

NOTRE DAME UNIVERSITY-LOUAIZE

**STOCK VALUATION CONCEPTS
AND APPLICATIONS**

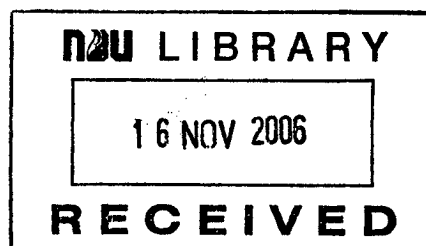
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A THESIS

Submitted in partial fulfillment of the requirements
for the degree of Master of Business Administration
to the Department of Finance
Faculty of Business Administration and Economics

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NOTRE DAME UNIVERSITY-LOUAIZE

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AN ABSTRACT OF THE PROJCT OF

Rita Neemtallah El-Khoury for Master of Business Administration
Major: Finance Concentration

Title: Adaptation of Stock Valuation Concepts and Applications

The purpose of this thesis is to highlight and increase the importance of using a new model known as “the intrinsic value” model in the valuation of stocks; while decreasing the dependence of the price earning ratio concept in determining the true worth of the stock.

A concise summary is first given about the US stock market, how it functions, the types of stocks offered, its exchanges, and its players. The price earnings ratio concept with its pros and cons will be presented in “Chapter Three”. Moreover, the macroeconomic and microeconomic factors affecting the price and earnings (two essential components of price earnings ratio) of the stock will be shown in this chapter. “Chapter Four” will discuss the value investing concept and its techniques namely; the Discounted Cash Flow Technique and the Relative Valuation Technique. “Chapter Five” considers the calculation of the intrinsic value in two different methods: the balance sheet approach and the income statement approach where the emphasis is on the latter approach. The intrinsic value obtained from the income statement approach is then used to compare it with the market value estimate to determine whether the stock is undervalued, fair or overvalued. The last chapter, “Chapter Six”, concludes the thesis with its findings and recommendations.

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Chapter One: Introduction

A. Purpose and Need of the Research

Choosing the right stock to make money has mostly been the aim of people trading in the stock market. Actually, in finance, there are many different techniques and ratios to evaluate a stock and determine whether it is undervalued, fair or overvalued. There are the “Discounted Cash Flow Techniques”, “the Relative Valuation Techniques-price sales ratio, price book value ratio, price cash flow ratio and the PEG ratio” and last but not least the “Price Earnings ratio”.

The aim of the research is to show that the “Price Earnings ratio” (one of the most used ratios in evaluating stocks), is not a true indicator of the true worth of a stock. It only gives an idea of what the market is willing to pay for a company’s earnings-what an investor is willing to pay to earn \$1 from the company’s earnings. Thus, the pros and cons of “price earning ratio” are considered and all the macro and micro economic conditions that affect it, showing that it couldn’t be a dependent factor to relay on.

In retrospect, a more accurate model is introduced, the “intrinsic value” model to support the price earning ratio problem. Through the “intrinsic value” model, the intrinsic value can be determined from two different approaches: the balance sheet approach and the income statement approach. In this research, however, the emphasis is on calculating intrinsic value using the income statement approach where it is then used to compare it with the market value estimate to determine whether the stock is undervalued, fair or overvalued.

B. Scope of the Research

The project is divided into six chapters. Chapter one is an introductory chapter which encompasses the purpose, need and the scope of the research.

The second chapter reviews the US stock market, identifying the types of stocks, its markets, its players and last but not least its exchanges.

The third chapter is devoted to defining and measuring the price earning ratio. It also shows the different micro and macro economic conditions that affect price and earnings (two essential elements of P/E). The chapter ends with the conclusion that the P/E could not be alone a dependent factor in evaluating stocks and determining whether the related stocks are undervalued, fair or overvalued. Thus, a concept known as value investing-calculating intrinsic value-is introduced.

The fourth chapter explores the value investing theory by introducing two important valuation techniques: the “discounted cash flow technique” and the “relative valuation technique”. The discounted cash flow technique is defined with its various models. The relative valuation technique is further introduced with its different ratios. The chapter ends by highlighting the importance of these techniques in estimating the intrinsic value.

Chapter five shows the calculation of the intrinsic value from two different approaches: the balance sheet approach and the income statement approach. The emphasis is on the income statement approach where the intrinsic value calculated is then used to compare it with the market value estimate to determine the true worth of the stock

The last chapter, chapter six, concludes the research with its findings and recommendations.

Chapter Two: Stock Market

2.1 Overview of the US Stock Market

Most people are involved with the stock market and almost all Financial Institutions are directly or indirectly concerned about the stock market. It is through this market listed and OTC companies are able to raise capital to expand their operations. Therefore, the stock market is almost inescapable which further reflects a country's prosperity and prospects.

The mechanism for trading stocks is truly remarkable. The market's potential for gains and its operational characteristics are truly remarkable. However, the stock market is not a "casino" of playful or foolish gamblers. It is, primarily, the vehicle of fluid exchanges allowing the efficient function of capitalistic, competitive free markets¹.

This chapter gives an overall idea about the stock market, how it works, the types of stocks offered, its exchanges, and its players.

A. Stock Market History and Size

Stock market trading in the United States can be traced back to over 200 years ago. Historically, the colonial government decided to finance the war by selling bonds, government notes promising to pay out profit at a later date. Around the same time private banks began to raise money by issuing stocks, or shares of the company to raise their own money. This was a new market, and a new form of investing money, and a great scheme for the rich to get richer. More specifically in 1792, a meeting of twenty four large merchants resulted into a creation of a market known as the New York Stock

¹ Didier, S. "Why Stock Markets Crash". Princeton University Press, 2003

Exchange (NYSE). At the meeting, the merchants agreed to meet daily on Wall Street to daily trade stocks and bonds. Further on, in the mid-1800s, United States was experiencing rapid growth. Companies needed funds to assist in expansion required to meet the new demand. Companies also realized that investors would be interested in buying stock, thus, giving them a partial ownership in the company.

By 1900, millions of dollars worth of stocks were traded on the street market. In 1921, after twenty years of street trading, the stock market moved indoors.

History brought the Industrial Revolution, which also played a role in changing the face of the stock market. New form of investing began to emerge when people started to realize that profits could be made by re-selling the stock to others who saw value in a company. This was the beginning of the “secondary market”. The growth in the number of market participants led the government to decide that more regulation of the stock market was needed to protect those investing in stocks.

History was made in 1934, when following the Great Crash, Congress passed the Securities and Exchange Act. This act formed the “Securities and Exchange Commission” (SEC), which, through the rules set out by the act and succeeding amendments, regulates American stock market trading with the help of the exchanges. It also includes overseeing the requirements for a company to issue stock shares to the public and ensures that the company offers relevant information to potential investors. The SEC also oversees the daily actions of market exchanges and how they trade the securities offered.

Although historically, investing in stocks was a “hobby” for the rich, an average person too soon came to realize the value of the investing in stocks².

Distinct stocks issues are traded on stock exchanges throughout the United States (listed securities) and many other issues are traded over –the- counter (OTC). Usually, more established companies list on one or more exchanges, while over the counter market is where newer and smaller companies are likely to be traded. The stock market also includes thousands of different mutual funds and thousands of different options to purchase stocks. The approximate value of average daily equity trading on the NYSE in 2005 is above \$46 billion and on over –the- counter about \$27 billion³.

B. Stocks

1. Definition

A typical definition for a stock is “the capital raised by the corporation through the issuance of shares entitling holders to an ownership interest.”⁴ Hence, these shares represent a claim on the company’s earnings, assets and all voting rights attached to the stock. Shares, equities or stocks all mean the same thing.

A stock is represented by a stock certificate. It is piece of paper that is proof of ownership. In today’s computer age, stockholders won’t actually be able to see this document because their brokerage firms retain these records electronically, which is also known as holding shares “in street name.” This is done to make the shares easier to trade.

² Stock Market Investing Guide-“A Brief Overview to Basis of Investing in the Stock Market”.RankUhigh.com,2004.Retrieved on December 7, 2005 from http://www.stockmarketinvestinginfo.com/smi_history.html

³ Reilly, F and Brown, K. “Investment Analysis and Portfolio Management”. Eight Edition. Thomson South Western,2006

⁴ “Stock Basics: What Are Stocks?”. Investopedia.com.2006.Retrieved on December15, 2005 from <http://www.investopedia.com/university/stocks/stocks1.asp>

In the past when a person wanted to sell his or her shares, that person physically took the certificates down to the brokerage. Now, trading with a click of the mouse or a phone call made life easier for everybody.

2. Reason for Issuing Stocks (Debt vs. Equity)

At some point, every company needs to raise money. Raising money can be done either through borrowing or issuing stocks. A company can borrow by taking a loan from a bank or by issuing bonds. Both methods fit under “debt financing”. On the other hand, issuing stock is called “equity financing”. This concept is good for the company since it doesn’t require the company to pay back the money or make interest payments as in the case of debt financing. They use this money to finance expansions, pay for equipment or any other resource-intensive activity. On the other hand, through equity financing founders must give up some control of the business. If investors have different ideas about the company's strategic direction or day-to-day operations, they can pose problems for the entrepreneur.

To understand the distinction between a company financing through debt or financing through equity is important. When one buys a debt investment such as a bond, he or she is guaranteed the return of money (the principal) along with promised interest payments. This isn't the case with an equity investment. By becoming an owner, the stockholder is assuming the risk of the company not being successful. As an owner the shareholder's claim on assets is lesser than that of creditors. This means that if a company goes bankrupt and liquidates, the shareholder doesn't get any money until the banks and bondholders have been paid out; this is called “absolute priority”. On the other hand,

shareholders earn a lot if a company is successful, but they also stand to lose their entire investment if the company isn't successful⁵.

3. Voting Rights

Owning a stock; thus, being a shareholder of a public company does not mean the shareholder has a say in the day-to-day running of the business. Instead, one vote per share to elect the board of directors at annual meetings is the extent to which one has a say in the company. For instance, being a Microsoft shareholder doesn't mean one can call up Bill Gates and tell him how the company should be run. On the other hand, the shareholder has the right to vote to remove the management if the management of the company doesn't aim to increase the value of the firm for shareholders. Actually, in reality, small individual investors don't own enough shares to have a material influence on the company. It's really the likes of large institutional investors and the billionaire entrepreneurs who make the decisions. However, it isn't too big a deal that the shareholders are not the ones managing the company. After all, the idea is making money. The importance of being a shareholder is that the shareholder is entitled to a portion of the company's profits and has a claim on assets.

4. Types of Stocks

The following are the main types of stocks:

a. Common stocks: Common stock is the most common form of stock investors encounter. When people talk about stocks in general they are most likely referring to this type. These stocks are issued by firms to obtain funds. Moreover, they

⁵ "Stock Basics: What Are Stocks?". Investopedia.com. 2006. Retrieved on December 15, 2005 from <http://www.investopedia.com/university/stocks/stocks1.asp>

are easy to transfer, that is when the market opens, a common stock can be bought or sold at whatever price another investor is willing to pay. These shares represent ownership in a company and a claim (dividends) on a portion of profits. Over the long term, common stock, by means of capital growth, yields higher returns than almost every other investment. This higher return comes at a cost since common stocks entail the most risk. If a company goes bankrupt and liquidates, the common shareholders will not receive money until the creditors, bondholders, and preferred shareholders are paid.⁶

b. Preferred stocks: Preferred stocks are capital stocks which provide a specific dividend that is paid before any dividends are paid to common stockholders, and which takes precedence over common stock in the event of liquidation. Like common stock, preferred stocks represent partial ownership in a company, although preferred stock shareholders do not enjoy any voting rights of common stockholders. Also unlike common stock, a preferred stock pays a fixed dividend that does not fluctuate, although the company does not have to pay this dividend if it lacks the financial ability to do so. The main benefit to owning a preferred stock is that the investor has a greater claim on the company's assets than common stockholders. Preferred shareholders always receive their dividends first and, in the event the company goes bankrupt preferred shares are paid off before common stockholders.⁷ In general, there are four different types of preferred stock:

⇒ cumulative preferred,

⇒ non-cumulative,

⁶ "Stock Basics: Different Types of Stocks". Investopedia.com. 2006. Retrieved on December 15, 2005 from <http://www.investopedia.com/university/stocks/stocks2.asp>

⁷ Stock Quest A Global Stock Market Game. "Types of Stocks". Retrieved on 25 March, 2006 from <http://investment.coe.uga.edu/C001759/quide/basics6.htm>

⇒ perpetual

⇒ non perpetual

c. Different classes of stocks: Besides common and preferred stock, a company may customize different classes of stock in any way they want. The main reason for this is the company wanting to separate ownership and control; thus, wanting the voting power to remain with a certain group. Hence, different classes of shares are given different voting rights. For example, one class of share would be held by a select group who are given ten votes per share while a second class would be issued to the majority of investors who are given one vote per share. Last but not least, when there is more than one class of stock, the classes are traditionally designated as Class A and Class B⁸.

C. Stock Quote Table

The financial pages of general and specialized newspapers are an important source of information for many people. Moreover, the daily report of the stock market attracts more interest and attention than any other part of the financial section of the newspaper. This report consists of a stock quote table.

A detailed stock quote table provides one with much more information than just the current market price of the stock. Being able to understand a stock quote table is essential when investing in the market. One may obtain detailed stock quotes from any of the major financial sites such as www.yahoo.com/Finance or [www.CBS Marketwatch.com](http://www.CBSMarketwatch.com).

⁸ "Stock Basics: Different Types of Stocks". Investopedia.com.2006.Retrieved on December 15, 2005 from <http://www.investopedia.com/university/stocks/stocks2.asp>

Table 1: Detailed Stock Quote Table For “Microsoft”

Last Trade:	\$27.16	Day's Range:	27.01-27.25
Trade Time:	11:02AM ET	52wk Range:	23.82-28.25
Change:	0.02 (0.07%)	Volume:	14,004,709
Prev Close:	27.14	Avg Vol(3m):	65,441,200
Open:	27.03	Market Cap:	289.11B
Bid:	27.16*40800	P/E(ttm):	22.94
Ask:	27.17*44300	EPS(ttm):	1.18
1y Target Est:	30.87	Div&Yield:	0.36(1.30%)

Source: Yahoo Finance, Retrieved on 13 January 2006

The following explains the major components of a typical detailed stock quote table:⁹

Ticker Symbol: This is the unique 3 or 4 letter name which identifies the stock. For example, the ticker symbol for Microsoft is MSFT. As a matter of fact, if the ticker symbol is 3 digits or less, it means the company is listed on floor exchanges such as NYSE whereas above 3 digits, its means that the company is presented on over-the- counter market.

Last trade: The most recent price at which the security was traded. All quotes are updated continuously throughout the day as further trades are made.

Trade Time: The time of the most recent trade of a particular stock.

⁹ “How to Read a Detailed Stock Quote Table”. About, Inc. A part of the New York Times Company, 2006. Retrieved on 13 January 2006 from www.about.com

Change: The difference between the previous day's closing price and the most recent price of the stock.

Previous Close: The last trading price for the stock recorded when the market closed on the previous day.

Open: The price of the stock's first trade of the day-the price of the stock as of the market open. Trading opens at 9:30 a.m. Eastern Time and closes at 4:00 pm

Bid: The price at which a market maker or stock exchange trader is prepared to buy a particular security from an investor.

Ask: The price at which a market maker or stock exchange trader offers to sell a given security to an investor.

Day's Range: This refers to the price range at which the stock has traded at throughout the day. It represents the maximum and the minimum prices that investors have paid for the stock during a particular market day.

52wk Range: This refers to the price range at which the stock has traded at during the past 52 weeks. It represents the maximum and the minimum prices that investors have paid for the stock during the preceding one year period.

Volume: The number of shares of a particular company traded that day.

Market Cap: The value of a company as determined by multiplying the total amount of its outstanding shares by the current market price per share.

