

# Market Yardsticks

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## Introduction to Indexes

### The incentives for creating market yardsticks are:

1. Indicate how the “average invested dollar” is faring
2. Indicate how the “average stock” is behaving
3. Provide a measure for gauging the behavior of an individual portfolio
4. Identify the short- and long-term market trends
5. Compare stock markets internationally, domestic stock markets by sector, or domestic asset classes.

**Indexes may be “weighted” or unweighted.** Weighted indexes are computed by multiplying the price [P] of each index component by the market capitalization [MC] of that component [market cap = price times number shares outstanding], then dividing this by the total market capitalization of all components in the index.

$$\text{Weighted Index} = \text{Sum of } (P_i)(MC_i) / \text{Sum of } MC_i$$

For example, the MC of MSFT and GE are each about \$0.5 trillion and the “Sum of MC<sub>i</sub>” for the S&P 500 Index is about \$11 trillion. Therefore, the prices of each of these stocks would get a weight of 4.5% [= 0.5/11] in the S&P 500 Index; put another way, the price movements of just these two highly-valued stocks account for 9% of the Index’s behavior.

If the S&P 500 Index was not weighted, each of the component stocks would account for just 0.2% [= 100%/500] of the index. Hence MSFT and GE have 22½ times the influence because of weighting.

The **benefit of weighting an Index** is that it shows how the *typical invested dollar is behaving*. The most highly valued stocks have dramatic influence on the index, as we just saw. That’s why there can be little performance difference between such weighted Indexes as the S&P 500, Russell 1000, and Wilshire 5000. The few hundred largest capitalization stocks tend to govern all of these Indexes... except in the atypical circumstance when a *large number* of small cap stocks have price changes that are very divergent from the highest cap stocks.

The **disadvantage of weighting an Index** is that the price behavior of the typical component stock is masked. A broad index, by design, also hides the response of stock sectors so if a portfolio has made deliberate concentrations, say in technology or finance, a broad index may not be a good benchmark of that portfolio’s performance.

**Most published indexes are capitalization weighted;** the *two major exceptions* are the **Dow Jones Averages** (see below) and the **Value Line Composite (Geometric)**. The Value Line effectively takes the average of the *percentage* price changes of

approximately 1700 actively traded stocks. This gives a much better view of the *average stock's* behavior. Some commentators have noted that any geometric average is intrinsically biased to produce results that are lower than a corresponding arithmetic average. Hence, the Value Line Composite (Geometric) Index may not be the best yardstick for making long-period market comparisons since its "undercounting" is compounded over time.

Other "disconnects" between a specific Index and a personal portfolio can be:

1. Absence or insignificance of utilities or transportation companies
2. Emphasis on small cap or value companies
3. For debt securities, differences in maturity date or quality ranking
4. For foreign markets, price expression in local currency or US\$

### The Dow Jones Industrial Average

A precursor of the **Dow Jones Industrial Average** was first computed in 1884 by Charles Dow but regular publication was initiated in May 1896 with 12 stocks. The DJIA was expanded to 20 issues in 1916, and took its present 30 stock form and divisor methodology (see below) in October 1928.

Though taking a simple average of leading stock prices seems trivial and possibly even faulty to us today, a hundred years ago there was no yardstick allowing investors to gauge whether "the market" was rising or falling. Charles Dow was looking for trends that would be of use to traders. We should remember that stock investment in those days was an activity only for wealthy speculators and often involved swindles and manipulations that were banned by New Deal legislation in the 1930s under the first SEC Chairman Joseph Kennedy. The hot stocks at the turn of the century were railroads, but in the ensuing twenty-five years, these were supplanted by growing auto manufacturers, electric utility and electric appliance makers, and radio broadcasters.

The 30-stock DJIA made its 1928 debut at a value of 240, but fell to 41 by July 1932 [an 83% drop!!]. It wasn't until 1972 that the Average reached 1000; it hit 2000 in January 1987; 5000 in November 1995; and 10,000 in March 1999.

Before 1928, the DJIA was computed as a true arithmetic average... one took the sum of the prices of the component stocks and divided by the number of stocks [the "Dow divisor"]. This caused discontinuities in the Average whenever stocks were added or removed, and whenever splits occurred. To eliminate these jumps in the data, a new method was introduced: the "Dow divisor" was adjusted to whatever value was required to keep one day's closing value equal to the next day's opening value.

The large number of stock split events over the past 72 years have worked to make the Dow divisor ever smaller over time. As of yesterday, the divisor was 0.20435952 [you can look this up every day in the Money and Investing section of the Wall Street Journal at the bottom of the Dow Jones Averages listing where the "hour by hour" DJIA numbers are presented]. *Since the divisor is less than 1.0, it is effectively a multiplier.* The DJIA changes about 5 points for every \$1 change in the price of a constituent stock.

Critics of the Dow Jones Industrial Average have highlighted these faults:

1. Only 30 stocks are included
2. Price averaging gives undesired control of the Index to high-priced stocks
3. A lack of capitalization weighting distances the Average from market reality
4. The "divisor" method of adjusting for splits is awkward and makes equal-size point changes meaningless over time
5. The selection of DJIA component stocks is capricious

Dow Jones' editors acknowledged some of these faults when they introduced new world stock Indexes in the 1990s. Those Indexes were capitalization weighted and included a much larger number of component stocks.

Last month, the DJIA swapped four stocks, bringing in Microsoft, Intel, Home Depot, and SBC Communications, while eliminating Chevron, Goodyear, Sears and Union Carbide. [See Attachment for all changes made since 1928.]

By my accounting, the DJIA can be seen to cross 8 sectors:

Pharmacy:	JNJ, MRK
Technology:	HWP, IBM, INTC, MSFT
Telecommunctns:	SBC, T
Materials:	AA, DD, IP, MMM, XON
Financials:	AXP, C, JPM
Consumer Prods:	DIS, EK, KO, MO, PG
Retailing:	HD, MCD, WMT
Manufacturing:	ALD, BA, CAT, GE, GM, UTX

There are now six companies [20%] in computers and telecommunications but still eleven participants [37%] from manufacturing and materials. In contrast, the S&P 500 has 25% of its listing in technology and 14% in "Industrials" and "Durables".

For further information about the Dow Averages, go to web site:

<http://averages.dowjones.com>