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David Pieper has been busy studying the stock market since the late 90s. As early as during his business studies at university and later during a career as an investment analyst at a bank, he combined fundamental analysis with the benefits of technical analysis. Mr Pieper focuses on trading CFDs and works as a freelance writer in the field of technical analysis. For more information, visit his blog at www.trade4life.de.

Understanding the Interrelations of Markets

INTERMARKET ANALYSIS

Intermarket analysis is an addition to technical analysis, which gained significant popularity based on John Murphys publications in the beginning of the 1990s. The core of this form of analysis is the examination of the relationships between different asset classes. Market participants can use the combination of signals in the bond-, commodities- and stock markets to recognise which part of the economic cycle the market is in and which asset categories should be over- or underweighted. Above all, Intermarket analysis helps to achieve a better overall understanding of the financial markets in general. Our cover story shows how the intermarket principle works and how these traditional relationships have changed over the years.



→ CLASSICAL INTERMARKET RELATIONSHIPS

While economists analyse multiple statistics to define the direction of the economy and accordingly of financial markets, technical analysts examine the markets themselves. They try to identify trends and patterns and deduce prognoses for the future. Intermarket analysis takes this a step further and pursues the following principles:

- All markets (stocks, bonds, commodities, forex) are correlated.
- No market moves in isolation from the others.
- The analysis of one market should involve all others.

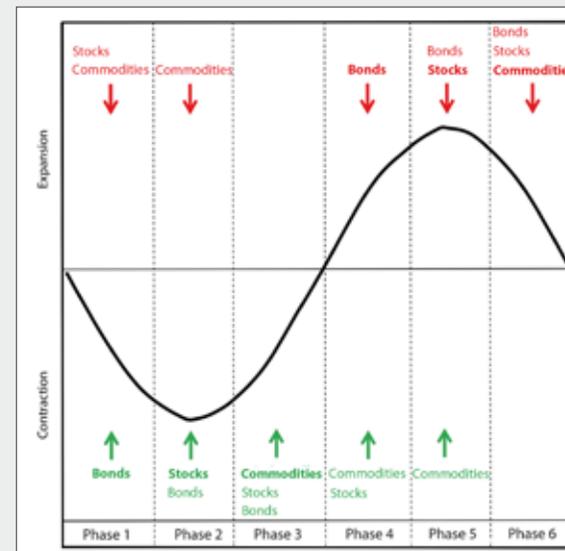
The analyst using an intermarket approach looks beyond his own nose and combines technical analysis with the economic cycle. The charts reflect the mutual influence between stocks, bonds, commodities and the dollar index. In the following we see a simple overview of the four most important intermarket relationships which John Murphy introduced in 1990:

- A positive correlation between bond prices and stocks
- An inverse correlation between commodities and bond prices
- A positive correlation between stocks and commodities
- An inverse correlation between the US-dollar and commodities

THE ECONOMIC CYCLE

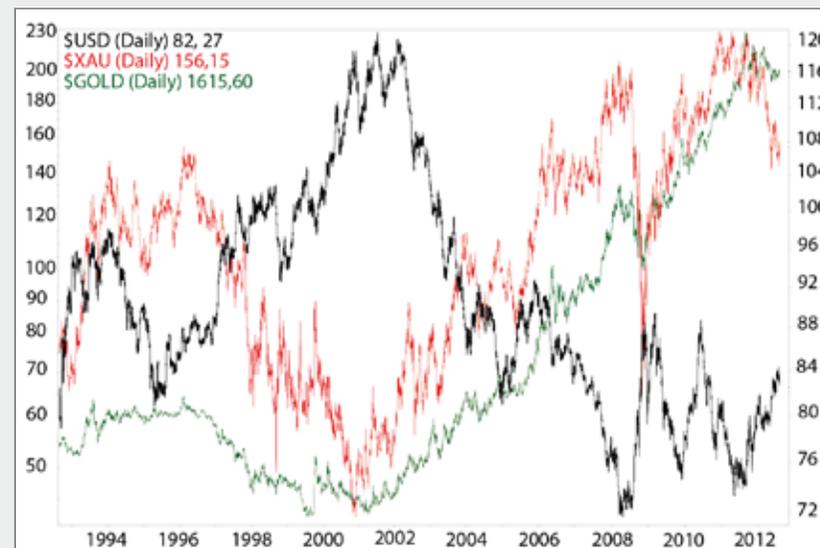
It is pretty well known that economic development features a cyclical course which can be divided into individual stages. These stages of expansion and contraction form economic cycles, which help to explain the correlation between stock-, bond- and commodities markets. At the same time the economic cycle is the basis for the progression of highs and lows on these markets. Figure 1 shows the ideal course of the economic cycle and the asset

