

CHARLES DOW LOOKS AT THE LONG WAVE

Charles D. Kirkpatrick II, CMT

Using the stock market principles outlined by Charles H. Dow, how could we look at the long wave in stock prices?

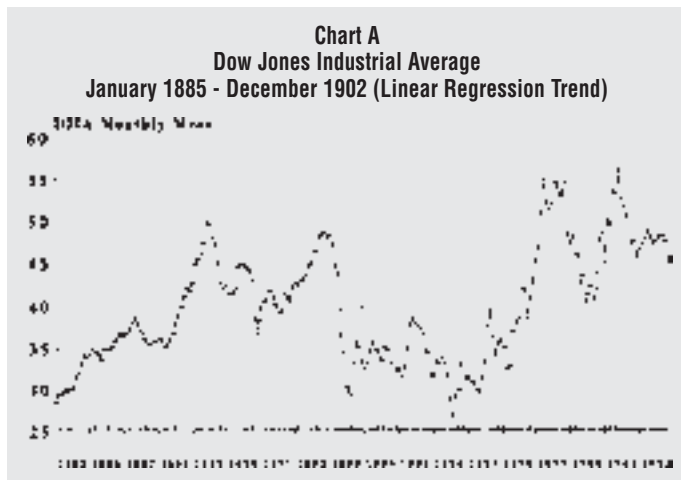
Dow published *The Wall Street Journal* beginning in 1889 and, unfortunately, died in 1902. He wrote during a period of generally rising stock prices from the depression lows in the 1870s to the then all time high in 1901. During that period Dow formulated his theory of the stock market. It consisted of two important components: the cyclical nature of the markets and in the longer cycle, the “third wave,” the need for confirmation between economically different sectors, specifically the industrials and the railroads.

Following an earlier analogy between the stock market and ocean waves during the tidal cycle, Dow hypothesized in his famous *Wall Street Journal* editorial of January 4, 1902:

“Nothing is more certain than that the market has three well-defined movements which fit into each other. The first is the variation due to local causes and the balance of buying and selling at that particular time. The secondary movement covers a period ranging from 10 days to 60 days, averaging probably between 30 and 40 days. The third movement is the great swing covering from four to six years.”

Some technicians, especially cycle analysts, would quibble with the simplicity of Dow’s breakdown since there is evidence of other waves with periodicity between 40 days and four years. However, cycle analysts would also have to acknowledge that Dow’s breakdown is certainly accurate, though perhaps not inclusive, and that the periods he mentions are, remarkably, still the dominant cyclical movements today.

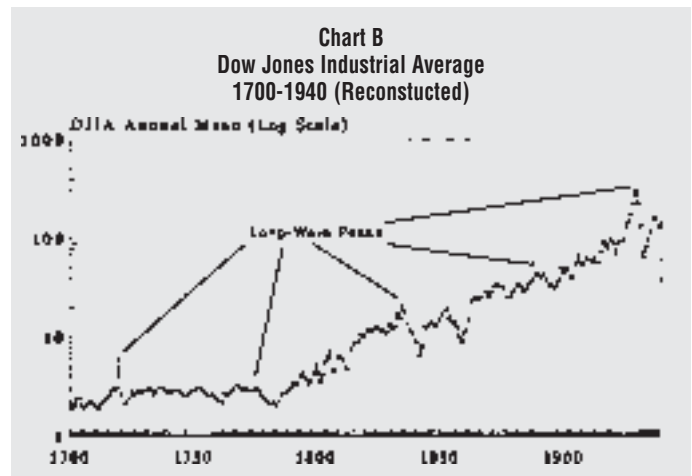
But Dow stopped short at the four- to six-year cycle, essentially the business cycle. He assumed that stock prices had an underlying uptrend about which these cycles oscillated. This was consistent with his experience at the time. Stock prices (see chart A, Dow Jones Industrial, 1885-1902) had wild gyrations during the late 19th Century, but the underlying trend was generally upward. He undoubtedly would have added a fourth wave, or “long wave,” had he lived to see the 1929-32 crash.



