



Does the growth of passive investing affect equity market performance?: A literature review

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Acknowledgements

We would like to thank Riccardo Curcio and Susanne Gahler for helpful comments and discussions.

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Summary

The growth of passive investing has undoubtedly created substantial benefits for investors by lowering the cost of investing (directly by providing low cost investment vehicles and indirectly by increasing the competition for investor mandates). Yet, active fund management too creates substantial benefits for investors by supporting the research, trading, and monitoring that is essential for an equity market to work well.

Active fund management is necessarily more costly than passive fund management, and these costs can cause active funds to (on average) underperform the market.

Consequently, each investor individually has an incentive to take market quality as given and opt for lower cost passively managed funds. If a sufficient proportion of investors do opt for passive management, then it is possible that these individually sensible choices may in aggregate lead to investor detriment due to their adverse impact on market quality and so on overall economic performance.

The task of designing a regulatory regime that enables market participants to create the well working equity market that the economy requires while simultaneously minimizing the cost of bringing about and sustaining that market therefore poses complex questions for regulators.

1. Introduction

Publicly listed corporations control and organise a substantial proportion of the UK's productive resources. Yet, as Adam Smith pointed out, since the executives of these companies manage 'other people's money...Negligence and profusion...must always prevail, more or less, in the management of the affairs of such a company.' Given the importance of publicly listed companies, negligence and profusion – or, to use the modern term, agency problems – clearly have the potential to adversely affect overall economic performance. It is therefore vital that negligence and profusion prevail less rather than prevail more.

An equity market that works well plays a crucial role in keeping negligence and profusion in check. A well working equity market is one that is: i) efficient, meaning that prices of the assets in that market incorporate relevant information about their fundamental value; and ii) effective, meaning that shareholders actively monitor and engage with firm management. Accurate prices provide market participants with information they need to allocate resources efficiently and shareholders with information they need to evaluate managerial performance. Shareholders must then effectively use this information to monitor and engage with firm management to ensure that the managers run their firms soundly.

In this note we provide an overview of the impact of the growth of passive management on equity market performance. We first discuss how market efficiency happens and why this process creates a profitable opportunity for a passive investing strategy. We then review recent evidence on the impact of passive investing on market efficiency and market effectiveness.

While we refer to funds (including Exchange Traded Funds (ETFs)) as either 'active' or 'passive', many funds will in practice fall somewhere on the continuum between pure index tracking passive funds and highly actively managed funds. In general, the academic studies we discuss below classify a fund as passive based upon its behaviour. Though the precise classification method varies from study to study, a fund is classified as passive (active) if it has (does not have): i) a well-diversified portfolio; ii) low portfolio turnover; and iii) performance that closely tracks a standard index. This approach to fund classification will count declared index tracking funds/ETFs as passive. It will also count 'closet trackers' – that is, funds that market themselves as active funds while behaving as index trackers – as passive as well.

2. Efficient markets and the growth of passive investing

If an efficient financial market is one in which the prices of the assets in that market incorporate relevant information about their fundamental value, how does value relevant information get into prices?

Grossman and Stiglitz's (1980) classic article 'On the Impossibility of Informationally Efficient Markets' illuminates the key mechanism. In their analysis, informed traders invest money and resources in acquiring information on an asset's fundamental value. These informed traders then exploit this information by selling high and buying low, and in the process of doing so they push prices towards their fundamental level.

But, if informed traders are selling high and buying low, other traders – uninformed or 'noise' traders (which can include actively managed funds without an informational advantage) – must be taking the other side of those trades, meaning that they are selling low and buying high. Selling low and buying high is a losing strategy relative to a buy-and-hold passive strategy (though of course uninformed investors will still on average earn a positive return in absolute terms). So, on average, uninformed traders lose money to informed traders. The losses of the uninformed traders are the profits of the informed traders, and it is the possibility of trading profitably against uninformed traders that creates the incentive for the informed traders to invest the effort and resources needed to become informed in the first place.

