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Fund-specific determinants of hedge funds – example of Man Group

Interni indikatori uspešnosti hedž fondova-primer Man Group

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Abstract

To evaluate hedge fund performance, managers are obliged to follow the trend of the return at any cost. This could be practically done by focusing on fund-specific indicators. Fund-specific indicators offer better understanding of how hedge funds perform since their parameters consist of balance positions from balance sheet and income statement. Furthermore, the data used for the research (AUM, return and incentive fees) is mostly taken from the balance sheet and income statement, except for NAV, whose data is taken from CompaniesMarketCap. This research raises a question on whether and to what extent NAV, AUM and incentive fees affect return. The study covers the hedge fund Man Group which is situated in the United Kingdom and data set covers the 2015-2024 period. By using log-log regression model, results show that NAV and AUM positively affect return, whereas the incentive fees do not have an impact on return.

***Keywords**: hedge funds, return, fund-specific determinants, multivariate regression*

Sažetak

Kako bi se ocenilo poslovanje hedž fondova, menadžeri su u obavezi da prate kretanje prinosa. Ovu aktivnost je najbolje sprovesti prateći interne indikatore. Interni indikatori omogućavaju bolje razumevanje o tome kako hedž fondovi posluju pošto su elementi potrebni za njihovo izračunavanje bilansne pozicije iz bilansa stanja i bilansa uspeha. Podaci koji se koriste u analizi u radu (AUM, prinos i provizije menadžera fonda) su preuzeti iz bilansa stanja i bilansa uspeha posmatranog fonda, osim NAV indikatora, za koji su podaci preuzeti sa specijalizovanog sajta CompaniesMarketCap. Istraživačko pitanje definisano u samom radu je da li i u kojoj meri NAV, AUM i menadžerske provizije utiču na prinos. Posmatra se hedž fond Man Group koji je lociran u Ujedinjenom Kraljevstvu i podaci obuhvataju period od 2015. do 2024.godine. Koristeći log-log model, rezultati pokazuju da NAV i AUM pozitivno utiču na prinos, dok varijabilne provizije nemaju uticaja na prinos.

***Ključne reči**: hedž fondovi, prinos, interne determinante, multivarijaciona regresija*

1. Introduction

Hedge funds are considered to be one of the most noticeable investment funds on financial markets due to their special characteristics and therefore they play a crucial part as far as investing is concerned. Firstly, hedge funds are claimed to be part of funds regarding private capital mainly because they cater for accredited investors who invest their capital to a certain extent expecting to generate profit. Unlike mutual funds, hedge funds are focused on limited number of investors (Kennard, 2003). Secondly, hedge funds are expected to attract investors who do not have an aversion to risk. That results from the fact that hedge funds mainly use instruments like short-selling, derivatives, leverage, etc (Capocci, 2013). This is what enables investors to gain excess profit. Also, hedge fund managers immensely expand their business and manage investors' capital by using various strategies which are unlike to be used by any other investment fund. These strategies include mostly relative value, event drive, merger arbitrage, long/short equity, etc. Thirdly, one of the principles of hedge funds includes making a difference between management and incentive fees where Milenković (2021) states that hedge fund managers always earn management fees, whereas incentive fees are earned only if managers make a profit out of invested capital. Then, it is suggested that standard management fee usually accounts for 2% of the assets annually, while incentive fee accounts for 20% of profits above defined threshold. Therefore, the standard hedge fund system is

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widely known as "2/20 fee system". Finally, hedge funds are exclusive in terms of regulatory exemptions which help them to avoid strict oversight. This feature certainly makes the hedge funds differ from mutual funds and increasingly attract enthusiastic and wealthy investors (Kennard, 2003). In order to keep up-to-date with the results of the hedge fund industry, it is necessary to habitually follow their returns and fund-specific determinants which affect their returns. To make the topic more accessible, the paper consists of four parts. The beginning of the study starts with literature review which includes research related to hedge fund returns and fund-specific factors. This paper questions whether assets under management (AUM), net asset value (NAV) and management fees have statistically significant impact on annual return in particular hedge fund located in the United Kingdom. The second part focuses on the methodology used in the study as well as proposed hypothesis. The used methodology partially corresponds to the methodology of authors Djaković, Andrašić and Milenković (2023). In the third part, the discussion of the results of the model is given. The final part of the paper is devoted to providing relevant conclusions. The prime objective of this study is to gain better understanding to which extent fund-specific factors have an influence on hedge funds' performance and what are prerequisites for their success.