P/E: This is the company's Price Earnings Ratio, calculated by dividing the current stock price by earnings per share (EPS) for the last 12 months. If only outstanding shares are considered, the result is a primary earning per share. If all possible shares are also considered (executive stock and convertible bonds) the result is fully diluted earnings per share.¹⁰

Earnings per share (EPS): the portion of the company's profit allocated to each outstanding share of common stock. It serves as an indicator of the company's profitability. Calculated as:

=Net income-Dividends on Preferred Shares/Average outstanding shares

Dividend per share: This indicates the annual dividend payment per share for a company that currently pays out dividends¹¹.

D. Stock Markets

1. Primary Market

Securities generally have two stages in their lifespan. The first stage is when the company initially issues the security directly from its treasury at a predetermined offering price. This is a primary market offering. It is referred to as the initial public offering (IPO). Investment dealers frequently buy initial offerings on the primary market and resell the securities on the secondary market. The Capital Markets Staff of the Securities

¹⁰ "Basic vs. Diluted Earnings per Share". Joshua Kennon.About, Inc.. The New York Times Company, 2006. Retrieved on December 19, 2005 from <http://beginnersinvest.about.com>

¹¹ Oliveira, A. About, Inc. The New York Times Company, 2006. Retrieved on December 1, 2006 from <http://daytrading.about.com/mbiopage.htm>

Administration Branch enforces primary market regulations. An example of primary market regulation is the obligation of a company to file a “prospectus” with the Branch when it issues shares. The Capital Markets Staff receive and review the prospectus to determine whether it achieved full disclosure. Again, this review is not to approve the merits of the security, but to ensure that companies meet the minimum requirements of full disclosure.¹²

2. Secondary Market

The second stage is when an investor or dealer makes the shares, bought from a company treasury, available for sale to other investors on the secondary market. In the secondary market, the trading of shares is between investors. Brokerage firms serve as financial intermediaries, where the brokers receive the orders from the customers and pass the orders on to the exchange. From there, it is routed to one of two places for execution: an exchange floor or an over -the- counter where these two markets will be discussed later.

E. News Effect on the Market

The most difficult job in reading the financial page is not finding the news; it is interpretation. The market may or may not react to news as expected. A good piece of news may affect the market days or weeks before it reaches the news tickers; it may influence the market the instant it becomes known; it may produce results a day or two afterward; or it may even make the least difference in the price of the stock.

¹² Schwartz, Robert. “Equity Markets”. New York, Harper and Row. 1988

1. Business News

There's a huge flow of new information and it's hard to do an intelligent selection as to what stocks one should buy. But if an investor studies the economic situation, decision making will become easier. Therefore, understanding the supply market of say Steel i.e understanding the Sector, then the ripple effects towards the specific stock could be evaluated in line to the movement of Raw Material due to the link up which of course will affect the earnings and thus the value of the stock.

The quality of and the variety of reports issued by various government agencies are far too long to be enumerated, but it is not too difficult to learn what is available for anyone interested in particular data. In addition to Bureau of Labor Statistics and the Census Bureau, information can be obtained from the departments of Commerce, Labor and Agriculture. All experienced readers of the financial page realize the interdependence of the business news: the prosperity of one industry spreads to many others.

2. Political News

The market today is affected by political development much more than before. The government today in all countries has a major influence upon the economic life of their nation through taxation, expenditures and monetary politics. So, the reader of the financial pages should be watchful of the reaction of the market to political news.

3. Sources of News

The news that appears on the financial pages comes from many and varied sources. It is gathered from the great press associations, and by Dow Jones and Company, which publishes the Wall Street Journal. These agencies in general compile, edit, classify and sort out the most useful items, but no paper can hope to publish all the material released today. Readers must be on their guard against certain kinds of news stories. The desire to present to the public at all times a “good story” of the company affairs has become a major objective of management. The intelligent reader will do well to evaluate corporate reports at all times to see if they are unbiased and objective.

2.2 Exchanges

The primary function of an exchange is to provide liquidity. The exchange tracks the flow of orders for each stock, and this flow of supply and demand sets the price of the stock.

A. Organized Exchanges

These exchanges are used to execute secondary market transactions, where buyers and sellers of securities (or their agents or brokers) meet in one central location to conduct trades. The exchange enforces certain rules to govern its members’ trading activities. To become a member, an individual must purchase one of a limited number of memberships, called “seats”, on the exchange. Only members (or their representatives) are allowed to trade on the exchange. In this sense, because all orders to buy or sell must flow through

members, members of the exchange have a legal monopoly. Memberships can be bought and sold like other assets¹³.

Actually, there are many important exchanges (Chicago stock exchange, Boston stock exchange, Cincinnati stock exchange and etc), but the two major stock exchanges in the United States is the New York Stock Exchange and the American Stock Exchange.

1. New York Stock Exchange (NYSE)

For many, the “stock market” means the NYSE. Founded in 1792, located at the corner of the Wall and Board Streets in New York City, and the largest of all US exchanges, the New York Stock Exchange is in fact the model for exchanges worldwide. On average 1.6 billion shares change hands each day. “In 2005, it was again the most efficient competitive venue for trading its listed stocks, providing investors the best execution prices and the best quoted spreads and the largest displayed liquidity. The price of a seat on this exchange ranged from as low as \$99,000 in 1925 to more than \$1.4 million in 2004. Actually, the seat sale reached \$3.5 million on December 1, 2005.”¹⁴ Further, the following table shows the NYSE overview statistics.

¹³ Investor Education, News Brunswick ,2006.Retrieved on February 15, 2006 from http://www.investor-info.ca/securities_reg_markets.asp

¹⁴ NYSE Fact Book (New York: NYSE, 2005). Reprinted by the permission of the New Stock Exchange.

Table 2: NYSE Overview Statistics

	Average daily volume (in millions)	Global market capitalization(trillions\$) (ii)	Companies Listed	Seat prices
2005	1,602	\$ 21.20	2,767	3,550,000
2004	1,457	\$ 19.80	2,768	1,515,000
2003	1,398	\$ 17.30	2,750	1,500,000
2002	1,441	\$ 13.40	2,783	2,550,000
2001	1,240	\$ 16.00	2,798	2,300,000
2000	1,042	\$ 17.10	2,862	1,700,000

(i) Market capitalization of US companies plus global market capitalization of non US companies (includes close end funds)

Source: NYSE Group, 2005, Annual Report

Listed companies on the NYSE represent a total global market value of approximately \$21 trillion, as of December 31, 2005. These companies include large, midsize and small capitalization companies. Moreover, the approximately 453 non-US companies are valued at \$7.1 trillion. Tables 13 and 14 list respectively some of the US and the non-US companies listed on the NYSE with its price earning ratios and market capitalizations (refer to appendix, page 99-100).

Listing on the NYSE affords companies great credibility because they must meet initial listing requirements and also comply annually with maintenance requirements. Only firms meeting certain minimum requirements (earning power, total value of outstanding

stock, and the number of shareholders) are eligible for listing on NYSE. The followings are some of the listing requirements¹⁵

Table 3: Listing Requirements for Stocks on the NYSE

Pretax income last year	\$ 2,500,000
Pretax income last two years	\$ 2,000,000
Shares publicly held	1,100,000
Market value of publicly held shares*	\$100,000,000
Minimum number of holders of round lots (100 shares or more)	2,000

**This minimum market value is \$60million for spin offs, carve-outs, or IPOs*

Source: NYSE Fact Book, 2004

Last but not least, NYSE-listed companies are among the world's best. They range from "blue-chip companies, to world-leaders in technology, to young, high growth enterprises. They meet and adhere to the most stringent listing and governance requirements. Moreover, new listings on the exchange include transfers from other US markets, initial public offerings, and cross listing by non US companies listed on other global exchanges.

2. American Stock Exchange

The AMEX, sometimes called "Little Big Board" is located a few blocks away from the NYSE. It accounts for about 3% of all shares traded on US exchanges. Founded in 1850s, it was known as the New York Curb Exchange until its name was changed in 1953. Its earlier name resulted from the fact that it was an outdoor market from its origin until 1921, where its members conducted trading along the curb on the Board and Wall Streets.

¹⁵ Reilly, F and Brown, K. "Investment Analysis and Portfolio Management". Eight Edition. Thomson South Western,2006

Basically procedures on the AMEX are much the same like those on the NYSE. Like the NYSE, the AMEX has minimum requirements for listings. They are, however, less stringent. While some old line companies are listed on the AMEX, generally the companies listed are less mature and seasoned than those listed on the NYSE. Table 15 shows some of the companies listed on the AMEX with its price earning ratios and market capitalizations (refer to appendix, page 101). Further, Table 16 indicates Amex most active equities as of 16 June 2006 (refer to appendix, page 102).

The AMEX has served as a kind of proving ground for newer companies, many of which, as they grow and expand, transfer their listing to the NYSE. Many of the stocks on the AMEX are low priced (the average is about \$15 per share versus approximately \$55 on Big Board), and many trade in round lots of 10, 20, and 50 shares instead of the customary hundreds. The following two tables further highlight 2006 and 2005 monthly market summary of AMEX.

Table 4: Amex Market Summary 2006

Month	Number of Issues	Market Value\$(000)	Total Amex Volume	Average Amex Daily Volume	Dollar Value\$(000)
May	1,366	521,934,470	2,035,402,542	92,518,297	68,585,890
April	1,353	497,594,997	1,748,486,059	92,025,582	50,962,803
March	1,346	470,515,464	1,875,148,300	81,528,187	57,583,557
February	1,335	449,829,112	1,585,902,758	83,468,566	54,100,060
January	1,328	462,017,765	1,732,622,195	86,631,110	59,129,199

Source: AMEX and SIAC. 2006. All numbers are exclusive of options and bonds. Retrieved on 16 June 2006 from www.amex.com

Table 5: Amex Market Summary 2005

Month	Number of issues	Market Value\$(000)	Total Amex Volume	Average Amex Daily Volume	Dollar Value\$(000)
December	1,334	451,687,443	1,667,639,204	79,411,391	54,745,928
November	1,319	438,470,636	1,612,274,332	76,774,968	52,117,416
October	1,348	481,819,709	1,635,078,506	77,860,881	63,277,793
September	1,341	490,955,000	1,566,871,776	71,221,444	50,855,419
August	1,346	473,128,886	1,512,375,937	65,755,476	46,074,000
July	1,330	462,851,973	1,241,348,406	62,067,420	40,952,000
June	1,322	442,178,986	1,378,015,181	62,637,054	46,800,000
May	1,312	423,703,475	1,174,385,648	55,923,126	47,210,000
April	1,303	396,876,839	1,387,272,491	66,060,595	55,150,000
March	1,281	411,725,567	1,562,538,950	71,024,498	57,590,000
February	1,269	415,332,632	1,269,901,073	63,495,054	45,120,000
January	1,270	396,196,086	1,336,464,378	66,823,219	48,200,000

Source: AMEX and SIAC. 2006. All numbers are exclusive of options and bonds. Retrieved on 16 June 2006 from www.amex.com

There is a considerable trading in foreign securities on the AMEX.¹⁶

B. Trading on the Organized Exchanges (i.e NYSE & AMEX)

The trading that takes place on the floor of an organized exchange resembles an auction. It is so because trading takes place by an “open outcry” and prices are determined by exchange members who call out bids (the highest price that brokers are willing to pay for a number of shares) and offers (the lowest price at which brokers are willing to sell). That is another way of saying that trading takes place at prices determined by supply and demand.

¹⁶ “The American Stock Exchange”. American Stock Exchange LLC. 2006. Retrieved on 6 June 2006 from www.amex.com

Those members of the exchange attempting to sell a client's stock strive to obtain the highest price possible, while members of the exchange purchasing stock for their clients aim for the lowest possible price. When members of the floor of the exchange announce the sale of a certain number of shares of a certain stock, they receive bids for that stock by other members. They either accept the highest bid or hold the stock until an acceptable bid is offered. Any member of the exchange can act both as a seller and a buyer¹⁷.

C. Players on the Floor

Members of the exchange perform various functions. According to these functions, they are classified as the following:

1. House Brokers and Independent Brokers

"House Brokers" are employed by large diversified broker dealers. Broker dealers were once called "investment houses" or "banking houses" from which the term house broker is derived. House brokers execute orders on behalf of his or her firm's customers or occasionally on behalf of his or her firm's own account.¹⁸ They normally work on a fee plus commission.

Very often, house brokers are unable to handle the volume of the orders they receive. Even if these brokers receive only two orders at the same time, there can be a problem if

¹⁷ Madura, J. "Financial Markets and Institutions". Fourth Edition. South College Western Publishing, 1998

¹⁸ Dalton, J. "How the Stock Market Works". Second Edition. New York Institute of Finance. 1993

the orders are for different trading posts. They miss the market in one or both. In such a case, brokers may call upon the Independent Brokers.¹⁹

Hence, “Independent Brokers” are individuals who provide execution services to house brokers. Independent brokers were commonly known as “\$2 brokers,” servicing only the large brokerage houses. Today, independent brokers are the NYSE’s “agent entrepreneurs.” They help a house broker manage order flow on a busy day, conduct business directly for the public, or execute special orders for customers. At one time the fee for those services was a flat \$2 for each 100 share order executed. Now however the fee is fully negotiable according to the difficulty of the execution, the size of the order, and the price of the security.²⁰

2. Registered Traders

Registered traders do not exchange business for the public or for other members. They trade for themselves. These registered traders roam the floor of the exchange in search of buying and selling opportunities. One moment they may buy a stock, only to sell it shortly thereafter. A trader’s profits depend upon the size and rapidity of his or her turnover of the stock and on the accuracy of his estimate of future price movements. Although they attempt to buy and sell profitably for their accounts, registered traders frequently act as buyers when customers want to sell and as sellers when customers want to buy. In this capacity, they enhance the liquidity of the market, and in doing so assist the “specialists” whose function will be described below. Today, they are often called

¹⁹ Reilly, F and Brown, K. “Investment Analysis and Portfolio Management”. Eight Edition. Thomson South Western, 2006

²⁰ Dalton, J. “How the Stock Market Works”. Second Edition. New York Institute of Finance. 1993.

registered competitive market makers (RCMMs) and have specific trading obligations set by the exchange.²¹

3. Specialists (Exchange Market Makers)

About one fourth of all members of the exchange are specialists. They are called so because they are specialized in “making a market” for one or more stocks. The specialist’s business is concentrated in one or more stocks at one trading post. The typical specialist will handle 10 to 15 stocks. The minimum capital requirement for specialist is currently \$1million or the value of 15,000 shares of each stock assigned, whichever is greater. They “keep the limit order books” in these stocks. They usually have associates or assistants, and one or the other is always at the post during trading hours. Actually the specialist performs five essential functions in the specific securities allocated to him or her. They are:

1. Manage the auction process. To maintain a fair and orderly market in a particular security, the specialist establishes the opening price for his or her security every day. Then, during the day, the specialist quotes the current bid and offer prices to brokers.

2. Execute orders for floor brokers. The specialist can execute an order immediately or hold the order and execute it when the stock reaches the specific price requested by the customer. Thus, the specialists can act for other brokers who cannot remain at the post until prices specified by their customers’ buy and sell orders-either purchases below or

²¹ Reilly, F and Brown, K. “Investment Analysis and Portfolio Management”. Eight Edition. Thomson South Western,2006

sales above prevailing prices- are reached. The specialists must assume full responsibility for all the orders turned over to them. Part of the commission the customer pays the broker goes to the specialist when their services are used. As a dealer, the specialist will buy or sell stock from his or her own inventory to keep the market liquid or to prevent rapid price changes.²²

3. *Serve as catalysts.* Specialists are the point of contact between brokers with buy and sell orders. The specialist acts as a catalyst, bringing buyers and sellers together enabling a transaction to take place that otherwise would not have occurred

4. *Provide capital.* If buy orders temporarily outpace sell orders, or conversely if sell orders outpace buy orders, the specialist is required to use his firm's own capital to minimize the imbalance. This is done by buying or selling against the trend of the market until a price is reached at which public supply and demands are once again in balance.

