

Polish Academy of Sciences
Institute of Economics

Summary of dissertation
directed by
dra hab. Tadeusza Winklera-Drewsa

**Stock Exchange performance and the economic condition in Poland
in the years 1998-2011**

Jacek Stapała

Warsaw, September 2013

The subject of the dissertation is to study the relationship between economic condition and stock market performance in Poland in the years 1998-2011. Despite the common opinion among the researchers that stock market performance lead the economy I have tried to prove that detailed research of indicators representing the real and financial economy can be useful for diagnosing the stock market performance. In order to achieve the main objective I have researched the synchronization of stock market cycles with economic cycles in Poland. No research have been conducted on that matter. Filling this gap, there is space for classification of Polish economic indicators into the following categories: leading, coincident, lagging indicators to market index. The results can also be used to construct composite leading indicators for the Polish stock market.

In dissertation I have put the main thesis: " stock market cycle lead the economic cycle in Poland, but the investigation of economic indicators provide important information for diagnosing stock market performance" and I have formulated two hypothesis.

Hipotesis 1. There is a relationship between economic conditions and the stock market performance in Poland.

Hipotesis 2. Economic indicators can be useful to diagnose the stock market performance.

As a result of the research I have shown that during 1998-2011 the stock market cycle represented by WIG index dynamics preceded the business cycle represented by GDP by an average of 1,37 quarter, while the cyclical components of WIG dynamics preceded industrial production index by an average of 0,88 month. The study have also confirmed that the lead was greater for the bottom turning points and lower for the peak turning points of the cycles. I have also shown that coefficient of correlation between the cyclical component of WIG dynamics with the cyclical component of industrial production was more than 81%, although the sector structure of the WIG index is far from the sector structure of industrial production. Coefficient of correlation between the cyclical component of GDP and the cyclical component of WIG dynamics was also significant and amounted to 49%.

Looking for the correlation between economic cycle and stock market cycle, I have also shown that after 2007 relationship decreased significantly. After 2007 the amplitude of cyclical fluctuations and lag of turning points have increased. Comparing the duration of the phases of the business cycle and stock market cycle I have found that the stock market expansion lasted longer than the economic expansion and downturns of stock market cycles were shorter than the downturns of economic cycles.

I have also examined the offsets of turning points of 46 economic indicators to WIG. Based on the results I have classified six of them as the leading indicators to WIG, seven of them as the coincident indicators to WIG and 33 of them as the lagging indicators to WIG. The leading indicators include: Manufacturing PMI, turnover in retail trade, a portfolio of

domestic and foreign orders, new orders in industry, ability of enterprises to meet financial obligations, and the rate of production to nominal wages.

I have also shown that 32 of the 46 indicators showed the correlation with the WIG at time $t = 0$ above 0.6. It means that we have very large range of measures describing well of the stock exchange performance.

While empirical studies are mainly based on the similarities in the synchronization of the compared variables, offset of them and the correlation between them there is much theoretical aspects that explain the similarities and differences of stock market cycle and economic cycle.

Based on the research literature, I have listed the causes of the cyclical nature of the economy, and have grouped the reasons of fluctuations within exogenous factors and endogenous factors. This knowledge helps us to identify the phases of the business cycles and in the same way the phases of the stock market cycles.

I have also presented how we can explain the similarities in the stock market and the economy. Stock prices depend on expected corporate earnings, while the GDP depends on a gross profit of companies. We can deduct from this that we compare two values associated with changes in aggregate corporate profits. An important factor while looking for similarities of economic and stock market cycle is capitalization stock market in relation to GDP. The higher market capitalization ratio to GDP, the stronger similarities between stock market performance and economy condition. The difference in the sector composition of the index and measures of economy is also of the great importance.

Factors that disrupts the relationship between the stock market and the economy comes from behavioral theory. Capital market participants tend to make decisions in a manner incompatible with the principles of rationality, have a limited ability of understanding information, and have risk aversion. Particularly individual investors are driven by emotions, fear in times of recession and euphoria in the phase of economic expansion in the decision making process.

Among the most important mechanisms of impact of the economy on the stock market is monetary policy. The low interest rate attract attention to invest in shares in relation to investment in financial risk-free instruments. Low interest rates reduce cost of capital for listed companies. Monetary policy affects the stock market not only by changes in interest rates, but with quantitative support programs. The increase in the money supply causes an increase in the shares, a decrease in money supply have the opposite effect. As an example of the impact of fiscal policy on the exchange can be identified from tax cuts which positively affects the size of the free cash flow in enterprises and labor market support programs to increase consumer purchasing power.

I have pointed out that recently important impact on the economy and stock market have: monetary Policy and quantitative easing programs conducted, by Central Banks, as well as the issue of globalization. With easy access to information, more open economies,

international trade, technical progress, including the Internet, speed of information flow and synchronization policies of governments and Central Banks, stock market cycles and business cycles are synchronized. Through the synchronization of business cycles and the occurrence of the relationship between the stock market and economy, we also have to deal with the synchronization of the stock market cycles.

I have discussed the issues of asset allocation in the business cycle based on the two concepts: the asset allocation and the sector rotation. I have underlined the crucial importance of the interest rate on investments and practical implications for capital market participants. The best time to invest in stock market is the phase of economic growth in terms of falling interest rates.

In conclusion we can say that there is a relationship between economic conditions and the stock market performance in Poland in the years 1998-2011, which has been confirmed empirically and theoretically. Synthetic measures of economic activity (GDP, industrial production) lag behind the stock market cycle, but there are some leading indicators of the stock market cycle. Diagnosis the stock market situation through the prism of economic condition is possible by proper identification phases of the business cycle. This is an observation that supports the main thesis of the dissertation.