Chapter 4 - Historical Stock Market Performance

written for Economics 104 Financial Economics by Prof. Gary Evans
First edition August 2009, this edition September 19, 2019

Explaining why stocks and the stock market rise and fall, and how they perform over time, has the potential to be an endless, never-ending project. First, to be modest, no one really knows with any substantial degree of precision why stocks rise and fall. The markets are too complicated and they are changing constantly. Nonetheless we can make some broad generalizations about stock market performance, especially if we use history as a guide. And these broad generalizations are potentially useful for the investor trying to get a little edge in making investments.

This chapter therefore is dedicated to discussing general stock market performance at an introductory level. This material can at least get us started. Although this material is very useful when attempting to select individual stocks, mutual funds, or ETPs, this chapter is not as much about individual stock selection as it is about general stock market performance as, for example, measured by an index like the **S&P 500**.

Here is how this historical approach will be broken down:

1. The role played by corporate earnings and projected earnings
2. The role played by aggregate mutual funds transfers into and out of stocks
3. The impact of inflation and high interest rates and the portfolio effect
4. Evaluating flights to quality
5. The role played by speculation and momentum
6. The impact of mergers and acquisitions and share buybacks
7. The role played by dividends
8. General economic conditions and the market

1. Earnings, projected earnings, earnings surprises and disappointments

Generally speaking, stock market prices when measured by a common index representing many stocks, such as the **S&P 500 Index**, respond over long time intervals to the ***earnings*** (also called profits) of the companies represented by the index. The greater their rate of profit, the better their performance as measured by capital gains and losses.

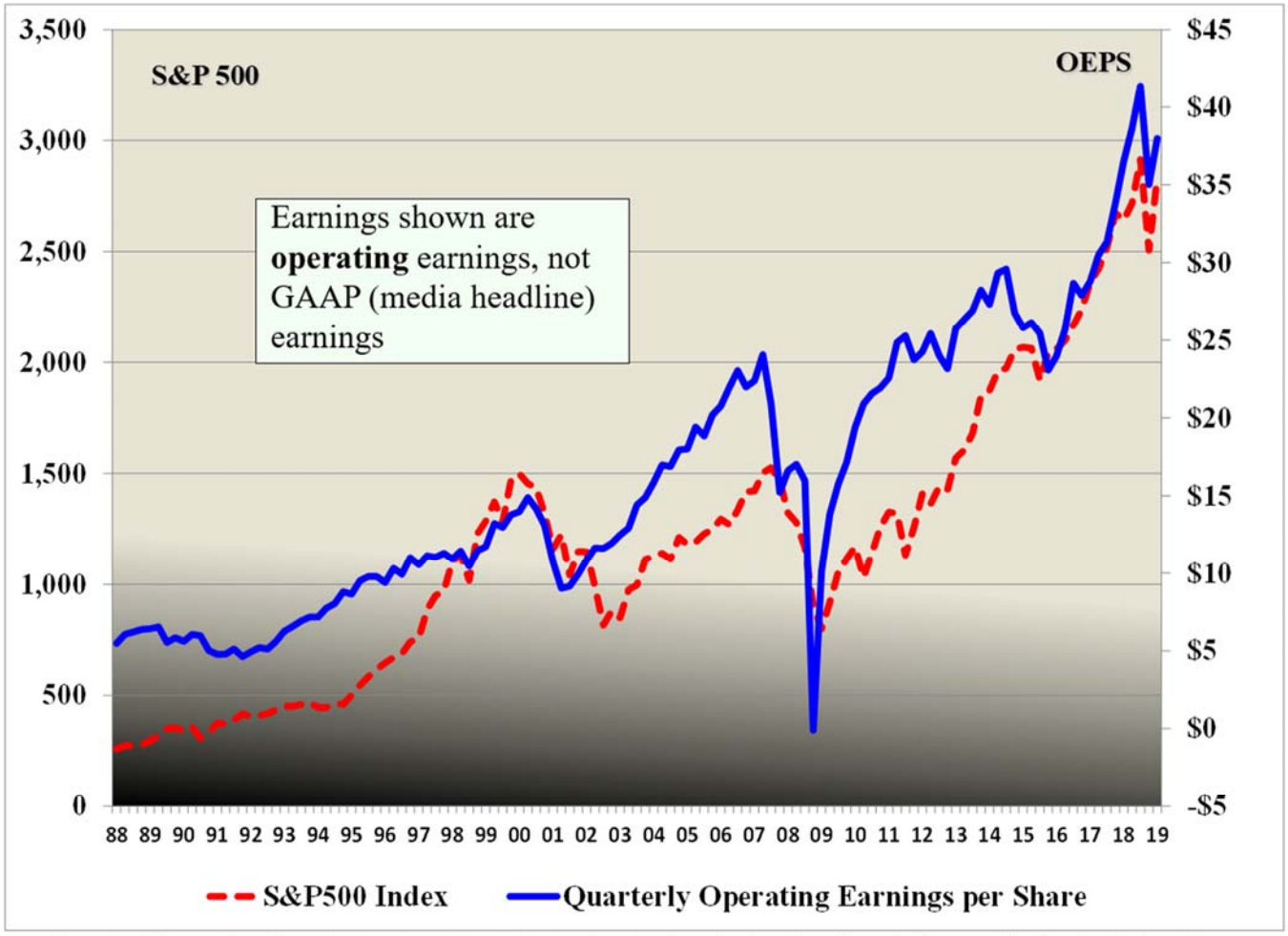
Figure 1 shows this relationship by comparing the **S&P 500** index to the average operating earnings (profits) per share of the 500 stocks that make up the index. As can be seen, although there is a strong correlation, the correlation is not perfect. For example, in the years leading up to the market crash that began in March 2000, the S&P 500 was clearly rising a lot faster than the operating earnings of the companies that are included in the index.

When considering an individual stock or even an industry or sector, these earnings,[1] (typically measured as earnings per share), will normally matter more than any other variable. But in today's sophisticated markets *static* earnings, how much the company made in the last twelve months (shown in the data as ***ttm*** for ***trailing twelve months***), is only the starting point. In the eyes of many investors, earnings *growth* matters much more than the *level* of earnings. Those investors will prefer and pay a premium for a company with relatively low earnings per share but high projected growth in those earnings compared to a company with higher earnings per share but with lower projected earnings growth.

Consider, for example, the relative earnings and share price performance of Apple ***(AAPL)*** compared to Microsoft (MSFT) for the period between January 2007 and August 2018, (weekly data) represented in **Figure 2.**

[1] For the reader familiar with general accounting principles, reported GAAP earnings are not reliable and should not be used for earnings estimates. Instead operating earnings or free cashflow (not discussed here) should be used. GAAP rules allow companies to register large losses that are anticipated in a single huge writedown in one quarter.

Figure 1: Correlation between the S&P500 Index and Operating Earnings per-share of the S&P 500 companies, Quarterly, Q1 1988 to Q1 2019



Source: Data for this are taken from ***Standard and Poor's Index Services*** downloads at http://us.spindices.com/indices/equity/sp-500

First, looking at the share prices, **AAPL** increased in value approximately 23-fold over this period while **MSFT** increased only 6.1-fold. To be precise, the opening and ending **AAPL** share price was $8.16 on January 3, 2007 and $213.26 on September 6, 2019 versus **MSFT** share prices of $22.51 and $139.10 for the same dates![2]

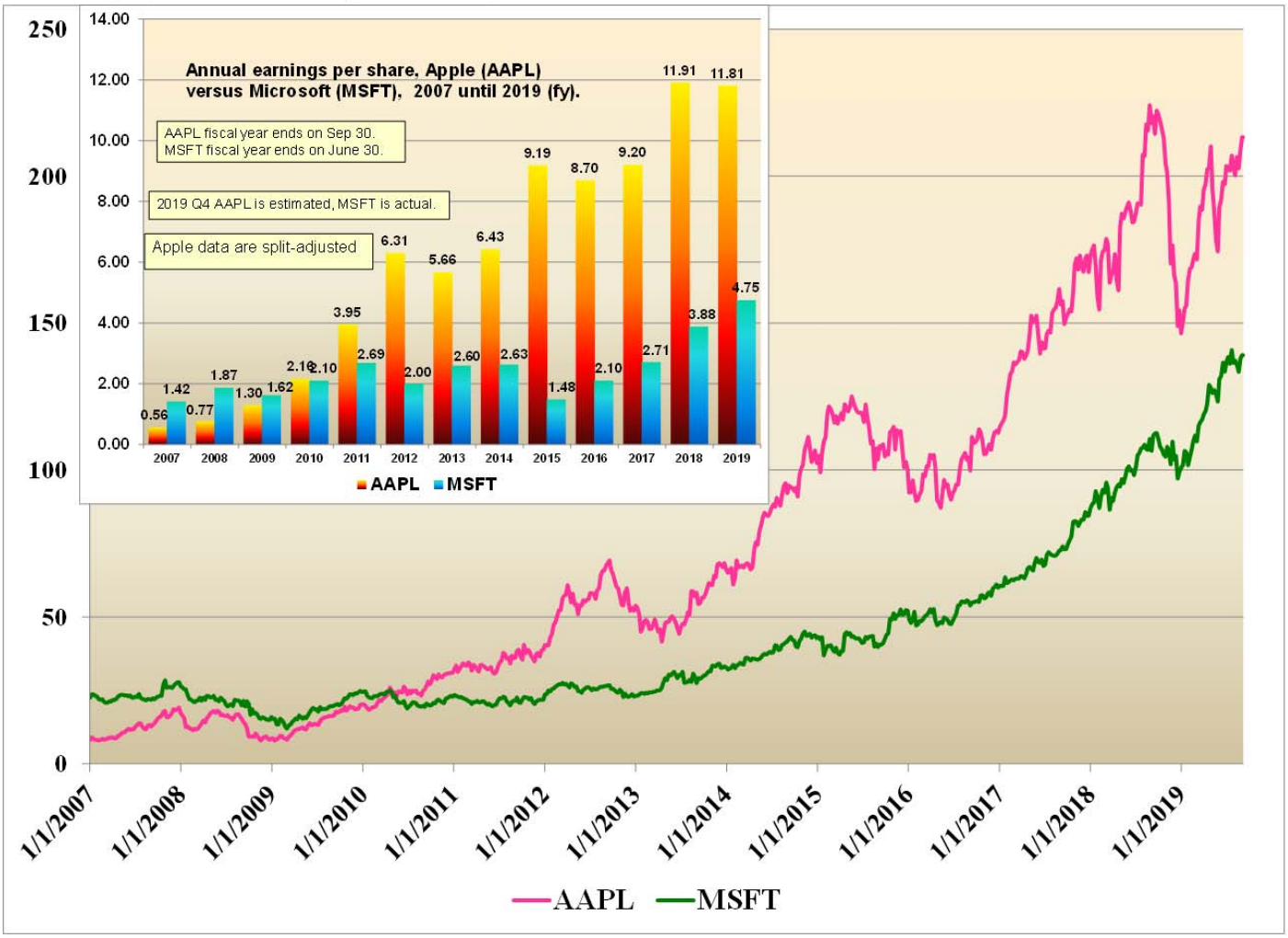
The inset in **Figure 2,** which shows annual earnings per share for the two companies, shows why. Because of the success of multiple new product releases, ranging from iPhones to iPads, Apple's earnings soared from $0.56 per share in 2007 (split adjusted) to a staggering $11.91 estimated per share in fiscal year 2018. (Because of slowing of growth in the smartphone market, **AAPL**'s earnings in 2019 are stagnant).[3] In contrast, over the same period, Microsoft per-share earnings only grew from $1.42 per share to $4.75 per share in 2019.

In this example the market is clearly rewarding earnings growth.

[2] We know from chapter 1 that the AAPL prices shown here (and the earnings) are adjusted for a 7 to 1 stock split that took place on June 9, 2014. AAPL stock rose from 83.80 on January 3, 2007 to 644.47 on the day before the split. Annual earnings in Figure 2 are adjusted for the stock split as well.

[3] Corporations can report their earnings by defining their fiscal year as different than the calendar year. AAPL's fiscal year ends on September 30, MSFT's on June 30. In Figure 2, 2018 MSFT earnings are reported, AAPL earnings are estimated because AAPL had not complete the 4th quarter of their fiscal year.