5. *Stabilize prices.* To ensure that stock trading moves smoothly, with minimal price fluctuation, the specialist will step in against the market trend. Specialists buy and sell stock to cushion temporary imbalances and to avoid unreasonable price variations

“Because the specialists keep the books in the stock and thus have advance notice of buy and sell orders at varying prices, and because they can also deal for their own accounts, suspicion has always been raised concerning their objectivity, and doubts have been expressed about their conflict of interest between making a market and making money for themselves”.²³ Their trading practices are carefully supervised and evaluated. Thus, the

²² “Types of Members”. New York Stock Exchange, Inc. 31 December 2005.

²³ “Types of Members”. New York Stock Exchange, Inc. 31 December 2005.

exchange sets specific requirements for specialists concerning market experience, their dealer function, and the amount of capital they must possess. Specialists, for example, cannot buy or sell in the exchange market at any price for their own accounts until they have executed all public buy orders held by them at that price.

D. Over-the-Counter

“The over-the-counter (OTC) market is part of the secondary market for securities, where securities are traded after they've been issued by companies or governments. The OTC market is sometimes called the negotiated market, because, unlike exchanges, where securities are sold through outcry auctioning, trades on the OTC market are negotiated directly between buyers and sellers, usually over the telephone or through a computer network.”²⁴ When a trade happens on the floor of an exchange, everyone in the trading area (and soon, people all over the world) knows the number of shares that changed hands and the price that was paid for them. With over-the-counter trading, limited information is available about what price a share is trading in the market at that moment, and there is usually a greater time delay. Many investment experts believe this makes over-the-counter trading more immediately sensitive to market pressures. The OTC market has no trading centers, no geographic boundaries. Instead, it consists of hundred of brokerage firms located throughout the country and doing business by telephone²⁵.

OTC trading takes place among brokers, who arrange transactions between buyers and sellers, and among dealers who trade for their own accounts. “Dealers quote two prices for a security: the bid price, which is the highest price a dealer, will pay for a share of a

²⁴ “Getting to Know Stock Exchanges”. David Harper. Investopedia Inc. Sept. 24, 2004

²⁵ Dalton, J. “How the Stock Market Works”. Second Edition. New York Institute of Finance, 1993

security, and the asked price, the lowest price the dealer is willing to sell a share of the security for. The two prices together constitute the dealer's quotation on that security, and the difference between the two is called the spread.”²⁶ Brokers and dealers negotiate the actual price on any transaction in the spread between bid and asked prices.

Moreover, over-the-counter dealers do not have to pay for a seat (membership) on the exchange, they are only required to be members of the National Association of Security Dealers (NASD) and abide by its rules. “(The NASD is an organization of brokers and dealers who trade securities. The NASD is the regulatory organization that oversees OTC dealers and the NASDAQ marketplace).”²⁷

The brokerage houses interact over all centralized computer system managed by **NASDAQ (National Association of Securities Dealers Automatic Quotations)**. This nationwide communications network allows brokers to know instantly the terms offered currently by all major dealers in securities covered by the system. With approximately 3,300 companies, it lists more companies and, on average, trades more shares per day than any other U.S. market. Stocks that are traded on the NASDAQ range from those of small, unprofitable companies to large, extremely profitable firms such as Microsoft and Intel.²⁸ Table 17 indicates some of the companies listed on NASDAQ (refer to appendix, page 103).

²⁶“Over the Counter Bulletin Board Exchange, Market Structure, Risk and Return”. All Stocks.com. The investor and the traders website. 1998-2005

²⁷ The Stock Market Investing Guide. “The NASDAQ Stock Market”. RankUHigh.com. 2004

²⁸ “The NASDAQ Stock Market”. Overview . 2006

As of 16 June 2006, the total share volume of securities traded on the NASDAQ reached 2,513,600,000.²⁹ Thus, the 10 most active companies in terms of volume as of 16 June 2006 are presented in Table 18 (refer to appendix, page 104).

Moreover, Table 6 shows the NASDAQ index value and its change as of 16 June 2006.

Table 6: NASDAQ Indexes Values

Index Name	Index Value \$	High \$	Low \$
NASDAQ Composite	2129.95	2144.15	2122.78
NASDAQ NM Composite	962.25	968.65	958.97
NASDAQ - 100	1562.84	1573.08	1554.83
NASDAQ Financial 100	2893.05	2916.65	2885.05
NASDAQ Computer	892.26	898.59	888.59
NASDAQ Telecommunications	196.2	198.66	195.06
NASDAQ Industrial	1886.72	1898.18	1879.26
NASDAQ Biotechnology	731.52	740.35	729.15
NASDAQ Other Finance	4465.21	4519.84	4428.62
NASDAQ Bank	3178.9	3209.35	3174.6
NASDAQ Insurance	3689.73	3718.41	3684.24
NASDAQ Transportation	2574.28	2582.11	2559.39
NASDAQ NM Industrial	770.68	775.29	767.59
NASDAQ Canada	440.71	443.55	438.7

Source: NASDAQ Daily Market Statistics, as of 16/6/2006

Firms that wish to have their prices quoted by the NASDAQ must meet specific requirements on the minimum assets, capital, and the number of shareholders. Actually, the NASDAQ is split into two tiers: the National Market and the Small Cap Market. The

²⁹ NASDAQ Market Summary, as of 16/6/2006

following tables provide a summary of the listing requirements of NasdaqNM and NasdaqSM.³⁰

Table 7: NASDAQ National Market Listing Requirements

Requirements	Standard 1-Marketplace Rule 4420(i)	Standard 2-Marketplace Rule 4420(ii)	Standard 3-Marketplace Rule 4420(iii)
<i>Stockholder Equity</i>	\$15,000,000	\$30,000,000	N/A
<i>Market Capitalization</i>	N/A	N/A	\$75,000,000 or
<i>Total assets</i>			\$75,000,000 or
<i>Total revenue</i>			75,000,000
<i>Net Income from continuing operations (in latest fiscal year or 2 of the last three fiscal years)</i>	\$1,000,000	N/A	N/A
<i>Public held shares</i>	1,100,000	1,100,000	1,100,000
<i>Operating history</i>	N/A	2 years	N/A
<i>Market value of public float</i>	\$8,000,000	\$18,000,000	\$20,000,000
<i>Minimum bid price</i>	\$5	\$5	\$5
<i>Market makers</i>	3	3	3
<i>Shareholders(round lots)</i>	400	400	400
<i>Corporate governance</i>	YES	YES	YES

Source: Venture Law Corporation. "Listing Requirements of the NASDAQ Market Quotation Systems". Retrieved on 26 April 2006 from <http://www.venturelawcorp.com>

³⁰ Venture Law Corporation. "Listing Requirements of the NASDAQ Market Quotation Systems". Retrieved on 26 April 2006 from <http://www.venturelawcorp.com>

Table 8: NASDAQ Small Market Listing Requirements

Requirements	Initial Listing
<i>Stockholder Equity</i>	\$ 5,000,000 or
<i>Market Capitalization</i>	\$ 50,000,000 or
<i>Net Income from continuing operations (in latest fiscal year or 2 of the last three fiscal years)</i>	\$750,000
<i>Public float shares</i>	1,000,000
<i>Market value of public float</i>	\$5,000,000
<i>Minimum bid price</i>	\$4
<i>Market makers</i>	3
<i>Shareholders(round lots)</i>	300
<i>Operating history</i>	1 year or
<i>Market capitalization</i>	\$50,000,000
<i>Corporate governance</i>	YES

Source: Venture Law Corporation. "Listing Requirements of the NASDAQ Market Quotation Systems". Retrieved on 26 April 2006 from <http://www.venturelawcorp.com>

After a company gets listed on the market, it must maintain certain standards to continue trading. Failure to meet the specifications set out by the stock exchange will result in its delisting—that is companies will fall back in the OTC market from the listed stock exchange. In general, the reason for which a stock is traded over-the-counter is usually because the company is small, making it unable to meet exchange listing requirements. So, some individual investors will not even consider buying OTC stocks due to the extra risks involved (OTC stock prices tend to be lower than the prices of listed stocks because they are not traded as regularly; OTC companies do not meet the requirements to be listed on a stock exchange). On the other hand, some strong companies trade on the OTC.

In fact, several strong companies have deliberately switched to OTC markets to avoid the administrative burden and costly fees that accompany regulatory oversight laws.³¹

Table 9 considers the overall number of OTC securities as of June 19 2006.

Table 9: Overall Number of OTC Securities as of 2006

Securities Quoted Exclusively on Pink Sheets	4784
Securities Quoted Exclusively on OTCBB	193
Yellow Sheet Bonds	632
Securities Dually Quoted on Pink Sheets and OTCBB	3107

Source: The NASDAQ Stock Market, Inc, 2006

There are two over-the-counter markets:

- Over-the-Counter Bulletin Board (OTCBB) is an electronic community of market makers. Companies that fall off the NASDAQ often end up here. On the OTCBB, there are no "quantitative minimums" (no minimum annual sales or assets required to list). Table 19 highlights a market summary of the OTCBB statistics throughout the years 1990 – 2005 (refer to appendix, page 105)
- Companies that list on the Pink Sheets (i.e. less than 300 shareholders) are small OTC companies that are not required to register with the SEC. Liquidity is often minimal. Also, these companies are not required to submit quarterly 10Qs.³² Moreover,

³¹ Getting to Know Stock Exchanges, September 24, 2004 ,By David Harper, (Contributing Editor - Investopedia Advisor)

³² Zimmermans Research Guide, LexisNexis InfoPro for legal information professionals, copyright 2006 Andrew Zimmerman

Tables 20 and 21 give a market data summary for pink sheets quoted stocks as of June, 19 2006 (refer to appendix, page 106 and 107).

1. Following an order being executed OTC

OTC orders enter the firm through the customer's broker or dealer who forwards them to the order room. From there, the order in an OTC traded stock is passed on to the firm's OTC trading desk. There the traders may act in one of two capabilities: as "dealers" if the stock is in the firm's inventory or as "brokers" if the firm is not a market maker in the stock.

If the firm is a market maker, the trader may simply execute the order as "a dealer" at the firm's quoted bid or offer. For a buy order from the customer, the trader adds a markup to the price; for a sell order, the firm deducts a markdown from the price. In either case, the size of the markup or markdown is governed by 5% guideline.³³

If the firm is not a market maker, the trader may have to locate one. On the exchange, the commission house broker would simply walk over to the appropriate trading post.

In OTC trading, the trader has two options:

❖ The National Quotations Bureau (NQB) Sheets

"The National Quotation Service of the NQB publishes the daily "pink sheets", containing market makers' quotations and phone number on about 11,000 OTC stocks in

³³ Siegel, Jeremy. "Stocks for the Long Run-A guide to selecting markets for the long term growth." Irwin, Inc. 1994

alphabetical order.”³⁴ (They also publish other sheets, such as yellow for corporate bond offerings).

❖ **The National Association of Securities Dealers Automated Quotations (NASDAQ) system**

Three levels of service are available on NASDAQ:

Level one is used by “registered representatives” whose terminal screens reflect the highest bids and the lowest offers available for NASD securities.

Level two is used by “retail traders”. This service not only provides current quotations, it also identifies market makers and provides for order execution capability within the system.

Level three is used by “market makers”. For each security, the system provides current quotes and identifies all market makers. Level three also allows users to enter, delete or update quotations for securities in which they are making a market. To be an authorized subscriber to level three, an NASD member must meet certain net capital and other qualifications³⁵.

2. Types of orders OTC

There are many different types of orders OTC. Moreover, the orders used OTC applies to all exchanges such as the New Stock Exchange and the American Stock Exchange.

³⁴ *Venture Law Corporation. “Listing Requirements of the NASDAQ Market Quotation Systems”*

³⁵ Dalton, J. “How the Stock Market Works”. Second Edition. New York Institute of Finance. 1993.

(i) Time Limit Orders: The investor must specify a time limit on his or her order—that is the time within which the broker should attempt to fill the order. They are:

- Day orders. Unless marked to the contrary, an order is assumed to be a day order, valid only until the close of trading on the day it is entered. If the order has not been filled, it is canceled at the close of the day's trading.
- Good Till Canceled (GTC) Orders: GTC orders, or open orders, are valid until executed or canceled. However, regardless of when GTC orders are entered, the specialist cancels all GTC orders on the last business day of April and October unless customers renew them at that time. Individual firms may clear out GTC orders as frequently as monthly.³⁶
- Fill or Kill Orders: These orders are known as FOK orders. Unlike GTC orders, these orders are cancelled if the broker is unable to fully execute them immediately.
- Discretionary orders: These orders allow the broker to set the specifications for the order. The broker might have complete discretion, in which case he or she decides on all the order specifications, or limited discretion, in which case he or she decides only on the price and timing of the order.³⁷

(ii) Market Order: A market order is sent immediately to the floor for execution without restrictions.

- It is executed immediately at the current market price

³⁶ "Types of Orders" .White Specific Securities, Inc. 2006. Retrieved on December 1 2006 from <http://www.dhs.marketrade.com/Order.html>

³⁷ Sharp, W, Alexander, Gand Baily, J. "Investments". Six Edition. Prentice Hall International, Inc.

- Has priority over all types of orders
- A market order to buy is executed at the lowest offering price available
- A market order to sell is executed at the highest bid price available
- As long as the security is trading, a market order guarantees execution

(iii) Limit Order: In a limit order, the customer limits the acceptable purchase or selling price.

- A limit order can be executed only at the specified price or better
- If the order is to purchase shares, the trader is to execute the order at a price that is less than or equal to the limit price.
- If the order is to sell shares, the trader is to execute the order at a price that is greater than or equal to the limit price.
- A customer who enters a limit order risks missing the chance to buy or sell, especially if the market moves away from the limit price.
- In contrast to a market order, an investor using a limit order can't be certain that the order will be executed. ³⁸

(iv) Stop Orders: Stop order, also known as a "stop loss order", is designed to protect a profit or prevent a loss if the stock begins to move in the wrong direction.

- The stop order becomes a market order once the stock trades at or moves through a certain price, known as the stop price
- No guarantee exists that the executed price will be the stop price, unlike the price on a limit order

³⁸ Sharp, W., Alexander, G. and Baily, J. "Investments". Six Edition. Prentice Hall International, Inc.

- A trade at the stop price triggers the order, which then becomes a market order. A stop order takes two trades to execute:
 1. Trigger: The trigger transaction at or through the stop price activates the trade.
 2. Execution: The stop order becomes a market order and is executed at the market price, completing the trade.
- Buy Stop Order: A buy stop order, always entered at a price above the current offering price, is triggered when the market price touches or goes through the buy stop price. An investor would place a stop order to "buy 100 shares at 42 stop" when the market is at "40" and if the investor believes that "42" represents a technical resistance point, above which the stock price will continue to rise.
- Sell Stop Order: A sell stop order protects a profit or limits a loss in a long stock position. If the market is at 40, a customer who purchased the stock at a lower price might place an order to "sell 100 shares at 37 stop" if she believes 37 represents a technical support level, below which the stock price will continue to decline.³⁹

(v) Stop Limit Order: A stop limit order is a stop order that, once triggered, becomes a limit order instead of a market order. For example: An order that reads "sell 100 shares at 52 stop, 51 "limit" means that the stop will be activated at or below 52. Because a 51 limit exists, the order to sell cannot be executed below 51.

³⁹ Sharp, W, Alexander, G. and Baily, J. "Investments". Six Edition. Prentice Hall International, Inc.

- Restrictions on stop orders: Stop limit orders are not allowed in the OTC market unless the stop price and the limit price are the same because there is no equivalent of a specialist with whom to leave the orders.
- Risk involved in stop limit orders: If market declines too quickly order may not be executed. Market could trigger the stop price but the current market prices may not meet the limit price restriction ⁴⁰

3. Securities traded OTC

Securities traded over-the-counter are primarily stocks and bonds. Virtually all government and municipal bonds are traded on the OTC market. In addition, corporate stocks and bonds are traded here as well.

Any company can sell its securities on the OTC market. This is another distinction between OTC trading and the trading on stock exchanges, where companies must apply to be listed and where the exchange board regulates which companies may be traded.

Because they are not listed with an exchange, companies traded exclusively over-the-counter are often called unlisted companies.

