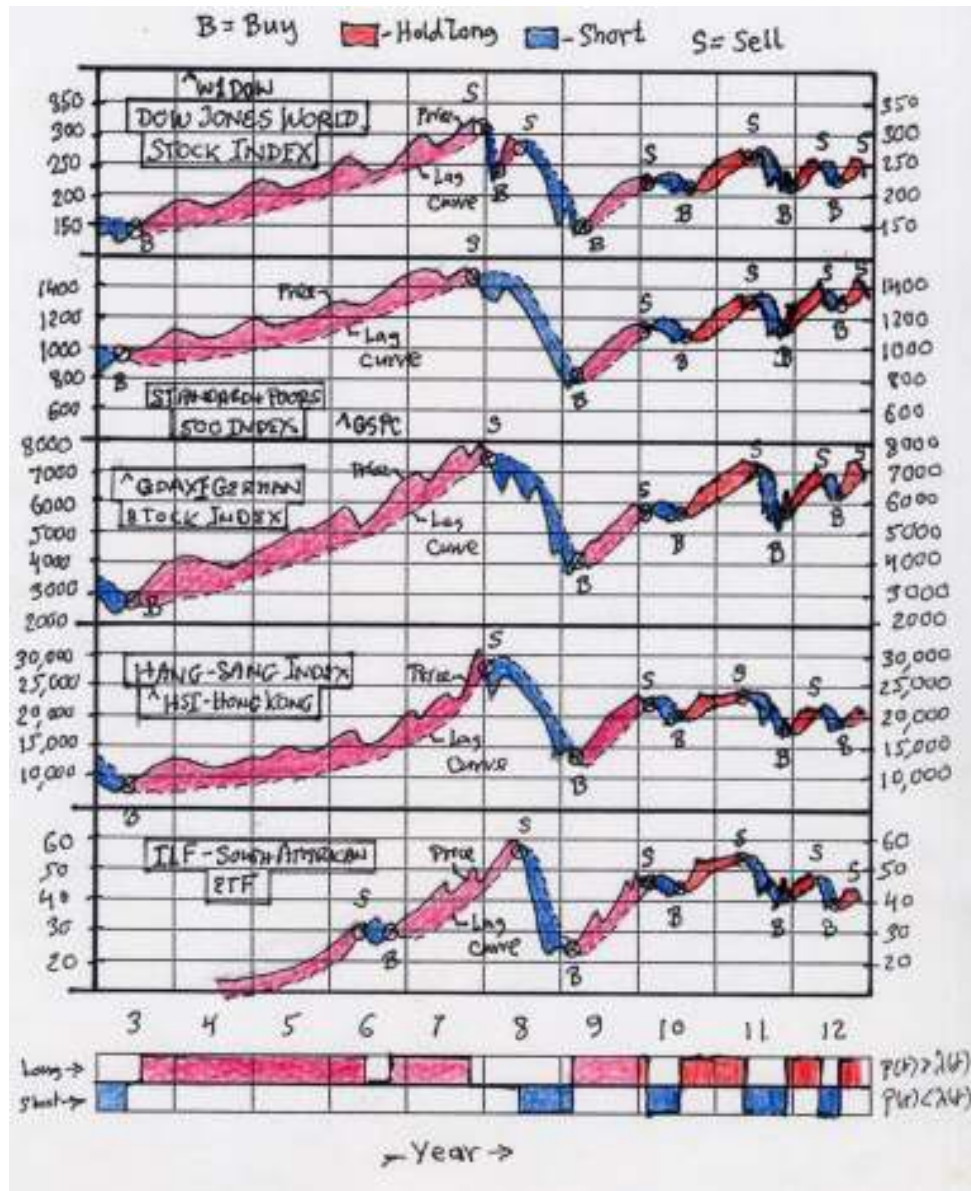


## WORLD WIDE CORRELATION OF STOCK INDEXES

I first noticed a couple of decades ago that stock indexes worldwide seem to move in approximate unison with each other. This correlation has become much more precise in recent years as shown in the updated ten year graph-



The plot clearly shows that equity prices, as reflected by the Dow Jones World Index, the S&P500, the German DAX Index, the Hong Kong Hang-Sang Index and the South American 30 stock ETF, are moving in unison. This correlation is quite remarkable and seems to have no obvious cause. It has become more volatile in recent years probably due to extensive computer and day trading plus injection of fiat currency into world markets by the Federal Reserve and by the European Union. Nevertheless, it can be used to

indicate bull and bear markets and to guide one's stock investments. For profitable returns one should hold stocks long only in the red regions and be short stocks only in the blue regions. The red and blue regions shown are constructed by comparing price  $P(t)$  with a lag curve  $\lambda(t)$ . Indeed one can speak of bull and bear markets according to the following-

Bull Market:  $P(t) > \lambda(t)$   
(Indicated by red)

Bear Market:  $P(t) < \lambda(t)$   
(Indicated by blue)

The lag curve is something like a moving average but unlike a moving average is sketched by eye so as to remain about 10% below the latest high or 10% above the latest low price. It is quicker to react than a running average to changing trends. Change in market conditions are indicated by circles.

