Things Your Mother Told You That Aren't True Or Lessons from Capital Market History

Lets be honest, everything your mother told you is true. Clean up your room, brush your teeth after every meal; change your underwear daily etc…

The title of this article is really a "take off" on the conventional wisdom and accepted viewpoints that we have concerning capital markets. These views have been popularized to the extent that they are commonly accepted: "mother hoods' – things your mother taught you to do!

The top four "spurious" believes on capital markets that have been popularized are:[i]

- Business cycles are predictable
- Stock market cycles last for 4 years
- You can win with market timing
- Risk is standard deviation of returns

Lets examine the issues with some of these stylized facts

Business Cycles Are Predictable

Popular financial newscasts and print often have investment professionals predicting the direction of the business cycle.

However, the historical evidence suggests that business cycle forecasting can be hazardous to your wealth. Lets first get a look at the evidence from the US economy, which has the longest going track record of business cycle statistics.
Exhibit 1 displays the US economy expansion and recession data over the past 150 years – starting from 1854 to the present.

Exhibit 2 – Over the entire capital market history, the American business cycle lasted on average for 4.6 years with expansions going for 3.1 years and recessions 1.5 years. However, there are people who have drowned in a river of average depth of 3 feet. A better understanding of these statistics can be gleaned by regarding the volatility or standard deviation of the mean. Upon closer examination, we conclude that the underlying length of the business cycle has broadly ranged anywhere from 2.4 years to 8.8 years 68% of the time.

If we subdivide the data into pre and post World War 2 analysis, we can see how the nature of the business cycle has evolved over time. On average, the length of the total cycle has increased with expansions becoming longer in duration and recessions getting shorter.

[i] I actually have a top 10 list of spurious believes on capital markets but article space limitations led me to pick my favorite list of four.

Nonetheless, there is still a large amount of variability in the data. The evidence suggests that we have misclassified the economic ups and downs by labeling it a business "cycle". Such a definition entails periodicity and predictability. Perhaps a better term to describe the ebb and flow of the economy is business variability.

For comparative purposes, Canadian business cycle data is illustrated in **Exhibit 3** where the same conclusions hold true – there is a high degree of volatility around the average length of the cycle.

What capital market history does tell us then about business cycles are as follows:

- The volatility around the average length of the business cycle is significant calling into question the usage of the term cycle to describe the ups and downs of the economy. Perhaps the phrase business cycle is misnamed. After all, the term cycle implies a clearly defined repeating process, which our analysis indicates, is not the case. A more realistic label would replace business cycles with the term business fluctuations or variability.[ii]
- Expansions, unlike human mortality, do not die of "old age" while contractions do likely end with age.[iii] However, the bottom line is that there is little evidence that we have the capability to successfully forecast macroeconomic activity nor is there any evidence that leading economic indicators can be used to call the "turns" in the business cycles.[iv]
- Post World War 2 business cycles are longer in duration with shorter recessions than the pre World War 2 period.[v]

Stock Market Cycles Last for 4 Years

Investment managers are typically evaluated over a 4-year period. The "mother hood" belief here is that stock market cycles last on average for 4 years. **Exhibit 4** displays Canadian stock market results since 1960. The average length of the typical Canadian stock market cycle has been 6.3 years, significantly longer than the assumed 4 years with a sizable variation of 3.4

[ii] Renowned "business cycle" economist, James D. Hamilton, brings forward this suggestion as well in "What's Real About the Business Cycle?" NBER Working Paper 11161, February 2005. However, he concludes that there is "a recurring pattern in the level of economic activity that needs to be explained, but that a statistical characterization of this pattern requires a non-linear dynamic representation and calls for an asymmetric interpretation of the forces…" page 4.

[iii] This result is presented in, Federal Reserve Board of San Francisco Economic Review 2001, pages 1-15

[iv] The woeful record of macroeconomic forecasting is discussed by Clive Granger in "Can We Improve the Perceived Quality of Economic Forecasts?" Journal of Applied Econometrics, 1996, pages 455-473. Our second point is discussed in more detail in "Five Questions about Business Cycles" by Francis Diebold and Glen Rudebusch, Federal Reserve Board of San Francisco Review, 2001, pages 1-5.

[v] This is discussed in more detail in "Five Questions about Business Cycles" by Francis Diebold and Glen Rudebusch, Federal Reserve Board of San Francisco Economic Review, 2001, pages 1-15. Victor Zarnowitz proposes fifteen different reasons why postwar cycles have become more stable in Business Cycles: Theory, History, Indicators and Forecasting, Chicago University Press, 1992.

years. The historical evidence indicates that stock market cycles last longer than we think but once again there is a high degree of volatility associated with the length of bull and bear market periods.

The numbers suggest as well a high degree of unpredictability when it comes to the life a typical stock market cycle. The evidence indicates that we should be employing a longer period of time, perhaps at least a 5 to 6 year horizon, to quantitatively assess money manager performance relative to a market cycle.