Aside from recognizing that the stock market had a pattern, which is the basis for technical analysis, Dow also recognized, in his theory of confirmation between the Industrial Average and the Railroad Average, that there must be an economic rationale for any signals given by the stock

market price action. Most pure technicians conveniently overlook this because it diverges from a strict price analysis. Unfortunately, investment analysts have evolved into three camps since Dow – technicians, fundamentalists and academics – and as seems to be the way of human nature, they generally disregard the other’s work to reinforce their own identity. However, Dow was above all that, (or at least before it), and considered the economic rationale for a cyclical turn in the stock market just as important as the technical.

In the post-1929 era, we now know that the underlying long-term uptrend in stock prices can be severely interrupted. From looking at stock prices going back several hundred years we also note that the 1929-1932 decline was not an anomaly. It occurs with frightening regularity, roughly every 40 to 60 years (see Chart B, Dow Jones Industrial, Reconstructed, 1700-1940). We call this cycle the “long wave” and ponder on how Dow would have analyzed it.



As an aside, there are still many analysts, especially academics, who believe that the long wave is imaginary. Their thesis is based on the assumption that markets don’t have a “memory.” They argue that today’s prices are totally independent of yesterday’s, of last week’s, of last year’s and certainly of 50 years ago prices. Furthermore, since Fourier transforms and other sophisticated mathematical techniques have been unable to identify with certainty such cyclicity, it probably doesn’t exist. On the other hand, new experiments, especially those with non-linear mathematics, are beginning to knock down the “no memory” thesis. Edgar Peters, in his book *Chaos and Order in the Capital Markets*, suggests that the stock market has at least a four year memory. Professors McKinley and Lo from Wharton and MIT have demonstrated that stock price action is inconsistent with a “no memory” thesis and are now using non-linear mathematics to study prices. Professor Zhuanxin Ding from the University of California has shown that stock prices act as if they had long memories. Even simple moving averages, as studied by two professors at the University of Wisconsin, Dr. William Brock and Blake LeBaron, can generate profitable trading signals from prices alone, an inconsistency with the “no memory” thesis. *The Economist* wrote in a special section on the *Frontiers of Finance* on October 9, 1993:

“This was a shock for economists. Might chartists, that disreputable band of mystics, hoodwinking innocent fund managers with their entrail-gazing techniques and their obfuscatory waffle about double-tops and channel break-outs, be right more often than by chance? How could it be?”

Whether we believe in price memory or not, charts of stock prices since the South Sea Bubble in 1720 show that there are obviously times when the stock market experiences enormous, speculative rises and subsequent, disastrous declines. These major events occur at periods considerably longer than Dow’s four- to six-year movements. Furthermore, when we look at other economic data, such as commodity prices, GNP (even U. S. Post Office revenue), etc., we see the same long-term periodicity.

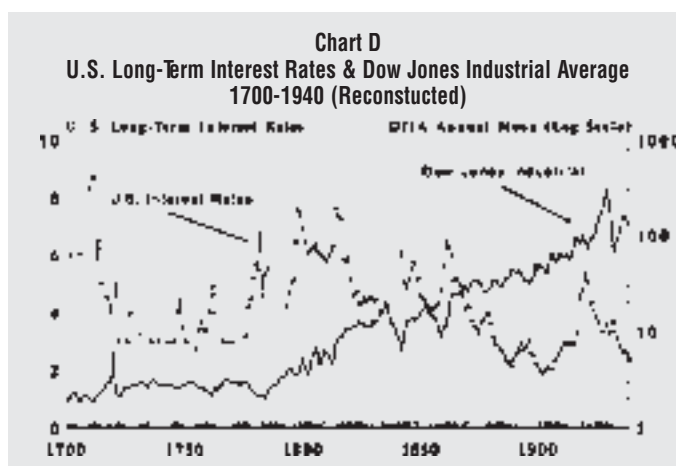
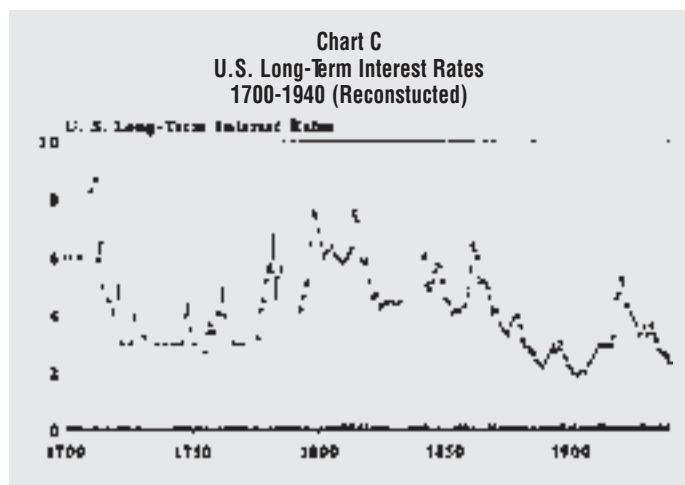
How would Charles Dow have looked at this long wave price action for signals? Probably he would have begun by looking only at the highs and lows of each four- to six-year cycle. Intermediate-term motion would be largely irrelevant to the long wave. Simplistically, he would likely have stated that the long wave was up when the tops and bottoms of the four-year cycles were making new highs, and conversely, when the tops and bottoms were making new lows, the long wave was declining.

