

THE IMPACT OF MONETARY EXPANSION ON THE US TELECOMMUNICATIONS SECTOR

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Summary: This study focuses on how the current macroeconomic situation influences the telecommunications sector. The analysis suggests that telecommunications indices and thus telecommunications sectors are less influenced by current monetary expansion than is the US equity market as a whole. Also demonstrated is that the influence of the latest economic crisis on the telecommunications industry has been less cyclical than it has been for the stock market as a whole as measured by the S&P 500 US equity index.

Key Words: Equity Market, Monetary Expansion, Indices, Investment Risk Diversification, Portfolio Investments, Telecommunications, Quantitative Easing

INTRODUCTION

The past several decades have been extraordinary ones for the world economy. The collapse of the real estate market in the United States during 2007–2008, failure of a number of major banks, state bankruptcy in Greece, near collapse of the European monetary system, and long-lasting recessions across the world have forced major central banks to take unprecedented measures that have significantly expanded their balance sheets. Many studies have pointed out that the measures adopted by central banks in the developed world helped to avoid a catastrophic failure in the global financial system. At the same time as we have seen unprecedented monetary expansion in the United States, Europe and Japan, we also have watched equity markets rise in these developed economies.

With all of the above in mind, this paper investigates whether the current monetary expansion, often referred to as quantitative easing, has influenced the price behaviour of telecommunications stocks and whether the telecommunications sector still provides conservative investment instruments for portfolio investors.

The study utilized data of the S&P 500 leading US equity index and its subindex devoted to the telecommunications industry, the S&P 500 Telecommunication Services Index. This index represents 56 publicly traded telecommunications companies from the US.

1. CURRENT MONETARY EXPANSION AND THE US EQUITY MARKET

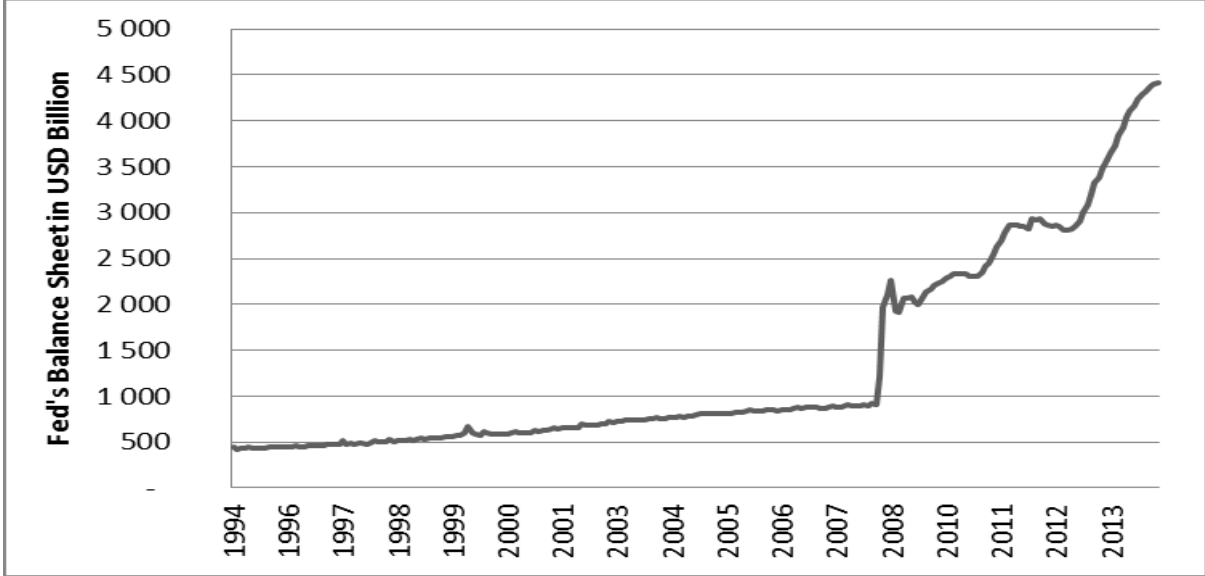
In response to the global financial crisis and economic slowdown which began in 2008, central banks in developed countries, and especially in the United States, the Eurozone, Japan, and the United Kingdom, adopted unprecedented macroeconomic measures to prevent a

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failure of the financial system. Until recently, central banks were using large-scale assets purchases, generally referred to as quantitative easing (QE), in order to pump needed liquidity into the financial system and thus into the economy as a whole. It is important to note, too, that all of these unconventional monetary tools were supported by traditional cuts in short-term interest rates, albeit in the present situation almost to zero.

