Super Macro – A Fundamental Timing Model

By Theodore Wong
April 10, 2012

Advisor Perspectives welcomes guest contributions. The views presented here do not necessarily represent those of Advisor Perspectives.

Buy-and-hold advocates cite two reasons why tactical investing should fail. It violates the efficient market hypothesis (EMH), they say, and it is nothing more than market-timing in disguise.

But they are wrong. Rather than endure losses in bear markets – as passive investors must – I have shown that a simple trend-following model dramatically improves results, most recently in an *Advisor Perspectives* **article** last month. Now it's time to extend my approach by showing how this methodology can be applied to fundamental indicators to further improve performance.

The EMH does not automatically endorse buy-and-hold, nor does it compel investors to endure losses in bear markets. Financial analysts forecast earnings and economists make recession calls routinely, yet academics ridicule market timers as fortunetellers, and market timers resort to labeling themselves as tactical investors to avoid the stigma. Why?

Perhaps what sparks resentment toward market timers is not their predictions, but *how* they make their predictions. Reading tea leaves is acceptable as long as the tea has a "fundamental analysis" label, but market timing is treated as voodoo because it offends the academic elite, whose devotion to the notion of random walk is almost religious.

I am not a market timer, because I can't foretell the future. But neither do I buy the random-walk theory, because my **Holy Grail** verifies the existence of trends. Timing is everything. When your religion commands you to hold stocks even when the market is behaving self-destructively, it's time to find a new faith.

Timing models that follow price trends are technical timing models. "The Holy Grail" is an example of a technical timing model. Timing models that monitor the investment climate are fundamental timing models. My Super Macro model is a prime example of a fundamental timing model that works. Before presenting my Super Macro, I will first disclose the details of my earning-growth (EG) model. As one of the 18 components of Super Macro, the EG model illustrates my methodology in model design.

But first let's look at the engineering science that makes these models possible.

Macroeconomics, an engineering perspective

Engineers assess all systems by their input, output, feedbacks, and controls. From an engineering perspective, the economy is like an engine. It has input (*the labor market* and *housing*) and output (*earnings* and *production*). The engine analogy and the economic terms in the parenthetical are presented in Table 1. At equilibrium, the engine runs at a steady state, with balanced input and output. When aggregate demand exceeds aggregate supply, the engine speeds up to rebalance. This leads to economic expansions that drive cyclical bull markets.

Table 1. Super Macro Model			
Economic Term	**Engine Analogy**	**Economic Data**	**Source**
Labor Market	Input	Unemployment Rate	Fed Reserves
		Non-Farm Payrolls	Fed Reserves
		Manufacturer Payrolls	Fed Reserves
Housing	Input	Housing Starts	Fed Reserves
Earnings	Output	Earnings Growth	Robert Shiller
Production	Output	Purchasing Manager Index	Fed Reserves
		Factory New Orders	Fed Reserves
		Industrial Production	Fed Reserves
Interest Rates	Regulator	Yield Curve	Fed Reserves
Credit Demands	Positive Feedback	Business Loans	Fed Reserves
		Consumer Credits	Fed Reserves
Credit Spreads	Negative Feedback	Credit Spread: Aaa - 10Yr Treasuries	Fed Reserves
		Credit Spread: Baa - 10Yr Treasuries	Fed Reserves
		Credit Spread: Baa - Aaa	Fed Reserves
Inflation	Negative Feedback	CPI Inflation	Fed Reserves
		PPI Inflation	Fed Reserves
General Economy	Dashboard	ECRI Coincident less Lagging Index	ECRI
		Job, Housing, and Credit Correlation	Fed Reserves

When output outpaces input, the engine slows down. This causes the economy to contract, leading to cyclical bear markets.

The economic engine has multiple feedback loops linking its output to input. Feedback loops can amplify small input changes to produce massive output differentials. Financial leverage is a positive feedback to the economy like a turbocharger is to a car engine. Strong economic growth entices leverage expansions (*credit demands*), which in turn accelerates economic growth. This self-feeding frenzy can shift the engine into overdrive.