In the last 60 years, this approach would have missed the 1929 crash, but the ultra long-term investor would have sold his stocks in 1930 when the 1929 low, a four-year cycle low, was broken. It would also have told the investor in 1950 that the long wave was turning upward, that it was time to invest in the stock market. Unfortunately, there would have been several false signals. For example, in the 1970s, two four-year cycle lows broke below previous four-year lows, wrongly suggesting that the long wave was headed down again. Also, in the 1930s, after the initial bottom in 1932, several four-year cycle lows were broken between 1937 and 1949, suggesting that the long-term cycle was turning down again after having bottomed in 1932.

False signals also occurred in Dow’s original work on the four-year cycles and are the reason for his turn to confirmation between the Industrial and the Railroad averages. He based his confirming signals on the economic assumption that expansion in industrial profits could be a temporary anomaly but not if the produced goods were being shipped, by railroads, to customers. A confirmation between the two averages in either direction suggested that the new trend was real.

Unfortunately, over the long wave, the theory of industrials versus railroads breaks down. First, over time, railroads are not always the principal form of transportation for goods (How do you ship the service industry? and how about canals in the 1830s?), and second, the apparent cause for the long-wave has more to do with capital formation, debt and money than with industrial production.

Money has a price too – the interest rate. Interestingly, interest rates



over the past several hundred years have also had a long wave that has corresponded in period, if not in turning points, with the stock market (see Chart C, U.S. Long-Term Interest Rates, Reconstructed, 1700-1940). For this reason, we assume Dow would have looked to the interest rate market for confirmation of a trend change in the long-term stock market.

Looking at interest rate trends, however, is not as simple as looking for a confirmation in trend between industrials and rails. Long wave interest rate cycles do not overlap precisely with long wave stock price cycles (see Chart D, U.S. Long-Term Interest Rates & Dow Jones Industrial Average, Reconstructed, 1700-1940). They will not “confirm” a move to new highs or lows as the rails will the industrials. It is important that one understand more about the history of the long wave direction in interest rates before a signal can be confirmed for the stock market.

The confusing aspect between long wave interest rates and the stock market is that sometimes both can be moving in the same direction and sometimes each can be moving in opposite directions. This is because stock prices have a corporate profit or growth component, as well as an interest rate or alternative investment component. In the former, stock prices rise as a result of economic growth, industrial expansion and profitability along with interest rates; in the latter, stock prices rise as an alternative investment to falling yields on fixed income securities. The latter, as we shall see, is more dangerous.

When we look at the evidence over the past several hundred years we see alternating periods of rising and falling interest rates. These are called “secular” moves and have to do with the expansion and contraction of capital and debt.

Notice in Chart D that the peak in interest rates always precedes the long wave peak in stock prices by many years. When interest rates and the stock market are both rising together, the industrial growth component is dominant. The period after interest rates peak is when stock prices rise as an alternative investment. During that period declining interest rates force yield-conscious investors into alternative investments of lesser quality in order to maintain yield. Since stocks are the most risky and least quality investments, they become the final alternative, especially when their price continues to appreciate as a result of increasing cash flow into the stock market. The recent conversion of government-guaranteed CD deposits into stock mutual funds is typical during this period. Unfortunately, it eventually leads to the declining long wave in stock prices.