Figure 2: Microsoft (MSFT) versus Apple (AAPL) stock market performance from January 3, 2007 until September 6, 2019



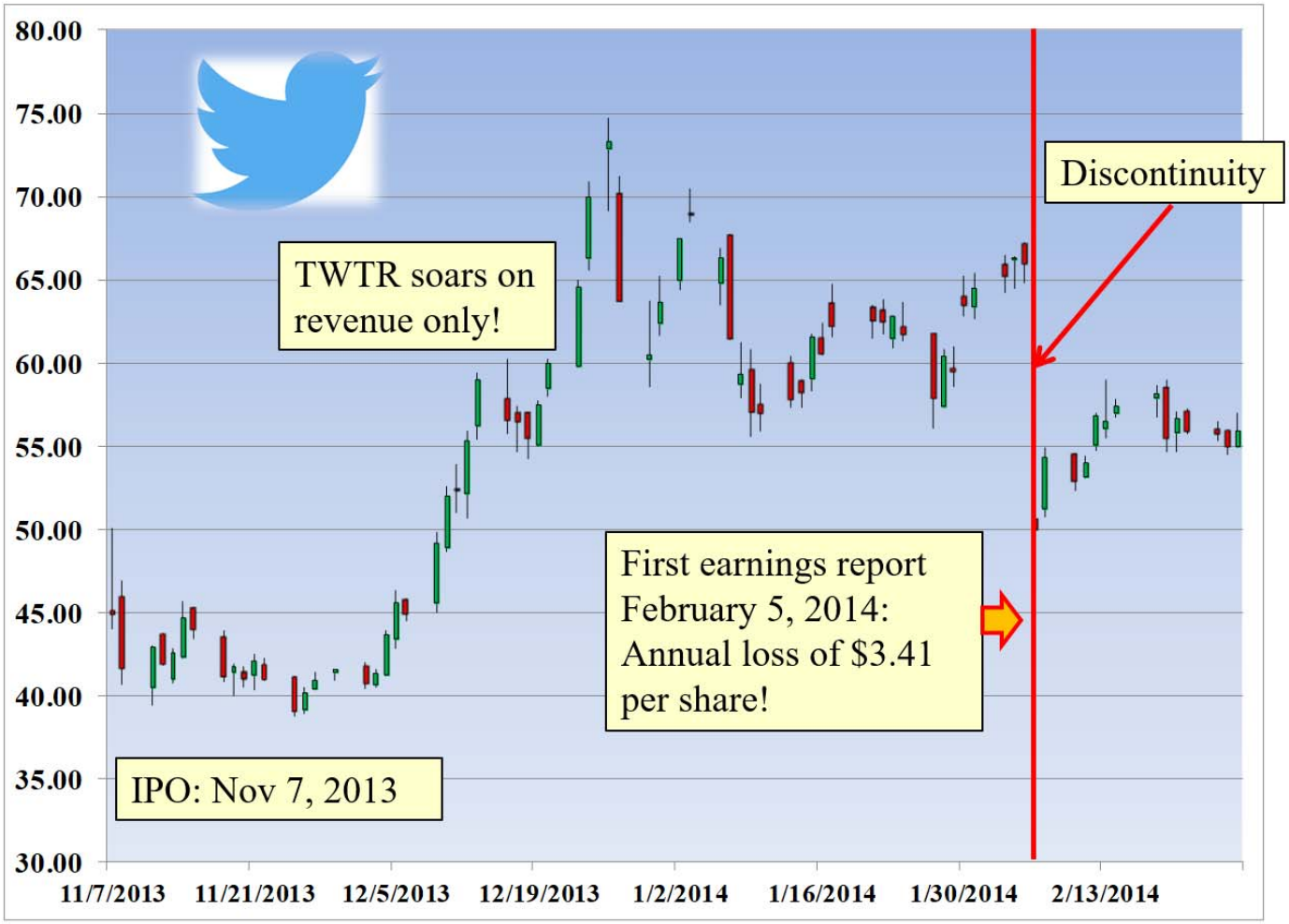
Younger growth companies can sometimes generate market interest and soaring stock prices with very low earnings or even no earnings at all if they are demonstrating torrid revenue growth, and especially if they are dominating a market. Such companies sustain their growth on cash raised during the IPO or with debt. Investors reason that the companies will ultimately become profitable after they have dominated market share in their industry. They are investing in the future.

One such company that has generated controversy over this very issue is social media company Twitter, Inc., **(TWTR).** Refer to **Figure 3 - Twitter (TWTR) soars on revenues and dies on earnings.** Twitter IPOed on November 7, 2013 to great expectations of high revenues even though it was known that the company was running a loss. The stock rose in price from $44.90 at the close on the day of the IPO to a high of $69 on January 3, 2014, and stayed in the high fifties and sixties until their first earnings report. That report was for the quarter ending on December 31, 2013, and was released in the evening of February 5, 2014. The earnings report disclosed that Twitter lost $645 million in the previous year, which amounted to a staggering $3.41 per share! Consequently, the stock dropped from a close of $65.97 on Wednesday to an open of $50.61 the next morning!

The markets in recent years are not as tolerant of high sales and poor earnings as they were in the previous decade. Investors are impressed with revenue growth but at some point they have to see earnings.

It might be worth the trouble to take a break and see how **TWTR** has done since 2014.

Figure 3 - Twitter (TWTR) soars on revenues and dies on earnings



1.1 Price-to-Earnings Ratios

A metric that is commonly used to compare one company or one industry to another is called the ***Price-to-Earnings ratio (P/E)*** The Price-to-Earnings ratio at any moment is the price per share of a stock divided by its annual earnings.

If recent historical earnings are being cited, this is usually represented by its operating profits for the last year, which are designated in the data as trailing twelve months (ttm). This statistic is also called the ***trailing P/E ratio***.

For example, on August 20, 2018, when Intel **(INTC)** closed at 47.62, given that earnings in the previous year equaled $2.77 per share, Intel's trailing P/E ratio equaled 17.2 to 1.

Analysts also estimate a ***forward P/E*** ratio, which uses the current price divided by *estimated* future earnings. Current stock market prices may be more influenced by ***expected*** earnings than ***current*** earnings. On the same date as above, Intel's forward P/E was estimated by *finance.yahoo* at 11.07.

Price-to-earnings ratios however measured are often used by analysts to gauge whether a market, as measured by an index, is over-valued or undervalued. Use of P/E ratios to evaluate this issue based upon historical averages is controversial but it is nonetheless a good starting point for a novice investigator.

Review **Figure 4 - Historical P/E ratio for S&P 500 stocks**, which covers the period from the fourth quarter of 1998 to the second quarter of 2019 using quarterly data. This is simply the historical average prices divided by the annualized

operating (not GAAP) earnings per share of the member companies of the S&P 500. The value over this period varied between around 12 and a high of nearly 30. The large increase in value during the 1990s reflected the booming stock market of that era (often referred to as the *dot-com rally* because it was largely due to the exploding value of recently-IPOed internet stocks). Averaging P/E ratios of 30 to 1 correctly indicated that stocks were hugely overvalued, which resulted in the collapse of the market in early 2000.[4]

Figure 4 - Historical P/E ratio for S&P 500 stocks, quarterly, 88Q4 to 19Q2

Source: Data for this are taken from ***Standard and Poor's Index Services*** downloads at http://us.spindices.com/indices/equity/sp-500

The market collapse in late 2007 however was clearly not due to stocks being overpriced relative to earnings (see the market peak line on the right in **Figure 4**) because P/E ratios were below average. That huge decline was triggered by the damage to the banking sector caused by the collapsing mortgage market. Stocks at that time were not overvalued. The tremendous spike seen in September 2009 reflects a sudden evaporation of earnings, which drove the P/E ratio up because the denominator, earnings, fell so far because the recession was so severe!

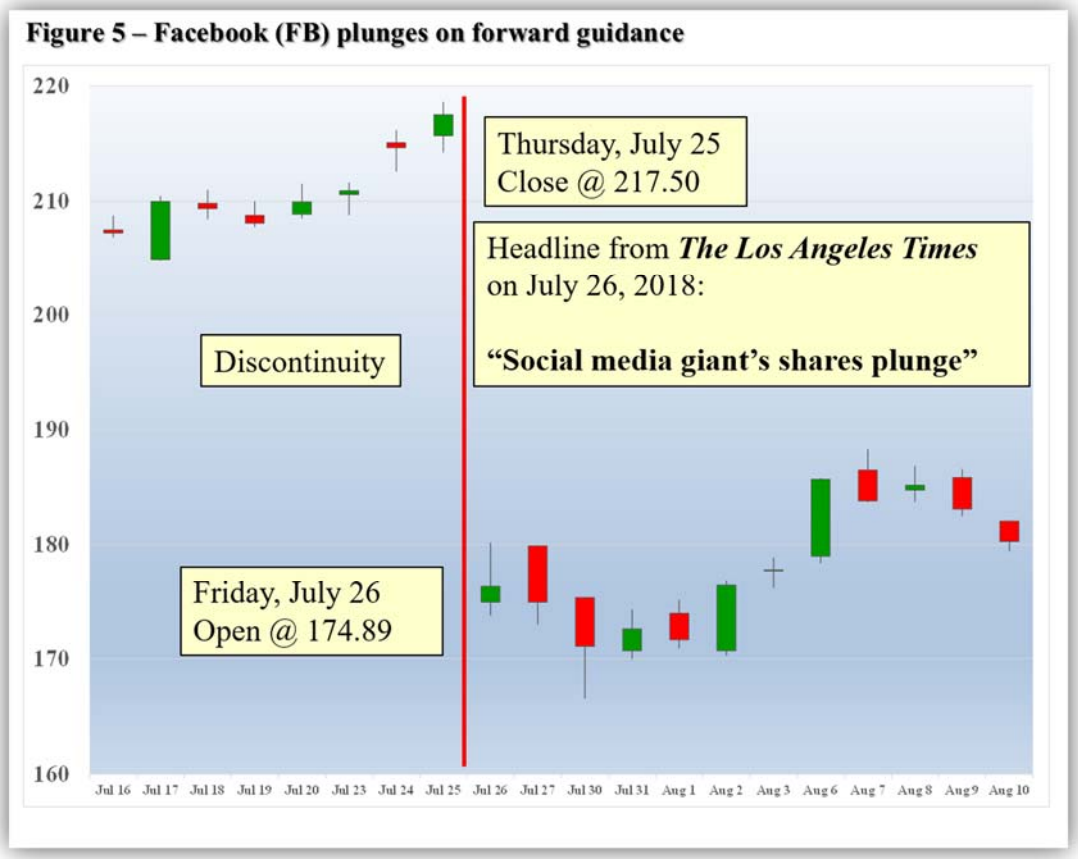
As stated earlier, some analysts regard estimates or projections of future earnings (forward-looking earnings), but also projected revenue growth and *cash flow* as more important than historical data when considering the prices of individual stocks or industry groups. Theories of valuation claim that the long-range projected value of profits and/or cash flow of a corporation should strongly impact the present-day market valuation of a stock. In fact, one common theory of valuation claims that the present price of a stock equals the discounted present value of the lifetime free cash flow of a corporation. There is certainly some truth to this theory. Companies that look good over a long horizon to analysts do tend to be market

[4] If you have forgotten the timing of the market cycles that we saw in Figure 4 in chapter 1, you might want to look ahead to Figure 9 in this chapter, which shows the same data.

favorites and perform well.

Obviously one drawback of using forward-looking metrics is the reliance on earnings estimates that may not actually happen. A very rosy scenario can be dashed by a string of bad news, and the valuation adjustment (the change in the stock price) can be very abrupt.

Figure 5 – Facebook (FB) plunges on forward guidance



This abrupt adjustment sometimes happens when companies either "*miss*" or "*surprise*" on their earnings forecasts in their quarterly reports. Publicly traded companies issue earnings reports quarterly. These reports include earnings and sales results for the most recent fiscal quarter, but also include an overview of how the company is expected to do in the near future. These overviews, some of which are adjusted mid-quarter, are referred to as ***guidance***. Based upon this guidance and other research, stock-tracking analysts form an estimate of a company's earnings. This information is generally available to the public. For example, on *finance.yahoo.com* once the user has asked for a quote for a company like **MSFT**, these analyst estimates and other related information are made available under the tab **Analysis**.

When companies release their quarterly earnings reports, they almost always do so at the end of the business day after markets are closed. If a company makes an earnings announcement that far exceeds or falls short of the consensus earnings estimates made by analysts, the stock can rise or plunge severely, by more than **10%** in some cases. Further, the price may exhibit a ***discontinuity***, where the price does not smoothly move from the old price to the adjusted price, but instead opens the next morning at a price discretely higher or lower than the old price by many dollars.

A recent example is shown in **Figure 5 - Facebook (FB) plunges on forward guidance.** After the markets closed on July 25, 2018, Facebook released their earnings report and guidance for their 2018 second quarter and shocked the markets to such a degree that overnight it caused the largest decline in market value for a single company ever recorded .. in excess of $80 billion!

The stock had closed that afternoon at $217.50 per share. About two hours after the close the after-market price of **FB** had plunged to nearly $163 per share. As can be seen in **Figure 5** the next morning it opened and held at around $175 per share, a staggering drop of $43 per share!