You Can Win At Marketing Timing

Much has been written about the challenge of succeeding at market timing, i.e. tactically moving the asset mix to add value relative to the policy benchmark. We are all familiar with John Illkiw's relative performance chart from his 1997 book, The Portable Pension Fiduciary summarizing the 6 studies that illustrate how abysmal institutional investors have been at market timing[vi].

Current research continues to show how challenging it can be to succeed at market timing.[vii] Once portfolio turnover and transactions costs are taken into account, you have better odds at winning a lottery, all be it quite stretched at that, than you do "winning" at market timing.[viii]

The reason why market timing continues to be a strategy where the odds are stacked against success is that this approach runs counter to the very essence of how markets move over time. Markets are better characterized by "jumps".[ix] This means that financial prices do not change in a continuous fashion but instead "jump, skip and leap – up and down.[x] In other words, a significant percentage of very good (and bad) returns in the market occur in a limited number of days. That's the reason why those charts that show the opportunity costs of missing the 10 best days of the market always work. As well, jumps do funny things to stock return distributions as described below.

[vi] See page 62 of John's wonderful little hand book, (Toronto, Benefits Canada, 1997)

[vii] New studies continue to illustrate the folly of market timing as a strategy. Two of the more recent research papers that address this are "Market Timing and Roulette Wheels" by Richard J. Bauer and Julie R. Dahlquist, Financial Analysts Journal, January/February 2001, pages 28-40 and "Models of Stock Market Predictability", by Burton G. Malkiel, The Journal of Financial Research, Winter 2004, pages 449-459

[viii] Credit must be given to John Stowe for calculating the odds of winning state lotteries versus the odds of success at market timing in "A Market Timing Myth", The Journal of Investing, page 58, Winter 2000

[ix] Evidence on jumps in stock returns continues to be revealed as presented in "Systematic Risk and International Portfolio Choice", by S. Das and R. Uppal, Journal of Finance, December 2004, pages 3804-2834

[x] This is discussed more in detail by Benoit B. Mandelbrot, a pioneer in applying fractal geometry to markets, and Richard L. Hudson in The (Mis)Behavior of Markets: A Fractal View of Risk, Ruin, and Reward, HarperCollins Canada, Basic Books, 2004, Page 237. This book is a must read for all capital market students.

Malkiel summarizes the case against market timing quite succinctly by stating that "true news is by definition unpredictable; thus, resulting price changes must be unpredictable and random."[xi]

Risk Is Standard Deviation of Returns

Modern Portfolio Theory has indoctrinated all its graduates with the belief that risk is best measured by standard deviation of returns. We can employ the standard deviation of returns in our analysis if asset class returns can be best described by a normal return distribution. However, most current empirical research tells us that asset class return distributions are not normal.[xii]

More specifically, the result of stock prices jumping around is that stock return distributions suffer from skewness and kurtosis. The later is called the fourth moment of a distribution following the mean, variance and skewness. Skewness measures the asymmetry of the data around the mean of the distribution while kurtosis measures how peaked or spread out is the distribution.

For example, **Exhibit 4** displays the monthly return distribution for Canadian equities. As with other asset classes, the Canadian return distribution illustrates both skewness and kurtosis with its long tails and a peaked center in comparison to a normal return distribution. Assuming a normal return distribution will lead you to underpredict both the size and the frequency of extreme market movements.[xiii] Consequently, events not expected by the normal return distribution can occur as for example the crash of October 1987.

A better way to get a handle on unexpected risks is to examine the entire empirical distribution of returns for anomalies and as well, to build in potential anomalies through scenario analysis. Risk can then be further "personalized" from a probabilistic perspective to meet the concerns of the fiduciaries. Standard deviation is dead as a serious tool for risk management.

I hope you have enjoyed our "stroll" through capital market history and the real lessons that we can take away as financial economic historians.

[xi] Page 449 in "Models of Stock Market Predictability", The Journal of Financial Research, Winter 2004

[xii] The fact that stock return distributions are not normally distributed has a long history in empirical research. In the early to mid 1960's, both the research of Professors B. Mandelbrot and E. Fama rejected the normality description for stock returns distributions instead of characterizing them as having fat tials and high peakness at the center. Their original works are: "The Variation of Certain Speculative Prices" The Behavior of Stock Market Prices," by E. Fama, Journal of Business, 1965, pages 34-105. More recent research continues the same theme as Professors H. Levy and R. Duchin conclude that for stock returns, "the normal distribution performs very poorly and never provides the best fit" page 61 in "Asset Return Distributions and the Investment Horizon", The Journal of Portfolio Management, Spring 2004

[xiii] Extreme value models explicitly account for the fat tailed nature of return distributions. This is discussed in more detail in "A Comparison of Extreme Value Theory Approaches for determining Value At Risk", by C. Brooks, A. Clare, J. Dalle Molle and G. Persand, in the Journal of Empirical Finance, 12, 2005, pages 339-352