Deleveraging, on the other hand is a negative feedback loop. It creates fear and panic that are manifest in a huge surge in risk premium (*credit spreads*). The lack of confidence among investors, consumers and businesses could choke an already sluggish economy into a complete stall.
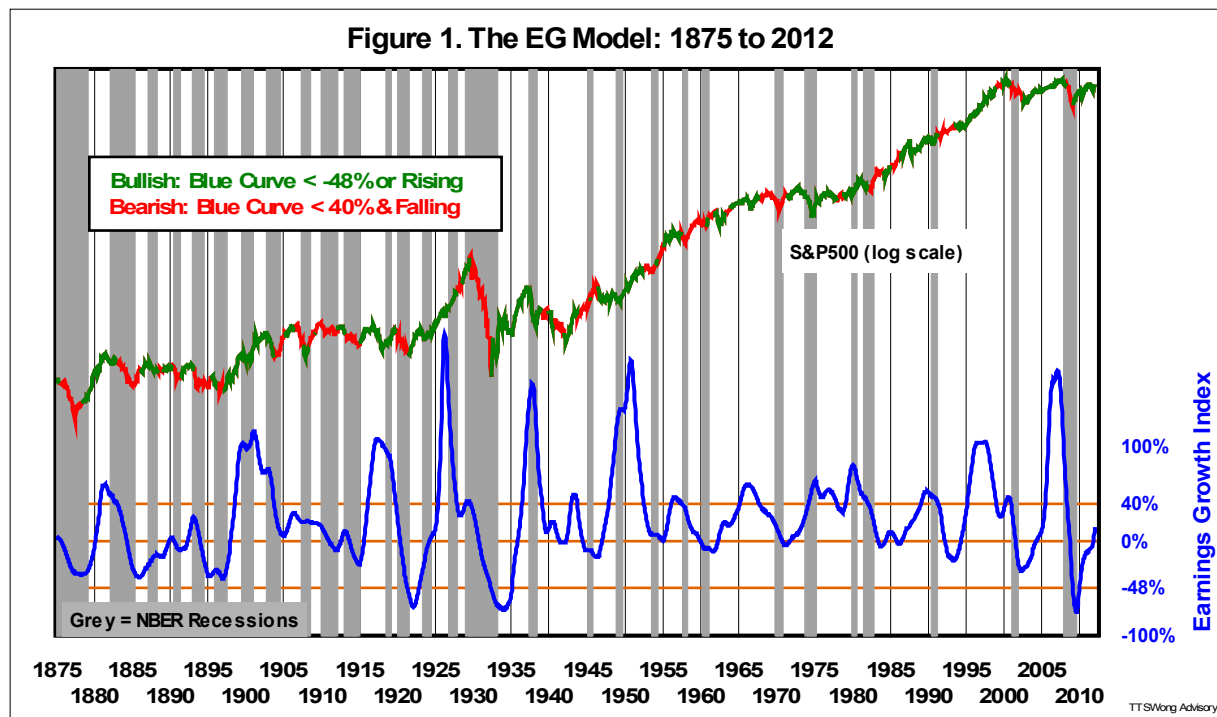
In a free-market system, price is a natural negative feedback mechanism that brings input and output into equilibrium. When demand outpaces supply, price will rise (*inflation*) to curtail demand. When supply exceeds demand, price will fall (*deflation*).

The speed of an engine is controlled by the accelerator and the brakes. The central bank, attempting to fight inflation while maximizing employment, uses its monetary levers (*interest rates*) to control the supply of money and credit. Because of the complex feedback loops within the economic engine, the Fed often overshoots its targets. The unavoidable outcome has been business cycles, which are in turn the root causes of cyclical bull and bear markets.

A fundamental timing model

Models that monitor the economic engine are called fundamental timing models. One example is the EG model, which uses a four-year growth rate of S&P 500 earnings to generate buy and sell signals. (Four years was the average business cycle length in the last century.) The EG model meets my **five criteria** for a good working model.

1. *Simplicity*: The EG model has only one input: the **S&P500 earnings**.
2. *Commonsense rationale*: The EG model is based on a sound fundamental principle that earnings and earnings growth drive stock prices.
3. *Rule-based clarity*: Its rules boil down to following trends when they are strong but being contrarian when growth rates are extremely negative.
4. *Sufficient sample size*: There have been 29 business cycles since 1875.
5. *Relevant data*: Earnings are relevant, as profits are the mother's milk of stocks.