According to *The Wall Street Journal* coverage of the event the next day, *guidance* provided by Chief Financial Officer Dave Wehner was responsible for most of the decline. Although revenue had risen a healthy 40% in the second quarter, it was expected to fall considerably in future quarters for a host or reasons. Operating profit margins were also expected to fall to "the mid-30s" from 44%. Facebook had been in the news recently because the role played by fake news and fake

accounts in the 2016 presidential elections and the belief that not all accounts were active accounts, and this bit of additional confirming information about trouble was enough to send the stock reeling.[5]

Along the same lines, individual stocks, industry or stock groups sometimes react sharply when analysts claim that future prospects for the industry look very bright given changes in technology or market share or some perception that the stocks are undervalued and have been ignored. Examples from recent decades have included mid-range computing companies, defense stocks, utilities, food processing companies, and especially internet stocks prior to the **2000** crash. Any industry, large or obscure, is a candidate for these phenomena. If the "fad" catches on, the stocks shoot up. Be warned, however. The analysts are often wrong and a few months or years later the stocks come tumbling down. A perfect example of this was the fascination through the **1980**s with mid-sized computer companies like DEC and Prime Computers. The analysts saw them picking up huge market share and their stocks soared.

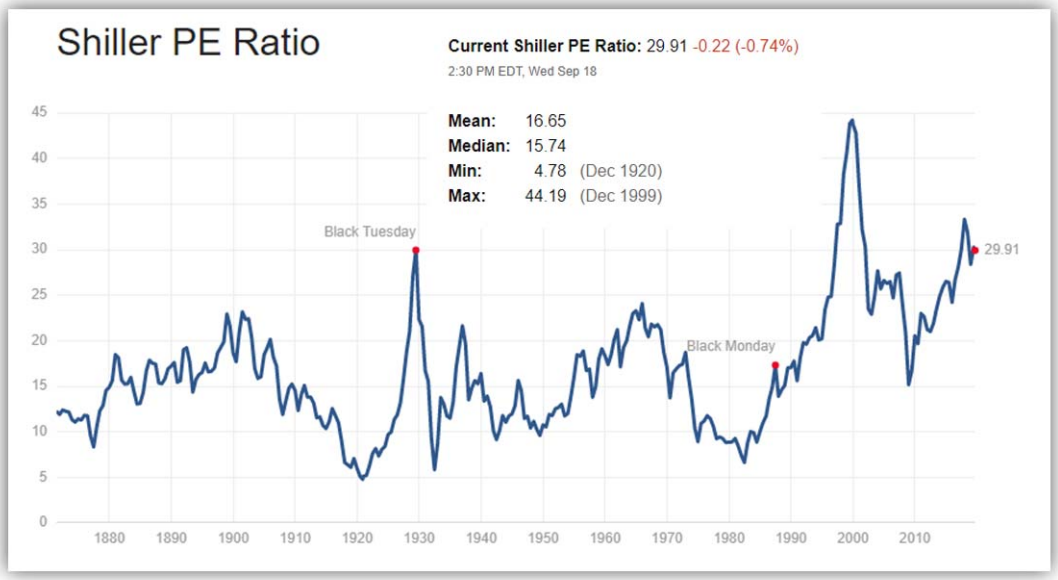
The analysts were wrong and the stocks retreated.

A much more dramatic example is provided by the fascination with technology and internet stocks in the late **1990**s. There was nearly a consensus among analysts that these stocks could seemingly rise forever. When the bubble burst in **March, 2000**, the plunge was swift and terrible.

1.2 The Shiller CAPE Price-to-Earnings Ratio

In a popular book entitled "Irrational Exuberance**"** Yale economics professor Robert Shiller[6] introduced a controversial measure of market strength called the ***CAPE***, an acronym for "cyclically adjusted price-to-earnings." The **CAPE** also measured the price-to-earnings ratio for the **S&P 500** but instead of using projected earnings or trailing-twelve-months earnings, the **CAPE** averages the earnings for the last 10 years, adjusted for inflation. For example, if the **CAPE** calculation is being made for 2019, then **S&P 500** earnings for the last 10 years are converted to 2019 dollars (using the Consumer Price Index as the inflation proxy), then those values are averaged. Then a historical comparison is made going back to 1871.

Figure 6 – The Shiller CAPE Ratio



Source: http://www.multpl.com/shiller-pe/

A recent **CAPE** calculation is shown in **Figure 6 – The Shiller CAPE Ratio**.

As can be seen, the historical mean since 1871 averages 16.65. The 1929 stock market crash that ushered in the Great Depression is clearly identified ("Black Tuesday") as was the 2000 dot-com collapse. (As explained earlier, stocks were not over-valued at the beginning of the 2007 collapse. That collapse was tied to inflated real estate prices).[7]

At the root of the Shiller argument is the suggestion that in the long run, market returns, as measured by price-to-earnings ratio, have an effective mean-reversion property – they will tend to return to the historical inflation-adjusted stock market rate of return of 6.5% annually (the inverse of 0.065, which can be thought of as an earnings-to-price ratio, is 15.4, just

[5] Akane Otani and Deepa Seetharaman, *The Wall Street Journal*, "Facebook shares tumble on Growth Concerns," July 26, 2018.
[6] Robert J. Shiller, "Irrational Exuberance," Princeton University Press, 2015 (3rd ed.)
[7] Black Monday was a computer-generated crash that is explained later in this book.

below the historical median).

The current (2019) measure is high by historical standards (although below what it was in 2018), which is cause for concern among those who take this argument seriously, although it is clear from the example of 1998 and 1999 the market can go a lot higher than it is now before any reckoning.

As one might guess, the **Schiller CAPE** ratio is not without its critics. Perhaps his most vocal critic is Professor Jeremy Siegel of the Wharton School, who argues that one recalculates the S&P 500 to adjust the numerator for dividend payouts (the original model treats historical gains as merely capital gains as measured by increases in the price numerator), then recent adjusted **CAPE** ratios are much closer to historical averages, if not actually below them. Other economists rise to Shiller's defense, insisting that even when such adjustments are made, the **CAPE** scenario still has some predictive power.[8]

The continuing controversy over current measures of price-to-earnings ratios, whether trailing or leading, plus the debate about the historical measure and how to interpret it, suggest that the modern analyst keep an eye on all measures and judge accordingly.

Doing so certainly suggests caution (but perhaps not alarm) at the time this segment was written (Fall 2019).

2. The River of Money (Mutual Fund and ETP Investing)

The stock market is consistently buoyed on the demand side by the ***River of Money*** that comes in from large institutional investors, such as *pension funds* and *insurance companies*, *hedge funds* and enormous inflows from *mutual funds*,[9] including that component of mutual funds that are reserved for *401-K, IRA*, and other retirement accounts. The last two decades have seen a decline in the popularity of defined benefit pension plans and their replacement by *401-K, IRA*, and similar plans. The latter have been heavily invested in stocks.

Additionally, the investing public has a much better understanding of how mutual funds work than in generations past and so are willing and able to funnel ever larger amounts of saved funds into equity mutual funds.

The best evidence of the importance of the river of money is provided by the Investment Company Institute, who releases monthly detailed data showing net new fund flows into various categories of mutual funds, including equity funds. **Figure 7** below, taken from **ICI** data, shows **Net New Cash Flow to Mutual Funds** in recent years for all mutual funds and for stock funds only.

Remember, this is the *new cash* flowing in, and so long as this is strongly positive it will establish a demand floor for stocks. Note the correlation between these changes in the 1990s and the phenomenal bull market of the same period.

So long as this flow continues and stocks remain an attractive investment, this will be the foundation for solid growth. However, in a panic theoretically much of this money will exit just as quickly - or even more quickly, than it arrived. As **Figure 7** shows, in **2000**, more than **$315** billion net flowed into equity mutual funds, compared to **$13** million in **1990**[10]. This same figure plunged 90% to **$33** billion in **2001**, which removed the demand floor from the stock market for that entire year. That figure plunged even more to *outflows* of -**$30** billion in **2002**, then fully recovered in **2003** to healthy inflows of **$144** billion, perfectly correlated with the market's **2003** recovery.

Once again in 2008 in the market crash associated with the real-estate meltdown, fund flows out were staggering, in

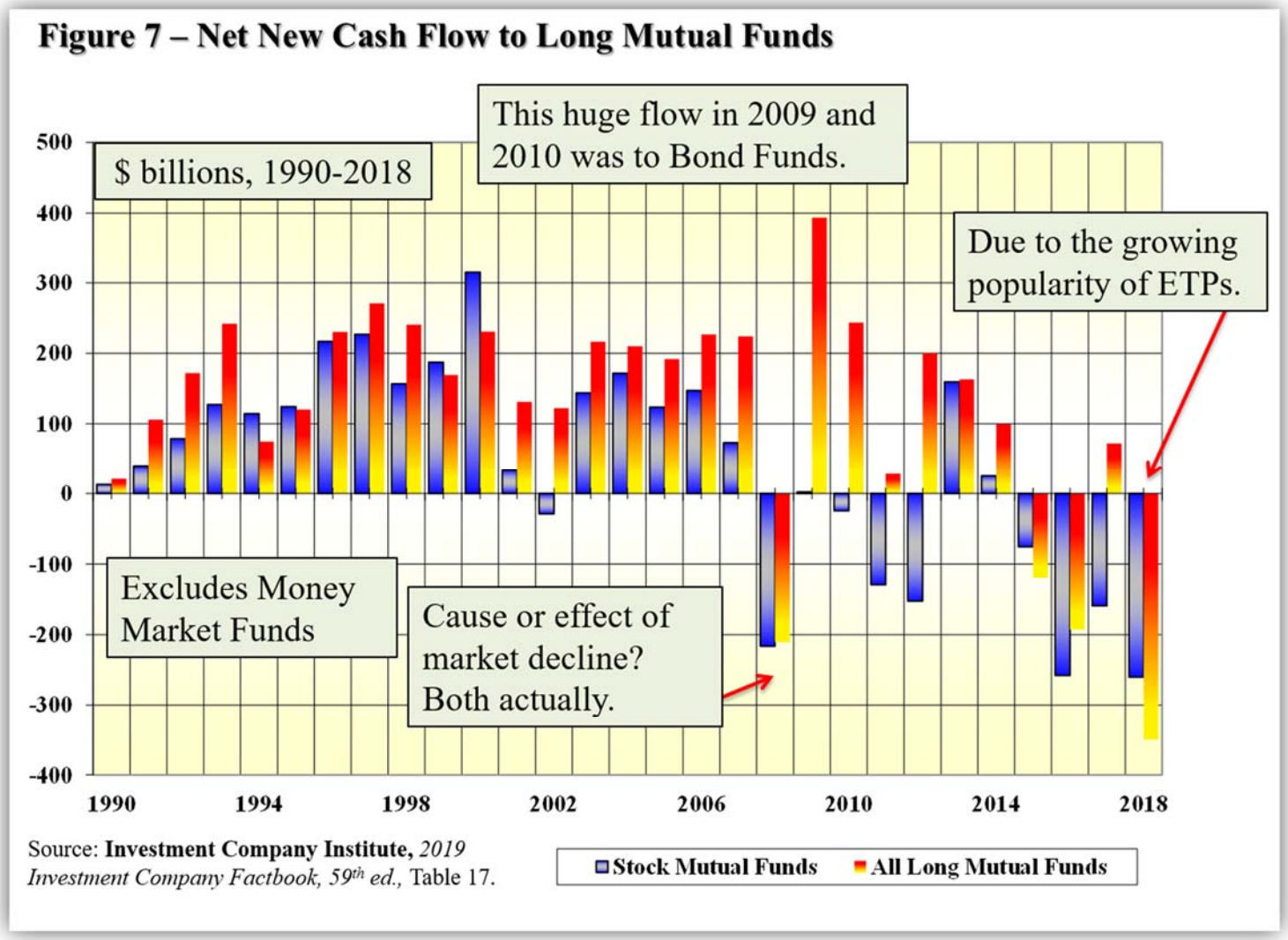
---

[8] See John Authers, "*Clash of the Cape Crusaders,*" ***Financial Times,*** September 2, 2013. An extremely detailed review of this controversy if found at **Philosophical Economics,** "*A new-and-improved Shiller CAPE: Solving the Dividend Payout Problem,*" March 22, 2015, http://www.philosophicaleconomics.com/2015/03/payout, where the author constructs a "total return earnings per share" to account for the effect of dividend payouts. The author concludes that Shiller is essentially correct: markets are overvalued in recent years.

[9] Mutual funds are huge pools of investment cash that is invested by small investors (typically) into portfolios of stocks, bonds, and other financial assets. Chapter 5 is dedicated to the discussion of mutual funds

[10] More can flow into stocks than into total because flows into bond funds, the other primary category represented in "total," can be negative.

Figure 7 – Net New Cash Flow to Long Mutual Funds



Source: **Investment Company Institute,** *2019 Investment Company Factbook, 59th ed.,* Table 17.

excess of **$200** billion out! Stock funds did not recover until 2013.

However, when we look at mutual fund flows for **2014** to **2018**, one would get the impression that we should have had a seriously slumping market in those years. But earlier when we looked at the performance of the **S&P 500** over this period, it is clear that we had a strong bull market.

How is this discrepancy to be explained?

