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Investment

MIF Program

Assignment #3: DFA

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Report on Dimensional Fund Advisor

The most important aspects of Dimensional Fund Advisors' (DFA) business are investment policy, trading, type of clients, risk management, governance and strategy of creating value to investors. In this report we would like to concentrate on such aspects as investment policy, trading and type of clients

Investment policy & Trading. DFA creates value to investors through two main channels: first of all, being a market leader in small cap segment of a market, DFA have skill, ability and incentives to resolve (however, partially) the problem of asymmetric information (and adverse selection) better than it's investors. Small cap is a segment where the problem of asymmetric information is much more severe than e.g. in a segment of large caps. DFA have created a reputation which gives an opportunity to demand as much information from small companies it deals with as it possible. And a single company cannot reject that demand because it, in turn, will be a bad signal for a financial market.¹ Reputation of DFA is also a reason for a larger discount on purchase of stocks: unlike large cap segment of a market, the number of buyers and sellers, i.e. demand and supply, in small cap is much lower, that makes this market less competitive.

Second channel for value creation is diversification: DFA gives investors access to a part of the market not captured by S&P500 and majority of mutual funds. This in turn can provide additional diversification for a portfolio consisting of large cap companies. Moreover, DFA gives investors more liquidity than they could get when buying small companies in the market.

However, the interrelationship between investment policy and efficiency of markets is not clear and simple. DFA founders claim that they believe in efficient markets, but they think it is possible to earn greater return exploiting the patterns in stock behaviour found by researchers. As a main idea for investment policy, DFA uses the fact that value and small stocks tend to outperform growth and large stock, respectively (paper by Fama and French 1993). But if they know that and everybody else knows that, this opportunity should disappear. Nevertheless, there are at least two objections to this statement — small and value

¹ Disclosure of information allows DFA to collect a unique data set on companies, which is also precious and might be a factor of additional market power.

companies might have higher risk² or/and market can be simply irrational underpricing these companies.³ So, nowadays we do not know for sure the reason why these premiums (value/size) exist. So, if 1st of these reasons is true, than DFA's investment policy is consistent with market efficiency and premium should be persistent in time.⁴ If the 2nd reason is true and markets are irrational, it is very hard to assess investment policy: we do not know how the markets really behave. As more players start managing portfolios with small caps, competition and liquidity will increase and that may lead to a higher efficiency of the market, better pricing and disappearance of value/size premiums.

DFA founders as believers in efficient markets cannot accept the 2nd reasoning, so this implies that value/size premium is a mirror of a higher risk. Hence, the investment policy should lead to higher returns because of higher risks!⁵ This implies that DFA cannot beat the market persistently in time. However, DFA can temporary have abnormal returns (versus small cap index) as soon as it has competitive advantages on the markets with few players: reputation to overcome asymmetric information issue (and adverse selection) and higher discounts on stocks, uniqueness of the product — diversification benefits for investors.

Another explanation for abnormal returns might be private information, which DFA gather while cooperating with small cap companies. If semi-strong market efficiency hold, hence, it is possible to beat the market having private information.⁶

Despite the fact, that there are so many disagreements on why value/small cap companies outperform growth/large cap companies, academics agree that these premiums exists: e.g., Chan and Lakonishok (2004) find that value stocks, over time, produces the better returns in the US, and that this effect applies to foreign markets as well; the same evidence is found for size effect (see excellent overview by van Dijk, 2007). According to Fama and French (1993) value and size premium are significant: for the US market period 1926-2001, average annual value and size premium were 4.7% and 2.4%, respectively (Exhibit 6 in the case).

² Higher risk might be explained as follows: higher book-to-market as well as small size might be a proxy for higher probability of distress and hence, higher risk. See famous paper by Fama, Eugene F. and Kenneth R. French, 1995, Size and Book-to-Market Factors in Earning and Returns, *Journal of Finance* 50, 31-155.

³ See, for example, paper by Lakonishok, Josef, Andrei Shleifer and Robert W. Vishny, 1994, "Contrarian Investment, Extrapolation, and Risk", *Journal of Finance* 49, 1541-1578.

⁴ If we assume the risk of these small and value stocks is higher and stable over time.

⁵ E. Fama, which is a director at DFA, is the major proponent of higher risk as an explanation for value/size premiums.

⁶ And this hypothesis possibly may be tested by looking at companies which were included in DFA portfolio and those which were not. If there is a significant difference in returns, then, it is consistent with DFA's ability to pick up stocks base on this private information.

Given, that we do not know the reasons for value/size effects, we cannot predict how it will change in future. Indeed, Chan, Karceski and Lakonshok (2000) show that the spread between returns for value versus growth stocks has varied in different time periods. The same is true for size effect⁷ (see exhibit 6 in the case).

Another important issue is diversification: DFA portfolios were structured with the usage of concept of diversification. However, illiquid stocks do not allow them to rebalance their portfolios quickly, creating a delay. A trade off between trading cost and diversification could be a source of additional risk. Holding a large portion of stocks of specific companies can coincide with such event as their bankruptcy, leading to massive losses for DFA.

