

MACROECONOMIC DETERMINANTS OF HEDGE FUNDS – EXAMPLE OF MAN GROUP

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Abstract

The macroeconomic environment affects financial markets as well as their institutions on a global level. Therefore, it is of great importance to keep up to date with trends of certain macroeconomic factors. This research questions whether certain macroeconomic determinants influence hedge fund performance by introducing consumer price index (CPI), 12M USD Libor, interest rate on long-term bonds, and unemployment rate as independent variables, whereas the dependent variable is annual return. In this study, hedge fund performance covers the annual return of hedge fund Man Group, which is situated in the United Kingdom, and the data set covers the years from 2015 to 2024. In addition to annual return, macroeconomic determinants also cover the same period. By using a log-log regression model, results show that CPI, 12M USD Libor, and interest rate on long-term bonds positively affect return, whereas the unemployment rate does not have an impact on return.

Keywords: hedge funds, CPI, Libor, interest rate, unemployment rate, multivariate regression

MAKROEKONOMSKI INDIKATORI USPEŠNOSTI HEDŽ FONDOVA – PRIMER MAN GROUP

Apstrakt

Makroekonomska dešavanja imaju uticaja kako na finansijska tržišta, tako i na njegove institucije širom sveta. Zbog toga je bitno biti u toku i redovno pratiti određene makroekonomske faktore. Ovo istraživanje ispituje da li određene makroekonomske determinante utiču na poslovanje hedž fondova uvodeći indeks potrošačkih cena, 12-mesečni USD Libor, kamatnu stopu na dugoročne obveznice i stopu nezaposlenosti kao nezavisne varijable; sa druge strane zavisna varijable je godišnji prinos. U ovoj studiji poslovanje hedž fonda obuhvata godišnji prinos hedž fonda Man Group, koji je lociran u Ujedinjenom Kraljevstvu i podaci pokrivaju period od 2015. do 2024.godine. Makroekonomski podaci, takođe, pokrivaju isti period. Koristeći log-log regresioni model, rezultati pokazuju da indeks potrošačkih cena, 12-mesečni USD Libor i kamatna stopa na dugoročne obveznice pozitivno utiču na prinos, dok stopa nezaposlenosti nema uticaja na prinos.

Ključne reči: hedž fondovi, indeks potrošačkih cena, Libor, kamatna stopa, stopa nezaposlenosti, multivarijaciona regresija



INTRODUCTION

Hedge funds are regarded as a special type of investment fund since they possess a number of qualities concerning investing. The hedge fund is one of a kind regarding private capital, but it is entirely different from mutual funds. First of all, these types of funds differ greatly in a way that hedge funds are not strictly regulated by the government, and as a result, they are more in favour of potential investors. Secondly, it is essential to mention that these kinds of investors do not have an aversion to risk, and also the investors have to be accredited and they are limited to a certain number. What is more, hedge funds are specialized for using strategies that are hardly ever seen to be used anywhere else in the sphere of private capital. The most common tools that are likely to be used are short-selling and leverage. Capocci (2013) puts forward a view that short-selling is a kind of strategy that makes the best of a bear market. In other words, short-selling is used in situations when stock prices appear to fall. It is obvious that this is a risk-based strategy. Along with that, there is leverage, which is even more prone to risk since it is a way of making profit by investing borrowed money (Lhabitant, 2006). Apart from these strategies, there is also a wide choice of strategies which are used to aggressively manage investment portfolios, e.g., convertible arbitrage, event-driven, long/short equity and so on. Thirdly, Shwarz (2007) claims that there are two types of fees that hedge funds are likely to earn. Hedge funds always receive management fees regardless of the amount of return. That fee is used to cover operational costs and employs around 2% (Schwarz, 2007). On the other hand, the percentage of an incentive fee employs around 20%, and it is received only if hedge funds succeed in making a profit out of invested capital. What is of great essence is the fact that hedge funds have to regularly follow the trends of macroeconomic variables because hedge funds are at risk of getting damaged by serious consequences. The only way to achieve stability on financial markets is to take a proactive approach. In order to be able to present which macroeconomic factors influence the annual return, the study consists of four parts. In the first part of the study, a literature review is given in order to present the list of research related to macroeconomic determinants and the return. This study aims to examine to what extent CPI, USD Libor, interest rate on long-term bonds, and unemployment rate influence annual return. The second part puts an emphasis on the methodology and formed hypotheses. The last part of the study focuses on the results of the research as well as their explanation regarding the issue. The research has a tendency to highlight the significance of the relationship between macroeconomic factors and hedge fund performance in the long run.

LITERATURE REVIEW

Macroeconomic factors have a very profound effect on hedge fund returns on a global level, and therefore the literature refers to the research worldwide. According to Attié and Roache (2009), consumer price index and interest rate on long-term bonds strongly influence return. The main objective of their study is to focus on different types of assets as well as inflation in order to test to which extent the return is affected in the long term. Also, Attié and Roache (2009) used data from the USA, focusing on

the period in the 1970s and 1980s. What is more, the results for the dependent variable cover total return indexes, which include hedge fund performance as well. Furthermore, Kalaš et al. (2024) claim that CPI has a significant effect on investments in the short and long run. Since it is the prime activity in hedge funds, it is stated that CPI has the same effect on hedge fund performance as well.