Many economists believe that taking such measures prevented a deeper recession and a much higher unemployment rate than would have been the case had quantitative easing not been adopted. JIANG et al. (2009) and other studies estimate that central banks' monetary expansion helped to save up to 3 percentage points of real GDP growth in developed economies and to achieve a reduction in the unemployment rate by as much as 1 percentage point.

The effect of monetary expansion on the balance sheet of the US central bank, the Federal Reserve (Fed), is depicted in Figure 1 below.



Source: Bloomberg, author's calculations

Fig. 1 - Balance Sheet of the Federal Reserve of the US in USD billion.

Similar balance sheet expansion for central banks can be seen in the UK and Japan and also at the European Central Bank, the central bank of the European Union. According to DOBS (2013), the balance sheets of these four central banks collectively grew by USD 4.7 trillion from 2008 until the second quarter of 2013.

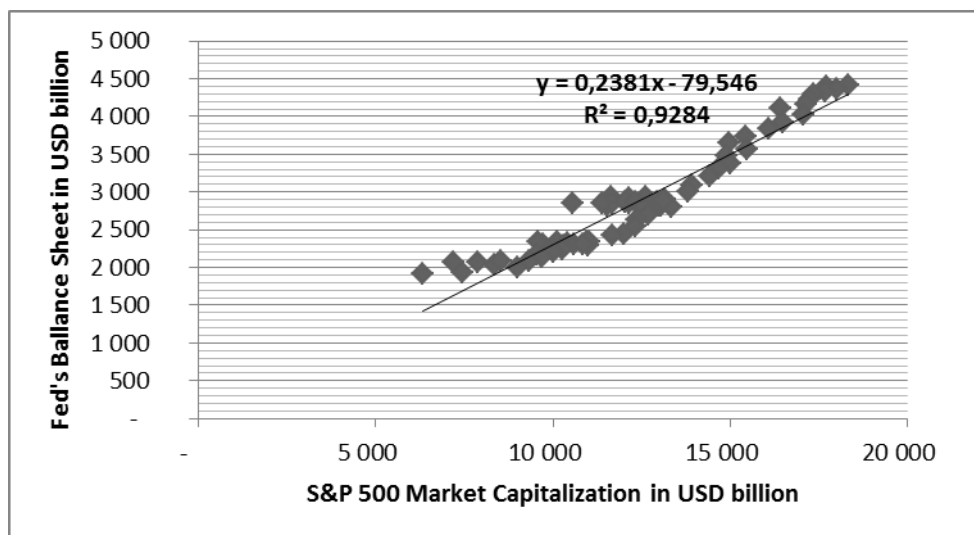
By definition, the valuation of such financial assets as shares and bonds are influenced by many macro and microeconomic factors. Among others, the most important of these are inflation, stability of the external economic environment in which firms operate, risk awerness of investors, business strategies, and management skills. It is evident, however, that the most influential reason for the recent rise in the prices of equities and bonds is the policy of central banks in the developed world.

In the case of Japan during 2013, we can see that the Bank of Japan injected an unprecedented amount of USD 74 billion monthly, almost the same monthly amount as the

Fed used in boosting the US economy SKLENÁŘ (2013). It is worth noting, however, that the American economy is three times as large as that of Japan! The result of such actions was that the Japanese equity market rose strongly in 2013. At the same time, however, the yen was depreciating against the US dollar. Despite the fact that the Japanese equity market prices grew by an unprecedented 56.7% in 2013 – its highest growth in the past 41 years – the return was “only” 29.1% in US dollar terms. That rise was similar to those seen in the US (29.6%) and Germany (30.6%). This fact proves indirectly that monetary expansion led to financial assets inflation, and especially in equities.

