Firm Churn
The Dynamics of Turnover on Main Street and Wall Street

by

John V. Duca
Senior Economist and
Assistant Vice President

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Research Department
Federal Reserve Bank of Dallas

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Since the mid-1970s, the U.S. economy has undergone several waves of creative destruction in which capital and labor have shifted from declining to growing industries. In this process of what our Bank refers to as the churn, the economy redirects resources toward their most profitable use and there is often a substantial turnover among firms. Along with an increased pace of churn on Main Street, there has been an increased pace of turnover among the leading stocks on Wall Street, something which our Bank President, Bob McTeer, likes to call "firm churn." To a great extent, developments on Main Street affect Wall Street, and vice versa. For example, innovations in computer technology have driven up the value of high-tech stocks, while improvements in financial markets have helped nurture the development of the high-tech industry. Today I hope to provide a few snapshots of how the churn in our economy is reflected in the stock market.

The stock market values (or market caps) of different firms mirror aspects of Main Street because stock valuations embody the collective judgement of many investors about the future profitability, growth, and risk of various firms. As new industries emerge and old ones die, the relative stock market capitalization or caps of firms will change. In this way, creative destruction on Main Street is mirrored on Wall Street.

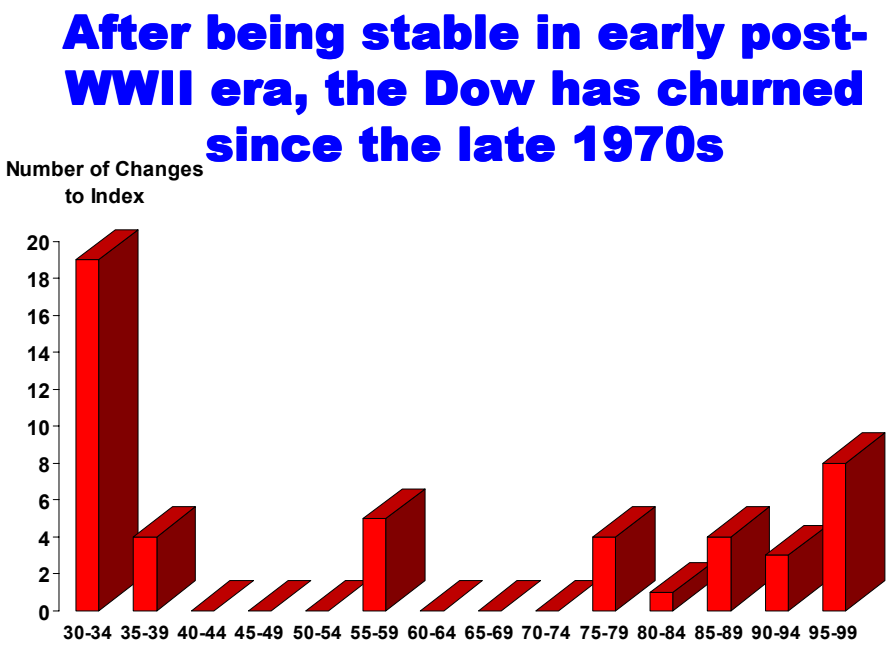
The rest of my presentation first focuses on the changing pace of stock market churn. Then, I'll relate changes in our economy to the churning industrial mix of leading stocks. At the end, I'll briefly summarize with some conclusions about how the stock market can help us gauge the overall pace of the churn, changes in the mix of industries that are underway in our economy, and future changes in industrial structure as well.

How the Dow Churns

One of the best available gauges of stock market churn over the long haul is the pace of change in the firms that make up the Dow Jones industrial average. Charles Dow created this index in 1896, using the average price of twelve leading stocks. Many of the original firms produced farm goods and were later replaced by rising manufacturing firms. Indeed, only one of the original twelve, GE (which was created by Thomas Edison), is currently in the index and this largely owes to GE's success in transforming itself. The Dow was expanded to cover 20 stocks in 1924 and was further expanded in 1928 to cover 30 companies. Of these 30, only three are still in the index: GE, GM, and Exxon. Over time, the Dow has become increasingly more service and high-tech oriented and less dominated by heavy manufacturing and energy firms. For example, since the mid-1980s, firms like McDonald's, Intel, and Microsoft have replaced old Dow stalwarts such as Goodyear, U.S. Steel, and Texaco.