F1) THE ECONOMIC CYCLE



The chart shows the ideal economic cycle, which can be divided into six stages. In each stage there is a reversal of at least one of the three asset categories stocks, bonds and commodities. Source: TRADERS' graphic

F2) US-DOLLAR INDEX, PRECIOUS METAL INDEX AND GOLD SINCE 1993

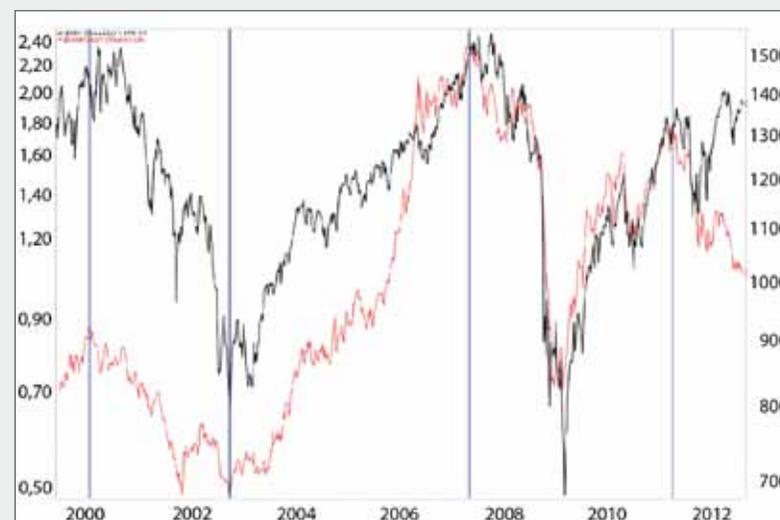


The US-Dollar index (black line) has shown a negative relation to the precious metal sector for decades. Red line: precious metal index (XAU), green line: gold price. Source: www.stockcharts.com

classes, which are in the particular stage of a bull- or bear market.

- **Phase 1:** Contraction of economic activity, flat interest rate curve. Expansive monetary policy (prime rate reductions) causes increasing bond prices.
- **Phase 2:** Further prime rate reductions. Economic activity reaches the low point and stabilises. The stock market anticipates this development and starts to rise months before the official end of the recession.
- **Phase 3:** Substantial improvement of the economic environment. The expansion phase nears. Steep interest rate curve. Stocks have already increased considerably, commodities follow.
- **Phase 4:** Economic expansion is at its high point, first prime rate increase, then interest rate levels rise. Stocks as well as commodities are in an

F3) METAL-BOND-RATIO VS. S&P 500 SINCE 2000



The relation of metals prices and bond prices (red line) is a simple way to evaluate the sustainability of stock market behaviour (black line: S&P 500). The ratio chart has the advantage that it shows the reversal of the stock market in advance most of the time. Source: www.StockCharts.com

uptrend, the bond markets decrease because of the danger of inflation.

- **Phase 5:** Peak of economic growth, further prime rate increases. The economy is still growing, but growth is slower than before because of increasing interest rates and higher commodities prices. Stocks anticipate the oncoming contraction phase and build their highs before the end of the expansion phase. Only the commodities market is still strong – with highs taking longer to build.
- **Phase 6:** Economic development worsens, the economic cycle prepares for the change from expansion to contraction stage. Inverse yield curve. All three asset categories are in a down trend.

We repeat, that this is an ideal track during a normal – which means inflationary – environment. In a deflationary scenario the development of prices for each asset category acts in reverse (more on that later).

STOCKS, BONDS, COMMODITIES – WHICH MARKET REVERSES FIRST?

The economic relationship between the three main markets is well known: Commodities prices affect bond prices through increasing inflationary pressure and those, in turn affect stock prices. But what is the chronological order of the highs and lows of the different markets? The bond market reverses – statistically proven – before the stock- and commodities markets and plays an important role in Intermarket analysis. Therefore, a market analyst who examines the stock market, has to look at the bond market as well and a bond trader has to take a look at the commodities market.