Figure 1. The EG Model: 1875 to 2012

Bullish: Blue Curve < -48% or Rising
Bearish: Blue Curve < 40% & Falling

S&P500 (log scale)

Earnings Growth Index

100%
40%
0%
-48%
-100%

Grey = NBER Recessions

1875 1880 1885 1890 1895 1900 1905 1910 1915 1920 1925 1930 1935 1940 1945 1950 1955 1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010

TTSWong Advisory

The strategy is simple: buy the S&P 500 when the earnings growth index is below -48% or when it is rising. The first buy logic is a contrarian play and the second is a trend follower. Sell signals must meet two conditions: the earnings growth index must be falling, and it must be under 40%. The 40% threshold prevents one from selling the market prematurely when earnings growth remains strong.

Figure 1 shows the resulting bullish and bearish signals from 1875 to present.

- 3 -

Earnings growth is a key market driver, watched closely by both momentum players and value investors. The signals shown in Figure 1 demonstrate that the model avoided the majority of business-cycle-linked bear markets. The EG model, however, could not envision events that were not earnings-driven, such as the 1975 oil embargo and the 1987 program-trading crash.

Like the Holy Grail, my EG model outperforms buy-and-hold in both compound annual growth rate (CAGR) and risk (standard deviation and maximum drawdown). Since 1875, the CAGR of EG was 9.7% with an annualized standard deviation of 12.5% and a maximum drawdown of -42.6%. By comparison, the buy-and-hold strategy with dividend reinvestment delivered a CAGR of 9.0% with a standard deviation of 15.4% and a devastating maximum drawdown of -81.5%.

Since 2000, the EG model has issued only two sell signals. The first spanned January 30, 2001 to August 30, 2002 – during which time the dot-com crash obliterated one third of the S&P 500's value. The second sell signal came on June 31, 2008, right before the subprime meltdown started, and it ended on March 31, 2009, three weeks after the market bottomed. Who says that market timing is futile? Both Holy Grail and EG worked not by predicting the future, but by steering investors away when the market trend and/or the fundamentals were hostile to investing.

Earnings growth is a yardstick to measure the health of 500 US corporations. Stock price, however, discounts information beyond such microeconomic data. In order to gauge the well-being of the economy more broadly, I need a macroeconomic climate monitor.

But the economy is extremely complex. Meteorologists monitor the weather by measuring the temperature, pressure, and humidity. How do we monitor the economy?
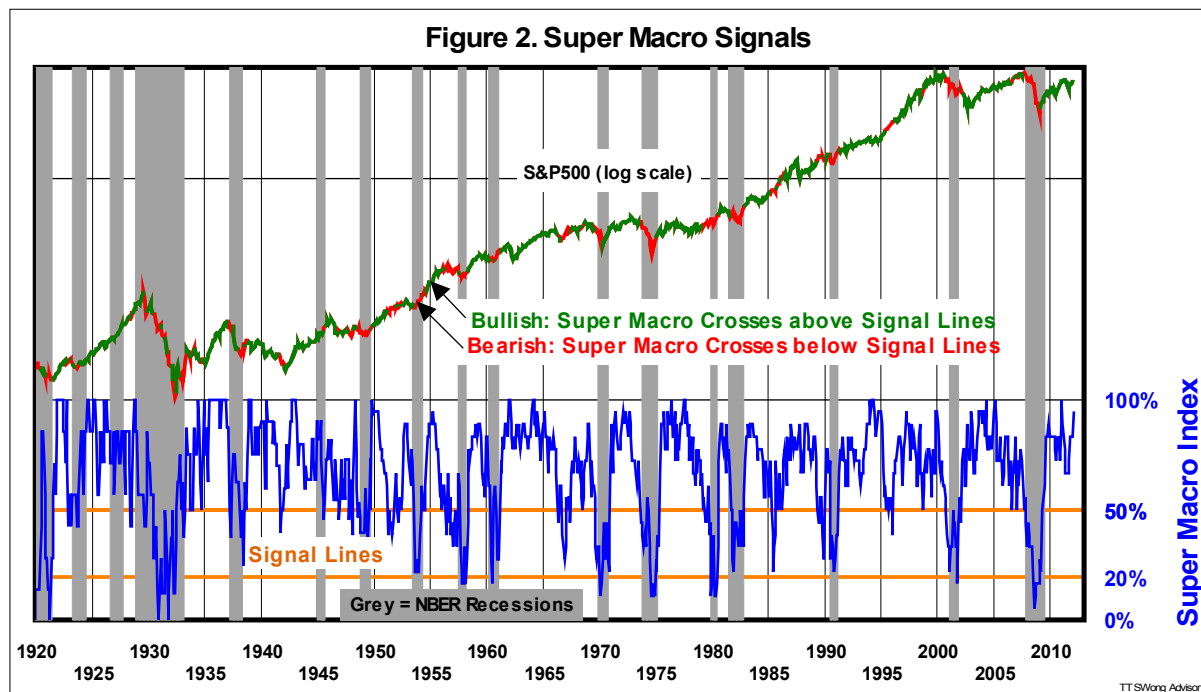
My Super Macro model