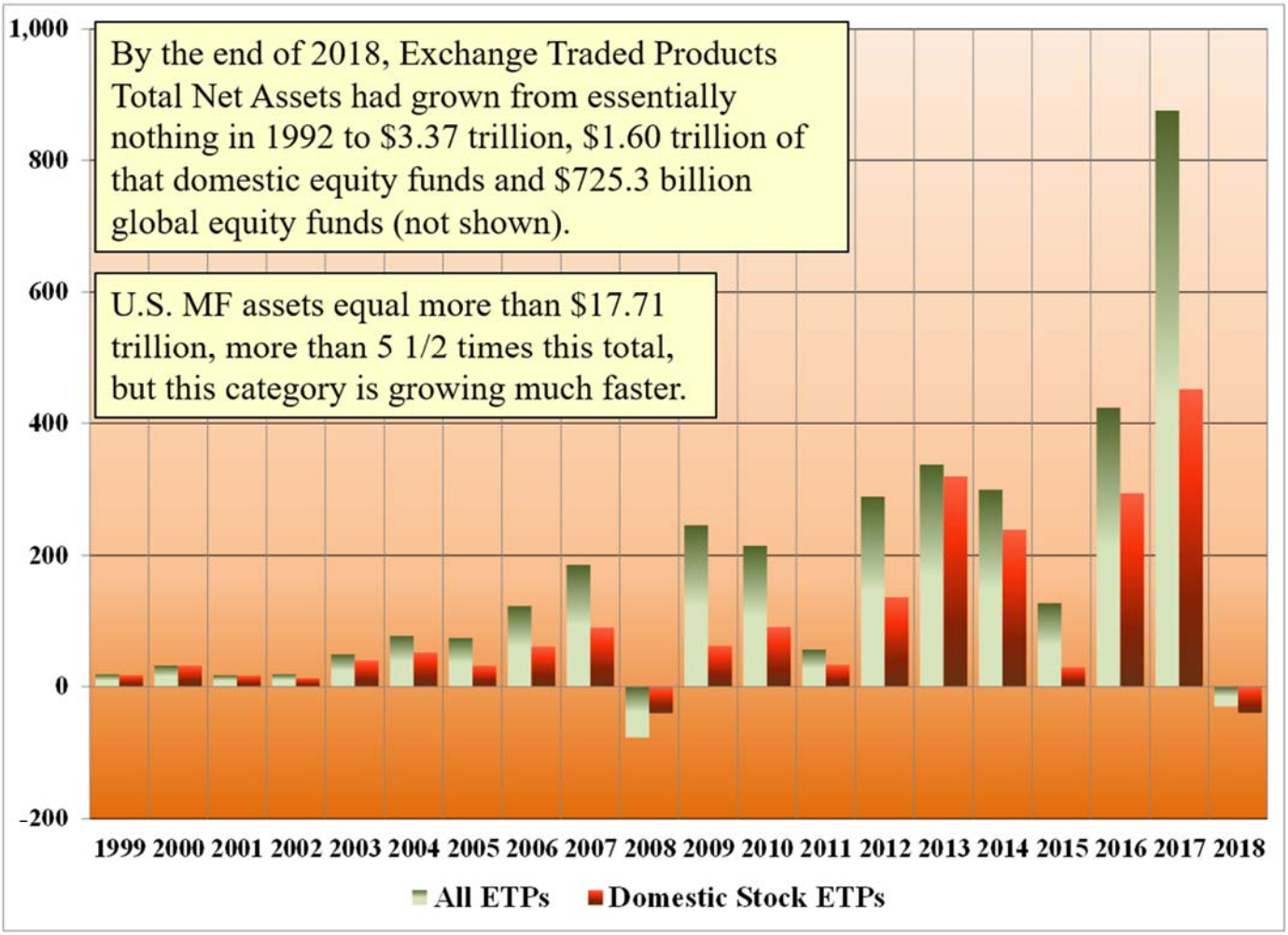
In recent years it has become apparent that data showing the *river of money* should also reflect net new cash flows into equity exchange traded products (ETPs), also called exchange traded funds (ETFs**)**. ETPs are pooled assets like mutual funds but they have the attractive feature of being directly tradable in the stock market. An investor can buy and sell them just like stock in a company.[11]

These funds are increasingly popular with retail investors and are used more and more in retirement accounts and by 2019 net asset value for all ETPs exceeded $3.5 trillion. Therefore, net flows into these funds are also going to matter. These are shown in **Figure 8.**

It is clear that equity investors are beginning to substitute exchange traded products for mutual funds. The *river of money* must therefore take both into account.

[11] An entire chapter will be dedicated to ETPs in chapter 6, so the reader is asked to be patient.

Figure 8 - Net new Cashflow to Exchange Traded Products (ETPs)



Source: Investment Company Institute, *2019 Investment Company Factbook, 59th edition,* Table 11.

However, we also see that in 2018, flows into ETPs for stocks *and* for all products actually turned negative! When you combine that with the fact the mutual funds also had negative flows, one might expect that 2018 would have been a bad market year. Let us defer that issue for a moment by looking at the over-all picture.

This correlation of the *river of money* to market performance is clear if you compare the peaks and troughs of the equity mutual fund flows in **Figure 7,** supplemented by ETP flows in **Figure 8,** to the chart of the S&P 500 stock index borrowed from an earlier chapter, shown in **Figure 9.**

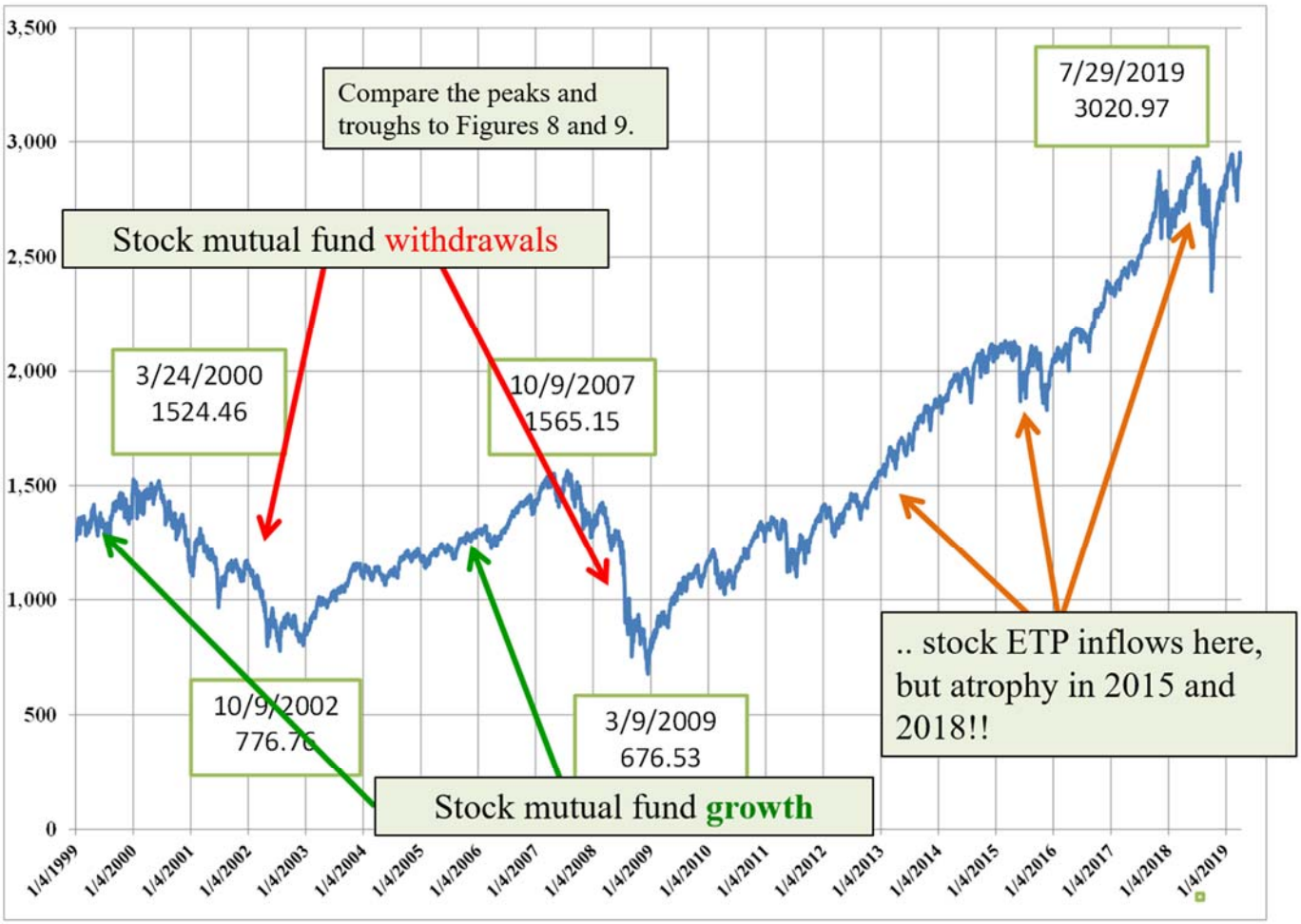
As can be seen in **Figure 9**, in the serious market downturn that began in late **2007** and continued through **2009**, there was a record outflow of funds from stock mutual funds, which greatly contributed to the decline of the market. Given the distress in the credit markets in these years, it would not be correct to say that this outflow ***caused*** the market decline. More accurately, it ***reflected*** the decline and ***contributed greatly to its depth and duration***.

From **2010** through **2012** equity funds continued to lose assets, although only slightly. But as can be seen in **Figure 7,** mutual funds in general had positive flow. Almost all of this flow went into *bond funds* as investors remained wary of stocks and placed their investment bets on interest-bearing note and bond funds, including *U.S. Treasury Notes* and *Bonds,* but also *corporate note*s and *bonds*. Bond funds offered poor yields in 2011, but were seen as much, much safer than stocks in these troubled markets.

But it is also clear when looking at **Figure 7** that the stock rally that began in **2009** was this time **not** accompanied by

stock money returning to mutual funds as had been the case in **2003** to **2007**. In this latter rally the correlation has broken

Figure 9 – 19 Years of the S&P 500 Stock Index



down. But an inspection of **Figure 8** makes is clear that the slack was taken up by the surge in demand for equity ETPs.

From **2012** to **2014**, new cash flows into equity ETPs exploded, which helps explain how such a bull market was possible in **2013** and **2014** with meager net new cash flowing into equity mutual funds. In **2015** equity ETP flow slowed to a trickle and the market turned tepid. When the positive flows resumed in **2016** and **2017,** the **S&P 500** resumed its strong rise.

However, when we get to 2018 and 2019, a mystery arises. As noted above, net cash contributions to both equity mutual funds and equity ETFs turned sharply negative. And 2018 was indeed a tepid, volatile market, but as we saw in an earlier chapter 2019 has been relatively strong, pushing the S&P 500 to new highs. How is this to be explained.

It won't be explained completely because at the time of this writing it is a bit of a mystery. Certainly mutual fund and etf demand are not the only sources of demand out there for stocks. There is direct retail demand for stocks (although there is little evidence for that explanation) and corporate and foreign demand. Perhaps it is the latter but at the time of this writing, this must remain an unanswered question.

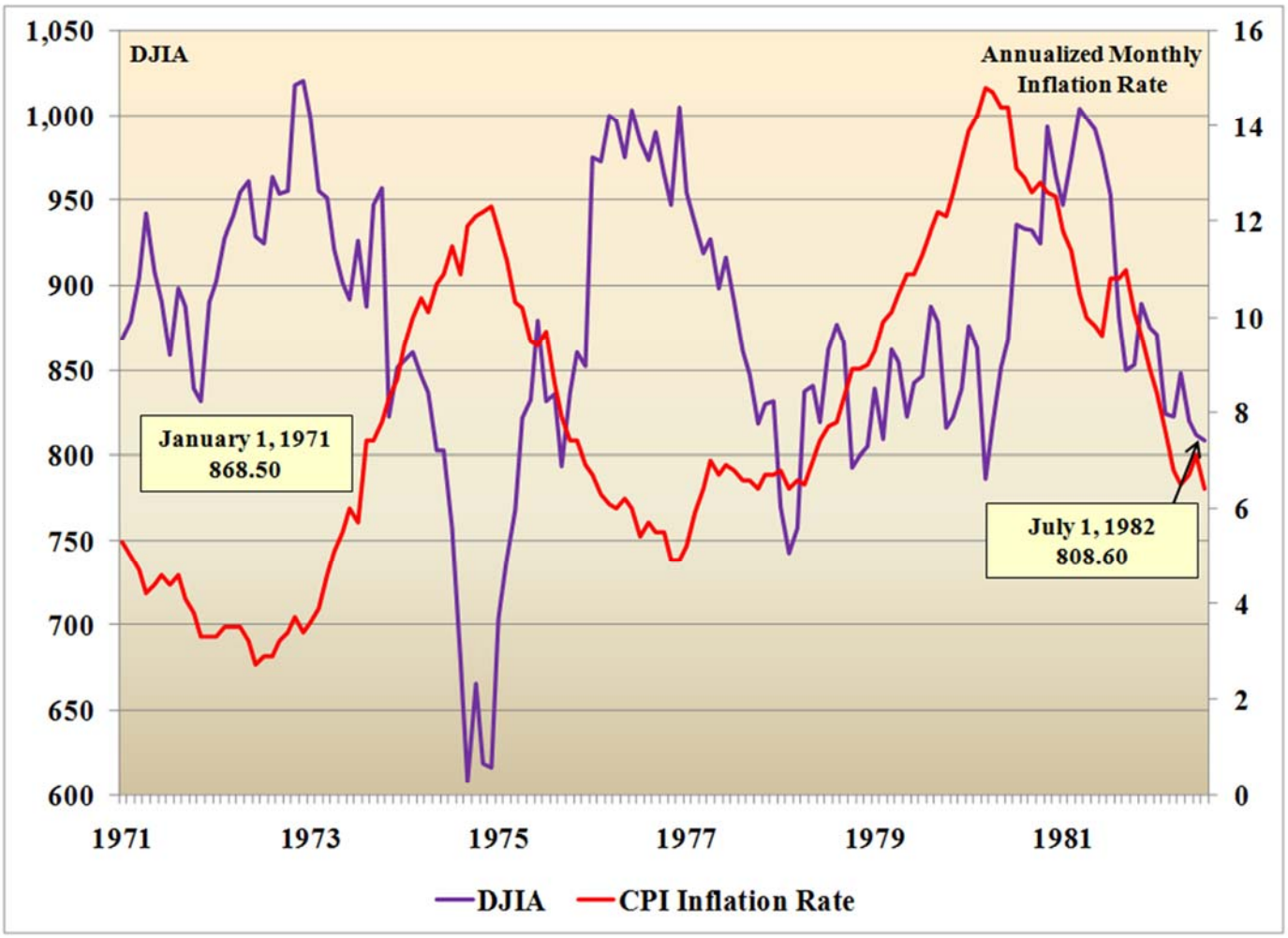
It should be noted that the transfer of investment assets in ETPs has some serious risk implications, as we will see when we get to **Chapter 5** (mutual funds) and **Chapter 6** (ETPs).