2. Literature review

Since hedge funds play a crucial role in global investing, literature review covers not only research efforts made in UK, but also in other countries worldwide. Almost all of them base their findings on the various independent variables having an impact on returns. To start with return, it is of a great importance to mention that Jongha, Sensoy and Weisbach (2013) used annual net-of-fee returns as dependent variable so as to figure out how return is affected by AUM and incentive and management fees. Also, in order to summarize, they use data from database which covers 40% of hedge fund universe dating back from 1995 to 2010. As a result, they point out that AUM has a positive effect on annual return, whereas both incentive and management fees do not have significant impact on return.

Additionally, Ben-David, Birru and Rossi (2020) continue the research of previous authors implying that incentive and management fees cannot provide hedge funds with profitability in the long run. Their results were based on data collected from data sets focusing on the period from April 2018 to June 2018, meanwhile the only funds that are considered are the ones having net-of-fee returns as a representative variable. With regard to AUM variable, Ben-David, Birru and Rossi (2020) point out that AUM has a statistically significant impact on net-of-fee returns.

Ackermann, McEnally and Ravenscraft (June 1999) question whether and to what extent incentive and management fees have an impact on net-of-fee return. (June 1999). The authors used data from databases with the focus on the period at the end of 1995. Also, Ackermann, McEnally and Ravenscraft mention that return calculations are done based on NAV values, while they use net monthly returns in their calculations. Eventually, they realized that the fee regression coefficient is not statistically significant, where they raised an argument explaining that fees cannot encourage hedge fund managers to be prone to risk.

Schwarz (2007) did similar research where he showed that both management and incentive fees do not have significant effect on hedge fund performance focusing on the period between 1998 and 2006. The author (2007) used data sets considering monthly returns, assets, fee data, etc. so as to present statistical insignificance between fees and returns. According to his research, hedge funds ought not to charge high fees. Otherwise, hedge funds are at risk of becoming uncompetitive.

Agarwal and Ray (2011) extended the work of Schwarz (2007) and concluded in their research that fees do not have a tendency to maintain outstanding performance. Also, it is presented in authors' calculations that p-value is insignificant. The authors used data related to hedge fund fee structure, management and incentive fees from April 2008 and November 2010. Coefficient on AUM is significant, meaning that p-value is below 0.05. On the other hand, Yao and Gao (2009) emphasize the importance of NAV by using that indicator to calculate hedge fund return. In other words, the aim of their study is to present how return fluctuates following fees, but return is calculated based on NAV. Therefore, they managed to present that NAV could be used as valuable indicator in hedge fund performance. In order to achieve this, Yao and Gao (2009) used monthly net returns from 10 hedge funds covering January 1998 - December 2009 period. Moreover, Ganchev (2011) was intent on quantitively presenting that NAV has a major effect on return since NAV is the value of fund's investment portfolio minus the total value of its liabilities.

3. Methodology and data

This chapter focuses on both dependent and independent variables as well as formulated hypotheses and model itself. To start with variables, it is crucial to mention that they are transformed into logarithmic numbers and as such used in calculations. As far as model is concerned, it is a log-log regression model, which represents one of non-linear models regarding multivariate regression analysis. Before the main calculation, there is descriptive statistics with all variables used (Table 2). Also, data analysis was done by using Excel.

The data series covers the data of Man Group hedge fund, where the dependent variable is *annual return* calculated for 2015-2024 period, whereas NAV, AUM and incentive fees are used as independent variables (Table 1).