An important question remains as to whether the very low interest-rate environment also contributed to the growth in equity prices. Some studies, e.g. DOBS (2013) have concluded that the impact of ultralow-rate monetary policies on equities is ambiguous and that there is little direct evidence of a large-scale shift into equities as part of a search for higher returns. In 2013, price-earnings ratios and price-book ratios in stock markets were no higher than their long-term averages.

Conversely, different results are obtained when comparing the change in the Fed’s balance sheet with the growth in the market capitalization of the S&P 500 US equity index. As seen in the regression analysis in Figures 2 and 3, the correlation between change in market capitalization of the S&P 500 equity index and the Fed’s balance sheet changed significantly over the past 5 years, i.e. after the most recent economic and financial crisis in 2008. Such a hypothesis was proven when comparing the coefficient of determination (R^2) of 0.9284 for the period January 2009 to August 2014 and the significantly lower R^2 of 0.7658 for the period prior to the financial crisis from March 2003 to August 2008. Please note, that data from September 2008 to December 2008 were omitted because of crash on financial markets.

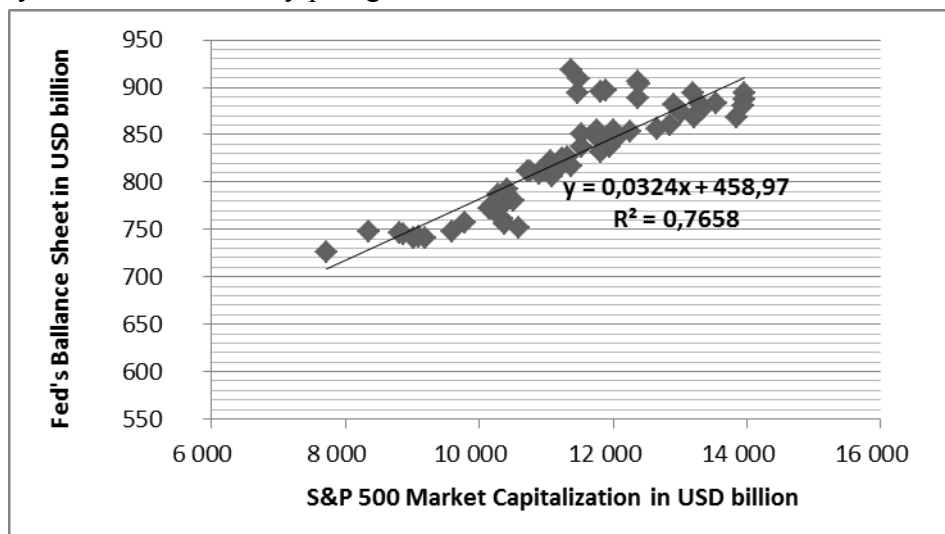


Source: Bloomberg, author’s calculations

Fig. 2- Regression Analysis of S&P 500 Market Capitalization and Fed’s Balance Sheet from 31 January 2009 to 31 August 2014.

This is clear evidence that monetary easing is influencing the growth of the US equity market. Moreover, it is also evident that whenever during 2013 the Fed’s Board of Governors

declared its readiness to begin reining in the flow of liquidity to the market, the S&P 500 and other equity indices immediately plunged.



Source: Bloomberg, author's calculations

Fig. 3 - Regression Analysis of S&P 500 Market Capitalization and Fed's Balance Sheet from 31 March 2003 to 31 August 2008.