Before investing, we should first find out how the economic engine is running. If one wants to know the operating conditions of an engine, he reads gauges installed to track the engine's inputs, outputs, control valves, and feedback loops.

Table 1 lists the 18 gauges I watch to calibrate the economic engine, which I then integrate into a monitoring system I call "Super Macro." The EG model is one of the sub-components of Super Macro. In this paper, I have fully disclosed the design of the EG model. The details of the rest of remaining models are proprietary, but I can assure you that they satisfied the five design criteria for a robust model.

Super Macro performance: January 1920 to March 2012

Figure 2 shows all Super Macro signals since 1920. The blue line is the Super Macro Index (SMI), which is the sum of all signals from the 18 gauges listed in Table 1. There are

two orange "Signal Lines." Super Macro turns bullish when the blue line crosses above either one of the two signal lines and remains bullish until the blue line crosses below that signal line. Super Macro turns bearish when the blue line crosses below either signal line and remains bearish until the blue line crosses above that signal line. The color-coded S&P 500 curve depicts the timing of the bullish and bearish signals.


Figure 2. Super Macro Signals

The Super Macro index has demonstrated its leading characteristics throughout history. While my EG model didn't detect the oil embargo recession from 1974 to 1975, the SMI began its decline in 1973 and crossed below the 50% signal line in November 1973, just before the market plunged by 40%. From 2005 to 2007, during a sustained market advance, the SMI was in a downward trend, warning against excessive credit and economic expansions. On September 30, 2008, at the abyss of the subprime meltdown, the SMI bottomed; it then surged above the -20% Signal Line on March 31 2009, three weeks after the current bull market began.

Like the Holy Grail and EG models, Super Macro outperformed buy-and-hold in both CAGR and risk. From 1920 to March 2012, the CAGR of Super Macro was 10.1%, with an annualized standard deviation of 14.1% and a maximum drawdown of -33.2%. By comparison, the buy-and-hold strategy with dividend reinvestment delivered a CAGR of 9.9% with a standard deviation of 17.2% and a maximum drawdown of -81.5%.

Super Macro, Holy Grail and the buy-and-hold strategy

- 5 -

Let's compare Super Macro and Holy Grail to the S&P 500 total return from 1966 to March 2012, the period that is the most relevant to the current generations of investors. It covers two secular bear markets (from 1966 to 1981 and from 2000 to present) and one secular bull cycle (from 1982 to 1999). Secular markets, like cyclical markets, can be objectively defined. They will be the topics of a future article.

Figure 3 shows cumulative values for a $1,000 initial investment made in January 1966 in each of the three strategies. The Holy Grail outperformed the S&P 500 in the two secular bear cycles, but it underperformed during the 18-year secular bull market. As noted before, the buy-and-hold approach did not make sense in bear markets, but it worked in bull cycles. The cumulative value of Super Macro depicted by the blue curve always beat the other two throughout the entire 46-year period.