3. Inflation and Interest Rates

High inflation will *always* be accompanied by high interest rates, but there are times when high interest rates are not associated with high inflation rates (such as when the ***Federal Reserve System*** is using high interest rates as the *means* to *prevent* an emerging inflation).

Generally speaking, stock prices and high inflation and/or interest rates are *inversely* correlated. They generally move in opposite directions. Although stock behavior is a function of many more variables than inflation rates, generally, when inflation rates fall stocks view this favorably and have a tendency to rise, but if inflation or interest rates shoot up, especially if unexpected, stock prices usually begin to show resistance to further increases.

Figure 10 – The Dow Jones Industrial Average during the Inflation Years



In the last few years interest rates have fallen to historically *low* levels, and in the face of that the stock market has flourished.

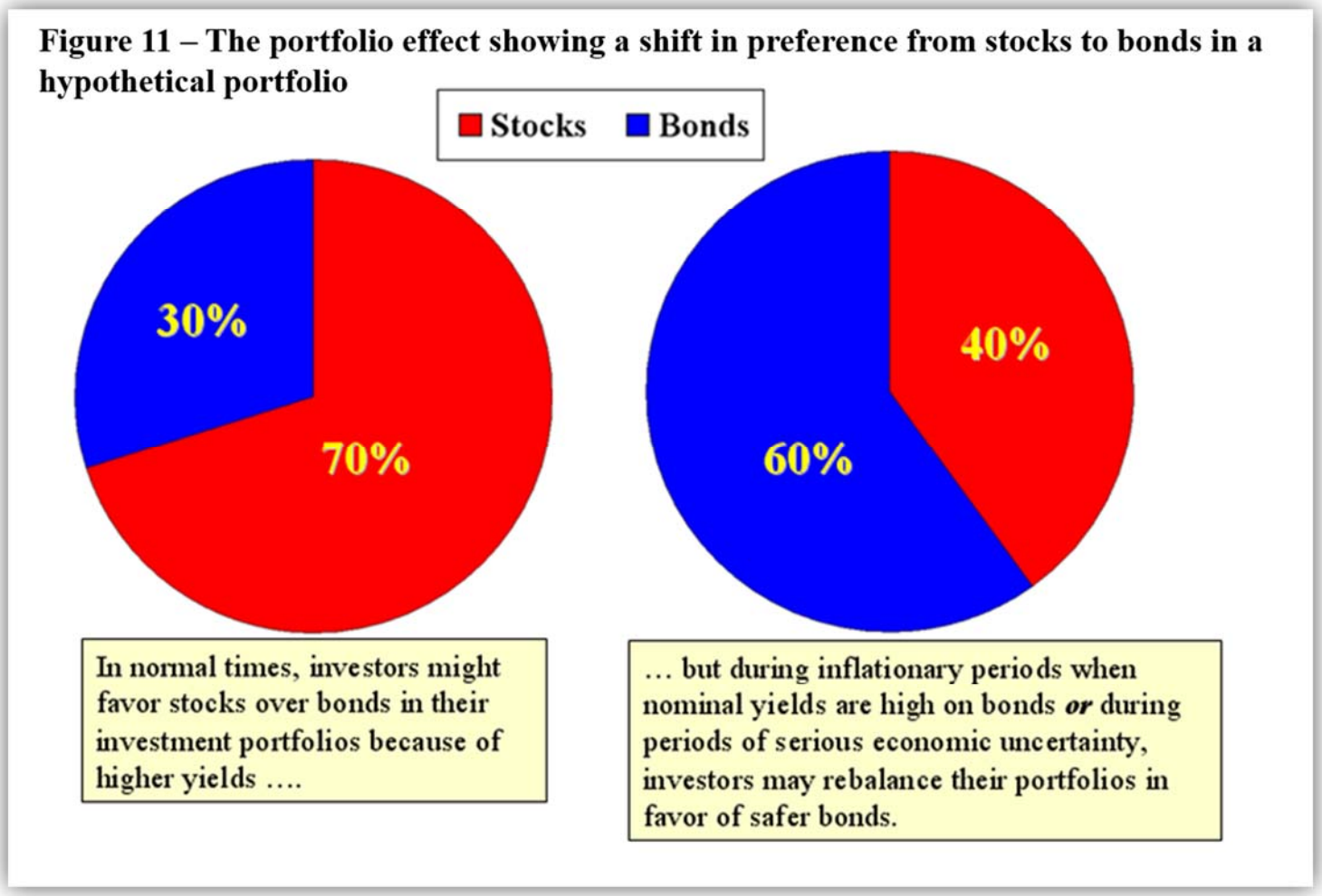
A research report published by Bespoke Investment Group and cited in *The Wall Street Journal* [12] confirms this negative correlation. The report identified five periods of inflation (defined to be any period when the Consumer Price Index rose

[12] Scott Patterson, "Inflation or Deflation?" *The Wall Street Journal*, October 4, 2010, p. R1. The research article compared stock performance during deflationary periods, where the gain averaged 19.7%, to inflationary periods. The duration of the typical inflationary period was 21 months.

at an annual rate of 8.5% or more) since 1940. During those inflationary periods the S&P 500 fell an average of 2.15%. Given that the purchasing power falls during an inflation, this implies a double-digit ***negative*** real yield on stocks.

This negative correlation is made evident by looking at the performance of the Dow Jones Industrial Average during the most inflationary period of the United States in this century, shown in **Figure 10.** The left axis shows the Dow Jones Industrial Average monthly between January 1, 1971 and July 1, 1982, which is the month in which the great bull market

Figure 11 – The portfolio effect showing a shift in preference from stocks to bonds in a hypothetical portfolio



began that lasted until early 2000. It was also the month that the media began to recognize collectively that the terrible inflation of the 1970s was gone for good because of the effectiveness of monetary policy. As can be seen in **Figure 10**, in **1971** the ***DJIA*** started at **868.50**. On July 1, 1982, more than eleven years later, the same index stood at only **808.60.**

The index on the right shows the annualized monthly inflation rate for the same period, and it can be seen that there were two inflationary episodes, the second pulling inflation rates above **14%**. It can also be seen plainly that when inflation soared in **1974** in the first episode, the ***DJIA*** plunged and then when it looked like inflation was solved through **1977**, the index rallied and recovered nearly all of this loss.

Other events were going on (these inflations were linked in part to the two OPEC Oil Embargoes of the era) that contributed to this lousy decade for stocks, but clearly inflation was a significant macro cause. And considering that this was a severe inflation, the *purchasing power* of investments in stock actually fell more than **50%**. The real return to stocks was hugely negative.

It should be noted that the zero performance implied in **Figure 10** is in reference to capital gains only. Some stocks did pay dividends in those year and the dividend payout rate for the S&P 500 stocks was around 2%. But that hardly offsets the inflation of the era and generally very few investors are going to be enthused about a stock market that offers no capital gains.

In part, this inverse reaction can be attributed to a ***portfolio effect,*** also called a ***portfolio shift***. During inflationary periods the yields on interest-bearing portfolios, many of which are not very risky, begin to look very attractive compared to much riskier stocks.

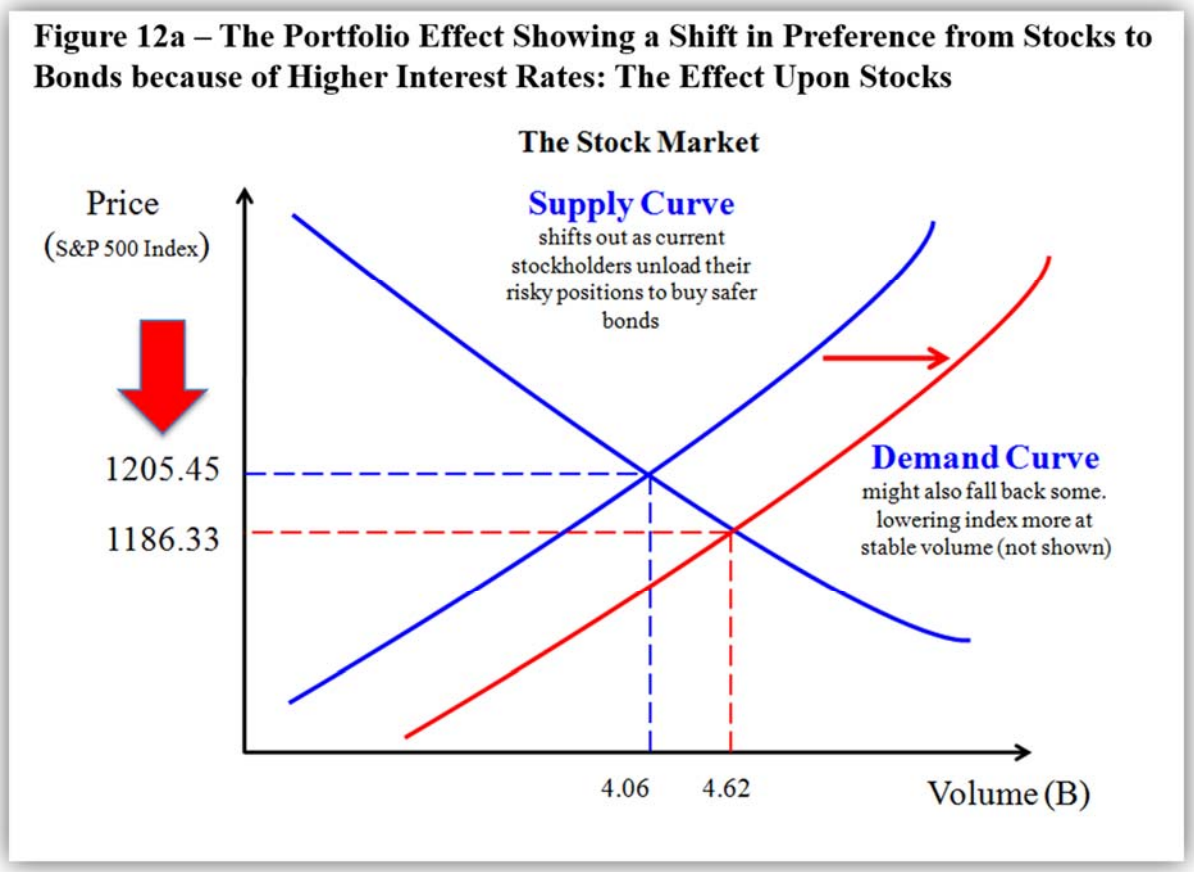
Figure 11 shows a simple hypothetical example of a portfolio effect. Professional mutual fund and hedge fund portfolio managers, responsible for balancing risk and yield in a large investment portfolio consisting of many securities, including a mix of stocks and bonds[13], will often favor stocks over bonds. This is also true of sophisticated retail (individual) investors who are pro-active in managing their own investment accounts. These same people, however, often ***rebalance*** the portfolios (change the proportion of major classes of investment assets) when economic conditions change.

Even though ***real returns*** (yields adjusted for inflation) are very low or even negative on bonds and notes during inflationary periods, their ***nominal returns*** (the actual market yields ***not*** adjusted for inflation) are quite high, often higher than 10%. It is very difficult for stocks to maintain the same high nominal rate of return through capital gains.