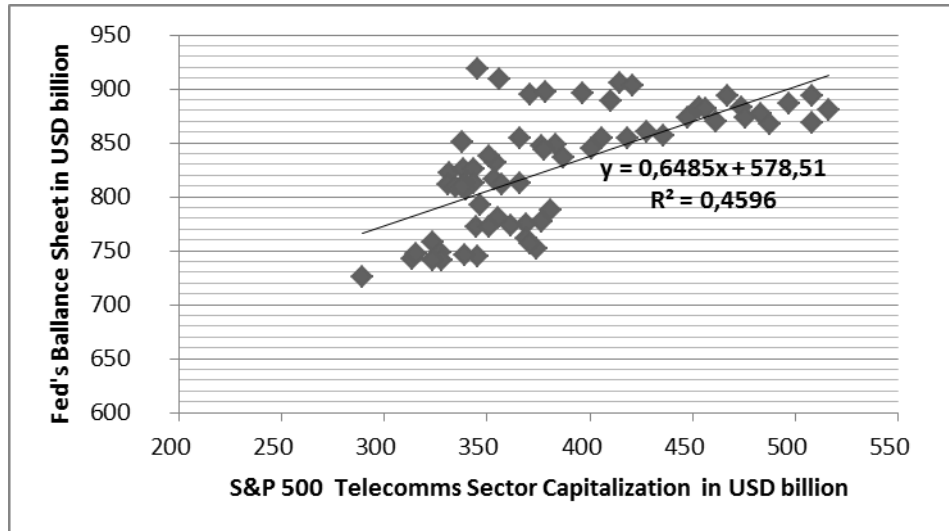
2. TELECOMMUNICATIONS SECTOR AND QUANTITATIVE EASING

Numerous articles and studies have shown that the most recent global economic crisis in 2008 harmed the global economy as a whole, although the developed part of the world much more so, see JIANG et al. (2009). The data show that in 2008 the decline of telecommunications stocks was far less than in previous cyclical downturns SVOBODA (2011). A similar result, although less significant, could be observed in 2011, when global markets underwent a correction due to escalation of the European debt crisis and the outburst of social unrest in Northern Africa which is often termed as the Arab Spring.

The telecommunications industry plays a significant role in the current phase of the information revolution that began in the 1980s with personal computers and more recently has involved mobile telephony and, most importantly, internet expansion. The importance of the telecommunications sector is derived from its ownership of worldwide information infrastructure. Data from the past 10 years show that the entire industry has stabilized. Telecommunications operators are financially healthy, as they are relatively less leveraged and with rather strong cash flows. Portfolio investors are greatly pleased with the long-term high dividend yields offered by telecommunications companies.

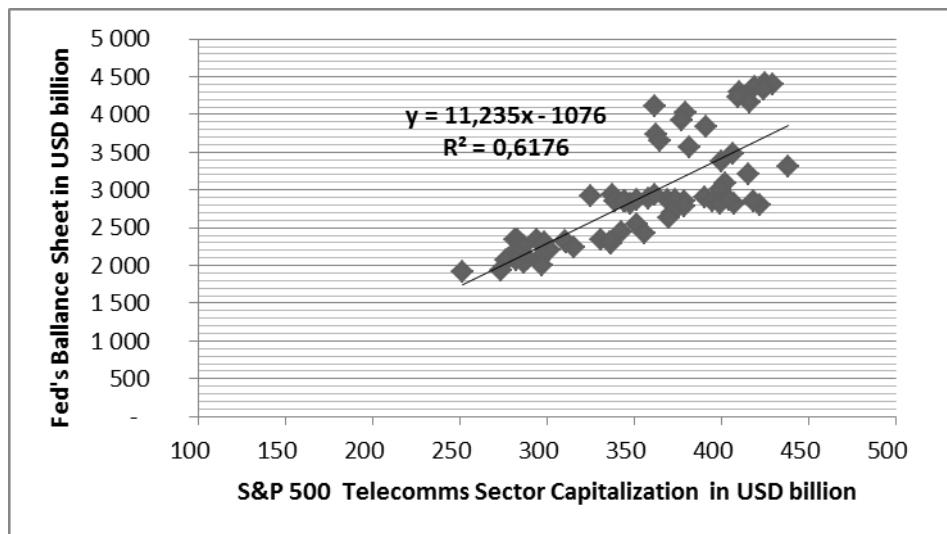
After the burst of the dot-com bubble in 2001, US and European telecommunications firms went through significant financial and organizational restructuring. Operators' solid customer base, company size, and market share together with high barriers to entry provided the necessary framework for further stability. Despite deterioration of the telecoms' profit margins and classic product mix, prices for telecommunications shares continued to rise. Regarding the question as to whether monetary expansion directly influences the price growth of telecommunications shares, regression analysis provides evidence that such influence is

sometimes small but positive. Figure 4 shows that the correlation between the change in the Fed's balance sheet and the change in the market capitalization of the S&P 500 Telecommunication Services Index from the pre-crisis period is weak, with $R^2 = 0.4596$.