Companies whose stocks are traded over-the-counter often do not meet the listing requirements of the stock exchanges, which typically require companies to meet minimum levels of annual net income along with a minimum number and value of outstanding shares.⁴¹ As a result, OTC companies tend to be smaller and newer than companies listed on exchanges. And, one is not likely to find blue chip stocks - the highly

⁴⁰ Sharpe, W and Baily, J. Investments. Six Edition. Prentice-Hall International, Inc

⁴¹ Dalton, John. How the Stock Market Works. Second Edition. New York Institute of Finance

reliable stocks of older, established powerhouses like General Motors or IBM on the over-the-counter market.⁴²

Some larger companies do prefer to be traded OTC, and it is possible to find exchange-listed stocks traded over-the-counter (referred to as third market trading). Even though it occurs outside an exchange, OTC trading is still subject to regulation⁴³.

⁴² Reilly, F and Brown, K. "Investment Analysis and Portfolio Management". Eight Edition. Thomson South Western, 2006

⁴³ "What Kind of Securities are Traded on OTC Market?". Credit Union National Association, Inc. 2006. Retrieved on January 15, 2006 from <http://www.creditunion.coop/tutorials/tut-1459968605-3.html>

Chapter Three:

Price Earnings Ratio

A. History

Throughout 100 years of stock market history, price-earnings ratios have averaged about fourteen.⁴⁴ This means that under normal conditions, investors are willing to pay \$14.00 for \$1.00 of earnings. At times, investors have been willing to pay as much as 32 times earnings, (just before the crash of 1929, and 44 times earnings, prior to the market slide near the end of 1999). However, nowadays, the typical price-earnings ratio is about 15-25 times the earnings depending on economic conditions and type of industry.⁴⁵The following table shows the P/E and other ratios for different sectors taken from Yahoo.

Table 10: Ratios for Different Sectors

Sectors	Market Cap\$	P/E \$	ROE %	Debt to Equity	Price to Book	Net Profit Margin
<i>Basic Materials</i>	4675.57B	15.032	23.81	0.437	3.644	11.32
<i>Financial</i>	5510.48B	15.585	15.359	4.158	3.041	12.921
<i>Utilities</i>	866.27B	18.411	12.887	2.57	2.751	7.24
<i>Conglomerates</i>	711.73B	20.4	15.7	2.061	13.47	9
<i>Consumer Goods</i>	2460.65B	21.653	18.057	1.302	17.797	6.982
<i>Technology</i>	4904.42B	24.903	14.372	0.751	5.834	10.716
<i>Services</i>	3091.68B	26.673	14.373	1.533	176.163	5.789
<i>Healthcare</i>	2463.41B	36.378	15.486	2.765	46.643	12.007
<i>Industrial Goods</i>	1012.66B	37.169	15.618	0.896	9.982	5.798

Source: Yahoo Finance, on 12, May, 2006

⁴⁴ <http://www.marioandguido.com/index.htm>

⁴⁵“The P/E ratio: Conclusion”. Investopedia.com, 2006

B. Definition and Its Logic

If there is one number that investors look at than more any other, it is the Price to Earning Ratio (P/E). The P/E is one of those numbers that investors throw around with great authority as if it told the whole story.

The P/E ratio of a stock (also called its "multiple") is calculated as: Price per Share divided by the Earnings per Share (EPS)

The price per share (numerator) is the closing market price of a single share of a stock.

The earnings per share (denominator) is the net income of the company for the most recent 12 month period, divided by number of shares outstanding. Actually the EPS could be estimated from the last four quarters (trailing EPS), and in other times from the estimates of earnings expected in the next four quarters (projected or forward EPS). A third variation uses the sum of the last two actual quarters and estimates of the next two quarters.

$$***P/E = Stock Price / EPS***$$

For example, if a company is currently trading at \$43 a share and earnings over the last 12 months were \$1.95 per share, the P/E ratio for the stock would be 22.05 (\$43/\$1.95).

In other words, the interpretation is that an investor is willing to pay \$ 22.05 to earn \$ 1 from the company's earnings at that specific period of time. Hence, the higher the P/E ratio is the greater risk of realization becomes.⁴⁶

The P/E gives an idea of what the market is willing to pay for the company's earnings.

- The higher the P/E, the more the market is willing to pay for the company's earnings. Some investors read a high P/E as an overpriced stock and that may be the case, however it can also indicate the market has high hopes for this stock's future and has bid up the price.⁴⁷
- Conversely, a low P/E may indicate a "vote of no confidence" by the market or it could mean that the stock is a sleeper that the market has overlooked.

C. Pros of P/E

Common sense investing involves buying strong companies at reasonable prices. One way to measure "reasonable prices" is the price-to-earnings ratio.

Price to earnings ratio (P/E ratio) is a useful metric for evaluating the attractiveness of a company's stock price. It helps the investor determine whether a stock is overpriced, fair, or undervalued. The price-to-earnings ratio helps determine a fair price for buying a company's stock.

The P/E computation was made popular by the late Benjamin Graham who many consider as the Father of Value Investing and who has also had a huge impact on the

⁴⁶ Senior Lecturer, Raja Shaffu unpublished paper

⁴⁷ "Metric attempts to PEG the value of a stock".Chicago Sun-Times, Mitch Zacks, FindArticles. Nov 18, 2001

investing methodologies of Warren Buffett. “According to the Graham (Buffett method for successful investing), price-to-earnings is a key criteria for determining whether a stock is trading on an investment or speculative basis”⁴⁸

Once having the P/E ratio of a certain company, one can then use it to help differentiate between a speculative (and often emotion-driven) stock that is selling high just because it is the hot pick on Wall Street, and a solid company that may have fallen out of favor and is currently selling for just a fraction of its actual worth as a profit generator.

The price-to-earnings ratio gives the common sense investor a good picture of how expensive any given equity stock is. It makes very little sense to buy expensive stock just because exposing to market correction and high-probability volatility. “Buying expensive stock is most often associated with short-term perspective and irrational exuberance. It is also indicative of a “following the crowd” mentality.”⁴⁹

1. Notes about P/E

Different industries possess different P/E ranges that are considered normal. This is because there are different expectations for different business sectors. Technology companies may sell at an average of 40 P/E while textile companies may only trade at an average of 8. Of course, there are exceptions to this but in general these differences between sectors are quite normal.

⁴⁸ “Warren Buffet Secrets-Exploring Buffet, Graham , Berkshire Hathaway and Value Investing”. Retrieved from <http://www.buffettsecrets.com>

⁴⁹ “A Theory of Price Earnings Ratios”, Nicolas Molodovsky. Financial Analyst Journal. January-February 2005

Moreover, it's usually more useful to compare the P/E ratios of one company to other companies in the same industry and sector, or to the market in general, or against the company's own historical P/E. It would not be useful for investors using the P/E ratio as a basis for their investment to compare the P/E of a technology company (high P/E) to a utility company (low P/E) as each industry has much different growth prospects.⁵⁰

Moreover, there is no right price earning ratio, because part of the P/E depends on the investor' willingness to pay for earnings. The more an investor is willing to pay, which means the investor believes the company has good long term prospects over and above its current position, the higher the "right" P/E is for that particular stock in the investor decision-making process. Another investor may not see the same value and think the above "right" P/E is all wrong.⁵¹

D. Cons of P/E

So far, the P/E ratio can help determine whether a company is over or under-valued. But P/E analysis is only valid in certain circumstances and it has its pitfalls. Some factors that can undermine the usefulness of the P/E ratio include:

1. Accounting

Earnings is an accounting figure that includes non-cash items. Furthermore, the guidelines for determining earnings are governed by accounting rules (GAAP) that change over time and are different in each country. To complicate matters, EPS can be twisted into various numbers depending on how the books are calculated. The result is

⁵⁰ "P/E Ratio: A Quick and Dirty Way to Determine Relative Value". Joshua Kennon. About.com. 2005

⁵¹ "What's a Price to Earning Ratio". The Common Sense Investor.2005

that one often doesn't know whether one is comparing the same figures, or apples to oranges.⁵²

2. Inflation

In times of high inflation, inventory and depreciation costs tend to be understated because the replacement costs of goods and equipment rises with the general level of prices. Thus, P/E ratios tend to be lower during times of high inflation because the market sees earnings as artificially distorted upwards. As with all ratios, it's more valuable to look at the P/E over time in order to determine the trend. Inflation makes this difficult, as past information is less useful today.

3. Many Interpretations

A low P/E ratio does not necessarily mean that a company is undervalued. Rather, it could mean that the market believes the company is headed for trouble in the near future. Moreover, a high P/E ratio does not necessarily mean that the stock is overvalued; rather it might indicate that the market has high hopes for this stock's future.

4. Not a main factor

The P/E ratio is a much better indicator of the value of a stock than the market price alone. For example, all things being equal, a \$10 stock with a P/E of 75 is much more "expensive" than a \$100 stock with a P/E of 20. However, there are limits to this form of analysis; one can't just compare the P/Es of two different companies to determine which has a better value. Determining whether a particular P/E is high or low is difficult without taking into account two main factors:

⁵² Meigs, R. Bettner M. and Whittington, R. "Accounting-The basis for business decisions".10th Edition. McGraw Hill Companies, Inc.1996

- *Company growth rates*: it considers how fast has the company been growing in the past, and if these rates are expected to increase or at least continue into the future. If projected growth rates don't justify the P/E, then a stock might be overpriced. In this situation, all one has to do is calculate the P/E using projected EPS.⁵³
- *Industry*: It is only useful to compare companies if they are in the same industry. For example, utilities typically have low multiples because they are low growth, stable industries. In contrast, the technology industry is characterized by extraordinary growth rates and constant change. Comparing a tech to a utility is useless. One should only compare high growth companies to others in the same industry and specifically the sector, or to the industry average.

Security analysis requires a great deal more than understanding P/E ratios. The analyst needs to consider other ratios. While the P/E is one part of the puzzle, it's definitely not a crystal ball. However, the P/E can be useful when comparing the P/E of one company to another in the same industry, to the market in general, or to the company's own historical P/E ratios.

⁵³Sornette, D. "Why Stock Markets Crash". Princeton University Press. 2004

3.2 Factors affecting price

There are many factors that affect the P/E ratio. To find out the features that affect P/E, we should consider the elements that affect price and earnings.

Price: The stock market is essentially a giant auction where its stock prices are determined by market forces. This means that share prices change because of supply and demand. Because of this, the market can appear to fluctuate widely. Even if there is nothing wrong with a company, a large shareholder who is trying to sell blocks of shares at a time can drive the price of the stock down, simply because there are not enough people interested in buying the stock the shareholder is trying to sell. Because there is no real demand for the company the shareholder is selling, he or she is forced to accept a lower price⁵⁴.

Understanding supply and demand is easy. What is difficult to comprehend is what makes people “be fond of” a particular stock and “loathe” another stock -where their decisions will affect the price of the stock. This comes down to figuring out what news is positive for a company and what news is negative. There are many answers to this problem and any investor has their own ideas and strategies. Nobody really knows for sure why stock prices change. Some believe that it isn't possible to predict how stocks will change in price while others think that by drawing charts and looking at past price movements, one can determine when to buy and sell. The only thing known for certainty is that stocks are volatile and can change in price extremely rapidly.

⁵⁴ “Why Do Stock Prices Do Fluctuate”. Joshua Kennon. About, Inc. A part of The New York Times Company.2006

The following part will discuss the most important factors that cause these price swings. These factors are grouped under three categories-the macroeconomic conditions, the microeconomic conditions, and other factors.

A. Macroeconomic conditions

1. Impact of interest rates

One of the most prominent economic forces driving stock market prices is the risk free interest rate. Investors should consider purchasing a risky asset only if they expect to be compensated with a risk premium for the risk incurred. Given a choice of risk free treasury securities or stocks, stocks should be purchased only if they are appropriately priced to reflect a sufficiently high expected return above the risk free rate. Most of the largest stock market declines have occurred in periods when interest rates increased substantially. Furthermore, the stock market's rise in the middle 1990s is partially attributed to the low interest rates during the period, which encouraged investors to shift from debt securities (with low rates) to equity securities⁵⁵

2. Impact of the dollar

The value of the dollar can affect US stock prices for various reasons:

First, it can affect prices by affecting expectations of economic factors that influence the firm's performance. For example, if a weak dollar stimulates the US economy, it may

⁵⁵ Madura, J. Financial Markets and Institutions. Fourth Edition. South College Western Publishing, 1998

enhance the value of the US firm whose sales are dependent on the US economy. A strong dollar could adversely affect such a firm if it dampens US economic growth.

Second, foreign investors tend to purchase US stocks when the dollar is weak and sell them when it is near its peak. Thus the foreign demand for any given US stock may be higher when the dollar is expected to strengthen other things being equal.

3. Impact of inflation

“Inflation is defined as a sustained increase in the general level of prices for goods and services.”⁵⁶ It is measured as an annual percentage increase. As inflation rises, every dollar you own buys a smaller percentage of a good or service. The federal government measures inflation with four key indices:

- ⇒ Consumer Price Index (CPI),
- ⇒ Producer Price Index (PPI),
- ⇒ Gross Domestic Product (GDP) Deflator, and
- ⇒ Employment Cost Index (ECI).

Rising prices is public enemy No 1 for stocks. Inflation usually hurts stock prices because higher consumer prices lessen the value of future corporate earnings, which make shares of those companies less appealing to investors⁵⁷

⁵⁶ Siegel, Jeremy. “Stocks for the Long Run-A guide to selecting markets for the long term growth.” Irwin, Inc. 1994

⁵⁷ Shim, J and Lanser, J. “101 Investment Tools for Buying Low and Selling High”. St.Lucie Press, 2001

Inflation down → personal income up → consumer confidence up → consumer spending up → retail sales surge as housing starts rise as auto sales jump → the stock market prices goes up.

4. Impact of Gross Domestic Product (GDP)

GDP measures the value of all goods and services produced by the economy within its boundaries and its nation's broadest gauge of economic health. GDP is often a measure of the state of the economy. For example many economists speak of recession when there has been a decline in GDP for two consecutive years. The GDP in dollar and real terms is a useful economic indicator. An expected growth rate of 3% in real terms would be very attractive for the long term investment and would affect the stock market positively. Because inflation and price increases are harmful to equity prices, a real growth of GDP without inflation is favorable and desirable. ⁵⁸

GDP up → to corporate profits up → to dividends up → to stock prices up

5. Impact of productivity

“Productivity measures reflect the joint effects of many influences, including changes in technology; capital investment; level of output; utilization of capacity, energy, and material; the organization of production; managerial skills; and the characteristics and the efforts of work force”. ⁵⁹ Economists consider productivity the key to prosperity. Sizable gains mean companies can pay workers more, hold the line on prices, and still earn the kind of profits that keep the stock prices rising. Increased productivity, or getting more

⁵⁸ Shim, J and Lanser, J. 101 Investment Tools for Buying Low and Selling High. St. Lucie Press, 2001

⁵⁹ Madura, J. “Financial Markets and Institutions”. Fourth Edition. South College Western Publishing. 1998

worker output per hour on the job, is considered vital to increasing the nation's standard of living without inflation.

Low levels of production → to layoffs → to unemployment → to low income for workers → to depressing the stock market → to lower stock prices.

6. Reaction to money supply levels:

The Federal Reserve could influence money supply through its monetary policy measures. There are several definitions of the money supply:

- ⇒ M1 (which is the currency in circulation, demand deposits, traveler's checks and those in the interest bearing accounts),
- ⇒ M2 (the most widely followed measure, it equals M1 plus saving deposits, money market deposit accounts, and the money market funds), and
- ⇒ M3 (M2 plus large CDs).

Actually a rapid growth in money supply is viewed as inflationary. In contrast, a sharp drop in the money supply is considered to be recessionary and can hurt the economy and the stock market. Moderate growth is thought to have a positive impact on the economy.

The FED affects money supply through its monetary policy such as "open market operations". The following list summarized its possible impact on the economy and the stock market:

- ❖ **Easy money policy**: the Fed buys the securities, thus, bank services rise. Bank lending is up so money supply is up so interest rates are down as bond prices rise so loan demand goes up so the stock market prices rise.
- ❖ **Tight money supply**: the fed sells securities so bank reserves fall so bank lending is down so money supply is down so interest rates are up as bond prices fall so loan demand is down so the stock price falls⁶⁰

Table 22 shows the effect of increasing or decreasing the money supply growth has on certain operations (refer to appendix, page 108)⁶¹.