Bonds usually reach their highs in the middle of an expansion phase and they build lows in a contraction phase. Thus, if there is a reversal in the bond market during a phase of economic growth, it means, that the stage of “healthy”, non-inflationary, growth is over and “unhealthy”, inflationary, growth has started. At

this point of time commodities markets accelerate their uptrend and the end of the stock boom nears.

Exception: In the case of possible deflation, the combination of commodities and weak bonds can be a positive signal for stocks, because it shows that the deflationary forces are weakening.

HISTORICAL EXAMPLES CONFIRM THIS THEORY

We can use the example of the crash of 1987 to show that it is not sufficient to make an isolated analysis of a single market. The causes of this crash are discussed to this day. From the point of view of Intermarket analysis there were warning signs in the bond market four months prior to the crash. But analysts and investors did not recognise them. Another example is the Gulf War in 1990 – traditional Intermarket relationships worked worldwide both at the beginning and at the end of the Middle East Crisis.

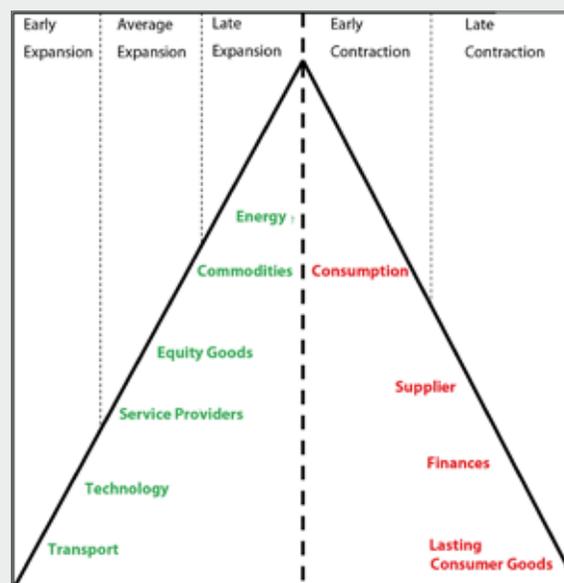
If you take a look at the mega-top of the stock market in the year 2000, Intermarket analysis was of precious help. Several months prior to the crash stock markets showed important warning signals. In chronological order:

- October 1998: top in the bond market
- March 2000: top in the stock market
- October 2000: top in the commodity market

METALS-BOND-RATIO AS FORERUNNER FOR THE STOCK MARKET?

Highs and lows of stocks, bonds and commodities often happen in a foreseeable order (depending on the economic situation). Currency markets play only a minor role. Thus the influence of the US-dollar is often filtered through its influence on the commodities markets. Both markets show an inverse relationship, which means that an increasing US-dollar is usually

F4) SECTOR-ROTATION-MODEL OF SAM STOVALL



Cyclical sectors are useful as a leading indicator for the broad stock market.
Source: TRADERS' graphic

combined with decreasing commodities prices and vice versa. This is especially true for precious metals, as these have proven long term to be a safe haven in weak stock markets.

Back to the initial question: How can you use different markets to analyse the stock market? It is recommended to analyse metals that are sensitive to the economic cycle, like copper or, alternatively, a complete metal index, in order to get a straight look at the supply-and-demand-situation of the commodities market (and some commodities depend heavily on political factors or climatic conditions). An effective way to analyse the sustainability of the stock market in combination with bond and commodities markets is the metals-bond-ratio. If commodities rise, bond prices fall and thus the ratio. This constellation is bullish for the stock market – in contrast a decrease in the ratio portends a weak economy and an accordingly weak stock market. Figure 3 shows that the ratio has good predictive qualities.

SECTOR-ROTATION WITH THE ECONOMIC CYCLE

The economic cycle has substantial influence on the relations between stocks, bonds and commodities. It plays an important role for the choice of the most attractive industry sectors as every stage favours another industry sector. Knowledge about the current phase of the economic cycle is an important aid in deciding which industrial sector to choose.

At the end of an economic expansion phase energy values take a leading role. This can mainly be traced back to increasing energy prices and the resulting inflation which puts central banks on inflation alert. The succeeding interest rate increases weaken economic development and results in a decrease in growth or even cause a recession.