Source: Bloomberg, author's calculations

Fig. 4 - Regression Analysis of Market Capitalization of the S&P 500 Telecommunication Index and the Fed's Balance Sheet in the Pre-crisis Period from 31 March 2003 to 31 August 2008.

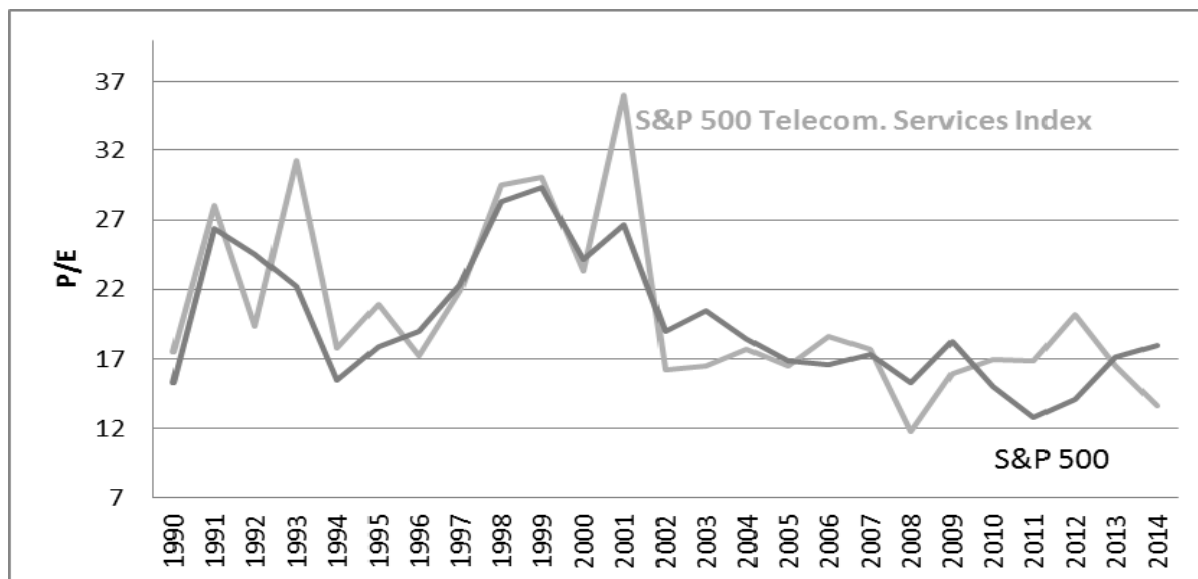


Source: Bloomberg, author's calculations

Fig. 5 - Regression Analysis of Market Capitalization of the S&P 500 Telecommunication Services Index and the Fed's Balance Sheet (31 January 2009 to 31 August 2014).

The same analysis carried out using monthly data from a period which the post-crisis period of quantitative easing (31 March 2003 to 31 August 2008) shows that the correlation between the data sets for the market capitalization of the telecommunications index and the Fed's balance sheet is much stronger (Figure 5). The R^2 calculated from the data for the period 2009–2014 shows a relatively high value of 0.6176 in comparison with the 0.4596 for the pre-crisis period of 2003–2008. The results of the regression analysis may also

indicate that quantitative easing, and thus expansion of the Fed’s balance sheet, influences the market value of telecommunications companies slightly less than it does the broader equity market represented by the S&P 500 index. That conclusion would suggest, too, that a rise in the P/E ratio could be expected. As can be seen in Figure 6, the P/E of the S&P 500 Telecommunication Services Index was indeed growing over the past several years, exceeding 20 and then sliding to its current 13.5. On the other hand, the P/E of the S&P 500 displays inverse behaviour in its growth to the current level of 18.0, as of 10 September 2014. This is a clear indication as to the defensive investment nature of the telecommunications sector.