Much, but not all, of the turnover in the Dow since 1928 occurred during the Great Depression, as shown in Figure 1, which plots the number of firms in the Dow that were replaced by new ones in each five year period since 1930. The number of changes peaked in the early 1930s and then generally remained low through the mid-1970s. Although some changes were clumped together in the late 1950s, the early post-World War II period was an era of stability. Since the mid-1970s, however, the composition of the Dow has changed at a faster pace reflecting a faster churn in the U.S. economy.

Figure 1



Prior to the last two economic expansions, there was a tendency for the churn to be concentrated during downturns, such as the Great Depression or the recessions of the late 1950s and late 1970s. More recently, however, we have seen a fast churn during the last two economic expansions. To some extent this reflects the timing of the high-tech revolution, as exemplified by the addition of Hewlett-Packard, Intel, and Microsoft to the Dow during the 1990s. In addition, the faster churn may also partly stem from steps taken to deregulate the U.S. economy in the late-1970s and early-1980s. These actions, which fostered greater competition and increased foreign trade, have allowed the natural churn of our market system to operate during good times when job losers can find new opportunities. In this way, our recent experience with free market policies during the long expansions of the 1980s and 1990s have helped us recognize what Michael Cox has called "the upside of downsizing."

One drawback of tracking the Dow's composition is that firms in the Dow are picked partly because they have long track records that suggest they will endure as leading companies. As a result, it takes a long time for a rising firm to enter the index. This factor, plus the small number of stocks in the Dow, limits the Dow's ability to track the industrial mix of leading stocks, a subject which is better addressed using the S&P 500.

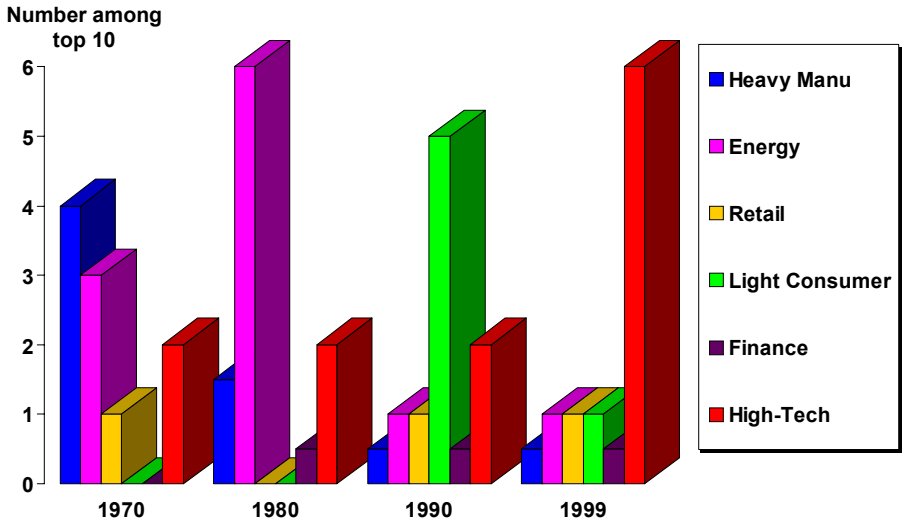
How the S&P 500 Churns

Relative to the Dow, the S&P 500 is a broader index of stocks that typically includes Dow components. The S&P 500 is comprised of 500 stocks whose breadth and blue chip characteristics have encouraged investors to use the S&P 500 for passive index investing and as a benchmark for judging the returns of individual stocks or of actively managed portfolios. These characteristics also make the top ten U.S. firms in the S&P 500 a good mirror of the industrial mix of leading U.S. firms. (This point is emphasized in a *Wall Street Journal* article by E.S. Browning, entitled "Will Tech Stocks' Surge End With the Decade?" pages C1 and C15, August 20, 1999.)

For example, as shown in Figure 2 by the blue bar on the left, four of the ten most valuable firms in 1970 were manufacturers, including GM, Kodak, GE, and Xerox. Of the remainder, three were oil producers as shown by the burgundy bar, one was a retailer—the yellow bar—and two, depicted by the red bar were early high-tech firms—IBM and ATT. By 1980, six were in the energy industry—the burgundy bar—and only one and one-half of the top ten firms were heavy manufacturers, with GE being reclassified as being half a manufacturing firm and half a finance firm. This shift in industrial mix reflected two factors. One was the rise of foreign manufacturers, which reduced the profitability and market dominance of their traditional U.S. counterparts. The second was the rise of oil prices which boosted the value of oil reserves—vaulting ARCO into the top ten—and the returns to oil exploration—vaulting Schlumberger into the top ten.

