial institution through a more in-depth study.

Upon completion of this paper, I feel that I have gained a much greater understanding of the stock exchange and its functions. I feel that this paper has truly utilized much of the knowledge I have gained and has allowed me to expand upon that knowledge. Most importantly, perhaps, I have been able to discover how my educational background relates to the business world.

Works Consulted

Apfel, Robert C. and Albert J. Fredman. "Paperless Securities-Not Just for Finance Companies." Financial Executive Jan-Feb 1989: 29-33.

Chadzynska, Helene. "New Financial Instruments-Managing the Menagerie." OECD Observer April-May 1989: 28-31.

Chen, Andrew C., and John W. Kensinger. "Puttable Stock: An Innovation in Equity Financing." Financial Management Spring 1988: 27-37.

Cullen, Robert J. "Let Your Computer Steer You Through a Storm?" Medical Economics Aug 15, 1988: 103.

Dannen, Frederic. "Pensions: Who's in Charge Here?" Institutional Investor Feb 1985: 98.

Dice, Charles A. et al. The Stock Market. 4th ed. New York: McGraw-Hill Book Co., 1966.

Dreman, David. "Brobingnagian Bloopers." Forbes. Feb 11, 1989: 202-203.

Egan, Jack. "Wall Street's Newest Mousetrap." U.S. News and World Report. Dec. 1986: 50-53.

Eiteman, Sylvia C. and Wilfred J. Nine Leading Stock Exchanges. Michigan: University of Michigan, 1968.

Essinger, James. "The Debate Over Computer-Assisted Trading: Who is Right?" Financial Executive Jan-Feb 1989: 49-56.

Goldberg, Susan. Trading Inside the World's Leading Stock Exchanges. San Diego: Harcourt Brace Jovanovich, 1986.

Hirst, Francis W. The Stock Exchange. New York: Williams and Norgate Ltd., 1927.

Hooper, Lucien O. "Eyeing the Institutions." Financial World. June 12, 1982: 81.

Laderman, Jeffrey. "Those Big Swings on Wall Street." Business Week. April 7, 1986: 32-36.

Mayer, Martin. Markets. New York: W.W. Norton and Co., 1988.

McClain, David M. Apocalypse on Wall Street. Homewood, IL: Dow-Johnson, 1988.

Meeker, James E., MA. The Work of the Stock Exchange. New York: The Ronald Press Company, 1922.

Regan, Donald T. A View From the Street. New York: New American Library, 1972.

Riley, Frank K. Investment Analysis and Portfolio Management. 3rd ed. Chicago: Dryden Press, 1989.

Rosenburg, Hilary. "How the Pension Funds are Pulling the Strings." Institutional Investor. Sept. 1988: 75-80.

Rowland, Mary. "Those Wild Stock Swings." Working Woman. Dec. 1986: 50-53.

Sloan, Allan. "What Will They Think of Next?" Forbes May 19, 1986: 32-33.

Stone, James M. One Way For Wall Street. Boston: Little, Brown and Company, 1975.

Work, Clemens P. "As Big Investors Take on Top Management." U.S. News and World Report. March 11, 1985: 75.