Source: Bloomberg, author’s calculations

Fig. 6 - P/E of the S&P 500 Telecommunication Services Index in Comparison with the S&P 500 Broad Market Index.

It is noteworthy that the P/E of the S&P 500 broad index presently (September 2014) stands at 18.0 while its long-term aggregate average is about 14.1, and this may lead one to conclude that the US equity market is already overpriced. However, many analysts (e.g. DOBS 2013) have concluded that recent P/E ratios are below long-term averages and would be even lower today were it not for the ultralow interest rates. The most recent data in Table 1 show that telecommunications firms in the US have on average the lowest expected P/E ratios but at the same time very favourable risk measures. This again provides evidence that the telecommunications industry can be considered a defensive sector for portfolio investors.

Tab. 1 – Data for S&P 500 Index Sectors as of 1 September 2014.

<i>Sector</i>	<i>Forward P/E</i>	<i>5-Yr. CAGR</i>	<i>Beta</i>	<i>Risk (Std. Dev.)</i>
Consumer discretionary	18.0	23.2%	1.1	15.5%
Consumer staples	17.7	13.8%	0.6	10.1%
Energy	14.3	11.9%	1.2	18.7%
Financials	13.9	12.5%	1.3	19.4%
Health care	16.5	17.9%	0.7	11.9%
Industrials	15.9	18.7%	1.2	17.2%
Information technology	15.5	17.1%	1.1	16.0%
Materials	16.8	13.5%	1.4	21.4%
Telecommunications	13.5	9.1%	0.5	13.6%
Utilities	15.8	9.4%	0.4	11.5%
S&P 500 (USA)	15.7	15.6%	1.0	13.4%

Sources: STANDARD & POORS DOW JONES (2014), YARDENI et.al. (2014)

Notes: Forward price-earnings ratio or *P/E* is aggregated stock price divided by forward consensus earnings per share. *CAGR* is the compounded annual growth rate. Risk is measured as a standard deviation of sectors indices return. The measurement *beta* is a risk measure, quantifying the risk of holding particular investment (i.e. stocks, indices, bonds etc.) versus owning a very large portfolio that represents entire or broader market. Market's beta is equal 1.0. If beta is less than 1.0, the investment is considered as less risky, see also BREALEY et.al (1991). Beta can be calculated in the following way:

$$\beta = \frac{\text{Cov}(r_i, r_m)}{\sigma_m^2} \quad (1)$$

Where:

β ... beta

$\text{Cov}(r_i, r_m)$... covariance of investment's return with market return

σ_m^2 ...variance of the market

CONCLUSION

There has been long debate among investment banking analysts and academics as to whether the monetary expansion over the past several years in developed countries has increased the prices of equities. The author's own analysis shows that such evidence exists not only in the broader US equity market but also in the telecommunications sector. These observations can also be bolstered indirectly when we look at the negative reaction of equity price indices in January 2014, for example, in response to the Fed's announcement of final tapering.

Regression analysis suggests that the global telecommunications index shows lower correlation with monetary expansion than does the broader US equity market. Although it is very difficult to disaggregate the impact of these observations from other forces at work, this could be explained in part by the telecom sector's lower beta and also by the fact that traditionally integrated telecommunications services are going through a period of stagnation due to decline in standard fixed-line services as well as in mobile voice and SMS messaging.

Nevertheless, investors have shown increased confidence in publicly traded US telecommunications companies in recent years. Telecoms continue to demonstrate long-term economic stability with transparent and proven business models and solid customer bases, company size, and market share. Barriers to entry remain high. All of this may provide a configuration essential for stability that translates into lower risk as measured by the volatility of telecoms stock prices.

It seems that telecoms will avoid falling into a technology trap and that the still-rapid pace of technological change may create significant opportunities for future development. As owners of the worldwide information infrastructure, telecommunications firms not only in the US but also globally will continue to play a very important role in the global economy. An important question remains, however, as to whether the optimal risk–reward ratio produced for portfolio investors by a combination of telecoms and other sectors can be sustainable over the long term.

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