In his research, Anjos (2017) acquired data from EurekaHedge, which dates back to the 2000s, and he examined whether the hedge fund return is influenced by USD Libor and other variables. He concluded that USD Libor has an impact on hedge fund return. As far as the unemployment rate is concerned, there are two studies which approve that the unemployment rate does not influence hedge fund return. Muething et al. (2005) intend to test whether a certain group of variables, including unemployment rate, affects hedge fund return. The data covers the period from January 1989 to December 2000. Also, it is collected from various hedge fund databases, including the Hedge Fund Research database and TASS.

Additionally, Racicot and Théoret (2013) use data based on a sample of the indices of US Greenwich Alternative Investment hedge fund strategies in order to show how the trends of a few macroeconomic variables, including the unemployment rate, impact hedge fund returns. The period covers the data from January 1995 to March 2010. Eventually, the authors (2013) summarized that the unemployment rate does not have a significant impact on the return.

METHODOLOGY AND DATA

This chapter puts the emphasis on dependent and independent variables and the model itself together with formulated hypotheses. In this study, annual return is considered the dependent variable. The independent variables have already been mentioned; they include CPI, USD Libor, interest rate on long-term bonds, and unemployment rate. Then, the only model in the research that is appropriate for the calculations is the log-log regression model. Consequently, all the variables are converted into logarithmic numbers and, as such, are used further in the test. Apart from summary statistics regarding macroeconomic determinants and a regression summary for annual return, there is a table presenting descriptive statistics.

The calculations have been done in Excel, and the results are yet to be shown in Tables 3 and 4.

The annual return covers the data series calculated at the end of years between 2015 and 2024. This also applies to independent variables, meaning that the data is calculated on the basis of the end-of-year numbers.

Table 1
Variables

<i>Variable</i>	<i>Notation</i>	<i>Source</i>
<i>Annual return</i>	<i>log(return)</i>	<i>Income statement Man Group</i>
<i>12M USD Libor</i>	<i>log(USD Libor)</i>	<i>Global-rates</i>

<i>Consumer price index</i>	<i>log(CPI)</i>	<i>Federal Reserve Economic Data, Federal Reserve Bank of St. Louis</i>
<i>Interest rate on long-term bonds</i>	<i>log(interest rate)</i>	<i>Federal Reserve Economic Data, Federal Reserve Bank of St. Louis</i>
<i>Unemployment rate</i>	<i>log(unemployment rate)</i>	<i>International Monetary Fund</i>

Source: Author

When all the variables are considered, here are the following equations that represent the regression model and explanations below it:

$$\text{Log (return)} = \beta_0 + \beta_1 \log (\text{USD Libor}) + \beta_2 \log (\text{CPI}) + \beta_3 \log (\text{interest rate}) + \beta_4 \log (\text{unemployment rate}) + \varepsilon \quad (1)$$

Annual return – net of fee return expressed in absolute numbers

USD Libor – 12M USD Libor expressed in the percents

CPI – consumer price index expressed in index

Interest rate – Interest rate on long-term bonds expressed in the percents

Unemployment rate – expressed in the percents

Before the results of calculations, it is necessary to formulate hypotheses in order to test the results appropriately.

H₁ : USD Libor affects the annual return positively

H₂ : CPI affects the annual return positively.

H₃ : Interest rate affects the annual return positively.

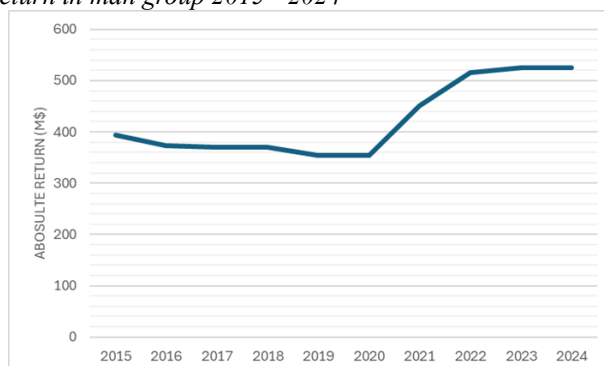
H₄ : Unemployment rate affects the annual return negatively

If the calculated p-value is higher than 0.05, the hypothesis is rejected, meaning that the hypothesis is not true. On the other hand, if the p-value is below 0.05, the hypothesis is accepted, meaning that the hypothesis is true.

RESULTS AND DISCUSSION

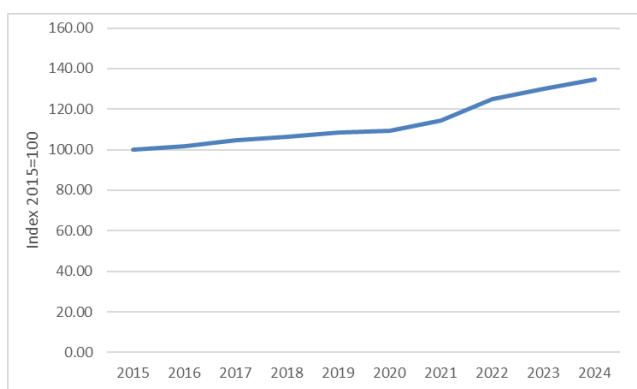
Before the main calculation of the study, there is a group of tables showing the trend of both dependent and independent variables. This will undoubtedly lead to a better understanding of all the variables, especially macroeconomic ones.