Figure 2

Industrial composition of the top ten U.S. firms in the S&P 500



A decade later, however, only one energy firm remained among the top ten. This reflected not only the sharp decline of oil prices in the mid-1980s, but also the consumption boom of the 1980s. Indeed, by 1990, five of the top ten firms—the green bar—produced light consumer goods, including household product maker Procter and Gamble, and food industry giant Coca Cola. The consumer boom of the 1980s also propelled an innovative retailer, Wal-Mart, into the top ten ranks of the S&P 500, as reflected by the yellow bar.

While consumer spending remained strong in the 1990s, the mix of household and business purchases shifted in response to the information revolution. The rise of new information technologies embodied in the personal computer, internet services, and new telecommunications devices have profoundly affected the structure of the U.S. economy and relative stock valuations as well. In fact, by August 1999, six of the top ten S&P 500 firms were high-tech companies, up from only two in 1990.

One caveat in interpreting this chart is that some changes in the industrial mix partly reflect mergers and the analysis focuses on U.S. firms. In addition, shifts in the top ten rankings probably overstate the magnitude of shifts in sales and employment. Nevertheless, changes in the top ten ranks likely reflect the *direction* of changing economic fundamentals. Another drawback of tracking these rankings is that the S&P 500 contains firms with long track records, implying that it takes a long time before newly rising firms are added. Examples include Microsoft, Intel, and Cisco Systems, which were

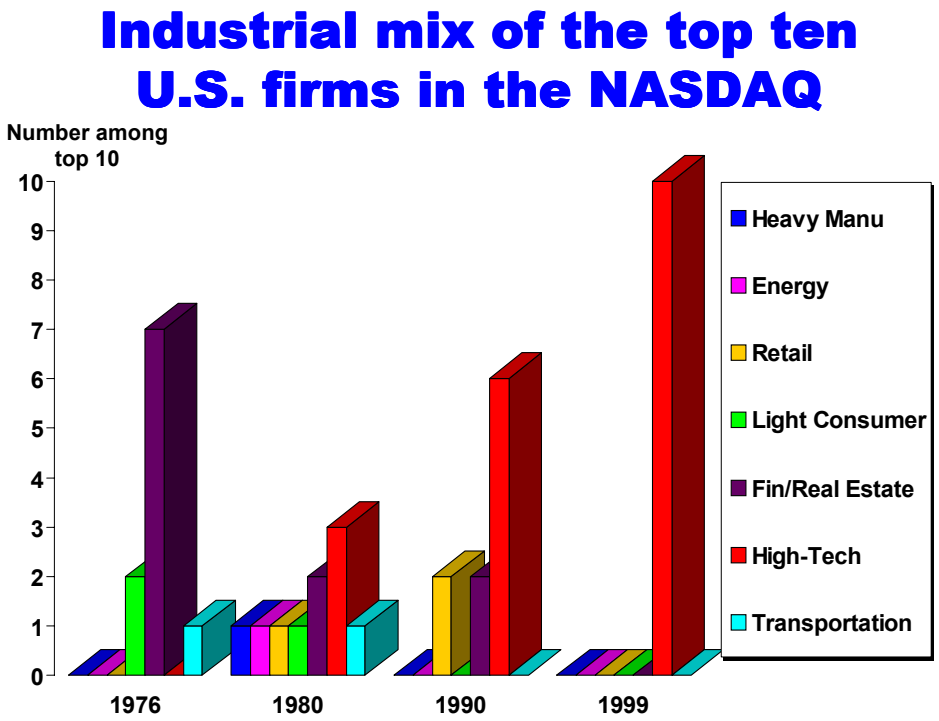
only added in the late 1990s, even though they are now among the index's ten most valuable firms. For this reason, the top S&P 500 stocks do not always provide a timely picture of where the industrial structure of the U.S. economy is headed in the long run.