Actively managed funds play a critical role in bringing about efficient markets by funding market research and engaging in the trading that gets information into prices. But, in aggregate and taking the market return as given, active investing is a negative sum game as: i) the trading gains of one active investor are the trading losses of another; and ii) the total cost of active management (research, trading, etc.) must be paid for by active investors and/or the people who invest through them. As one would expect, then, active funds net of fees tend to underperform the market (Sushko and Turner (2018)).

So, active management creates an equity market that works well, and an equity market that works well is essentially a machine that enhances the value of publicly listed companies by keeping agency problems in check. This machine is a public good as: i) it benefits all shareholders whether or not they contribute to the costs of running the market; and ii) the benefit that one shareholder receives does not reduce the benefit that another shareholder receives. One can therefore think of the cost of active management as a tax that investors who (directly or indirectly) invest through or trade with actively managed funds pay collectively to bring the public good of an efficient and effective equity market good about.

This efficient and effective market tax is significant. For example, data from the US (French (2008)) indicates that the total cost of equity active management is equal to about 0.7% of market capitalization. To put this number into perspective, the real long run return on UK equities is about 5% per year (Barclays Equity Guilt Study 2016).

Now consider an individual uninformed investor. Any one investor's contribution to the efficient and effective market tax will have no meaningful impact on overall market

quality, so an individual investor can take market quality as given. And, taking market quality as given, an individual uninformed investor would prefer to invest in the market without paying the efficient and effective market tax (that is, to invest while free-riding on price discovery and monitoring provided by active funds).

Passive funds (index tracking unit trusts and ETFs) are designed precisely with this demand in mind. Taking the market efficiency and market monitoring provided by active funds as given, a fund can provide its investors with a return close to the market return by: i) holding a broadly diversified portfolio; ii) not investing in becoming informed; and iii) not engaging in discretionary trading (which would on average lead to trading losses due to trading against more informed participants). Passive funds therefore provide investors with a low-cost investment option. Unsurprisingly, the relatively low-cost passive investing option is becoming increasingly popular.

Passive equity funds have grown from 15% of investment fund assets in 2007 to 30% of total fund assets in 2017 in the EU, and passive funds now control 43% of total equity fund assets in the US (Sushko and Turner (2018)). In the UK, passive funds account for about one-third of total assets managed by members of the Investment Association and gross retail sales of passive equity funds have increased from 6% of the total in 2006 to 16% in 2016 (Investment Association (2017)).

As the proportion of assets invested passively increases, the pool of uninformed traders that informed traders can profitably trade against may shrink. It is therefore possible that the rise of passive investing has led to a decrease in informed trading, and that this decrease has adversely affected market quality. We consider the evidence of the rise of passive management on market efficiency and market effectiveness in turn.

3. Does the growth of passive investing affect market efficiency?

The growth of passive investing creates opportunities for active funds while simultaneously limiting their ability to exploit those opportunities. Consequently, theoretical analyses of the impact of passive funds on market efficiency do not yet yield clear predictions (see, for example, Basak and Pavlova (2013), Buffa, Vayanos, and Woolley (2014), Stambaugh (2014), Bond and Garcia (2017), BlackRock (2017), and Garleanu and Pederson (2017)).

On the opportunity side, passive funds do not compete with active funds to exploit market mispricing. So, as the share of passive funds increase, the remaining actively managed funds will have less competition and so will be able to offer higher returns. This effect would lead to a natural active/passive equilibrium (BlackRock (2017)) all else equal. However, informed active funds can only exploit trading opportunities by trading with someone else (who will lose). As people opt out of being on the losing side of the negative net sum active management game by investing passively, there will be fewer people for informed active funds to trade with no matter what opportunities are in theory present. This effect will reduce the gains of active management. So, it is not clear if a natural and socially optimal active/passive equilibrium will in fact emerge. This is an area of active research, and we anticipate that our understanding of this issue will advance over time.