Clients. DFA often deals with illiquid stocks or stock with low trading daily volume. This is why one of the major risks for DFA is massive withdrawals, which may occur in a recession. If a significant part of investors demands to withdraw money, DFA will have to sell massive blocks of stocks on an illiquid market with a huge discount. DFA try to attract special type of investors, which are patient enough not to withdraw money in bad times: institutional investors and high-net-worth individuals. DFA does not advertise itself and avoids retail investors, because their behaviour is subject to often changes in funds, large withdrawals in recession, etc. However, ignoring retail investors, DFA limits its growth and size, because a significant part of financial market is supplied with the money of retail investors.

Tax-managed funds were a good innovation for DFA, as it allowed the fund to access additional capital from high-net-worth individuals, who are more patient than retail investors and more probably would not withdraw their money in a short period of time (herding). From other hand, tax-managed funds are more risky as they put more weight on dividend free stocks, reducing diversification benefits. Providing clients with better after-tax returns, DFA is increasing the risk of tax-managed portfolios. So, the fee structure should reflect this trade-off. This is why fees for a DFA should be always higher than on passive mutual fund, which works on liquid market.

⁷ Evidence can be found in famous paper by Fama and French (1993).

Summary on Videos

Teddy Odean

In this video Dr. Odean demonstrates the behavior finance approach to finance and discusses behavior biases that affect the decision making and behaviour of investors. Among such biases — overconfidence, attention-driven stock picking, ignorance of trading cost, disposition (selling well performing stocks and holding losers) and the role which advertisement play in online trading (data=expertise, everyone can beat the market, investing is fun and exciting and it can be done any moment and also opportunities can rise any moment, trade in futures and so on), etc.

In the lecture, Teddy Odean talks about the mistakes, which are driven by our emotions and other biases which arise from the way our brain functions. One of the reasons of why investing is difficult is that finance is based on the understanding and calculating probability which isn't naturally intuitive to most of the common investors.

Overconfidence and overtrading. Investors trade too much mainly due to overconfidence. They think that their idea is correct and they are ready to bet on it, and thereby they consistently earn less. They under-diversify because they don't feel a need to hedge and thereby increase volatility of their portfolio. Overtrading is also subject to higher trading fees, which retail investors do not always take into account. And men tend to be more overconfident than women, single men are more overconfident than married.

Investors choose stocks with no particular strategy. They tend to consider the stocks that catch their attention like the stocks in the news, ones which have had extreme price moves, etc. Attention however doesn't determine the selling behavior of the individual investors: investors tend to sell "winners" to cash some profit, while to hold "loser" waiting when they will recover (disposition effect).

Patterns and random market. He also describes why investors tend to chase pattern and he explains when they should do so. We should know whether the process that we are dealing with is deterministic or random. Most investors think that market is more deterministic than it really is and thereby they look for patterns and expect the patterns to repeat. This, according to him is a poor investing. The downside of seeing a pattern that doesn't even exist is that the performance goes down. Online trading doesn't offer any frictions and is more quick and impulsive.

Trading volume drops in a bear market because of self attribution bias, disposition effect, where people hold on to their losers and sell their winners, people pay more attention to the bull market, house money effect, when people only reinvest the profits.⁸ People trade for entertainment which is more fun when one is making money.

Eugene Fama

In the video Eugene Fama discusses market efficiency as a key concept, defends it and argues that behavior finance cannot substitute it.

Creation of efficient market hypothesis. Working at an investment company at the beginning of his career and trying to find price patterns which could be used to beat the market, Fama finds out that it is hardly possible. Each time a pattern was found, it did not work in the future. Using this insight Fama later formulates an efficient market hypothesis: prices contain all information or prices are always fair.

Defense of efficient market hypothesis. Fama also explains that noise trading and larger price change do not contradict the market efficiency. In the former case, volatility of stock returns does not seem to grow slower than time horizon, what the noise trade implies. As for the dramatic price change, Dr. Fama does not give a full answer. He also advocates his and French three-factor model: he explains why it does not contradict market efficiency. Small cap and value companies have higher risk, which is compensated by higher book-to-market ratio.

Behavior Finance. Dr. Fama also argues that behavior finance did not specify clearly the research area and: “what it is at this point is unkindly speaking, just dredging for anomalous looking things in the data”. Fama emphasizes that even if market seems to be irrational (he makes an example of market underreaction) and you cannot predict and exploit that — we cannot say markets are not efficient. Even, if there is an irrational behavior in the market, it only adds more noise in prices, so we should see much less volatility in longer horizon. But as we do not observe it in the data, it implies “irrational behavior somehow must be washed out by rational behavior on the part of other investors”.

Efficient Markets

In this video, reporter has a large pool of interviews. He discusses the development of stock exchange from speculating (gambling) in it's first years to stock picking strategy (first half of XX century, Graham famous book “Security Analysis”) and active management and, finally,

⁸ Profits are low in case of a bear market and high in a bull market.

to efficient market with a large part of funds passively managed and diversification is king. Author tries to convince the audience of this video by examples from managers, banker and academics that one cannot beat the market, because prices incorporate all available information. And one cannot judge that the market is inefficient as one does not know which information is in prices. The final part of the video is devoted to investment advice — you should diversify, be patient and it is more likely to become rich slowly than quickly. Part of the video includes interview with E. Fama, which is described in the 2nd video (previous summary).

References

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