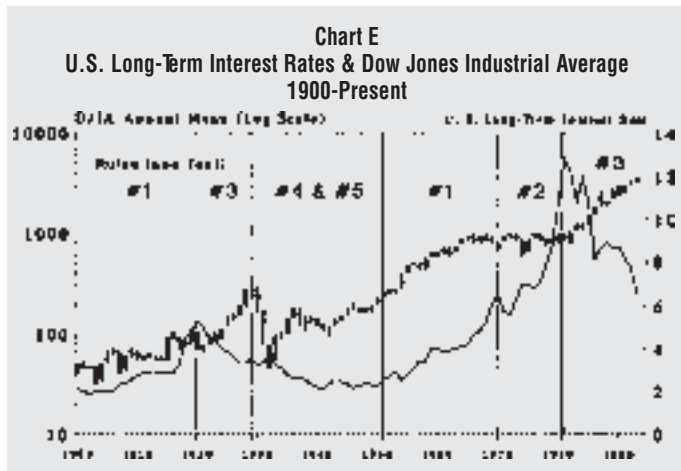
Each declining stock market wave has occurred only during a secular decline in interest rates. Over the past several hundred years, you won’t see a long wave decline in stock prices while interest rates are rising. Declining interest rates at first can cause a financial speculation and an enormous rise as yield is chased through lesser quality, but eventually declin-

ing interest rates are unhealthy for the long wave in stock prices. With this in mind, Dow would likely have developed the following confirmation rules for the long wave in stock prices:

1. When four-year stock price cycles reach new highs and business-cycle interest rates are rising, the long wave is rising.
2. When four-year stock price cycles break below previous lows and business-cycle interest rates are rising, the long wave is rising.
3. When four-year stock price cycles break above previous highs and business-cycle interest rates are declining, the long wave has been given a warning but is still rising.
4. When four-year stock price cycles break down below previous lows and business-cycle interest rates are declining, the long wave is declining.
5. After a decline, the long wave will not turn up until business cycle interest rates also turn up.

Using this set of rules, let's walk through the past 75 years using the accompanying Chart E of long-term U.S. interest rates and the Dow Jones Industrial Average since 1900.

From Dow's death in 1902 both interest rates and the stock market rose.



According to rule #1, the long wave was rising. Interest rates peaked in 1920 and declined through 1946. Declining interest rates are a warning to be confirmed later by a breakdown in the stock market. Thus, under rule #4, when the stock market broke to new lows in August 1930 (DJIA monthly mean = 231), it confirmed the long wave downturn.

During the 1930s and 1940s, while the initial bottom in 1932 turned out to be the actual bottom, the gyrations were large and the stock market trend generally flat. Interest rates declined until the end of World War II. Any upward breakout had to be taken skeptically (rule #5).

Finally, in March 1950, interest rates broke above their earlier business-cycle high (rule #5 and #1). Since rising interest rates are always accompanied by a rising stock market long wave, this was the buy signal. The DJIA was 249 at the time.

In the 1970s, the stock market broke below its prior four-year cycle lows in 1970 and in 1974. However, interest rates were still rising and thus the long wave was still rising (rule #2).

Interest rates finally peaked in September 1981. This was a warning (rule #3), similar to the interest rate peak in 1920, that the long wave was ending. Currently, the stock market has yet to break below a previous four-year cycle low and thereby confirm a new decline in the long wave. The last four-year low was 2340 in the DJIA in 1990*. Should it be broken before a higher low is established, we will have confirmation of the downturn in the long wave.

Would Charles Dow have looked at the long wave in this manner? We don't know. But his principle of first observing price action simplistically and then confirming it with other markets, using some economic justification, gives us an excellent background for analysis of the long wave and teaches us to remain broad-minded and rational. His legacy is more than just a stock market theory. It is a way of thinking that transcends the narrow confines and pettiness of much investment analysis.

March 30, 1994

*Note: 8064 in the DJIA in 2001, the NASDAQ has already begun its long wave decline.

CDK, 2002