Considering all the variables, the following equation represents the log-log regression model:

$$\text{Log (return)} = \beta_0 + \beta_1 \log (\text{NAV}) + \beta_2 \log (\text{AUM}) + \beta_3 \log (\text{fee}) + \varepsilon \quad (1)$$

The explanations for variables are:
- Annual return – net of fee return expressed in absolute numbers;
- NAV – net asset value expressed in absolute numbers;
- AUM – assets under management expressed in absolute numbers;
- Fee – incentive fees expressed in absolute numbers

Table 1. Variables

Variable	Notation	Source
Dependent variable		
Annual return	log(return)	Man Group Income Statement
Independent variables		
Net asset value	log(NAV)	CompaniesMarket Cap
AUM	log(AUM)	Man Group Income Statement
Incentive fees	log(fee)	Man Group Income Statement

Source: Author

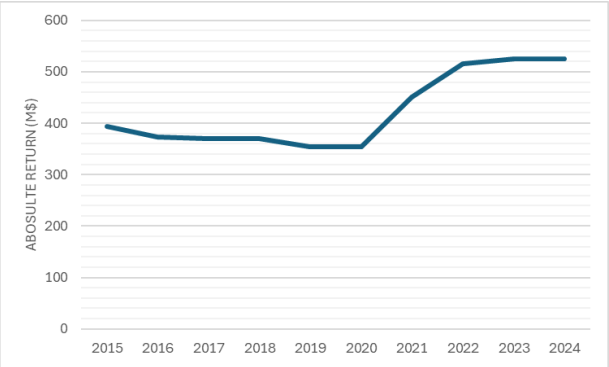
To test statistical significance, it is essential to formulate hypotheses:
H_0: NAV affects positively the annual return
H_1: AUM affects positively the annual return
H_2: Fees affect negatively the annual return

Next, the results of multivariate regression are to be presented. If calculated p-value is higher than 0.05, the hypothesis is rejected, meaning that the hypothesis is not true. On the other side, if p-value is below 0.05, the hypothesis is accepted, meaning that the hypothesis is true.

4. Results and discussion

Since this research is based on examining whether NAV, AUM and incentive fees have an impact on absolute return, trends of mentioned variables are given so as to observe how they fluctuate during the observed period.

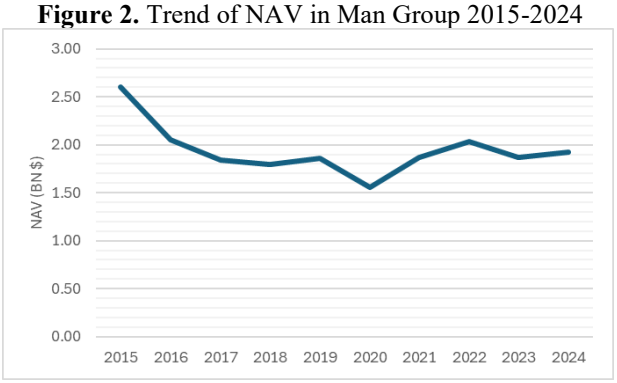
Figure 1. Trend of absolute returns in Man Group 2015-2024



Source: Author based on balance sheet of (Man Group, 2025)

Figure 1 shows the fluctuation in absolute return where it is apparent that from 2015 to 2020 the variable holds steady, whereas there is a rapid increase in the return in 2021 and 2022 and then there is steadiness in return.

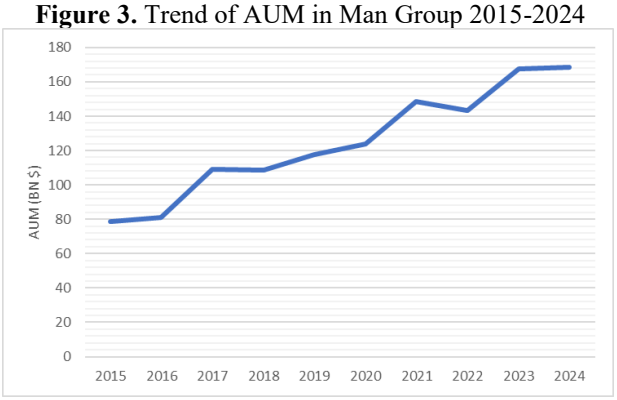
Figure 2. Trend of NAV in Man Group 2015-2024