Further, the following table (Table 11) serves as a handy guide.⁶² However, it should not be considered as an accurate predictor in all cases. Many times the anticipation of the good or bad news is built into the market and when the news comes out, the reverse move happens.

⁶⁰ Shim, J and Lanser , J. "101 Investment Tools for Buying Low and Selling High." St.Lucie Press. 2001

⁶¹ Madura, J. "Financial Markets and Institutions". Fourth Edition. South College Western Publishing. 1998

⁶² Shim, J and Lanser , J. "101 Investment Tools for Buying Low and Selling High." St.Lucie Press. 2001

Table 11: Economic Variables and their Impact on the Stock Market

Economic Variables	Impact on the Stock Market
<i>Real growth in GNP</i>	Positive (without inflation) for stocks
<i>Industrial production down</i>	Consecutive drops are a sign of recession; bad for stocks
<i>Inflation</i>	Detrimental to stocks
<i>High capacity utilization</i>	Can be positive, but full capacity is inflationary
<i>Increase in business investment</i>	Positive for stocks
<i>Increase in consumer confidence</i>	Positive for stocks
<i>personnel income</i>	
<i>Rising housing starts</i>	Positive for housing stocks
<i>Rising corporate profits</i>	Positive for stocks
<i>Unemployment up</i>	Upward trend unfavorable for stocks
<i>Lower federal deficit</i>	Lowers interest rates, good for many stocks
<i>Deficit in trade and balance of payments</i>	Negative for the economy and the stocks of companies facing stiff import competition
<i>Weak dollar</i>	Inflationary for the economy; good for companies with stiff foreign competition
<i>Rising interest rates</i>	Can choke off investments in new plants and lure skittish investors from stocks
<i>Recession</i>	Tends to dampen the spirits of the consumers and investors and thus depress prices of securities

Source: Shim, J and Lansner, J. "101 Investments Tools for Buying Low and Selling High". St. Lucie Press, 2001

B. Microeconomic conditions

1. Dividend policy changes

A dividend is a cash payment from a company's earnings announced by a company's board of directors and distributed among stockholders. In other words, dividends are an investor's share of a company's profits, given to him or her as a part-owner of the company.⁶³

When a company earns profits from operations, management can do one of two things

⁶³ "Equity Finance". BusinessLink.com. Retrieved from <http://www.businesslink.gov.uk>

with the profits. It can choose to retain them -essentially reinvesting them into the company with the hopes of creating more profits and thus further stock appreciation. The other alternative is to distribute a portion of the profits to shareholders in the form of dividends.

As a matter of fact, dividends provide certainty about the company's financial well being; dividends are also attractive for investors looking to secure current income. Also, there are many examples of how the decrease and increase of a dividend distribution can affect the price of a security. Companies that have a long-standing history of stable dividend payouts would be negatively affected by lowering or omitting dividend distributions; these companies would be positively affected by increasing dividend payouts or making additional payouts of the same dividends. Furthermore, companies without a dividend history are generally viewed favorably when they declare new dividends.

Thus, an increase in dividends may reflect the firm's expectation that it can more easily afford to pay dividends which leads to the increase in the price of the company's stock, while a decrease in dividends may reflect the firm's expectation that it will not have sufficient cash flow.

2. Stock offerings and repurchases

Some investors believe that firms attempt to issue stock when they feel that their stock is overpriced (in order to generate a large amount of funds from the stock offering).

Therefore, these investors may view a stock offering as a negative signal about the firm.

Conversely, firms are perceived to repurchase some of their stock when they believe their

stock is undervalued so that they can buy it back at a relatively low price. For this reason, stock repurchases are commonly viewed as a favorable signal about the firm.⁶⁴

3. Earnings surprises

Recent earnings are used to forecast future earnings and therefore a firm's future cash flows. When a firm's earnings are announced and are higher than expected, some investors raise their estimates of a firm's future cash flows and therefore revalue the firm's stock upward. Conversely, an announcement of lower earnings than were expected can cause investors to reduce their valuation of a firm's future cash flows and its value.

4. Acquisitions

The expected "acquisition" of a target firm typically results in an increase demand for the target's stock and therefore raises the target's stock price. Investors recognize that the target stock price will be bid up once acquiring firm attempt to acquire the stock. The affect on the acquiring firm's stock is less clear, as it depends on the perceived synergies that could result from the acquisition.⁶⁵

5. Expectations

Investors do not necessarily wait for a firm to announce a new policy before they revalue the firm's stock. Instead, they attempt to anticipate new policies so that they can make their move in the market before other investors. In this way, they may be able to pay a lower price for a specific stock or sell the stock at a higher price. The disadvantage of

⁶⁴ Madura, J. "Financial Markets and Institutions". Fourth Edition. South College Western Publishing.1998

⁶⁵ Madura, J. "Financial Markets and Institutions". Fourth Edition. South College Western Publishing.1998

trading based on incomplete information is that the investors may not properly anticipate the firm's future policies.

6. Quality of management

The quality of a firm's management can also influence the price of a stock. Investors who think a company has high-quality managers will be willing to pay a premium for its stock because they believe these managers will deliver earnings growth in the future. Their faith in management results in a stock price valuation greater than its earnings and growth rate would otherwise indicate.

7. Debt to Equity Ratio

A firm's debt-to-equity ratio is another factor that influences the stock price and therefore the P/E ratio. A firm with a small amount of debt will be valued higher in the market than if it had a large amount of debt. In this case, its stock's P/E ratio would be higher due to its higher price.

C. Other factors

1. January effect

Because many portfolio managers are evaluated over the calendar year, they tend to invest in the riskier small stocks at the beginning of the year and shift to larger (more stable) companies near the end of the year to lock in their gains. This tendency places an upward pressure on small stocks in January of every year, causing the so called January effect. As investors discovered the January effect, they began to make more positions in

stocks in the prior month. This has placed upward pressure on stocks in mid December, forcing the January effect to begin in December.⁶⁶

2. Monday effect

The Monday Effect is a theory that the stock market will continue its' Friday moves on Monday. For example if the markets drops on Friday then there is a good chance that the market will drop more on Monday according to the Monday Effect. In reverse, if the market was up on Friday then you should see further gains on Monday. This theory, like many others is based on technical analysis of the stock market. It was originated years ago when traders and investors would spend weekends analyzing the market. However in this day and age of advanced technology where investors can get up-to-the-minute/second trading statistics, it is even easier to follow whether or not this theory proves correct.⁶⁷

3. Noise trading

In essence, the stock price is distorted as a result of the “noise” caused by uninformed investors (called noise traders). If irrational or uninformed investors take stock positions that affect the demand for particular stocks, prices of these stocks may be affected and distorted from their true values. In such a case, investors are ignoring financial data in favor of rumors (noise) that will truly distort the stocks true value.

⁶⁶ Madura, J. “Financial Markets and Institutions”. Fourth Edition. South College Western Publishing. 1998

⁶⁷ Trading data, posted by trader data @ 7.11 am. Tuesday, February 7, 2006

4. Commodity nature of stocks

One of the elements that contribute to the fluctuation in stock prices is the nature of the stock market itself. Since there are only a set number of shares available at any given time, any buying activity will drive the price of these shares up. Selling will drive share prices down. They are subjected to the laws of supply and demand. When there are more shares available than demand, each of those shares is worth less. The opposite is true when there is more demand than shares available.

For example, if an institution wants to sell a large chunk of stock in a company and if they were to dump them on the open market all at once, there would not be enough buyers to buy the stock they were selling. This would cause the stock to immediately tank, wiping out huge amounts of market capitalization, even though the underlying economics of the company haven't changed.⁶⁸

5. Trends

A non-fundamental factor used to make investment decisions is the trend of recent stock prices (as technical analysis). “The rationale behind technical analysis is that if trends are repetitive, investors can take positions in stocks as they reorganize the particular trend occurring.”⁶⁹ Technical analysis is often criticized by investors who focus solely on fundamental factors for making investment decisions. To the extent that numerous

⁶⁸ Reilly, F and Brown, K. “Investment Analysis and Portfolio Management”. Eight Edition. Thomson South Western, 2006

⁶⁹ Dalton, J. “How the Stock Market Works”. Second Edition. New York Institute of Finance. 1993.

investors use historical trends and psychology to make investment decisions, these factors could also help explain the variation in stock market movements.

6. Investor vs. the speculator

Over the course of the past several decades, the term "investor" has been used for anyone who owns a share of stock. However this is not the case. When a person buys a stock, he or she is doing it as in one of two features: either as an investor or as a speculator.

An investor is someone who carefully analyses a company, decides exactly what it is worth, and will not buy the stock unless it is trading at a substantial discount to its intrinsic value. They make their investment decisions based on factual data and do not allow their emotions to get involved.

On the other hand, a speculator is a person who buys a stock for any other reason. "The speculator buys stocks not on the basis of careful analysis, but on the chance it will rise from any cause other than recognition of its underlying fundamentals."⁷⁰ While the stock bought by the speculator might be profitable in the short term, it will rarely provide a lifetime of sustainable income or returns in the long run.

The speculator will drive prices to extremes, while the investor (who generally sells when the speculator buys and buys when the speculator sells) evens out the market, so over the long run, stock prices reflect the underlying value of the companies.

Speculators are the ones who help create the volatility the value investor loves. Since they buy securities based sometimes on little more than a whim, they are apt to sell for

⁷⁰ "What Mr Buffet Learned From Graham and Dodd". Richard Rockwood. Focus Investor.com.2003

the same reason. This leads to stocks becoming dramatically overvalued when everyone is interested and unjustifiably undervalued when they fall out of vogue. This creates the opportunity for value investors to pick up companies that are selling for far less than they are worth.

This leads to a fundamental belief among value investors that although the stock market may, in the short-term, wildly depart from the fundamentals of a business, in the long-run the fundamentals are all that matter. This is the basis behind the famous Ben Graham quote "In the short-term the market is a voting machine, in the long-term, a weighing one."⁷¹

7. Temporary problems

The following factor occurs fairly often and can move a stock to extremely low levels. For example, a good company runs into temporary trouble that neither endangers its life nor affects long term profitability. Wall Street nonetheless overreacts in its characteristic way, and punishes the company by driving the stock lower.

The above macroeconomic, microeconomic and other factors state what affect prices; thus, affects P/E. Furthermore, the following paragraphs show the factors that affect earnings which is a second feather of determining P/E.

⁷¹ Graham, B. "The Intelligent Investor". Harper Business. 2005

3.3 Earnings

The most important factor that affects the value of a company is its earnings. Earnings are the profits a company makes, and in the long run no company can survive without them. If a company never makes money, they aren't going to stay in business.

Public companies are required to report their earnings four times a year (once each quarter). Wall Street watches with great attention at these times, which are referred to as earnings seasons. The reason behind this is that analysts base their future value of a company on their earnings projection. If a company's results surprise (are better than expected), the price jumps up. If a company's results disappoint (are worse than expected), then the price will fall.

A. Factors affecting earnings

Future earnings are the product of interaction of many factors and forces. Earnings depend on rates of secular growth or decline in general industry and trade, which will in turn be determined by changes in underlying economic conditions. "Some of these factors are of:

1. Physical nature such as changes in the total population plus its age and occupational groups or in the volume of production,
2. Political and social domain, such as the general status of private enterprise, and labor and taxation laws and policies." ⁷²

⁷² "The Focus-Value Investing". Second Edition, Brandes Investment Partners, August 2003.

All will be affected also by cyclical fluctuations in business, by money and credit conditions, by international trade, and by countless other major and minor considerations. Such a study of general conditions will have to be supplemented by similar study of the industry to which the company belongs⁷³.

Moreover, when the analyst reaches the final step of estimating the future earnings of a specific corporation, he or she will be confronted by a multitude of additional difficult problems; for instance, the reinvestment of earnings in the business and their allocation between dividends paid out and retained earnings.

The income account must be studied carefully, and special efforts must be directed toward detecting accounting methods and practices that may lead to an arbitrary determination of profits. But, to be complete, the study of a company's earnings cannot stop with the income account; the analyst must look at the balance sheet with equal thoroughness.

The difficulties and problems encountered in estimating future earnings, even when their future is limited to a single year, are often staggering. Yet they are increased manifold by the fact that the future is not confined to just one year.

The future is never certain. And as a result of great wars, of a radically different international political step of new social polices, scientific discoveries and inventions causing frequent changes in industrial processes and rapid obsolescence, visibility into the future has been further substantially reduced.⁷⁴

⁷³ Sharpe, W; Beily, J and Alexander, G. "Investments". Six Edition. Prentice Hall International, Inc

⁷⁴ Financial Analyst Journal, Jan. and Feb. 1995

B. The Affect of Inflation on Earnings and P/E

Earnings are affected by inflation which in turn affects the P/E in the following ways:

a. Stable and moderate inflation means a higher probability of continued economic expansion. Modest inflation usually means the central bank won't be raising interest rates to slow economic growth. When inflation and interest rates are low, the greater the opportunity for higher real earnings growth, increasing the amount people will pay for a company's earnings. The more people are willing to pay, the higher the P/E.

b. When inflation levels are stable and moderate, investors have lower expectations of high market returns. When inflation rises, so do prices in the economy, leading investors to require a higher rate of return to maintain their purchasing power. If investors demand a higher rate of return, the P/E ratio has to fall. Historically, the lower the P/E, the higher the return. By paying a lower P/E, one is paying less for more earnings and as earnings grow the return is higher.

In periods of low inflation, the return demanded by investors is lower and the P/E higher. The higher the P/E, the higher the price for earnings, which lowers expectations of healthy returns.

c. During times of low inflation, the quality of earnings is considered to be high. This refers to the amount of earnings that can be attributed to actual growth in the company and not by outside factors like inflation.⁷⁵

⁷⁵ "Why are P/E ratios generally higher during times of low inflation?" Investopedia.com.2006

History has shown that investors realize this phenomenon and take inflation into account when valuing stocks. When inflation is high, P/E ratios are low; when inflation is low, P/E ratios are high.

3.4 General Analysis

The P/E has always been considered one of the best used factors in determining the true worth of the stock and evaluating whether the stock is undervalued, fair, or overvalued. Furthermore, it is known to be calculated from earnings and price. The above chapter shows that price (one of the price earning ratio variables) has many factors that affect it such as macroeconomic and microeconomic conditions. Moreover, the other variable-earnings-is a forecasted factor that can't be known for sure. Therefore, calculating P/E needs a lot of delicate information that might not be obtained. As a matter of fact, P/E can't be a much dependent factor in indicating the true worth of the stock; rather, it only gives an idea of what the market is willing to pay for a company's earnings. Thus, the following chapter introduces another theory-the "Value Investing Theory" with its two techniques the "Discounted cash flow techniques" and "Relative valuation techniques" - that might help in determining the true worth of the stock.

Chapter Four:

Value Investing

Stock market is such a brutal place that there is no room for half-expert or expert pretenders. Studies have shown that more than 90% of mutual funds failed to beat market over the long run and that more than 90% of individual investors lost money in the stock market.⁷⁶ To be successful in the stock market, one either has to become an expert or seek help from real successful experts. The truth is that only a small percentage of experienced people earn huge amount of return, many times at the expense of the rest.

There is simply no free lunch. While a “risky method” can produce fabulous gain in relative short term, the same method over the long run is more likely to make people poorer rather than richer even if a short-term gain was gigantic. Dreaming for instant satisfaction of huge short-term gain overnight with speculation is just a recipe for disaster ahead.

So, actually one comes to the concept of a “theory-related” to “value investing” and its importance. Before considering value investing, understanding investing in brief is essential.

4.1 The Concept of Investing

All investment returns-whether from common stocks or exceptional diamonds-are dependent, to varying degrees on future events. That’s what makes the fascination of

⁷⁶ “How to Make Big Money Safely in the Stock Market”, Henry Lu of BlastInvest LLC, a premium investment newsletter publisher in Connecticut. Webmasters and Ezine Publishers:

investing: its success depends on an ability to predict the future. Traditionally, the pros in the investment community used one of two approaches to valuation:

⇒ the firm foundation theory and

⇒ the castle in the air theory.