For example, the blue-ribbon **U.S. Treasury 10-year note** may look much more attractive to investors when it is yielding **7%** than when it is yielding **4%**. This would be true even if the reason for the higher yield is inflation and the inflation rate isn't much below the new, higher yield (e.g. at **5%**). This is because the inflation is undermining the yields on *all* financial assets, including stocks. One can be confident that the yield-bearing treasury securities will at least stay ahead of the inflation. You certainly can't extend that certainty to stocks.

This reaction could result in the sample *rebalancing* shown in **Figure 11** – a shift away from stocks (which requires that the stocks be sold) in favor of bonds. If this is done on a large scale, then stock prices will fall in response.

Figure 12a – The Portfolio Effect Showing a Shift in Preference from Stocks to Bonds because of Higher Interest Rates: The Effect Upon Stocks

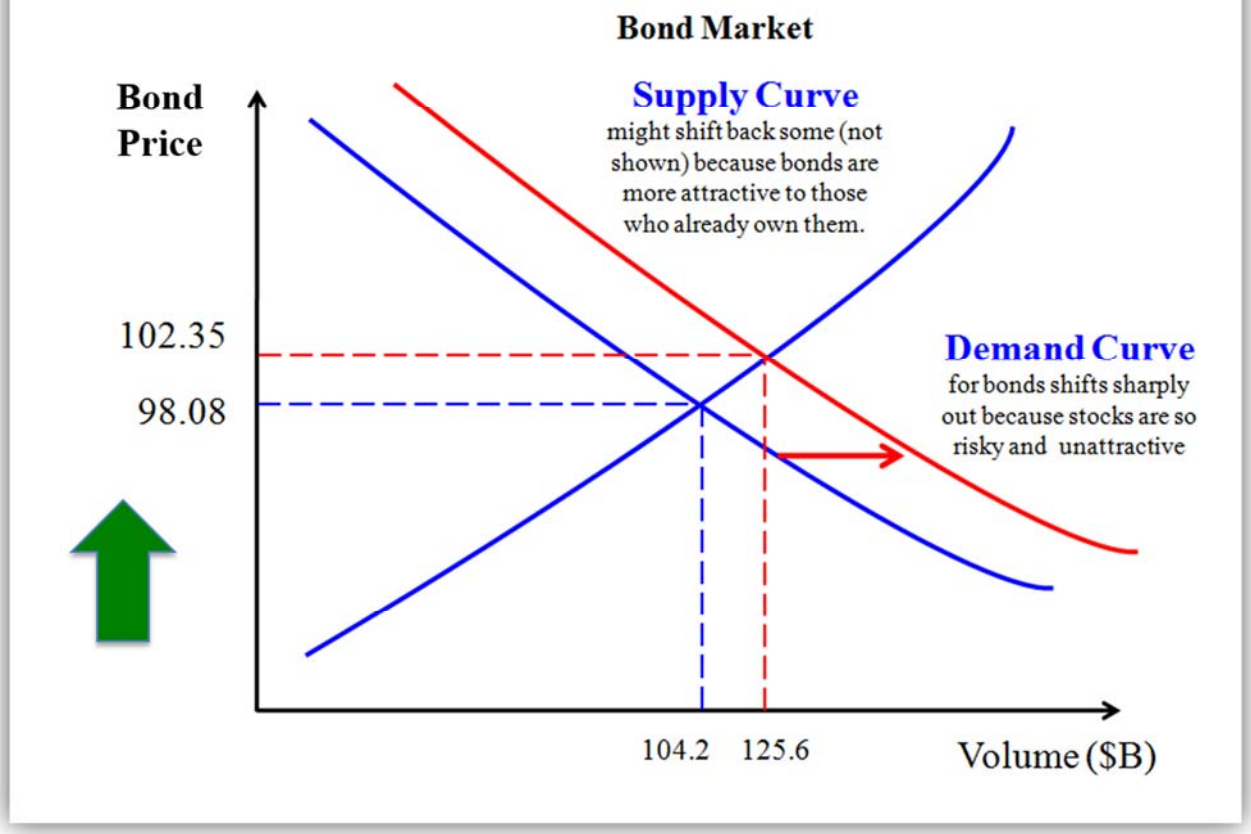


Figures 12a and **12b** shows this same portfolio effect using the **Supply and Demand** model introduced in **Chapter 3. Figure 12a** represents the stock market, as measured by the value and daily volume of the **S&P 500 Index**. **Figure 12b** shows a simplified image of the bond market. It is not easy to represent all bonds by a single index so here we are using

[13] For convenience, the single term "bonds" will be used to refer to all interest-bearing assets, including bonds, notes, and bills.

the proxy of a **30-year United States Treasury Bond** price and volume for the bond market as a whole.[14] Volume in the bond market here is represented as the dollar value of bonds traded (in billions).

Figure 12b – The Portfolio Effect Showing a Shift in Preference from Stocks to Bonds because of Higher Interest Rates: The Effect Upon Bonds



Keep in mind in the short run that the total portfolio balance for any investor is a rough constant. Although in the long run the pies shown in **Figure 12** grow (ideally) or shrink, over the short run the pieces must be realigned.

In the example represented by **Figure 12,** this portfolio effect is explained by rising interest rates in an inflationary environment, making stocks less attractive (hence **Figure 12a** showing stock prices *falling*) and bonds much more attractive (hence **Figure 12b** showing bond prices *rising*). Only the dominant curve shift is shown, the **Supply Curve** for stocks and the **Demand Curve** for bonds. As the legend on the graph points out, the **Demand Curve** for stocks might also shrink, lowering prices even more, but on lesser volume, and the **Supply Curve** for bonds might also shrink back, raising prices even more but stabilizing volume. Regardless, in this scenario, stock prices are falling.

This scenario above is used to explain the portfolio effect during times of real or threatened inflation. Clearly, however, since the stock market downturn of 2008 and 2009, inflation has become a very remote threat. Instead, market interest rates on all bonds are low because they were intentionally pushed down by monetary authorities around the world, including the **Federal Reserve Bank** in the United States. Interest rates, therefore, have ceased to be determined by market forces and have become a policy variable.

The **2009-2010** data for the ***river of money*** shown in **Figure 7** is a very specific example of a ***portfolio shift*** in favor of bonds. This was not because of any inflationary threat. Stocks had been so hammered since **2007** that investors, and

[14] The reader will have to be patient with this part of the example. Bonds as a whole and their pricing conventions are described in detail in chapter 9. Bond prices rise and fall just like stock prices as supply and demand ebbs and flows so accept that as a matter of faith for the moment and accept this example as a proxy until a more detailed explanation is forthcoming.

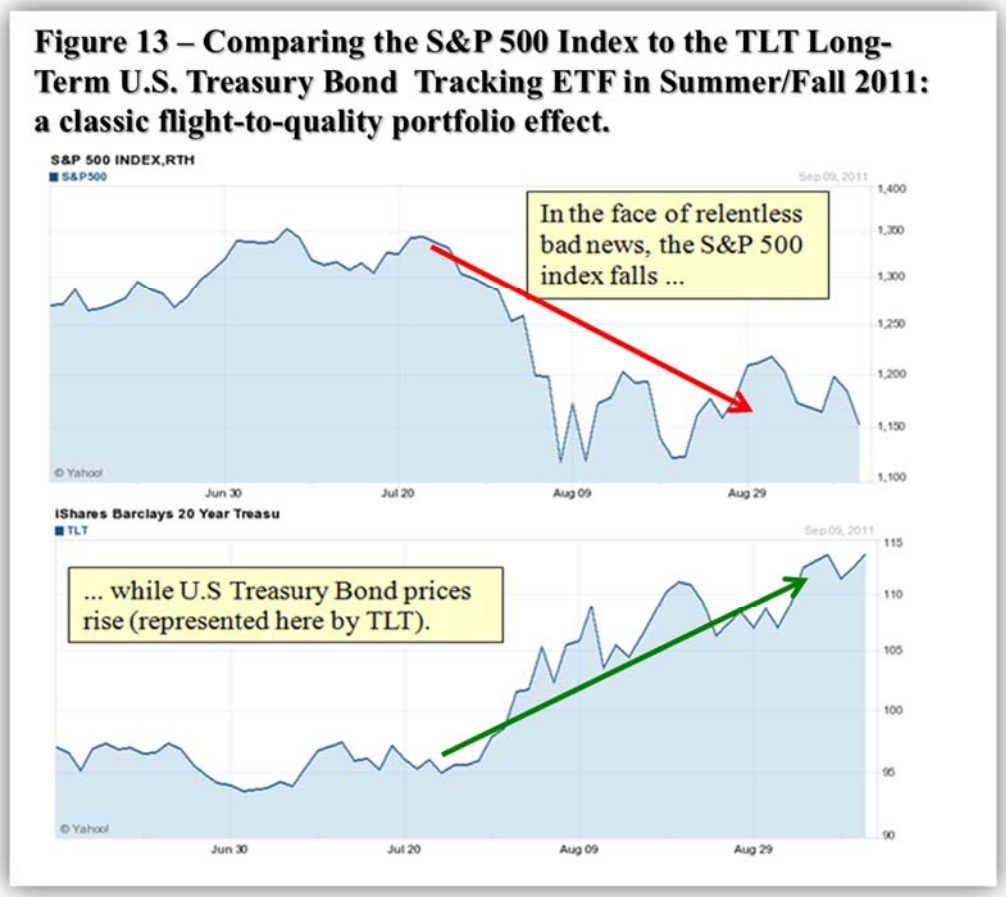
especially retail investors, had lost their confidence in stocks and so were rebalancing their portfolios in favor of bonds.

Our supply and demand model generally tells us that this should be favorable for the stock market and indeed it has. Generally, markets have liked it when monetary authorities have pushed rates down. But rather than tell that story here, we need to learn more about the pricing of bonds. Therefore, we will return to the contemporary story of very rates and the stock market impact in **Chapter 7 – The Market for Bonds, Notes and Bills.**

4. Flights to Quality

It is worth mentioning that there is a very specific kind of *global* portfolio shift that has become very common and sometimes substantially disturbs global equity and other markets. Sometimes the global economic news is so bad that it provokes a massive, even if temporary, shift in global portfolios away from stocks *and* other classes of bonds, like corporate bonds and the bonds of foreign governments, into exclusively *United States Treasury Securities* because of their perceived safety. When this happens, this is called a ***flight to quality*** by the financial media.

Figure 13 – Comparing the S&P 500 Index to the TLT Long-Term U.S. Treasury Bond Tracking ETF in Summer/Fall 2011: a classic flight-to-quality portfolio effect.



Refer to **Figure 13**, which shows the effect of a flight to quality, which was happening on a huge scale in the fall of **2011.**

Essentially what was happening in September and October of 2011 is the same as is represented in **Figure 12**, a portfolio shift to U.S Treasury securities away from stocks, except this time the cause was not inflation or rising interest rates, it was a pure flight to quality caused by a range of newsworthy global economic problems. These worries ranged from a Eurozone sovereign debt crisis to political paralysis in the United States and Europe, combined with evidence that the tepid recovery from the most recent recession, supposedly ended in 2009, was weakening and another, harsher recession might be returning. Although it turned out that the fear of recession was short-lived, the markets had no way of knowing that the effect was temporary.

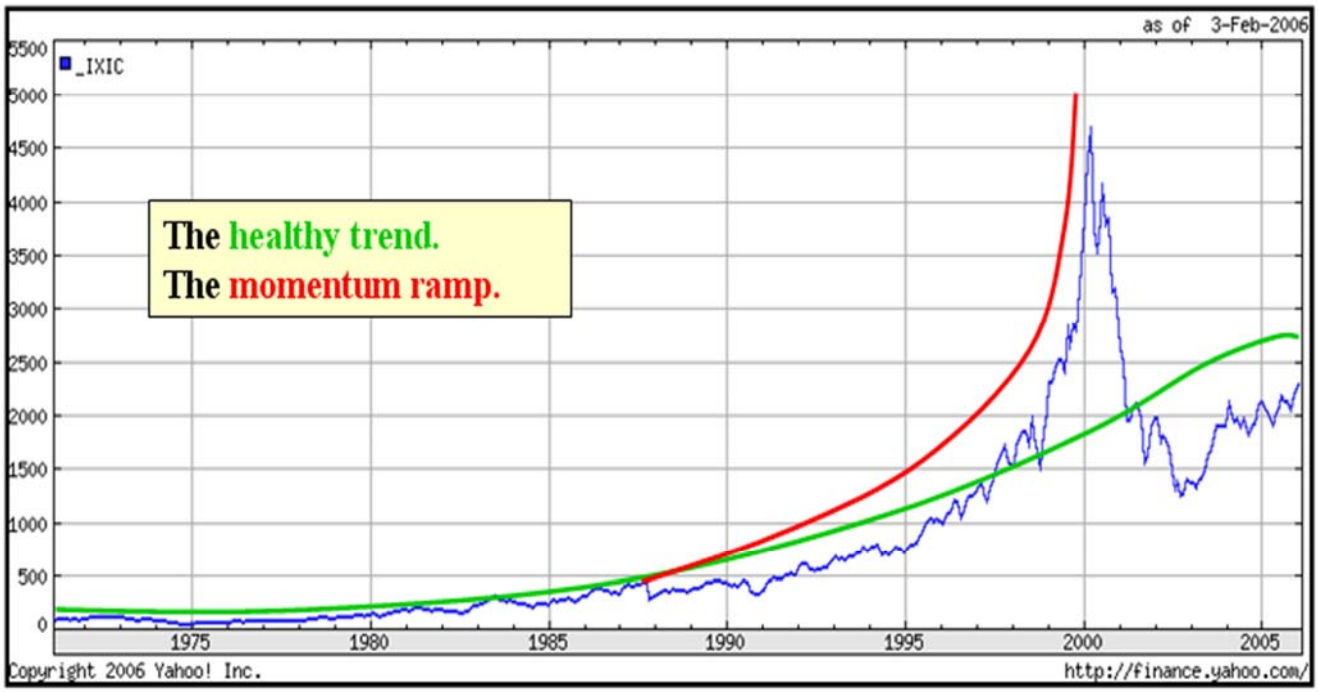
Figure 13 shows the **S&P 500 Index** compared to the **TLT** ETF tracking stock that represents the value of a large weighted portfolio of U.S. Treasury Bonds with a maturity of approximately 20 years.[15] Here, only long-term bonds are represented, but the portfolio effect shoveled money from stocks into U.S. Treasury securities across the full maturity spectrum, from 13-week bills to 30-year bonds. This flight to quality to U.S. Treasury Bonds and other interest-bearing securities was taking place on such a huge scale that it was depressing yields for those securities to historically low levels.

