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RESEARCH

The Dark Side of Index Fund Investing

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Learn about the unintentional side effects of index fund investing on market efficiency, portfolio risk management, corporate governance and corporate financial policy.

A PLETHORA OF EMPIRICAL studies have documented a negative relationship between mutual fund expenses and performance ((Carhart, 1997), (Chevalier and Ellison, 1999), (Cremers, Ferreira, Matos and Starks, 2013), (Elton, Gruber, Das, and Hlavka, 1993), (Gil-Bazo and Ruiz-Verdu, 2009), (Gruber, 1996), (Harless and Peterson, 1998)). This phenomenon has led to a rise in the popularity of index fund investing. As illustrated in Figure 1, based on data from Morningstar Direct, the proportion of mutual fund and ETF assets that are passively managed has grown from 2 percent in February of 1993 to 28 percent in November of 2013. [See Figure 1]

A large body of the literature documents that the value of stocks in the S&P 500 index change with the ebb and flow of demand from index fund investors ((Brealey, 2000), (Chen, Noronha and Singal, 2004), (Goetzmann and Massa, 2003), (Belasco, Finke and Nanigian, 2012), (Petajisto, 2011), (Shleifer, 1986)). However, there has been little investigation into the broader consequences of index fund investing on investor welfare. Complementing Wurgler's (2012) literature review, this article discusses index fund investing's unintentional side effects on market efficiency, portfolio risk management, corporate governance and corporate financial policy.

STOCK PRICE EFFICIENCY

The first problem with index fund investing that is illuminated is reduced price efficiency. Through regression analysis, Qin and Singal (2013) examine the impact of both passive ownership and nonpassive ownership in stocks on five measures of price efficiency. In an efficient market, the return-generating process of a stock should follow that of a random walk,

FIGURE 1: PLOT OF THE PERCENTAGE OF FUND ASSETS THAT ARE PASSIVELY MANAGED

This figure conveys a time plot of the percentage of open-end mutual fund and exchange-traded fund assets that are passively managed. Money market funds, funds of funds, and funds domiciled outside of the United States are excluded. Obsolete funds are included. The data was gathered from Morningstar Direct on January 7, 2014.
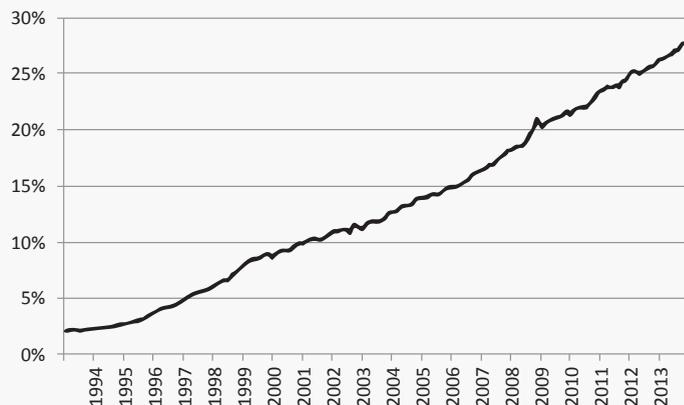
> "…index fund investors, due to their lack of participation in the price discovery process, are inadvertently reducing the allocative efficiency of the stock market."

where past return and volume data cannot be used to generate abnormal returns. Qin and Singal (2013) find that stocks with greater levels of passive ownership demonstrate greater deviations from a random walk and greater return predictability by past order imbalances. They also find that stocks with greater levels of nonpassive ownership demonstrate smaller deviations from a random walk and lesser return predictability by past order imbalances.

For the stock market to perform its vital functions in the economy, the prices of stocks must reflect their fundamental values. However, Qin and Singal show that index fund investing loosens the alignment of stock prices to fundamental values, making the stock market dysfunctional.

TRADING COMMONALITY

Qin and Singal's finding that stocks with high levels of passive ownership exhibit less price efficiency motivates an exploration into factors other than new information about fundamental value that drive the prices of such stocks. Systematic changes in aggregate demand from index fund investors appear to be one of the main factors. Through a series of event studies using the returns on stocks added to the S&P 500 from 1976 – 1987, Baberis, Shleifer and Wurgler (2005) discover statistically significant increases in comovement, gauged by R^2 from an asset pricing model regression, between the returns on stocks and the returns on the S&P 500 index when stocks are added to the index. Over a more recent period characterized by rapid growth in index fund assets, spanning 1988 – 2000, they show even greater increases in R^2s than those that were observed over 1976 – 1987. This shows that stocks exhibit price changes that more closely resemble that of the S&P 500 once they are included in the index, and this synchronicity has increased with the trend towards index fund investing. The authors also conduct tests to address the possibility that factors other than inclusion into the S&P 500 may have driven the increase in R^2 values. The results from these additional tests indicate that the changes in R^2 values are indeed caused by inclusion into the S&P 500.

To address whether or not the comovement effects, gauged by changes in R^2, dissipate over time after index inclusion, Ye (2012) uses a longer event window than Baberis, Shleifer and Wurgler and discovers that it depends on the magnitude of the change in the level of active institutional ownership in stocks around the time of index inclusion. Ye measures the change in active institutional ownership over the period spanning four quarters before being added to the index and four quarters after being added to it. Using returns over a 36-month event window, Ye finds that a statistically significant increase in R^2 only occurs for events that rank in the lowest tercile (33 percent) of change in active institutional ownership around the event. Ye also conducts a series of regressions of the change in R^2 on the change in active institutional ownership. Consistent with the results from the portfolio approach, the results from regression analysis indicate that a negative and statistically significant relationship exists between the change in active institutional ownership and the change in R^2, regardless of regression model specification.