Once the leading position changes from the energy sector to defensive sectors such as consumer goods, the stock investor should become cautious. If this is the case, you can expect a reversal of the stock market and a contraction of the entire economy. Figure 5 shows the top of the stock market in the years

F5) SECTOR ROTATION AT THE STOCK MARKET TOP 2007/2008



The cyclical consumer goods sector (dark blue line) and the financial sector (purple line) were useful early indicators for a stock market high (red line: S&P 500). The energy sector (green line) built its top last as expected. The crash of the whole market intensified again considerably with the crash of the defensive consumer goods (light blue line).

Source: www.stockcharts.com

F6) CYCLICAL/DEFENSIVE-RATIO VS. S&P 500



During the bottom of the years 2008/2009 the XLY/XLP-ratio generated a positive divergence to the S&P 500 and showed its forerunner qualities. At the moment the relationship of cyclical and defensive consumer goods stocks shows a negative divergence to the S&P 500 – there has been no new high since the beginning of 2011.

Source: www.stockcharts.com

2007/2008 and confirms that the financial and the cyclical consumer goods sector had already topped out by May and July 2007, though the S&P 500 only reversed in October 2007. The energy sector as a follower, increased several months until it reversed to the downside at the end of May 2008.

RATIO-CHARTS EXPLAIN THE WORLD OF TRADING

A simple, but very useful tool to analyse different Intermarket relationships is the use of ratio-charts. The price of one value is divided by the price of another and in this way we discern which value shows relative strength or relative weakness. Afterwards you can analyse further instruments to get a broader picture of the financial markets.

Let's look at an example of cyclical vs. defensive stocks. A look at the past shows that cyclicals anticipate highs and lows of the economic environment the quickest. A rising market is pushed by the relative strength of cyclical stocks. Possible divergences between the ratio and the broader market deliver good hints that a reversal may be in store. Figure 6 shows the relationship of the two ETFs XLP (cyclical) and XLY (defensive) and impressively show that the ratio is a precursor to the broader market behaviour – at the highs as well as at the lows.

CRISIS IN ASIA CAUSES PARADIGM SHIFT

Financial markets have developed at a racy pace since the nineties. During this time some of the classic Intermarket relationships have changed or even reversed. As we stated earlier, the correlation between different asset categories depends mostly on the fact of whether there is an inflationary or deflationary environment. Stocks and bonds show a positive correlation in a "normal", inflationary environment (as well as with disinflation), because interest rates are low and this stimulates economic activity and profits rise. If deflation begins, there is a decoupling of stocks and bonds. The traditional positive correlation of those two markets reverses. Stocks and bonds then act as counter poles and their price behaviour is controlled

by the risk aversion of the market participants. Economic history and stock markets show that the world economy has changed from an inflationary to a deflationary phase since 1998. Figure 7 shows that stocks and bonds have had a negative correlation since then.

This circumstance is related to the Asian crisis in 1998, which marked the first global risk-event with the consequence that there was a real danger of worldwide deflation for the first time since the Great Depression. Investors withdrew their money from stocks and invested in bonds. The crisis in Asia induced – together with deflationary shocks like the bursting of the technology bubble in 2000 and the financial crisis that began in 2007 – a paradigm shift that is still valid to this day. A weakening of the current correlation or even a return to the negative correlation of these two markets can only take place if we slip into stagflation (simultaneous inflation and stagnated growth).

REPETITION OF THE 1930S?

At this point we have to look at the Great Depression, because during this period of time we see the same pattern: After a decade of decreasing inflation rates and increasing bond prices (the same as in the period between 1982 to 2000) there was a peak in the bond market in the first half of 1928. This was a clear warning sign for the stock market. As we all know, at the end of 1929 the worst stock market crash in history occurred. The reversal of the positive relationship between stocks and commodities and the decrease of the commodities and stock markets at the same time show one thing clearly: Deflation was not established. That explains why the traditional rotation pattern that we talked about at the beginning of the article does not work anymore.

CORRELATIONS DOUBLED

Apart from the reversal of the traditional positive stock-bond-correlation, we can observe an increasing

F7) S&P 500 VS. TREASURY BONDS 30 YEARS



Bond- and stock prices have shown a negative correlation since the end of the 1990s. The traditional intermarket relation between stocks and bonds reversed with the beginning of the crisis in Asia.