Understanding of these approaches is essential if one wants to make wise investment decisions.

Castle in the air theory: the castle in the air theory of investing concentrates on psychic values. John Maynard Keynes, a famous economist and successful investor, enunciated the theory mostly in 1936. It was his opinion that professional investors prefer to devote their energies not to estimating intrinsic values, but rather to analyzing how the crowd of investors is likely to behave in the future and how during periods of optimism they tend to build their hopes into “castles in the air”. In such a case, the successful investor tries to beat the market by estimating what investment situations are most vulnerable to public castle building and then buying before the crowd.

“According to Keynes, most persons are largely concerned, not with making superior long term forecasts of the probable yield of an investment over its whole life, but with foreseeing changes in the conventional basis of valuation a short time ahead of the general public”.⁷⁷ Thus, “castle in the air theory” applies psychological principles rather than financial valuation to the study of the stock market.

⁷⁷ Siegel, Jeremy. “Stocks for the Long Run-A guide to selecting markets for the long term growth.” Irwin, Inc. 1994

Firm foundation theory: this theory argues that each investment instrument, be it a stock or a piece of a real estate, has a firm anchor of something called “intrinsic value”, which can be determined by careful analysis of present conditions and future prospects. When market prices fall below (rise above) intrinsic value, a buying (selling) opportunity arises, and this fluctuation will eventually be corrected. Investing then becomes a straightforward matter of comparing something’s actual price with its firm foundation of value.⁷⁸ Moreover, this is related to the concept of “fundamental analysis” which aims in conducting basic research for a company to create a clear picture of its value. Furthermore, it examines the underlying forces that affect the interests of the economy, industrial sectors and peer companies.⁷⁹

A. Foundation vs. Castle in the Air Theory

Money has been an essential feature of every speculator boom in history. In their passion for money, market participants throw over firm foundations of value for the thrilling assumption that they too can make a killing by building castles in the air.

The castles that were built during the performances were based on Dutch tulip bulbs, English bubbles and good old American blue chip companies. In each case some of the people made some money some of the time, but only a very few emerged unharmed.

Thus, the firm foundation theorists, who include many of Wall Street’s best security analysts, know full well that purely psychic support for market valuations has proved a most undependable pillar. Therefore, many security analysts devote their energies to

⁷⁸Malkiel, B. *A Random Walk Down Wall Street*. W.W. Norton and Company, Inc, New York, 2003

⁷⁹“Fundamental Analysis”. *Stock Market Investing Guide*, 2004 RankUHigh.Com. Retrieved on June 1, 2006 from http://www.stockmarketinvestinginfo.com/smi_fundamentalanalysis.html

estimating a stock's firm foundation of value (the greatest of all gifts is the power to estimate things at their true worth-estimating intrinsic value).

B. History of Value Investing

Ben Graham, widely considered the father of “value investing”, knew little about Wall Street when he started working after graduating from Columbia University in 1914. By the late 1920s however Graham had earned distinction as an astute investor and had founded the Graham Newman Co, a money management firm which he guided skillfully for 30 years. Concurrent with his career on Wall Street, Graham taught a weekly course on investing at Columbia. Moreover, Graham lectures led to the publication of “Security Analysis”, a 700 page that described Graham’s investment methods in detail. “The Intelligent Investor”, a slimmer volume Graham wrote for the non professional investor in 1949 also remains widely available.⁸⁰ Graham retired in 1956 after introducing the world to the value philosophy. Graham’s most famous disciple is Warren Buffet who studied under Graham at Columbia and subsequently worked for him at Graham Newman Co.⁸¹

⁸⁰ Reilly, F and Brown, K. “Investment Analysis and Portfolio Management”. Eight Edition. Thomson South Western, 2006

⁸¹ Graham, B. “The Intelligent Investor”. Harper Business. 2005

C. Value Investing Theory

There are certainly many methods of investing or trading, which makes people rich. There are certainly many under-performing value mutual funds, which give people wrong impression that value investing is equivalent to low performance with less risk. However and in fact value investing is investment style that obtain high performance with less risk.

“Many new traders in the stock market still believe that if they stare at stock price quote closely, they can obtain better chances of winning. In fact, staring closely at the stock price quote is more likely to create a loser rather than a winner because of greed and fear of the stock market. The more one is unable to resist the mad mood of Mr. Market, the more likely one is unable to invest successfully with value investment method.”⁸²

Value investing considers looking for securities with prices that are unjustifiably low based on their intrinsic worth. When discussing stocks, determining “intrinsic value” can be a bit tricky as there is no universally accepted way to obtain this figure. Most often “intrinsic worth” is estimated by analyzing a company's fundamentals.

“Value Investing” doesn't mean any stock that declines and therefore seems "cheap" in price. Value investors have to do their homework and be confident that they are picking a company that is cheap given its high quality.

Understanding of “value investing” comes from the understanding of two concepts:

- ⇒ the importance of the business owner's “perspective” and
- ⇒ the irrationality of the stock market in the short run.

⁸² “No Short Term Pain, No Long Term Gain”, ZPR Investment Report, Newsletter, Volume 11 no 7, July 2005

“Adopting the “perspective” of a business owner means evaluating the worth of the entire company”.⁸³ Value investors ask questions a business owner would be concerned such as:

- ⇒ How much income does the company generate?
- ⇒ Is the firm on solid financial footing?
- ⇒ Is management rational? Specifically, is management wise when it comes to the question of re-investing (retaining) earnings or returning profits to shareholders as dividends?

Through these answers and many others and by considering the financial statements of the company (the balance sheets and income statements), the investor can determine the company’s “intrinsic value” or its “inherent worth”.

As to the short term irrationality of the market, a key learning factor from Benjamin Graham is that the stock market in the short run is a “voting machine with a stock’s price reflecting the stock’s popularity with investors on any given day. In the long run, however, the market is more of a weighing machine aligning a stocks price to reflect the value of the underlying business”.⁸⁴ For value investors, this means that a stock’s price and its fair value often detach from one another in the short term.

To conclude, value investors aim for purchasing out of favor stocks that are trading at discounts to their fair values and then holding these stocks until the market recognizes their inherent worth.

Last but not least, the following indicates the main two techniques in determining the intrinsic value of the stock.

⁸³ “The Focus-Value Investing”. Second Edition, Brandes Investment Partners, August 2003.

⁸⁴ Graham, B. “The Intelligent Investor” .Harper Business. 2005

- Discounted cash flow techniques
- Relative valuation techniques

1. Discounted Cash Flow Technique

Stocks have value only because of the “potential cash flows” which a stockholder expects to receive from his or her share of ownership from the firm, so one way of judging the investment value of shares is by forecasting and valuing future cash flows, where it can be:

- ⇒ dividends,
- ⇒ operating free cash or
- ⇒ free cash flow to equity.

The value of an asset is determined by the “discounted value” of all expected cash flows. Discounted means that future cash flows are not valued as highly as current flows. The stockholder receives the cash flows from the earnings and profits of the firm for as long as the firm is in operation, which may be indefinite. Since earnings generally increase over time, the value of most stocks depends on what may happen many decades hence. Estimates of all future cash flows are important for the valuation of equity – not only the ones received during the time the investor holds the asset. However, “for a short term investor, the return on investment will depend not only on his or her assessment of the cash flows but also on the market assessment of the cash flows at the time of the sale.”⁸⁵

⁸⁵ Reilly, F and Brown, K. “Investment Analysis and Portfolio Management”. Eight Edition. Thomson South Western, 2006

a. Present Value of Dividends

The **Dividend Discount Model (DDM)** can be a worthwhile tool for equity valuation. **DDM** states that the value of a stock is worth the dividends expected to be generated by the firm discounted by an appropriate risk-adjusted rate.

The concept of **DDM** is simple enough but to those who haven't had to do maths for a while, the actual formulae can be intimidating. If one thinks of a stock as simply a perpetual source of dividends and one never wishes to sell it, he or she can make estimates in the growth of dividends and plug them into time value formula.⁸⁶

$$P_0 = \frac{D_1}{(1+k)^1} + \frac{D_2}{(1+k)^2} + \frac{D_3}{(1+k)^3} + \dots + \frac{D_\infty}{(1+k)^\infty}$$

where D_1 = dividends expected to be received in one year

K = the required rate of return (RRR) for the investment.

However, instead of the RRR, the “weighted average cost of capital” WACC could be used depending on the situation.

To comprehend this factor; the investor should recognize that for any individual stock, the expected cash flows consist of “expected dividends” plus the “expected sale price” of the stock. However, the sale price the current investors will receive depends on the dividends the future investor expects. Therefore, for all present and future investors in total, expected cash flows must be based on all of the expected future dividends.

⁸⁶“Notes on the Intrinsic Valuation Models”, chapter 18, Roger Craine, September 2005

Therefore, the present value of a share of a stock must be established as the present value of that expected dividend stream that will be paid throughout the life of the company.⁸⁷

The section below will examine the process to value stocks.

By the applying the **DDM** model, it requires three scenarios:

- When there is no growth in dividends so the amount paid each year remains constant
- When dividends increase at a constant rate each year
- When dividends grow at different rates

i. Valuing stocks with zero growth

Suppose dividends are not expected to grow at all; instead they are expected to stay the same every year. Here, there is a zero growth stock, for which the dividends expected in the future years are equal to some constant amount- the current dividend. In such a case, it is known as a perpetuity- paying a constant amount each year forever.

Value of a zero growth stock: $P=D/K$

where D =current dividend paid

K = required rate of return

⁸⁷ www.moletaryfool.com

ii. Valuing stocks with normal or constant growth

In general, investors expect the earnings and common stock dividends of most companies to increase each year. Even though expected growth rates vary from company to company, it is uncommon for investors to expect dividend growth to continue in the foreseeable future at about the same rate as that of the “nominal gross national product” (real GNP plus inflation).

"On this basis, one might expect the dividend of an average or normal company to grow at a rate of **three** to **six** percent a year".⁸⁸ Thus, if a normal or constant growth company's last dividend which has already been paid was D_0 , its dividend in any future year can be forecasted to be $D_t = D_0(1+g)^t$, where g is the constant expected rate of growth and t represents the year of the dividend forecast.

In such a case, **the intrinsic value of the stock** $= D_1 / (K_s - g)$

In this formula, the expected dividends are growing but the present value of each successive dividend is declining because the dividend growth rate is lower than the rate used to discount the dividends to the present.

iii. Valuing stocks with non-constant growth

Firms go through life cycles. During the early parts of their lives, their growth is much faster than that of the economy as a whole; then they match the economy's growth; and

⁸⁸ Reilly, F and Brown, K. "Investment Analysis and Portfolio Management". Eight Edition. Thomson South Western, 2006

finally their growth is slower than that of the economy. Firm's whose growth are not about the same as the economy's growth are called non-constant growth firms.⁸⁹

Last but not least, the appropriate risk adjusted rate used in the discounted cash flow techniques to determine the intrinsic value could either be the "cost of equity" , or "weighted average cost of capital" (WACC).

1. Cost of Equity:

A firm's cost of equity represents the compensation that the market demands in exchange for owning the asset and bearing the risk of ownership. The cost of equity is estimated with two models:

➤ The **Constant Dividend Growth Model** (Gordon's Model)

$$\text{Cost of Equity} = D_1/P_0 + g$$

where:

D_1 =the next expected dividend

g =the constant growth rate of dividends

➤ The **Capital Asset Pricing Model (CAPM)**

$$\text{Cost of Equity} = K_{RF} + (K_M - K_{RF}) \times \beta \text{ where}$$

K_{RF} = the risk-free rate of interest. This is the amount obtained from investing in securities considered free from credit risk, such as the promised yield on ten year

⁸⁹ "Essentials of Managerial Finance" , 12 Edition

government bonds from developed countries. Moreover, the interest rate of U.S. Treasury Bills is frequently used as a proxy for the risk-free rate.

K_M = the expected return on the market

β = a measure of the sensitivity (volatility) of the firm's stock returns relative to those of market assuming the absence of diversifiable risk. A beta of one, for instance, indicates that the company moves in line with the market. If the beta is in excess of one, the share is exaggerating the market's movements; less than one means the share is more stable with less movements than that of the market. Occasionally, a company may have a negative beta, which means the share price moves in the opposite direction to the broader market.⁹⁰

Risk premium: the excess return that an individual stock provides over a risk free rate. Investors demand a risk premium because of the uncertainty of returns expected from the investment. There are many internal factors that influence a firm's variability of returns such as business risk, financial risk and liquidity risk.

2. Weighted Average Cost of Capital (WACC):

WACC is calculated by multiplying the cost of capital component by its proportional weight and then summing. The WACC is the weighted average of the cost of equity and the cost of debt based on the proportion of debt and equity in the company's capital structure.

⁹⁰ O'neil, W. "How to Make Money in Stocks", Third Edition. McGraw Hill, 2002

$$\text{WACC} = \frac{E}{V} * \text{Re} + \frac{D}{V} * \text{Rd} * (1 - \text{Tc})$$

Where:

Re=cost of equity

Rd=cost of debt

E=market value of the firm's equity

D=market value of the firm's debt

V=E+D

Tc=corporate tax rate

“Lenders” and “equity holders” each expect a certain return on the funds or capital they have provided. WACC tells us the return that both stockholders - equity owners and lenders - can expect. WACC, in other words, represents the investors' opportunity cost of taking on the risk of putting money into a company. To calculate WAAC, investors need to determine the company's cost of equity and cost of debt.⁹¹

b. Present Value of Operating Free Cash Flow

The “value of the firm” is determined by discounting the “Operating Free Cash Flow” (OFCF) before the payment of interest to debt holders but after removing funds needed to maintain the firm's asset base (capital expenditures) by using the weighted average cost of capital as the discount rate (WACC).

The operating free cash flow (OFCF) =

EBIT (1-tax rate) + Depreciation expense - Capital expenditure - Change in WC
- Change in other assets

⁹¹ Essentials of Managerial Finance”, 12 Edition

This is the cash flow generated by a company's operations and available to all who have provided capital to the firm—both equity and debt. Because it is the cash flow available to all capital suppliers, it is discounted at the WACC.

c. Present Value of Free Cash Flow to Equity

The “value of the firm” determined by discounting the “free cash flows” to equity by using the firm’s “cost of equity” (WACC) discount rate.

The free cash flows to equity are derived from operating cash flows after they have been adjusted for debt payments (Interest and principle) and any payments to preferred stockholders.

These cash flows precede dividend payments to the common stockholder. They are known as free since they are what is left after providing the funds needed to maintain the firm’s asset base.

Free cash flow to equity (FCFE) is = to:

net income + depreciation expense - capital expenditures - change in WC - Principle debt repayments - new debt issues .⁹²

2. Relative Valuation Techniques

In contrast to the various discounted cash flow techniques that attempt to estimate a specific value for a stock based on its estimated growth rates and its discount rate, the “relative valuation techniques” implicitly contend that it is possible to determine the true

⁹²Meigs, R., Bettner M. and Whittington, Ray. “Accounting-The basis for business decisions”. 10th Edition, McGraw Hill Companies, Inc. 1996

value by considering several relative ratios such as sales, book value, cash flows and earnings and then comparing the stock price to these variables.

- a. Price sales ratio
- b. Price book value ratio
- c. Price cash flow ratio
- d. PEG ratio

a. Price sales ratio (P/S)

The price to sales ratio compares the market value of a company's outstanding shares to its sales.

P/S = Market Cap / Revenues, where:

Market Cap=Market price per share*shares outstanding

or

P/S = Stock Price / Sales Price per Share

Price sales ratio reflects a company's underlying financial strength. It reflects the value placed on sales by the market. A company with a low P/S ratio is more attractive while one with a high P/S is less attractive. As a rule of thumb, investors should sell when the P/S is between 3 to 6.⁹³

Pros of P/S:

In a highly cyclical industry such as semiconductors, there are years when only few companies produce any earnings. This does not mean semiconductor stocks are worthless. In this case, investors can use price sales ratio to determine how much they are paying for a dollar of the company's sales.