[15] We will return to the TLT ETF in the future chapter on ETFs. Until then, regard the price of this ETF as a reliable proxy for long-term U.S. Treasury bonds, because that is what it is.

5. Speculation and Momentum

Substantial excess speculation can push stocks up at exponential rates into ranges that economically make no sense. This can happen for an individual stock, an entire industry, or an entire market, including overseas markets (this discussion is

Figure 14 – The NASDAQ becomes a momentum ramp in the 1990s



by no means restricted to the U.S. market). This cycle recurs periodically.

Look at **Figure 14** above. It shows a ***momentum ramp***, a rapid acceleration of stock prices, that began in the **1990**s and contributed to the severe stock market decline that begin in March, **2000**.

For the stock market as a whole, such a cycle usually begins when stocks are truly undervalued, justifying a rapid rise, which begins to happen. Then heavy and immediate capital gains produce a market euphoria where speculative investments, in part from unsophisticated investors (even institutional investors) blows the market higher and higher. In the final phase of the market explosion, the only operative variable is *momentum*. The clear, obvious, and well-publicized profits being made attracts more money which results in more demand, which causes prices to accelerate. Sometimes the rise is exponential in the final phase before the *correction***,** which is sometimes a collapse.

Sometimes the market is then collapsed by a "feather" – relatively insignificant news. Unfortunately, it is very hard to time the peak. No one knew that **March, 2000**, would be the peak for this most recent cycle prior to that date. After a year had passed, everyone knew it.

Why rational people and professionals get caught up in this is hard to understand. This is especially difficult to understand when the market actually gives signals that it may be overvalued, such as in the case of stocks, with insanely high **P/E** ratios for keys stocks or even entire indexes. For example, the **P/E** ratio for many established technology stocks was well above **100** before the **2000** collapse of the market (and many companies had no earnings at all). That compared to an historical average of about **19** for ***S&P 500*** stocks.

Again, overseas markets are also subject to excess speculation, perhaps more so than markets in the United States. And the phenomenon is hardly restricted to stocks. History also provides multiple examples in real estate, precious metals, oil, and other commodities, and even tulip bulbs. These days now include some of the popular alternative currencies, such as

Figure 15 – The price of the Etherium digital currency, July 2010 – Sept 2019.

Source: **Coindesk** *(https://www.coindesk.com/ethereum-price/)*

Bitcoin. Look at the behavior of popular digital currency **Etherium** over its price history in **Figure 15**. Considering Etherium's price soared from $100 per coin to $1250 per coin in 2017, then collapsed back down $250 at the end of the graph, it is pretty safe to say that we are looking at another example of momentum-based speculation.

6. Mergers and Acquisitions (Buyouts) and Stock Buybacks

Business combinations are common in market economies and to some extent define modern corporate history. Very few large-cap corporations grew to their present size by simply expanding their own market. Most grew by acquiring other companies.

When two companies of roughly equal stature combine to form one much large company, often renamed, this is typically called a ***merger***. In contrast, when one company, typically larger, buys another and absorbs the latter into the parent company where the identity of the purchased company largely disappears,[16] this is called an ***acquisition*** or ***buyout***.

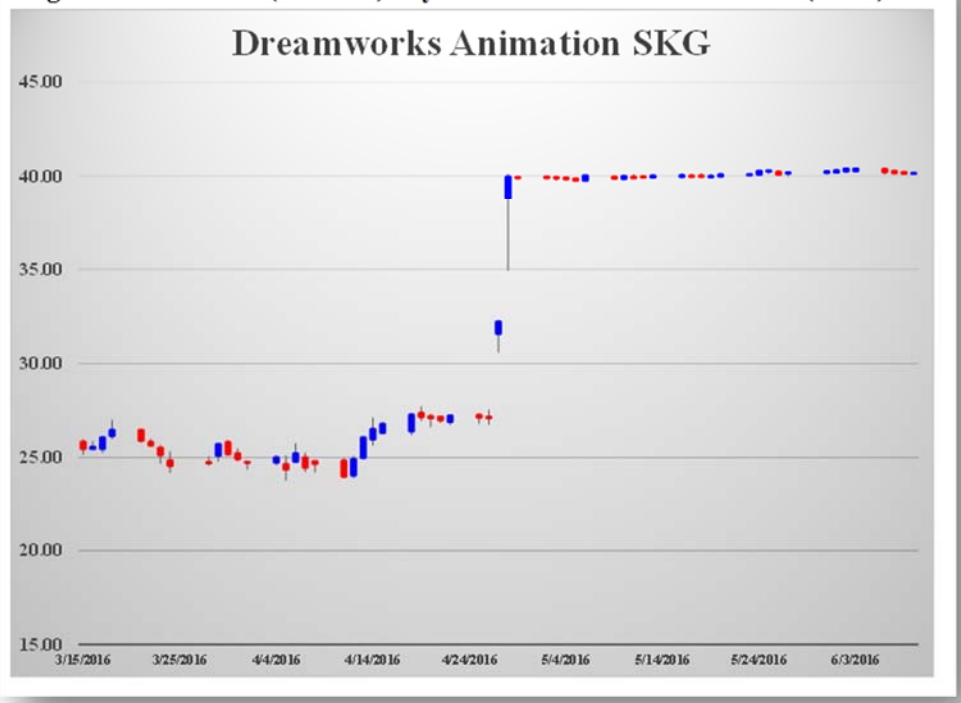
Both mergers and buyouts will always have some impact upon the stock prices of the companies affected. In the case of a merger, analysts will try to figure out if *synergies* are to be found in the merger – such as economies of scale because of the larger size, savings in costs because of the ability to eliminate redundancy in labor processes or management, the ability to combine retail outlets, the elimination of competition (with each other) and so forth. If analysts can find synergies and shareholders are convinced, then the stock price of the new merged company can rise. On the other hand, if synergies aren't obvious, the merged company may stall in the markets.

[16] But not always. Sometimes the brand identity of the acquired company is of such value that the company name and other branding trademarks are preserved.

More interesting to stock investors is the impact of buyouts. When a large company buys a smaller ***target company*** two large obstacles emerge: **(1)** If the target company is publicly traded, the buying company must succeed at buying a majority of the stock outstanding from the current shareholders, and therefore must offer a price sufficiently high to do this, and **(2)** competitors of the buying company may not want this to happen and so, in response, may trigger a bidding war for the stock of the target company, each side pushing the offer price higher and higher.

The final *typical* effect is to push the stock price of the target company to a very high level relative to where it was prior to the buyout effort.

Figure 16 – Comcast (CMCSA) buys Dreamworks Animation SKG (DWA)



An example (and this is *not* an unusual example) is shown in **Figure 16**. On Thursday, April 28, 2016, media giant Comcast **(CMCSA)** announced that it was buying animation studio Dreamworks Animation SKG **(DWA)** for about $3.8 billion, or about **$41** per share. Just two days before the announcement, **DWA** closed for **$27.12** per share. The announcement offered a huge windfall to any **DWA** shareholder. According to the media at the time, **Comcast** was trying to keep up with competitor **Disney**, who had earlier purchased animation studio **Pixar.**

Generally, a buyout is almost *always* beneficial to the shareholders of the target company (there are some historical exceptions). The impact upon the stock of the buying company is historically mixed. Often such buying sprees must be financed with debt, and it is obvious from the example given above that *some* investors may think that a company paid too much for a target company. Therefore, the stock of the buying might initially respond by declining or simply remaining tepid for a while. Over the long run, when the synergies of the buyout become more obvious (if that happens), then the stock of the parent company should rise to reflect the growth.

These business combinations affect the stocks involved more than the market as a whole, but when the pace of mergers and acquisitions picks up in a market, stock market growth in general can benefit.

Corporations with plenty of cash or corporations willing to take on new debt can boost their share price and increase their popularity by announcing ***stock buyback*** plans, also called ***share repurchase*** plans. This simply entails using corporate cash or borrowed money to slowly buy back some of the publicly traded stock, which in turn takes a certain percentage of the stock off the market. Not only does this have the potential to raise the price of the stock, it also raises the percentage share held by each remaining shareholder.

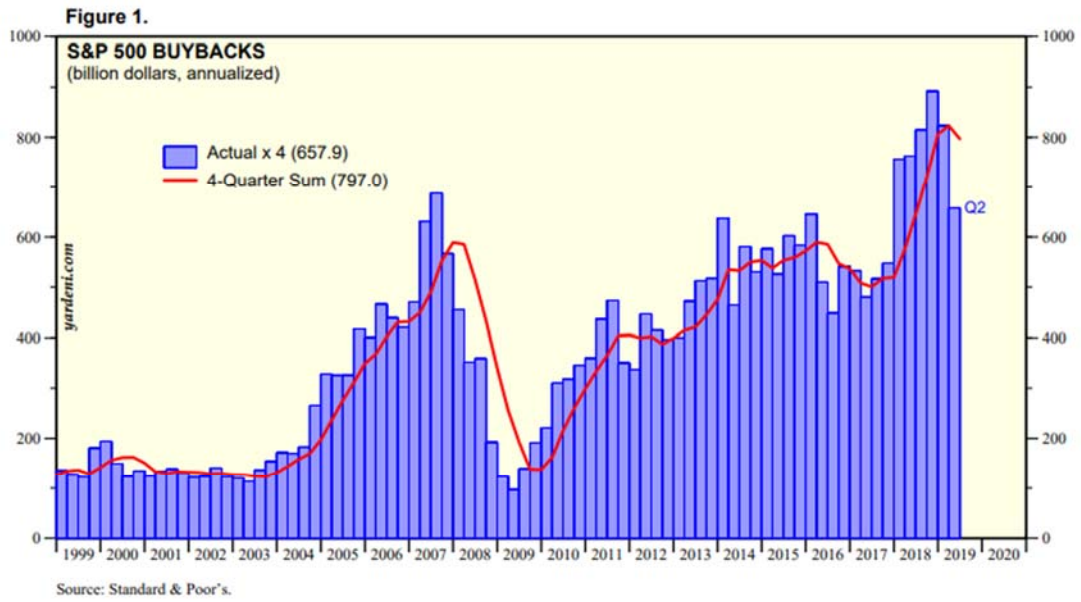
Stock buyback plans are always announced in advance with some fanfare, but ample time is given for the buyback to be completed so that it won't have a disruptive impact upon the market.

A good example of a stock buyback plan is once again provided by ***Apple***, which announced one on the same day that they announced their seven-for-one stock split and a dividend increase, on April 23, 2014. ***Apple*** offered to buy back $30 billion worth of stock. At the time the stock was trading for around $525 per share and by the end of the day the stock had

soared to $565 per share.[17]

Share buybacks became the rage after 2010. In 2018 buyback activity soared. President Donald Trump pushed through a sizeable federal corporate tax cut in 2017, from 35% to 21%, flooding corporate treasuries with windfall cash, and a considerable portion of the bounty was used to fund share buybacks. In July 2018 *The Wall Street Journal* estimated that 2018 buybacks would exceed $800 billion, substantially outpacing any previous record.[18] Some of the most aggressive buyers for 2018 included McDonald's Corporation, JPMorgan Case, Bank of America, and Oracle.