**All that one can say from the above graph is the type of market the world stock exchanges find themselves in at the moment.** It is typically safest to buy individual stocks, or more conservatively stock averages such as QQQ and SPY, at the beginning of a bull market trend and to short stocks and ETFs such as SKF(finacial short) and EEV(emerging markets short) at the beginning of a bear market trend. One should be ready to quickly sell or cover things as soon as the trend changes as indicated by a price penetration of the lag curve.

Now the question which arises is why do markets worldwide move in unison? Certainly things like a stocks earnings, dividends, and future sales prospects should have a role in price determination. Also things such as government actions on interest rates should play a role. Financial publications such as the Wall Street Journal continually emphasize these points. Yet the above graph clearly shows that **these factors can play a major role only in the right type of market.** Even then it is still hard to explain how the raising of interest rates in South America should influence US stocks. Explanations offered by television and newspaper pundits are usually based on local events chosen to fit the picture. As pointed out in a recent book "The Believing Brain" by M. Schermer, such interpretations should be looked at with as great deal of skepticism since they are based on the tendency of the human brain to interpret the occurrence of two or more random events as having a cause and effect. Emotions should never play a role in any stock transaction.

As to why equities seem to move in unison worldwide is an open question. The fact is **that they do.** As I see this, it must either be caused by (1) world wide **arbitrage operations** or (2) **investor mass psychology.** In arbitrage one buys an equity which has recently decreased in price and simultaneously shorts a similar equity in the same line of business which has lately risen. The result should be a return to the mean in time with a profit on both the long and short side of the transactions. If enough individuals follow such a scheme, the markets worldwide will adjust to run in unison in order to negate this approach of making a profit. High speed trading and other zero-sum games such as day trading, which are presently very fashionable, use arbitrage based on millisecond time increments. In this approach large amounts of money are used to generate a few cents

profit on each individual stock transaction. If enough stock shares are involved, the total return can be considerable as can the losses.

The second possibility for similar price movements in worldwide stock indexes is **mass psychology** enforced by ever increasing and speedier electronic communication capabilities. If the price of stocks in one country are on a longer term rise more and more investors become aware of this and begin purchasing these stocks which makes the stocks rise further. Soon this enthusiasm spreads world wide and before long mass psychology takes over and people in other countries also become optimistic and invest in these and also their own country's stocks which then begin to rise in price as sellers become more reluctant to sell. Finally a worldwide trend of rising stocks results. This trend continues until everyone who has invested has no more money left to purchase more equities. This causes the rise in prices to slow down and then reverse as those who have gained sell their holdings while they can. Mass psychology will now slowly become negative and the drop will accelerate. This acceleration can become large, especially when reasonable explanations for the drop are given.

The reason behind sharp rise in US stocks during recent years is almost entirely due to the injection of QE1, QE2, and now QE3 into the US economy. This printing of money out of thin air is actually debasing the currency, so that even with the apparent rise in stock prices since 2008 the true value of stocks has actually decreased over the past decade. Also family wealth has been negatively affected in recent years through decreases in home prices and near zero interest rates. The latter is especially hurting retirees who have been frugal and saved all their lives and who now, thanks to Ben Bernanke's actions, are receiving essentially zero return on their money. Such currency debauching helps the US treasury in that it becomes easier to service this countries enormous debt at the same time it causes the treasury tax intake to decrease dramatically since people have less income to declare on their investments.

A final observation concerning the above demonstrated correlation between stock index price movements , is that it apparently does not really matter which of the equity markets one invests in. One should rather concentrate on so-called high beta stocks and ETFs and use leverage in order to maximize returns. The beta of a collection of stocks represents a measure of their volatility and can be defined as –

$$\beta = \frac{P \text{ at bull market high}}{P \text{ at bear market low}}$$

where P is the stock or index price. For example, using the 2007 bull market top compared to the bear market bottom in early 2009, one finds from the above graph that the Standard & Poors 500 Index has  $\beta=1550/750=2.07.$ , while the Hang Sang Index has the higher value  $\beta=30500/12000=2.45$  and the ILF ETF the still higher value of  $\beta=60/22=2.73.$

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