But, while it may not be clear if the growth of passive investing has any significant impact on market efficiency in theory, it is possible to go to the data and see if this growth has had an impact in practice. Baltussen, Bekkum, and Da (2017) study the impact of the rise of indexing on market return dynamics in 20 major indexes in 15 countries. Since index funds must invest in all firms in an index in proportion to that firm's market capitalization share of that index, one might expect the index fund 'wall of money' to introduce noise into a firm's share price. As this hypothesis predicts, they do find that the returns of firms in a major index do become increasingly subject to random non-fundamental shocks (we know the shocks are non-fundamental because the immediate initial impact they have upon a share's price quickly reverses itself).

Along similar lines, Wurgler (2011), finds that once a share is added to (ejected from) an index, its value increases (falls) substantially relative to the value of comparable shares. Also, once in an index, a firm's share price tends to co-move with the share prices of other firms in the index. Coles, Heath, and Ringgenberg (2017) examine the impact of the (effectively) exogenous increase in the share of a firm's stock held by passive funds once that firm joins an index. They also find that index investing introduces noise into stock prices and that stocks in an index exhibit higher correlations with index price movements. All in all, then, the empirical evidence suggests that the growth of passive investing may have led to a decrease in market efficiency.

It is difficult to estimate the adverse impact of noisier share prices on economic welfare. And, it is important to note that the growth of passive funds have led to significant benefits for investors by creating low-cost investment options and by causing actively managed funds to lower fees as a result of increased competition for investor mandates

(Cremer's, Ferreira, Matos, and Starks (2016)). So, it would be rash to draw any specific regulatory implications from this emerging literature now. As this literature develops and the implications of the growth of passive investing on market efficiency become clearer, this research may yield insights that will enable us to improve our regulatory framework.

4. Does the growth of passive investing affect corporate governance?

An effective market is one in which shareholders monitor and engage with firm management to ensure that the firm is soundly run. Shareholders play a key role in bringing about good corporate governance as they have both the legal power and, as the residual claimants on the profits of the firm, the incentive to do so (Alchian and Demsetz (1972), Demsetz and Lehn (1985)).

While historically families exercised control over corporations in the UK, publicly listed corporations are now predominantly held by investment funds (Franks and Mayer (2017)). Funds can seek to improve corporate governance by participating in routine shareholder activities such as voting on corporate charter amendments. They can also engage with management more deeply by, for example, evaluating management performance, lobbying management on corporate strategy, and (in extreme cases) mounting a takeover effort if management underperforms.

While both active and passive funds participate in routine engagement, active and passive funds may differ in both their incentive and their ability to engage with firm management more deeply.

Fisch, Hamdani, and Solomon (2018) argue that since passive funds must invest in the firms in their index, they have an incentive to compete with active funds by (in part) using their 'voice' to improve the performance of these firms. On the other hand, passive funds 'have scant interest in the idiosyncratic attributes of individual securities (Sushko and Turner (2018))', which is unsurprising as they are explicitly designed to avoid the costs that in-depth research and deep engagement require. Active funds are in a better position to focus on the idiosyncratic attributes of individual securities, and it follows that they may therefore be in a position to pursue deep engagement.

So, the growth of passive investing may shift shareholder monitoring towards routine engagement and away from deep engagement. What consequences will this shift have?

Two widely cited studies (Gompers, Ishii, and Metrick (2003) and Bebchuk, Cohen, and Ferrell (2009)) found that routine engagement (approving corporate governance provisions that increase shareholder rights) can lead to substantial increases in firm value. Consequently, it would seem to follow that the growth of passive investing may not have any substantial negative impact on corporate governance.

To explore this idea, Appel, Gormley, and Keim (2015) examine the link between passive ownership and the adoption of best practice charter provisions. To isolate the impact of passive ownership, Appel, Gormley and Keim use an elegant approach that involves comparing firms at the bottom of the Russell 1000 index (consisting of the 1000 largest listed firms) with firms at the top of the Russell 2000 index (the next 2000 largest listed firms). As firms switch between the bottom of the Russell 1000 and the top of the Russell 2000, the proportion of the firm's shares owned by passive funds changes in an (essentially) exogenous fashion. One can use this exogenous variation to study the impact of passive shareholdings.