Figure 3. Super Macro, Holy Grail, and The S&P500 Total Return
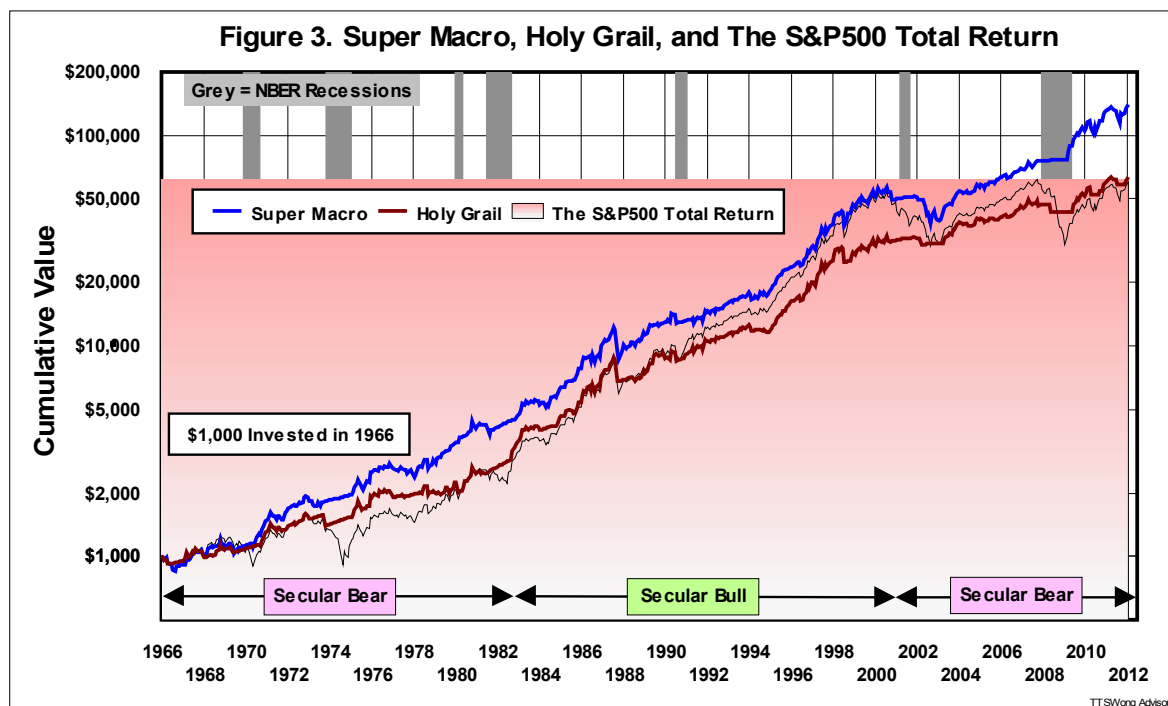
The CAGR of the Super Macro model from 1966 to March 2012 was a spectacular 11.4%, with an annualized standard deviation of 12.5% and a maximum drawdown of -33.2%. The Holy Grail model in the same period had a CAGR of 9.5%, with a lower standard deviation of 11.2% and a smaller maximum drawdown of -23.2%. By comparison, the S&P 500 total-return index delivered a CAGR of 9.3% but with a higher standard deviation of 15.4% and a massive maximum drawdown of -50.9%.

The current secular bear market cycle, which began in 2000, highlights the key differences between Super Macro, the Holy Grail, and the buy-and-hold approach. The S&P 500 total return delivered a meager 1.5% compound rate, with a standard deviation of 16.3% and a maximum drawdown of -50.9%. The trend-following Holy Grail returned a compound rate

of 6.2%, with a low standard deviation of 9.5% and a small maximum drawdown of only -12.6%. Super Macro timed market entries and exits by macroeconomic climate gauges. It incurred intermediate levels of risk (a standard deviation of 12.4% and a maximum drawdown of -33.2%), but it delivered a remarkable CAGR of 8.5% from January 2000 to March 2012.

The main difference between a macro model and a technical model is that the timing of fundamentals is often early, while a trend follower always lags. In the next article, I will present an original concept that turns the out-of-sync nature of these two types of timing models to our advantage in investing.

Rule-based models achieve the two most essential objectives in money management: capital preservation in bad times and capital appreciation in good times. If you are skeptical about technical timing models like the Holy Grail, I hope my fundamentals-based Super Macro model will persuade you to take a second look at market timing as an alternative to the buy-and-hold doctrine. Timing models, both technical and fundamental, when designed properly, can achieve both core objectives, while the buy-and-hold approach ignores the first one. Over the past decade, we saw how fatal not paying attention to capital preservation can be.

Theodore Wong is the President of TTSWong Advisory, a research firm offering clients consulting services and custom-designed timing models. He can be reached at ttswong.advisory@gmail.com.

www.advisorperspectives.com

For a free subscription to the Advisor Perspectives newsletter, visit:
http://www.advisorperspectives.com/subscribers/subscribe.php