Taken together, the studies of Baberis, Shleifer and Wurgler (2005) and Ye (2012) show that index fund investing induces greater synchronicity into stock price movements. The increased trading commonality caused by index fund investing renders a negative externality on investor welfare because it reduces the power of portfolio diversification. This is illustrated in Figure 2, provided by Sullivan and Xiong (2012). The graphics show that in more recent years investors had to hold a larger number of stocks to attain a given level of portfolio volatility. [See Figure 2]

SHAREHOLDER-MANAGER CONFLICTS OF INTEREST

Unlike their counterparts, index fund shareholders are agnostic to the future cash flow-generating ability of the companies to which they provide capital. This passivity breeds conflicts of interest between shareholders and management. This section illuminates how it adversely impacts the governance structure and financial policy of a corporation.

Brisker, Colak and Peterson (2013) provide empirical evidence that strongly suggests the passivity of index fund shareholders causes the quality of a firm's corporate governance to deteriorate upon inclusion in the S&P 500. The authors gauge the quality of a firm's corporate governance through the use of Gompers, Ishii and Metrick's (2003) Governance Index. They discover a statistically significant increase in mean Governance Index values following S&P 500 index inclusion, indicating that a firm's governance structure becomes more authoritarian rather than democratic following index inclusion.

Brisker, Colak and Peterson also gauge the quality of a firm's corporate governance through the use of Bebchuk, Cohen and Ferrell's (2009) Entrenchment Index. The Entrenchment Index is comprised of only six of the 24 provisions included in Gompers, Ishii and Metrick's (2003) popular Governance Index. Gompers, Ishii and Metrick selected the provisions that, based on conversations with financial services practitioners, are most meaningful to firm valuation.

Brisker, Colak and Peterson (2013) find companies experience a statistically significant increase in mean Entrenchment Index values following S&P 500 index inclusion, which provides further evidence that a company's corporate governance structure becomes more authoritarian following its stock's

FIGURE 2: EXCESS RETURN VOLATILITY AGAINST NUMBER OF STOCKS
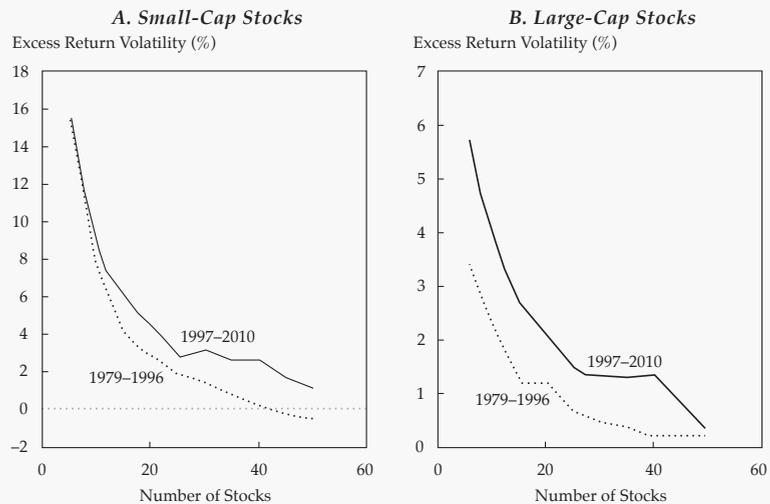
A. Small-Cap Stocks

B. Large-Cap Stocks

inclusion in the index. While the literature on how index fund investing impacts corporate governance quality is just beginning to emerge, the empirical work done thus far suggests that it creates an environment where managers have less incentive to act in the best interests of their shareholders. Put simply, "when the cat (shareholder) is away the mice (managers) will play."

Woolley and Bird (2003) explain that index constituents have privileged access to capital because their index fund shareholders will always automatically participate in future rounds of equity issuance. Through examining changes in Fama-French factor loadings, Massa, Peyer and Tong (2005) show that a stock's required return to equity drops by an economically significant 8 percent on average when it is added to the S&P 500. They also find that firms aggressively capitalize on this through increasing equity issuance. They document that a one standard larger deviation drop in a firm's required return to equity upon addition to the S&P 500 corresponds to a statistically significant 3.57 percentage point higher level of equity issuance than that of similar firms in the same period. In comparison to the average rate of equity issuance of 0.5

percent over the period of their study, the drop in required return to equity renders a rather economically meaningful impact on capital structure.

Massa, Peyer and Tong show that firms often use the newly raised equity to increase investments, largely through making acquisitions. Consistent with Stein's (1996) behavioral-based theory of capital budgeting, Massa, Peyer and Tong (2005) find that such firms exhibit poor long-run returns. For example, the average cumulative abnormal returns on firms that are added to the index, subsequently issue equity and increase investment is a statistically significant -16.56 percent over the 36 months following addition to the index. In summary, Massa, Peyer and Tong show that inclusion in the S&P 500 decreases a firm's cost of capital. In addition, constituent firms opportunistically time the market through increasing equity issuance when the cost of capital falls, and the proceeds from such issuance are often used to finance acquisitions. Massa, Peyer and Tong's findings suggest that managers are inclined to build excessively large empires when their stock is included in the S&P 500.

The central benefit of a market economy is that it allocates resources to their highest and best use. This feature creates an incentive mechanism that aligns the interest of providers of capital with users of capital. However, an emerging strand of research suggests that index fund investors, due to their lack of participation in the price discovery process, are inadvertently reducing the allocative efficiency of the stock market. ▮▮▮

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