How the NASDAQ Churns

Information about future trends in the U.S. economy may be reflected by the composition of the top stocks that are listed (traded) on the NASDAQ. Unlike the Dow or S&P 500, which are baskets or indexes of a fixed number of stocks, the NASDAQ is a stock exchange. It is an all-electronic trading stock exchange with no physical trading floor like the New York and American stock exchanges. Of these three exchanges, the NASDAQ is generally seen as having the easiest requirements and standards for a firm to be listed. For this reason, the NASDAQ more quickly lists risky, upstart companies with high growth prospects. As a result, the top NASDAQ firms are more likely to reflect upcoming economic trends, such as the rise of high-tech products.

While one often hears the term, "tech-heavy NASDAQ," in press reports, this description did not always fit. As illustrated in Figure 3, seven of the top ten most valuable NASDAQ firms in 1976 were financial companies, reflecting the combination of high inflation and financial market innovation in the 1970s that boosted the value of non-bank financial firms. Under these conditions, firms and households sought financial investments that were less battered by inflation than were bank deposits that suffered from caps on deposit interest rates. As a result, nonbank financial firms gained market share from banks and were important relative to other companies in the growth-oriented NASDAQ.

Figure 3



However, by 1980, three high-tech firms rose to the top ten, as the personal computer industry began to blossom. This trend continued over the next 20 years. By 1990, six high-tech firms were among the top ten most valuable NASDAQ companies, and by summer 1999, all of the top ten NASDAQ firms were high-tech concerns. The more dramatic rise of high-tech firms in the NASDAQ rankings relative to that of other exchanges or indexes largely stems from the more open, upstart nature of this exchange.

To some extent, the current predominance of high-tech firms among the NASDAQ's leaders reflects the evolving roles played by the NASDAQ. In the past, this exchange served as a stock market incubator in that the most valuable firms in the NASDAQ tended to "graduate" to being listed on the NYSE when they become established enough. This contributed to the tendency for there to be greater turnover in the top ten most valuable firms in the NASDAQ than in the NYSE. Today, however, the NASDAQ has become a home to many leading high-tech firms that have chosen to remain listed on the NASDAQ rather than shifting to the NYSE. For example, back in the 1970s, American Express was listed on the NASDAQ before switching to the NYSE. However, in the late 1990s, Microsoft, Intel, and Cisco Systems have remained in the NASDAQ even though they are among the top ten most valuable firms in the S&P 500 index. As a result, there has been a build-up of high-tech firms among the most valuable NASDAQ stocks that would have been lessened by the earlier pattern of graduating from the NASDAQ to the NYSE.

The NASDAQ's role in democratizing our capital markets has also evolved. In the past, this exchange aided the development of firms after they became listed. How? By giving them a shot at developing a good reputation which might allow them to graduate to being listed on the NYSE and to gain access to lower cost debt financing in the bond and possibly commercial paper markets. Today, the NASDAQ is helping democratize our capital markets in the earlier stages of a company's development. Specifically, the huge potential returns for a new business to eventually issue stock that might someday be traded on the NASDAQ has encouraged more entrepreneurs to start businesses and more venture capital firms to provide finance for starting and expanding small businesses. This change points to the need to reinterpret stock market data as our financial and nonfinancial sectors evolve.

Conclusion

The dynamic nature of the U.S. economy is reflected not only in changing employment or sales data, but also in the changing valuations of firms in the stock market, where countless numbers of investors assess the value of companies every day. In this sense, the churn on Wall Street can be viewed as the flip-side of the churn on Main Street, to use Harvey Rosenblum's words.

My presentation gives just a few snapshots of how the stock market can provide useful information about the patterns of creative destruction in our economy. One example is the pace of change in the composition of the Dow, which has tracked the increased churn in the U.S. economy during the last twenty-five years. Another is how the leading stocks in the S&P 500 reflect the changing industrial structure of the economy. Although stock market data can be volatile, some stock market information has the advantage of being forward-looking, unlike employment data that tend to lag economic change, or sales data, that tend to reflect current conditions. In this regard, changes in the top ten most valuable NASDAQ firms back in the early 1980s gave a good indication of the high-tech revolution that has greatly restructured America's economy in the 1990s. More generally, these three examples illustrate how the stock market has reflected many of the broader economic, political, and cultural factors that have been reshaping the U.S. and the world.