Source: Author based on (Man Group, 2025)

Figure 2 shows how NAV fluctuates in the given period. It can be seen that the highest value amounts to 2.6 mlrd $ in 2015. From 2016 to 2024 there is a slight decrease in the variable mainly due to change in balance positions cash and cash equivalents and goodwill and acquired intangibles (Man Group, 2025). Furthermore, the decline in cash equivalents led to an increase in investments in fund products and other investments, which undoubtedly means that the hedge fund uses its assets efficiently.

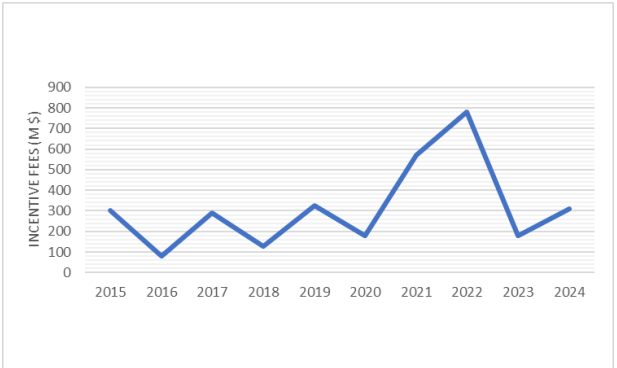
Figure 3. Trend of AUM in Man Group 2015-2024



Source: Author based on Balance sheet of (Man Group, 2025)

During the period there is an upward trend in AUM where the variable has only a few exceptions with short declines in the period. The positive trend results from net cash flow and high investment performance (Group, 2024).

Figure 4. Trend of incentive fees in Man Group 2015-2024



Source: Author based on Balance sheet of (Man Group, 2025)

Among all variables, the fluctuations of the incentive fee variable are most pronounced with rapid declines and inclines from year to year. In the second half of the period

the situation is different because in 2021 there is a steeper incline and 2 years later there is a rapid decrease. The reason for this may well be fluctuating in AUM as well as making acquisitions, especially in 2023.

In table 2 below descriptive statistics for NAV, AUM, incentive fees variables are given in the period from 2015 to 2024.

Table 2. Descriptive statistics

	log return	log NAV	log AUM	log fee
Mean	5.981012218	0.618256141	4.803710099	-1.289688655
Standard Error	0.05495753	0.055682118	0.090227446	0.228983462
Median	5.918879402	0.623257459	4.79259478	-1.219328426
Standard Deviation	0.173790971	0.176082318	0.285324237	0.724109285
Sample Variance	0.030203302	0.031004983	0.08140992	0.524334257
Kurtosis	-0.368808307	1.838866415	-0.718296674	-0.77676586
Skewness	0.587054611	-0.033949385	-0.219203841	-0.169462732
Minimum	5.720159303	0.283301229	4.365643155	-2.513306124
Maximum	6.265301213	0.959350221	5.22685757	-0.249744233
Count	10	10	10	10

Source: Author's calculations performed in Excel

n order to examine the impact of fund-specific determinants on annual returns, a multiple linear regression analysis was conducted. Annual fund return was used as the dependent variable, while the independent variables included the logarithmic values of net asset value (NAV), assets under management (AUM), and fund fees. The results of the regression analysis, together with the main descriptive and diagnostic statistical indicators of the model, are presented in Tables 3 and 4.