Carrying out this analysis, Appel, Gormley, and Keim (2015) find that an increase in the share of passive ownership does increase the probability that a firm adopts best practice corporate charter provisions.

However, Larker, Reiss, and Xiao (2015) re-examine the corporate governance code/firm value increase results in Gompers, Ishii, and Metrick (2003) and Bebchuk, Cohen, and Ferrell (2009) that underpin the idea of a best practice corporate charter provision. They find that these results are largely driven by data errors. Using more reliable data, it is difficult to find any relationship between corporate charter provisions and firm value. So, all in all, the evidence suggests that routine engagement focusing on general aspects of corporate governance such as charter provisions may not be sufficient to bring about high quality corporate governance.

Turning now to deep engagement, research has focused upon the impact of a rise in the proportion of a firm's shares held by passive investors on three crucial areas of firm performance: i) innovation; ii) M&A activity; and iii) investment.

Aghion, Van Reenen, and Zingales (2013) examine the relationship between the active/passive split and innovation. The corporate governance problem a firm faces here is that a manager may be reluctant to take a gamble on innovation if they face the risk of removal if that gamble goes wrong *ex post*, even if taking that gamble was the right thing to do *ex ante*. Aghion, Van Reenen, and Zingales hypothesise that deep engagement can overcome managerial reluctance to innovate in these circumstances by getting funds to understand and approve the innovation gamble in advance. Testing this hypothesis with a dataset consisting of over 800 firms containing detailed information on patent citations, R&D, and institutional ownership (as well as numerous control variables), they find that innovative activity increases as the share of non-index fund ownership increases.

Michael Jensen (1986) observed that managers in poorly governed firms pursue empire-building strategies that lead to value destroying M&A activity. The probability that a firm pursues such a strategy therefore provides a good measure of the quality of its corporate governance. Investigating this angle, Schmidt and Fahlenbrach (2017) examine the link between value-destroying M&A activity and the active/passive split in share ownership. They use the same Russell 1000/Russell 2000 identification strategy we discussed above to obtain (essentially) random variation in the proportion of passive ownership of a firm's shares. They find that, as the proportion of passive ownership increases, management becomes more entrenched (as measured by the accumulation of job titles) and that the probability that a firm indulges in value-destroying M&A activity increases.

Gutierrez and Philippon (2017) examine the impact of the proportion of passive ownership on investment behaviour. They find that firms with a higher proportion of passive ownership invest less and pay out more. This may be due to managerial short-termism, but the mechanism through which passive ownership leads to lower investment is still not understood.

If shareholder activism can improve corporate governance, which investment management firms are in a position to engage in it? In theory, one might expect the largest investment firms to be in the best candidates as they will: i) have the resources to devote to activism; and ii) own a sufficient proportion of a target firm's shares to influence firm management in the desired direction. However, Morley (2018) finds that

this is not the case. Large investment management firms are large in part because they manage a large number of individual funds, and these individual funds will inevitably have conflicting interests. These conflicting interests in turn make it impossible for a large investment manager to actually exploit the synergies that its size in theory creates. Surprisingly, then, Morley finds that smaller investment management firms (with fewer conflicts of interest) may be in a better position to take the lead on deep engagement efforts (supported by larger investment managers).

5. Conclusion

So, taking markets as they are, it appears that the quality of corporate governance may decline as the proportion of a firm's shares owned by passive funds increases. One implication of this research is good corporate governance does not arise automatically. Rather, a corporation's shareholders must devote effort and resources to bringing it about. Consequently, both active and passive funds may find it worthwhile to focus more on corporate governance, and regulators may find it worthwhile to design a regime that supports those efforts.

Traditionally, regulators have tended to examine the asset management market from a strictly investor protection perspective. The recent wave of research on the impact of the growth of passive investment on market efficiency and corporate governance – tentative and preliminary as the results of this research now are – suggests that this perspective is too narrow. Designing a regulatory regime that enables market participants to create the efficient and effective equity market that the economy needs while simultaneously minimising the cost of bringing about and sustaining that market requires an integrated approach to asset management, wholesale market design, and corporate governance.

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