⁹³ Shim,J and Lansner J. "101 Investments Tools for Buying Low and Selling High". St Louis Press.2001

Further, price sales ratio is used for spotting recovery situations or for double checking that a growth company has not become overvalued. It is considered when a company begins to suffer losses and, as a result, has no earnings (and no PE) with which investors can assess the shares.

Cons of P/S:

Many people look at sales revenue (P/S) as a more reliable indicator of a company's growth. They consider earnings as a complicated number, whose reliability is not always assured. But due to unclear accounting rules, the quality of sales revenue figures can be unreliable too.

The price sales ratio can vary substantially across industries; therefore, it's useful mainly when comparing similar companies. Moreover, because it doesn't take into account any expenses or debt, the ratio is somewhat limited in the story it tells. A firm with no debt and a low price-to-sales metric is a more attractive investment than a firm with high debt and the same price-to-sales ratio. At some point, the debt will need to be paid off, so there is always the possibility that the company issues additional equity. These new shares expand market capitalization and drive up the price-to-sales ratio. Moreover, low price-to-sales ratios can indicate unrecognized value potential - so long as other criteria like high profit margins, low debt levels and growth prospects are in place. In other cases, price-to-sales can be a classic value trap.⁹⁴

b. Price book value ratio (P/B)

This ratio compares the “market price” (MV) of the stock to its “book value” (BV). Market price of the stock is based on current prices (the closing price) while the Book Value is based on assets and liabilities. Book value is determined by subtracting the value

⁹⁴ “Understanding Price to Book Ratio”. Ken Little. Retrieved from www.investopedia.com

of the preferred shares from the equity and then divide the result by the number of outstanding shares. It represents the value of the owners equity based upon the historical accounting activities. If accounting truly captured the current values of the firm, then one would expect the current stock price to sell near its accounting book value.

A lower P/B ratio could mean that the stock is undervalued. However, it could also mean that something is fundamentally wrong with the company-the company may be experiencing financial difficulties. Whereas, a high P/B ratio is desirable because it shows that the stock market places a higher value on the company.

For value investors, P/B remains a method for finding low price stocks that the market has neglected. If a company is trading for less than its book value (or has a P/B less than 1), it normally tells investors one of two things: either the market believes the asset value is overstated, or the company is earning a very poor (even negative) return on its assets. If the former is true, then investors are well advised to get rid of the company's shares because there is a chance that asset value will face a downward correction by the market, leaving investors with negative returns. If the latter is true, there is a chance that new management or new business conditions will prompt a turnaround in prospects and give strong positive returns.

Despite its simplicity, P/B also has its disadvantages:

- ❖ The ratio is really only useful when looking at capital-intensive businesses or financial businesses with plenty of assets on the books.
- ❖ It completely ignores intangible assets like brand name, goodwill, patents and other intellectual property created by a company.

- ❖ It doesn't really offer insight into companies that carry high debt levels or continuous losses. Debt can increase a company's liabilities to the point where they wipe out much of the book value of its hard assets, creating artificially high P/B values. For companies with a series of losses, book value can be negative and hence meaningless.
- ❖ Book value might deviate significantly from market value if the earnings power of the assets has increased or declined since they were acquired
- ❖ Companies can boost or lower their cash reserves, which in effect changes book value, but with no change in operations.

Admittedly, the P/B ratio has shortcomings but it offers an easy-to-use tool for identifying clearly under or overvalued companies. For this reason, the relationship between share price and book value will always attract the attention of investors.

c. Price cash flow ratio

The **price/cash flow (P/CF)** ratio is used to compare a company's "Market Value" to its "Cash Flow" .

It is calculated by dividing the company's "market cap" by the company's "operating cash" flow in the most recent fiscal year (or the most recent four fiscal quarters); or, equivalently; divide the "per-share stock price" by the "per-share operating cash flow".⁹⁵

In theory, the lower a stock's price/cash flow ratio is, the better value that stock is.

⁹⁵ Wikipedia, the free encyclopedia, Wikimedia Foundation, Inc, modified on 25 January 2006

Operating cash flow (OCF) is derived from net income through a series of adjustments to working capital accounts on the balance sheet. OCF details how cash flows into and out of a company. If more flows in than out, the flow is positive, if not, the flow is negative.

For investors, studying the OCF will help them spot companies that are burning cash faster than they are taking it in regardless of what their net income or EPS numbers might be. The operating cash flow could be found on the statement of cash flows in a company's balance sheet.

OCF is not perfect. There are some ways it can be manipulated; however, it is a strong tool for consideration.⁹⁶

d. PEG ratio

PEG ratio is calculated by dividing a given stock's price/earnings ratio (P/E ratio) by its percentage EPS growth rate. The resulting number expresses how expensive a stock's price is relative to its earnings performance.

When used in conjunction with other ratios, it gives investors a perspective of how the market views a stock's growth potential in relation to EPS growth.

If the PEG ratio is equal to "one", it means that the market is pricing the stock to fully reflect the stock's EPS growth.

If the PEG ratio is greater than one, it indicates that the stock is possibly overvalued or that the market expects future EPS growth to be greater than what is currently in the market.

⁹⁶ Meigs, R. Bettner M. and Whittington, R. "Accounting-The basis for business decisions".10th Edition. McGraw Hill Companies, Inc.1996

If the PEG ratio is less than one, it is a sign of a possibly undervalued stock or that the market does not expect the company to achieve the earnings growth that is reflected in the market estimates.⁹⁷

“Growth stocks” typically have a PEG ratio greater than one because investors are willing to pay more for a stock that is expected to grow rapidly. It could also be that the earnings forecasts have been lowered while the stock price remains relatively stable for other reasons. While “Value stocks” usually have a PEG ratio less than one because the stock's earnings expectations have risen and the market has not yet recognized the growth potential. On the other hand, it could also indicate that earnings expectations have fallen faster than the market could issue new forecasts.

It is important to note that the PEG ratio cannot be used in isolation. As with all financial ratios, investors using PEG ratios must also use additional information to get a clear perspective of the investment potential of a company. Investors must understand the company's operating trends, fundamentals and what the expected EPS growth rate reflects. Additionally, to determine if the stock is overvalued or undervalued, investors must analyze the company's P/E and PEG ratios in relation to its peer group and the overall market.

Although the “**discounted cash flow techniques**” and the “**relative valuation techniques**” are approaches to be considered in determining the intrinsic value of the stock, they are not enough. Chapter Five introduces a worthwhile tool that emphasizes the power of intrinsic value

⁹⁷ “The Big Picture-Macro Economic Perspectives on the Capital Market”. Mike Panzner.2005

Chapter Five: Intrinsic Value

5.1 Intrinsic value

There are two approaches in determining the intrinsic value: the balance sheet approach and the income statement approach. The intrinsic value obtained from either of these approaches is then used to compare it with the market value estimate to determine whether the stock is undervalued, fair, or overvalued.

A. Balance sheet Approach

Balance sheet is a financial statement that summarizes a company's assets, liabilities and the shareholders' equity at a specific point in time. The balance sheet items give investors an idea as to what the company owns and owes, as well as the amount invested by the shareholders.

In such a case, the intrinsic value is estimated by subtracting long term liabilities from the total assets and dividing the result with the number of common shares outstanding. This number should then be compared with the book value (BV) of stock that is calculated from the balance sheet.

At first glance, if the intrinsic value is less than the book value, this shows a possibility of an overvalued stock that should be sold and visa versa.

B. Income statement Approach

The best way in determining the intrinsic value in such a case is using earnings per share (EPS) estimation for a 20 year period.

Yearly expected (EPS) could be obtained by applying the formula below:

$$\text{Current EPS} \times \frac{[(1 + \text{expected growth rate})^{\text{number of years}}]}{(1 + \text{historical discount rate})^{\text{number of years}}}$$

The expected (EPSs) for the 20 year period are calculated and summed after which the sum is multiplied by two different expected growth rates separately (the minimum and maximum expected growth rates). The average of latter two forecasted values is the intrinsic value. The future expected growth rate for companies in the above formula has been estimated as an average of 4%-4.5%.⁹⁸ The minimum and the maximum growth rates are estimated through trial and error and after thorough analysis of the market movement. Thus, in such a case, the 30% or 35% is the minimum growth rate and the 60% or 70% is the maximum growth rate.⁹⁹ The historical (S&P) discount rate has an average 6%-6.8%¹⁰⁰. Thus, the following table shows the intrinsic value calculation of MICROSOFT CORP using the income statement approach:

⁹⁸ Stocks for the Long Run, 3rd Edition, Jeremy Siegel

⁹⁹ Mr. Raja Shaffu unpublished notes

¹⁰⁰ Stocks for the Long Run, 3rd Edition, Jeremy Siegel

Table 12: Raja Shaffu Intrinsic Value Calculation Formula

"MSFT" EPS(as of Aug24, 2006)	x	1.20
Expected Growth rate (future)	g (%)	4.2%
Historical (S&P)Discount Rate	l (%)	6.4%
Forecast Period	n	20
Expected growth (30 %)	g1 (%)	1.30
Expected growth (60 %)	g2 (%)	1.60

Year	Forecasted EPS Value of "MSFT"	
1	1.18	
2	1.15	
3	1.13	
4	1.10	
5	1.08	
6	1.06	
7	1.04	
8	1.02	
9	0.99	
10	0.97	
11	0.95	
12	0.93	
13	0.91	
14	0.90	
15	0.88	
16	0.86	
17	0.84	
18	0.82	
19	0.81	
20	0.79	
	19.41	X
	25.24	X1 = X * g1
	31.06	X2 = X * g2
	28.15	R = AVG(X1,X2)

Thus, the intrinsic value of Microsoft stock as of 24th August, 2006 is calculated to be **\$28.15**.

In order to interpret the findings, an actual Microsoft market comparison should then be made.

Hence,

- If the market value of the stock (MSFT) is above the intrinsic value, the stock is overvalued and should be sold.
- If the market value of the stock (MSFT) is below the intrinsic value, the stock is undervalued and should be bought.

In reality , Yahoo finance has indicated that the market value of Microsoft stock as of 24th August, 2006 is actually **\$25.75**. Thus, in such a case, the market value is below the intrinsic value, so the stock is undervalued and should be bought.

1. Earnings per share

Earning per share is the most important factor in fundamental analysis. This coupled with a few related ratios give a fair idea about the worth of the stock. It is determined by dividing net income by the number of shares outstanding; however, both the numerator and denominator can change depending on how "earnings" and "shares outstanding" are defined.

Shares outstanding can be classified as either primary (primary EPS) or fully diluted (diluted EPS)¹⁰¹.

Primary EPS is calculated using the number of shares that have been issued and held by investors. These are the shares that are currently in the market and can be traded.

Diluted EPS entails a complex calculation that determines how many shares would be outstanding if all exercisable warrants, options were converted into shares at a point in time, generally at the end of a quarter. Diluted EPS is a better assessment because it is a more conservative number that calculates EPS as if all possible shares were issued and outstanding.

In fact, earnings can be determined in four ways:

¹⁰¹ How to Evaluate the Quality of EPS". Rick Wayman. Owned and Operated by Investopedia Inc.1999-2006. Retrieved on January 5, 2006 from www.investopedia.com.

a. Reported EPS (or GAAP EPS)

Reported EPS are the numbers derived from generally accepted accounting principles (GAAP), which are reported in the SEC filings. The company derives these earnings according to the accounting guidelines used. Yet, the fact remains that a company can manipulate EPS under GAAP.

b. Pro forma EPS

This EPS is calculated based upon normalized or ongoing net income and excludes anything that is an unusual one time event, such as a large one time gain from the sale of equipment as well as an unusual expense. The goal is to find the stream of earnings from core operations which can be used to forecast future EPS.

c. Headline EPS

This EPS number is the one that is highlighted in the company's press release and picked up in the media. Generally, sound press releases do not provide enough information to determine which EPS number is being used.

d. Cash EPS

In such as a case, the EPS is Operating Cash Flow (OCF) rather than EBITDA, divided by diluted shares outstanding. Cash EPS is better because operating cash flow cannot be manipulated as easily as net income and represents real cash earned, calculated by including changes in key asset categories such as receivables and inventories.

2. Expected growth rate

Growth rates can be estimated in either two ways: from fundamentals or from historical data.

a. From fundamentals

When a firm retains earnings and acquires additional assets; and if it earns a positive rate of return on these assets, the total earnings will increase since its asset base is larger.

However, how rapidly a firm's earning increases depends on the following two concepts:

a- the proportion of earnings it retains and reinvests in new assets,

b- rate of return it earns on these assets.

Thus, the growth rate of earnings per share are determined from the percentage of net earnings retained and the rate of return on equity (retention rate*the rate of return on equity capital) $g=RR*ROE$

In consideration then, the ROE should be interpreted as follows:

$ROE = \text{Net Profit Margin} * \text{Total Asset Turnover} * \text{Financial Leverage}$

Such that;

The *net profit margin* is a ratio that reveals the profitability generated from sales. The higher the profit margin for each sales dollar generated, the better the company is doing financially.

Hence,

Net profit margin=Net income/Net sales.

The second component is then, *total asset turnover*, which is a measure of how efficiently a company uses its assets to generate sales. It calculates the average sales that a company generates with each dollar contribution of assets.

Total Asset Turnover=Net Sales/Total Assets

The final component, *financial leverage*, does not measure operating performance but rather financial leverage. It indicates how management has decided to finance the firm. Thus, the greater the financing of assets are, the greater increase the ROE, which increases the growth rate.¹⁰²

b. From historical data

Although it might be more important considering fundamental analysis in estimating future growth, it is necessary however to consider also the historical growth rate of sales, earnings, cash flows, and dividends. Specifically, about 20 years of annual observations for these components might be ideal.

3. S&P Historical Discount Rate

As an overall idea, Standard & Poor's is the world's foremost provider of independent credit ratings, indices, risk evaluation, and investment research and data. An essential part of the world's financial infrastructure, Standard & Poor's has played a leading role for more than 140 years in providing investors with the independent benchmarks they need to feel more confident about their investment and financial decisions. The critical thinking, opinions, news and data offered by Standard & Poor's have become an integral part of the global financial infrastructure. Today, Standard & Poor's employs approximately 6,300 employees located in 21 countries and markets.¹⁰³

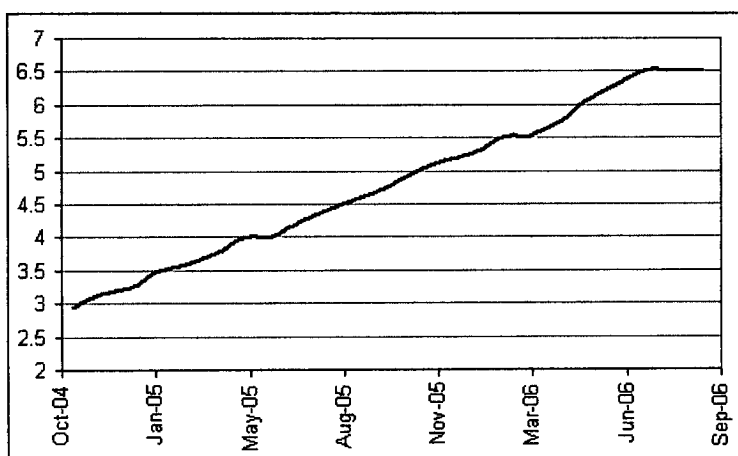
¹⁰² Reilly, F and Brown, K. "Investment Analysis and Portfolio Management". Eight Edition. Thomson South Western, 2006

¹⁰³ "Standard & Poor's", a division of The McGraw-Hill Companies. 2006. Retrieved on June 1, 2006 from <http://www2.standardandpoors.com>

Tables 23 and 24 (refer to appendix, page 109 and 110) indicate respectively S&P 500 P/E by economic sector as of 25 April 2006 and the S&P 500 average ratios as of 5 May 2006¹⁰⁴

Further, the figure below shows the discount interest rate forecast of S&P 500 till September 2006¹⁰⁵

Figure 1: Discount Interest Rate of S&P 500



Source: Financial Forecast Center™. *The Market and Economic Outlook*. Updated Friday, April 21, 2006. Retrieved from <http://www.forecasts.org/disc.htm>

¹⁰⁴ <http://www.stockselector.com/sp500.asp>

¹⁰⁵ Financial Forecast Center™. *The Market and Economic Outlook*. Updated Friday, April 21, 2006. Retrieved from <http://www.forecasts.org/disc.htm>

Chapter Six:

Conclusion and Recommendation

Estimating the value of various securities is the heart of investing which leads to the construction of a portfolio that is consistent with an investor's risk- return. The investment decision of the investor in choosing the right stock is based on a comparison of an asset's true value and its market price. If the estimated true value of an investment is greater than the market price, the investment is undervalued and should be bought. On the other hand, if the estimated true value is less than the market price, the investment in such a case is overvalued and should be sold. But, the question is: "What is the best way in determining the true worth (the true value) of an investment, stock or company?"