Table 3. Summary statistics: fund-specific determinants

Regression statistics	
Multiple R	0.92282094
R Square	0.851598487
Adjusted R Square	0.777397731
Standard Error	0.081995875
Observations	10

Anova	df	SS	MS	F	Significance F
Regression	3	0.231489773	0.077163258	11.47695158	0.006738827
Residual	6	0.040339941	0.006723323		
Total	9	0.271829714			

Source: Author's calculations performed in Excel

Table 4. Regression summary for dependent variable: annual return

	Coefficients	Standard Error	t-Statistic	P-value
Intercept	0.988653829	0.991775531	0.996852411	0.357324616
log NAV	1.342890433	0.23529911	5.707163253	0.001252044
log AUM	0.838873879	0.173848519	4.825315069	0.002924185
log fee	-0.102661372	0.050284885	-2.041595045	0.087251482

Source: Author's calculations performed in Excel

Based on formula (1) and Table 4, the estimated coefficients β_0, β_1, β_2, and β_3 can be interpreted as follows. The intercept (β_0) indicates that if NAV, AUM, and fees equal zero, the theoretical value of annual return amounts to 0.989 million dollars. The coefficient on NAV (β_1) suggests that a 1% increase in NAV is associated with an average increase of 1.34% in annual return, holding AUM and fees constant. Similarly, the coefficient on AUM (β_2) shows that a 1% increase in AUM leads to an average increase of 0.83% in annual return, ceteris paribus. In contrast, the coefficient on fees (β_3) is negative, indicating that a 1% increase in fees is associated with an average decrease of 0.10% in annual return, all else equal.

Turning to the overall model performance shown in Table 3, the R-squared value indicates that approximately 85% of the variation in annual return is explained by variations in NAV, AUM, and fees. The standard error of the regression suggests that the average deviation of the observed values from the fitted regression line is 8.2%. The statistical significance of the estimated coefficients is assessed using p-values reported in Table 4. The p-value for NAV (0.001) is below the 5% significance level, providing support for Hypothesis H0, which posits that NAV positively affects annual return. Likewise, the p-value for AUM (0.003) supports Hypothesis H1, confirming that AUM has a statistically significant positive effect on annual return. Although the estimated coefficient for fees is negative, its p-value (0.09) exceeds the 5% significance level; therefore, Hypothesis H2, which assumes a negative impact of fees on annual return, is not supported.

These findings are fully consistent with prior empirical literature. Jongha, Sensoy, and Weisbach (2013) and Ben-David, Birru, and Rossi (2020) report a positive relationship between AUM and returns, while finding no statistically significant effect of fees. Similar conclusions

are drawn by Ackermann, McEnally, and Ravenscraft (1999), Schwarz (2007), and Agarwal and Ray (2011), who emphasize that fees do not significantly affect long-term fund performance. In addition, Ganchev (2011) documents a positive effect of NAV on returns, which is also confirmed by the results of this study.

5. Conclusion

The return is claimed to be one of the most important indicators for evaluating hedge fund performance. Consequently, the indicators which mostly affect the return should be meticulously examined. The research takes a serious approach to return by introducing AUM, NAV and incentive fees. Multivariate regression model examined how they affect return. Following the results of the research, it is stated that NAV and AUM have a positive impact on annual return, whereas incentive fees do not have a significant impact on return. Moreover, it is crucial to constantly follow the trend of AUM and NAV since they are regarded as a key factor in hedge fund performance. Even though incentive fees are calculated with assistance of AUM, they do not have a statistically significant impact on hedge fund returns. Although the incentive fee is a determinant which generates profit, somehow the fee cannot be considered a statistically significant driver of long-term fund performance.

As far as limitations are concerned, the research contains dataset of only 10 years since variables in European hegde funds are usually changeable and that is why time dataset should be recent. Apart from that, the results of the studies highly depend on the size of the fund and investment portfolio. Also, the data for the research should be obtained from balance sheets and income statements since they are stated to be the most reliable. Otherwise, results are at risk of being questionable.

This research provides in-depth analysis which may well be used as a relevant example in hedge fund industry, especially for hegde fund managers while building up investment portfolio. However, there is also potential to conduct further research by considering additional factors impacting net-of-fee returns. That way hegde fund managers would be proactive and hegde fund industry is to be more suitable place for expanding investment portfolio.

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