Source: www.stockcharts.com

correlation between asset classes as well as between individual stocks in general, since the end of the nineties. A look at intermarket movements confirms that there is a steady flow of risk on- and risk off-phases. The reason is mainly high uncertainty on a macroeconomic level. Furthermore, structural factors such as globalisation of financial markets, new risk management techniques (for example hedging strategies) and the use of alpha-strategies – and especially because of the ever increasing influence of hedge funds – are responsible for this development.

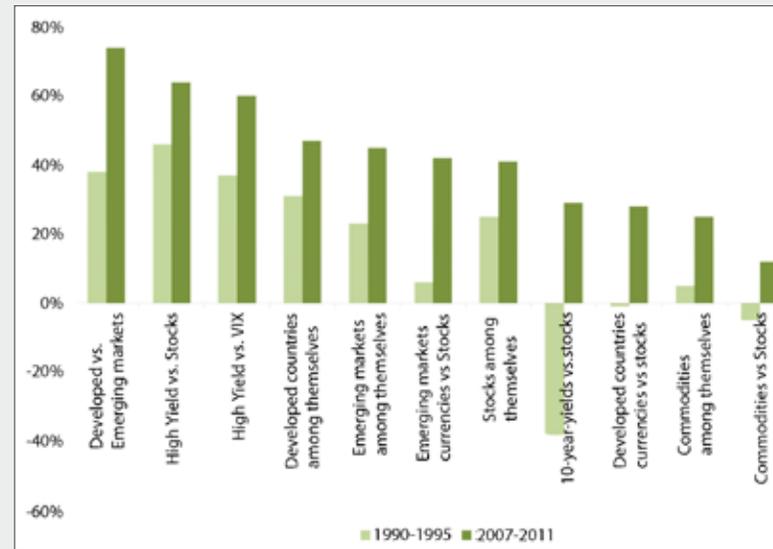
In forex we see that phases of increasing investor risk are combined with increasing capital inflows to emerging markets. The conversion of foreign currencies to emerging market currencies leads to an appreciation of the latter and therefore emerging market stocks and emerging market currencies increase at the same time. The result: an increasing correlation of the S&P 500 with the corresponding currencies.

We have recognised structural changes in commodities and their correlation to stocks and bonds since the start of the financial crisis in 2008. During the nineties the correlation of the commodities market to the stock market was negative and even individual commodities were only in a weak correlation to each other; the increasing interest of investors and the changed requirements led to a change of the correlation to the positive area. We also see a strong increase of the correlation within the global indices as well as within sectors. It seems as if the time when emerging market indices and their equivalents from industrialised countries were nearly uncorrelated, are finally over.

HEDGE FUNDS AS ALTERNATIVE?

The only (alternative) asset-category that offers an escape from this correlation problem is the area of hedge funds. Studies by JP Morgan show that the correlation between different hedge fund indices, which indicate different strategies, are not – counter to the trend – bothered by the increasing correlations. If you measure the entirety of all hedge funds, we

F8) CHANGE OF CORRELATION OF DIFFERENT MARKETS OVER TIME



Change of correlation of different market pairs. In comparison to the nineties, correlations doubled. Source: JP Morgan

observe a substantial correlation with the stock market on average. But in phases of increasing market risks it decreases and that is what makes hedge funds attractive. Besides, stocks and credit spreads have shown the highest negative correlation for some years now – no wonder, as we are in the middle of a historic debt- and confidence crisis.

CONCLUSION

By now, Intermarket analysis has a fixed place in analysis. And for good reason, because it offers useful information for the understanding of the global correlations of different markets and sectors. There are many products such as ETFs that allow the study of the correlation of markets and segments with the help of ratio charts and this enables their easy implementation in practice. Therefore Intermarket analysis is a useful addition to classic technical analysis of financial markets and upgrades both approaches with underlying economic forces. The combination

of both techniques helps to improve the quality of prognoses development and delivers valuable inputs for any portfolio – both in the asset area and in the industrial sector. But you should be aware that the intermarket relationships described here do not always work and they may weaken or even reverse completely. Apart from the strong influence of central banks, which we have experienced since the end of the nineties, we can observe that structural factors – which may endure for many years – can change traditional patterns as well. Therefore, it is important to recognise if the intermarket relationships between markets work and how to use them for your own trading strategy, or if they work at all.

One thing is for sure: Investors who make an investment decision without any knowledge of intermarket relationships are analogous to drivers who never look in the side- or rear view mirrors. That alone is reason enough to take up this exciting form of analysis. 