There are many different techniques and ratios to evaluate a stock and determine whether it is undervalued, fair or overvalued. Price earning ratio is one of these ratios. It has always been a well dependent ratio in estimating stock value. However, the two variables (price and earnings) that constitute in the calculation of the price earning ratio, each has various factors or conditions affecting it. There are the microeconomic conditions such as (the impact of the dollar, impact of interest rates, impact of GDP, impact of production and the reaction to money supply) ,microeconomic conditions (dividend policy change, stock offerings and repurchases, earnings surprises, acquisition, and quality of management), and other factors (January effect, Monday effect, noise trading, commodity nature of stocks, trends, and temporary problems). Thus, and after thorough analysis of the price earnings ratio and considering all its pros and cons, and the micro and macro economic conditions that affect it, the result was that it could not be a full proof dependent factor to relay on.

Moreover, and because of the complexity and the importance of valuing stocks, various techniques for accomplishing this task have been devised over time such as the “Discounted Cash Flow technique” and the “Relative Valuation technique”.

The “discounted cash flow technique” estimates the value of the stock based on the present value of some measure of cash flow. On the other hand, the “relative valuation technique” estimates value based on certain ratios such the price sales ratio, price book value ratio, price cash flow ratio, and the PEG ratio. These two techniques are considered to be good approaches; however, they are not sufficient to provide the investor with a decision making.

Actually, a combination of all the above techniques and ratios do help in estimating stock value and determining whether a stock is undervalued, fair or overvalued when compared to the stock’s market price. However, they do have their disadvantages and well considered to be a long way in reaching the goal of value estimation.

Hence, this leads to the aim of this thesis-the introduction of a new easy and more accurate model in estimating stock value known as the “intrinsic value” model. This model can enhance the rest of the techniques which its estimation of intrinsic value based on the income statement and the balance sheet approaches. The emphasis; however, is on the income statement approach.

Through “Raja Shaffu’s Intrinsic Value” calculation formula, that are based on yearly forecasted earnings per share (EPS) are estimated through a 20 year period; where then they are summed and multiplied by two different expected growth rates (the maximum

and minimum expected growth rates) obtained through trial and error basis. Thus, the average of the latter two forecasted EPSs is the intrinsic value. The intrinsic value obtained is then compared to the stock's current market price to conclude whether the stock is undervalued, fair, or overvalued.

To conclude, all the old techniques and ratios in estimating whether a stock is undervalued, fair, or overvalued are good; however, they do have their disadvantages and complexities. This is way this thesis has been developed to formulate a more accurate and simple model for daily trading investors to choose the right stock to enhance his or her wealth.

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APPENDICES

APPENDIX 1

STATISTICS OF SOME COMPANIES LISTED ON DIFFERENT EXCHANGES

Table 13: Some US Companies Listed on the NYSE

Company Name	Symbol	P/E (ttm) \$	Market Capitalization \$
A.O. Smith Corporation	AOS	27.93	1.33B
Abott Laborateries	ABT	19.59	65.29B
Airgas, Inc	ARG	22.48	2.73B
Allied Capital Corporation	ALD	4.83	4.15B
AT&T, Inc	T	18.29	108.05B
Consolidated Edision Inc	ED	15.1	10.87B
Crane Co	CR	15.36	2.28B
Deluxe Corporation	DLX	7.55	1.08B
Dynegy Inc	DYN	6.66	2.09B
EastGroup Properties, Inc	EGP	49.62	1.00B
Eastman Kodak Co	EK	N/A	6.71B
Emulex Corp	ELX	20.94	1.40B
FedX Corporation	FDX	20.06	33.45B
Ford Motor Company	F	N/A	12.55B
Goodman Global Inc	GGL	23.63	1.05B

Source: Yahoo Finance, 16 June 2006

Source: NYSE Group, Listed Companies Directory. Retrieved on 16 June 2006 from www.nyse.com

Table 14: Some Non-US Companies Listed on the NYSE

Company Name	Symbol	P/E \$	Market Capitalization \$
Canada			
Bank of Nova Scotia	BNS	13.29	39.04B
Cameco Corporation	CCJ	48.07	13.34B
Magna International Inc	MGA	12.09	7.80B
Europe			
Nokia Corporation	NOK	17.99	81.64B
Alcatel	ALA	18.07	16.86B
France Telecom	FTE	8	57.48B
Air France-KLM	AKH	5.21	5.6B
Latin America			
Brasil Telecom SA	BTM	N/A	2.10B
Banco de Chile	BCH	12.5	4.20B

Source: Yahoo Finance, 16 June 2006

Source: NYSE Group, Listed Companies Directory. Retrieved on 16 June 2006 from www.nyse.com

Table 15: Some Listed Companies on the AMEX

Company Name	Symbol	P/E(ttm) \$	Market Capitalization \$
ACR Group Inc	BRR	16.94	49.67M
ADDvantage Technologies Group, Inc	AEY	10.2	52.94M
ADVENTRX Pharmaceuticals Inc	ANX	N/A	237.87M
AXS-One Inc	AXO	N/A	57.33M
Balchem Corp	BCP	22.4	241.39M
Bio-Rad Laboratories, Inc (Class A)	BIO	22.52	1.76B
CET Services, Inc	ENV	N/A	5M
CKX Lands, Inc	CKX	9.82	1.90B
COMFORCE Corp	CFS	11.52	45.94
CPI Aerostructures, Inc	CVU	44.91	40.36
CVD Equipment Corp	CVV	19.61	9.41M
Delta Apparel, Inc	DLA	12.03	140.92M
Delta Financial Corp	DFC	8.82	215.13M
Endeavour International Corporation	END	N/A	182.3M
EnerNorth Industries Inc	ENY	N/A	6.47M
GAINSCO, INC	GAN	30.98	164.72M

Source: Yahoo Finance, 16 June 2006

Source: AMEX, Equity Listed Companies. 2006 American Stock Exchange LLC.

Retrieved on 16 June 2006 from www.amex.com

Table 16: Amex Most Active Equities

Company Name	Symbol	P/E(ttm) \$	Market Capitalization \$	Volume
Crtstallex International Group	KBY	N/A	704.64M	5,428,900
Peru Copper Inc	CUP	N/A	604.21M	4,788,600
Bema Gold Corp	GGO	N/A	2.10B	4,395,100
Home Solutions of America, Inc	HOM	27.28	283.39M	4,238,800
Northgate Exploration LTD	NXG	10.59	696.09M	3,819,800
Grey Wolf, Inc	GW	13.46	1.41B	3,689,600
EuroZinc Mining Corporation	EZM	12.94	1.13B	2,498,700
Yamana Gold, Inc	AUY	N/A	1.80B	2,203,800
GlobeTel Communications Corp	GTE	N/A	132.99M	2,013,300
Internap Network Services	IIP	N/A	396.01M	2,004,700

Source: Yahoo Finance, 16 June 2006

Source : AMEX, Equity Listed Companies. 2006 American Stock Exchange LLC.

Retrieved on 16 June 2006 from www.amex.com

Table 17: Some Companies Listed on the NASDAQ

Company Name	Symbol	P/E \$	Market Capitalization \$
Transportation			
Air France KLM	AKH	5.18	5.64B
AMR Corporation	AMR	N/A	4.63B
Alaxka AirGroup	ALK	N/A	1.28B
ABX Air Inc	ABXA	11.25	350.79M
Air Methods Corporation	AIRM	18.59	271.80M
Technology			
Apple Computer Inc	AAPL	29.02	48.92B
Automatic Data Processing Inc	ADP	23.71	25.97B
Applied Materials Inc	AMAT	22.52	25.54B
Analog Devices Inc	ADI	27.28	11.82B
Finance			
American International Group In	AIG	15.89	155.22B
American Express Group Company	AXP	18.02	64.80B
ABN Amro Holding N.V	ABN	8.61	49.33B
Basic Industrial			
Air Products and Chemicals Inc	APD	18.77	13.88B
Aes Trust	AES	13.35	11.32B
Aqrium Inc	AGU	14.56	2.87B
Andrew Corporation	ANDW	37.8	1.45B

Source: NASDAQ Overview, as of 16/6/2006

Table 18: NASDAQ 10 Most Active Companies in terms of Volume

Company Name	Symbol	Share Volume
Microsoft Corporation	MSFT	121,882,266
Oracle Corporation	ORCL	92,319,465
Nasdaq 100 Index -Tracking Stock	QQQQ	82,727,412
Intel Corporation	INTC	64,018,379
Sun Microsystems Inc	SUNW	45,233,797
Dell Inc	DELL	34,614,259
Cisco Systems Inc	CSCO	34,307,425
JDS Uniphase Corporation	JDSU	27,253,285
Applied Materials Inc	AMAT	24,068,257
Level 3 Communications Inc	LVLT	24,045,201

Source: Nasdaq Market Statistics, as of 16/6/2006

Table 19: Historical Annual Statistics of OTCBB

Year	Average Daily Share Volume	Average Daily Dollar Volume	Average Daily Transactions	Average Daily Securities
1990	26,578,584	\$12,506,574	N/A	4,388
1991	15,661,616	\$13,202,023	N/A	4,124
1992	10,703,155	\$20,968,900	N/A	4,089
1993	11,996,809	\$32,595,685	N/A	4,178
1994	28,585,313	\$125,674,619	N/A	5,251
1995	41,043,431	\$127,679,538	6,765	5,302
1996	61,943,439	\$151,812,865	11,224	5,554
1997	71,196,390	\$175,895,245	14,260	6,408
1998	123,286,814	\$132,559,827	21,586	6,342
1999	323,122,189	\$250,407,107	52,828	6,423
2000	467,233,453	\$402,219,794	88,445	4,034
2001	381,168,194	\$62,935,724	31,175	3,771
2002	656,029,345	\$59,773,535	25,421	3,769
2003	1,060,949,618	\$159,551,840	37,305	3,556
2004	1,781,103,456	\$203,371,418	52,506	3,293
2005	1,674,309,569	\$185,804,499	49,119	3,283

Source: OTC Bulletin Board, The NASDAQ Stock Market, Inc, 2004 .

Table 20: Estimated Dollar Volume Leaders Over \$0.05 of Pink Sheet Quoted Stock

Symbol	Price	\$ Volume	Share Volume
GHLT	8.8	45,859,845	5,211,346
MERQ	35.11	21,439,746	610,645
NSRGY	74.7	17,516,179	234,487
HLSH	3.8	17,077,481	4,494,074
NILSY	101.5	10,522,505	103,670
SFTBF	21.3	10,522,200	494,000
LUKOY	68	10,093,308	148,431
MNCP	14.02	5,684,844	405,481
RSPG	2.55	4,625,588	1,813,956
DPHIQ	1.74	4,125,216	2,370,814

Source: Market data for pink sheets quoted stocks as of June 19, 2006. 2004, Pink Sheets LLC. Retrieved from http://www.pinksheets.com/otcguide/issuers_index.jsp (issuer information)

Table 21: Share Volume Leaders Over \$0.05 of Pink Sheet Quoted Stocks

Symbol	\$ Volume	Share Volume
GHLT	45,859,845	5,211,346
HLSH	17,077,481	4,494,074
ABZT	635,411	2,888,232
PDSC	370,074	2,701,268
DPHIQ	4,125,216	2,370,814
CPNLQ	845,293	1,965,798
RSPG	4,625,588	1,813,956
PGPM	81,288	1,354,806
WTAF	282,284	1,283,109
NLST	383,442	935,225

Source: Market data for pink sheets quoted stocks as of June 19, 2006. 2004, Pink Sheets LLC. Retrieved from http://www.pinksheets.com/otcguide/issuers_index.jsp (issuer information)

APPENDIX 2

MONETARY POLICY TOOLS AND THE S&P 500

Table 22: Comparison of Monetary Policy Tools

Monetary Policy Tool	To Increase Money Supply Growth	To Decrease Money Supply Growth
Open market operations	Fed should purchase government securities in the secondary Market	Fed should sell government securities in the secondary market
Adjusting the discount rate	Fed should lower the discount rate to encourage borrowing through the discount window	Fed should raise the discount rate to discourage borrowing through the discount window
Adjusting reserve requirements	Fed should lower the reserve requirement ratio to cause money to multiply at a higher rate	Fed should raise the reserve requirement ratio to cause money to multiply at a lower rate

Source: Madura, J. "Financial Markets and Institutions". Fourth Edition. South College Western Publishing. 1998

Table 23: S&P 500 P/E by Economic Sector

Quarterly Breakdown	2003 Q2A	2003 Q3A	2003 Q4A	2004 Q2A	2004 Q3A	2004 Q4A
S&P 500	12.92	14.41	14.88	16.98	16.88	17.95
S&P 500 Consumer Discretionary	2.64	2.51	3.37	3.56	3.13	3.80
S&P 500 Consumer Staples	2.92	3.00	3.05	3.29	3.36	3.33
S&P 500 Energy	3.71	3.77	3.87	6.25	6.01	6.93
S&P 500 Financials	6.72	6.98	7.18	7.81	7.15	7.89
S&P 500 Health Care	3.16	3.94	3.53	4.50	4.56	3.79
S&P 500 Industrials	2.81	2.89	3.13	3.11	3.39	3.63
S&P 500 Information Technology	1.32	2.22	2.90	2.91	3.13	3.79
S&P 500 Materials	1.61	1.29	1.42	2.83	2.57	2.68
S&P 500 Telecommunication Services	1.83	1.76	1.47	1.65	1.84	1.88
S&P 500 Utilities	1.46	3.39	1.78	1.91	2.81	1.97

Quarterly Breakdown	2005 Q2A	2005 Q3A	2005 Q4A	2006 Q1E	2006 Q2E	2006 Q3E	2006 Q4E
S&P 500	19.42	18.84	20.19	20.47	20.83	21.36	22.35
S&P 500 Consumer Discretionary	3.66	2.81	3.93	3.31	3.97	3.86	4.55
S&P 500 Consumer Staples	3.43	3.51	3.47	3.06	3.43	3.59	3.59
S&P 500 Energy	8.20	8.98	10.68	9.87	9.64	9.49	9.91
S&P 500 Financials	8.32	7.35	7.59	9.18	8.70	8.81	9.25
S&P 500 Health Care	4.82	4.72	4.79	5.31	5.26	5.19	5.28
S&P 500 Industrials	4.19	4.25	4.46	4.00	4.62	4.87	4.88
S&P 500 Information Technology	3.66	3.69	4.30	3.56	3.57	3.85	4.71
S&P 500 Materials	3.50	2.53	2.56	3.55	3.79	3.14	3.20
S&P 500 Telecommunication Services	2.00	1.96	1.44	1.96	2.09	2.07	2.11
S&P 500 Utilities	1.83	3.08	2.30	2.74	2.37	3.75	2.41

Source: S&P 500, P/E by Economic Sector, as of 25 April 2006

Table 24: S&P 500 Average Ratios

PE ratio	31.7
Price to Sales ratio	1.77
Dividend yield	1.40%
Price to Book value	3.03
PEG ratio	1.51
Estimated earnings growth	21.01%
Historic earnings growth	10.50%

Source: S&P 500 average ratios as of 5 May 2006. Retrieved from <http://www.stockselector.com/sp500.asp>