Figure 17: Historic S&P 500 Buyback Activity



Source: "Stock Market Indicators" S&P 500 Buybacks and Dividends," Yardeni Research, Inc., September 19, 2019

Figure 17 shows the role played historically by buyback activity. In recent years at least 300 companies of the 500 in the index buy back some of their stock. The same report elsewhere shows that since Q1-2009 the S&P 500 companies have bought back more than $4 trillions of their own stock![19]

Not everyone praises share buybacks. A recent article published in the ***Harvard Business Review***[20] pointed out that between 2003 and 2012 companies in the S&P 500 spent 54% of their earnings, about $2.4 trillion, to buy back their own stock, cash would could have been invested the future growth of the companies. The use of debt for share purchases may also have long-term repercussions. According to the study's author, the primary reason for share buybacks is because stock compensation makes up the bulk of the pay of the very executives promoting the buybacks.

Share buybacks almost certainly contribute to rising stock prices, although perhaps at considerable cost the company's future.

---

[17] Apple called their plan a **Capital Return Program**. Under that plan Apple had already authorized a share-repurchase plan for $60 billion, so this increased the authorization for the plan to $90 billion. See **Apple Press Info**, "Apple Expands Capital Return Program to over $130 Billion," April 23, 2014.

[18] Michael Wursthorn, "Stock Buybacks are Booming, But Prices Aren't Budging," *The Wall Street Journal*, July 8, 2018. The article points out that, ironically, stock prices fell for most of the companies involved during the buyback period.

[19] "Stock Market Indicators" S&P 500 Buybacks and Dividends," Yardeni Research, Inc., September 19, 2019

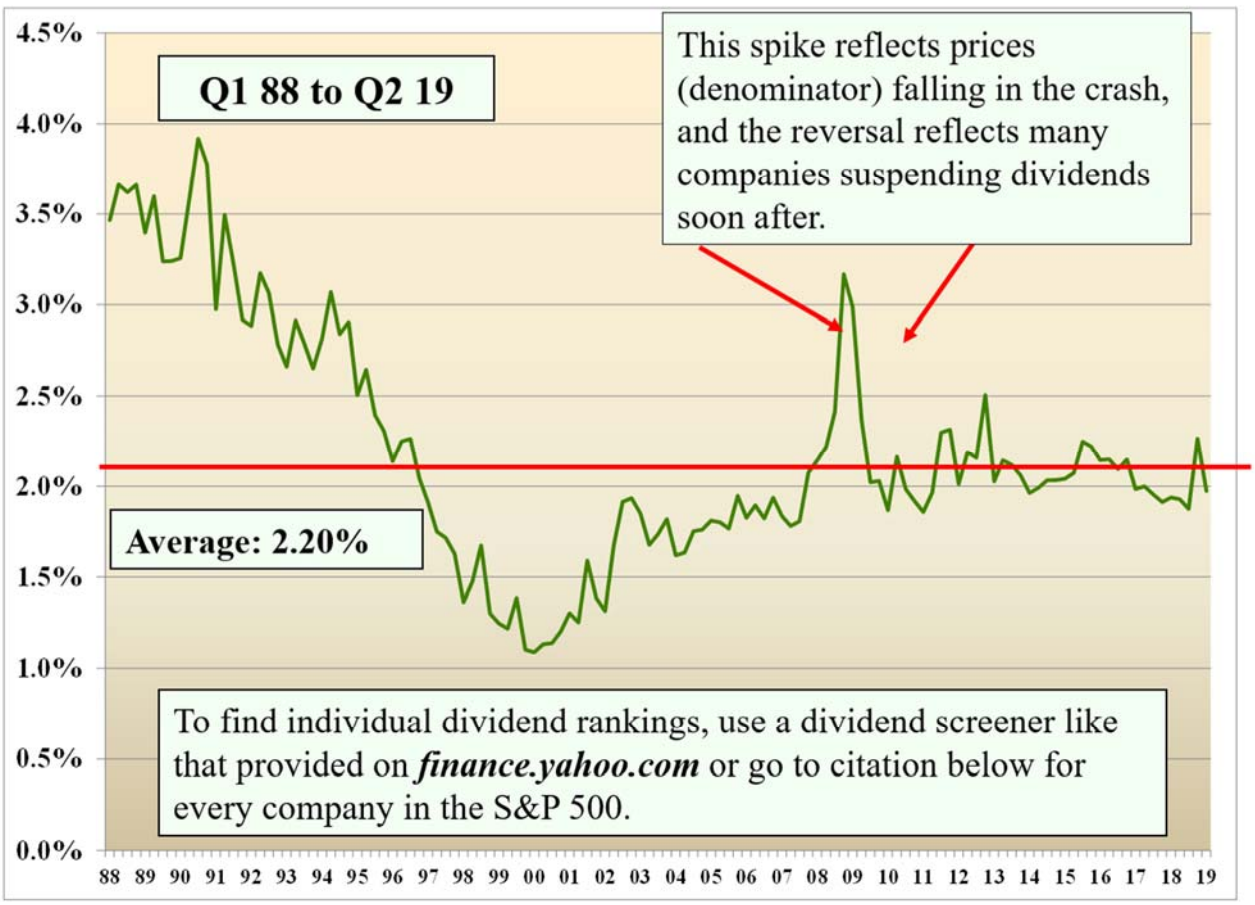
[20] William Lazonick, "Profits without Prosperity," ***Harvard Business Review,*** September 2014

7. Dividends

Although the primary investment objective of buying stocks is realizing capital gains, ***dividends*** paid by stocks certainly matter. When capital gains are hard to come by because of poor market performance, investors will often shift their stock selections more in favor of dividend-paying stocks (which is another type of ***portfolio shift*** within the equities component of an investment portfolio).

As of August 30, 2019, **424** of the **500** companies in the **S&P 500** index paid dividends. The dividend yield average about **2.45%** for these, a little higher than the historical average shown above in **Figure 18**.[21]

Figure 18 – Average Dividend Yields on S&P 500 Stocks



Source: Data for this are taken from ***Standard and Poor's Index Services*** downloads at http://us.spindices.com/indices/equity/sp-500

Stock dividends are paid quarterly. The ***dividend yield***, also called the ***dividend rate*** at any point in time is equal to the amount of the annual dividend in dollars divided by the price of the stock at that time.

For example, on July 19, 2018, Intel ***(INTC)*** announced that they would pay a quarterly dividend of **$0.30** per share, which amounted to a $**1.20** per share annual rate. Given that the stock on that day closed at **$51.98**, the dividend yield equaled **1.20/51.98,** or about **2.3%.**

There are two important dates involved with quarterly dividend payments. First, the ***payment date*** is the actual date on which the dividend payment will be credited to the shareholder who was on record on the ***record date***, which is usually about a month before the payment date. For example, for Intel's dividend payment, the *record date* was August 7, 2018

[21] ***Standard and Poor's Information Services, Market Attributes Web File,*** August 2018. Find at http://us.spindices.com/indices/equity/sp-500**.**

and the payment date was scheduled for September 1, 2018. This meant that if you were the shareholder on record on August 7, your account would receive the dividend payment on September 1, *regardless of whether you still owned the stock on September 1.* Likewise, if you were to buy the stock after August 7 but before September 1, you are holding the stock ***ex-dividend***, which means that you are not entitled to the next dividend payment.[22]

Because dividends are fixed by votes of the Board of Directors of any company paying the dividend, and are therefore "sticky," or slow to change, it should be obvious that if the stock of a dividend-paying company declines sharply, then the dividend yield will rise. So long as the reason for the decline does not threaten a suspension of dividend payments (it often *does*) then such stocks can become popular among yield-seeking investors, potentially putting a floor on the decline.

Figure 18 shows the fluctuation in dividend rates between the fourth quarter of **1988** and the second quarter of **2019.** As can be seen, in the 1980s and 1990s dividends slowly fell out of favor as investors opted more for capital gains and companies kept cash to help finance growth. But dividends are once again on the rise, mostly because investors are now more inclined to seek dividends, which requires companies to pay them if they want to remain popular with investors.

The large spike above **3%** in late **2008** and **2009** was caused by the fact that even though stock prices were declining sharply, many companies continued to pay their dividends for a while, causing the yield to rise. The rapid retraction from the spike in **2009** largely reflects the inability of companies during that recession to raise sufficient cash to continue to pay dividends.

8. General Economic Conditions and Favorable Monetary Policy

Periods of stable business conditions and general high profitability, with relatively little uncertainty, seems to produce a healthy environment for stocks. Not easily quantifiable, there is sometimes almost a healthy, stable "atmosphere" for stocks. Good investors learn to sense this after some years of experience.[23]

There is no strong evidence that mild recessions have any significant effect upon stocks. For example, the stock market fared relatively well through the mild recession that began in July 1990 and ending in March 1991, and was slightly higher at the end of this period.

Because stock investors are so *forward-looking*, even prior to the beginning of a strong economic *recovery* at the end of a *mild* recession, stocks will begin to rise. Aggressive investors and speculators will want to take advantage of the rally before it begins, and ironically, begin the rally!

But a deep and longer recession, such as the one that began in late 2007, is another matter. As has already been explained above in the section entitled **Flight to Quality** deeper and more dangerous recessions can really pull the stock market down.

This is perfectly consistent with everything else that has been presented in this chapter. The chapter opened with the argument that in the long run stock prices were most sensitive to earnings projections and earnings projections have to be confirmed by actual earnings performance as time passes.

When referring to the stock market as a whole, over long periods of time profits can't really grow unless the economy grows. And if an economy remains weak and threatened, as was the case after the stunning real estate crash of 2008, few rational minds could easily forecast near-term profit growth. And if at the same time the risk environment is perceived to be globally dangerous, the flight to quality shown earlier in **Figure 13** and the stock market decline associated with it were perfectly logical.

---

[22] To see dividend histories, see https://www.nasdaq.com/quotes/dividend-history.aspx

[23] This topic is quite controversial and many economists would disagree, at least in part, with what is said in this section. One well-known study by financial economist Jay Ritter demonstrated empirically that when considering data from 1900 to 2002 from many countries, including emerging markets, correlations between real stock returns and per capita GDP growth is actually negative. In his research Ritter does conclude that "stock prices decline when the probability of an economic recession increases, and stock prices increase when the probability of economic recovery increases," which is consistent at least up to a point with what is being argued in this section. See Jay R. Ritter, "*Economic Growth and Equity Returns,*" Pacific-Basin Finance Journal 13 (2005), pp. 489-503.

Early in this chapter in **Figure 1** it was very clear that for the recovery period from 2009 until the time this was written, fall 2019, the stock market rally is well-supported by a corresponding rise in earnings. In a sense, maybe the stock market rally needs no other explanation.

However, we can't forget that over the same period in question, the nation's central banking authority, the **Federal Reserve System**, was also operating the most aggressive and expansionary monetary policy ever seen. One of the intended side effects of this policy was to keep interest rates on nearly every interest-earning security traded globally at or near historically low levels. No evidence to this effect is presented here, but we will return to this subject in future chapters.[24]

The opposite of the portfolio effect that was described above in **Figure 11** and in the supply and demand models shown in **Figure 12a** and **12b** logically arises from this policy effect upon interest rates - extremely low rates on interest-bearing assets should provoke investors to seek riskier assets to compensate, including stocks. Logically, an aggressive monetary policy designed to push market interest rates lower should stimulate the stock market.

Therefore, a popular argument at the time that the market rally was partly or largely fueled by easy monetary policy has some credence. This is especially true if it can be argued that the surge in *earnings* can also be attributed to the same easy monetary policy. Clearly few of the technology companies out there owe their earnings growth to the **Federal Reserve System** (for example, to argue that earnings growth at Apple is policy-inspired would be an absurdity) but certain sectors, like real estate, banking, some consumer discretionary sectors like motor vehicles, and corporations that rely upon cheap sources of high-risk debt may very well owe much of their recent success to artificially low interest rates.

All of this is debatable and because earnings have clearly risen, the impact of policy is hard to tease out from the data.

However, it is important, because the immediate question arises: what happens when the policy is discontinued, which is inevitable? Logic tells us that if interest rates start to rise, then the portfolio effect described in **Figure 11** might set in, pulling the stock market back.

At the time this edition was written the jury is still out. The Federal Reserve System was again reducing rates at the time this chapter was revised and was again targeting interest rates at low levels.

What happens when that ends? Perhaps the next edition will have that story.

9. What's Next?

Further discussion of why stocks rise and fall in value, along with some useful information about key indicator variables that might be useful to investors, is reserved for lectures and video files. Because this book is introductory, this is the last treatment of the subject here.

Now that we understand a lot about stocks, it is time to move into a discussion of the two large types of funds that consist of huge aggregations of individual stocks. Therefore, the next chapter is dedicated to a discussion of mutual funds and **Chapter 6** introduces us to exchange traded products like ETFs and ETNs.

[24] Likewise trying to describe the details and operational features of this policy is far beyond the scope of this chapter - it would take nearly another chapter to do it properly. The interested Economics 104 student can, however, peruse the description of Federal Reserve Policy, including their recent expansionary policies, in lectures 9, 10, and 11 of the Economics 53 material at http://palmislandtraders.com/econ53/e53ls.htm .