The analysis starts by presenting the trend of the annual return so as to get an overall view of how the fund was performing.

Figure 1*Trend of annual return in man group 2015 - 2024*

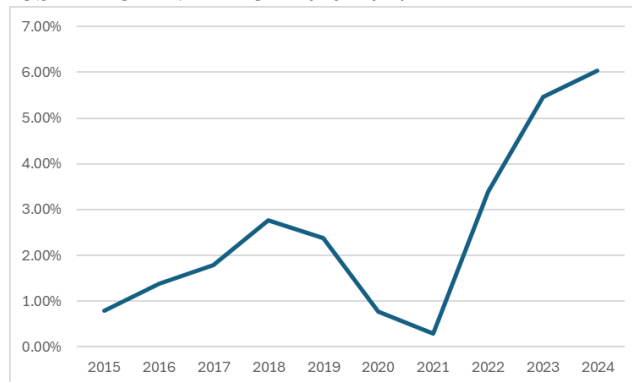
Source: Author based on the balance sheet of (Man Group, 2025)

Figure 1 shows how the return fluctuates during the period. It can be concluded that until 2020 the variables held steady, and after that the rapid incline was captured. In the last three years, the hedge fund has maintained steadiness.

Figure 2*TREND OF CONSUMER PRICE INDEX IN THE UK 2015-2024*

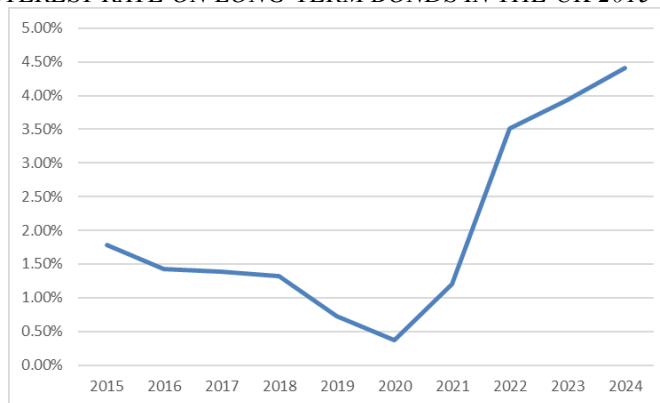
Source: Author based on FRED (2025)

Figure 2 shows the direction CPI is taking. Apparently, there is a gentle incline from 2015 to 2020, and after that, the variable increased steadily until the end of the year 2024 had a slight incline.

Figure 3*TREND OF 12M USD LIBOR IN THE UK 2015-2024*

Source: Author based on (Global-rates, 2025)

Following the trend of Libor is of great importance because until 2024 Libor was a crucial factor concerning Man Group's investment portfolio. This results from the fact that the major part of the investment portfolio covers securities, which depend heavily upon the fluctuations of the variable. In this study, the explanatory variable is 12M USD. Figure 3 shows rapid fluctuations of the Libor, especially after 2021 when the variable started increasing dramatically. The first reason for this significant increase in the Libor on the market is rising prices in loans and debt securities. Another reason is the initiative to replace the Libor as the benchmark interest rate with another one called SONIA (Sterling Overnight Indexed Average).

Figure 4*TREND OF INTEREST RATE ON LONG-TERM BONDS IN THE UK 2015-2024*

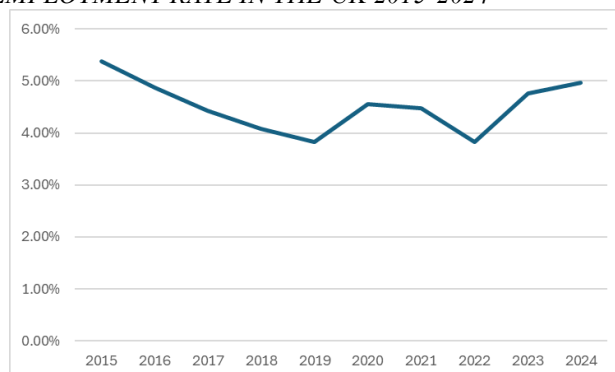
Source: Author based on FRED (2025)

In the study, the focus is on the long-term bonds, whose maturity is 10 years. Long-term bonds are mostly included in the investment portfolio of Man Group. Therefore, it is crucial to proactively follow the trend of the interest rate. The trend of the variable depends on the trend of CPI as well as the Libor rate. By taking a look at Figures 2

and 3, it can be claimed that CPI and Libor rates take the same direction as the interest rate on long-term bonds.

Figure 5

TREND OF UNEMPLOYMENT RATE IN THE UK 2015-2024



Source: Author based on (IMF, 2025)

Unlike the trend of CPI and Libor, the direction of the unemployment rate highly differs. In other words, there is always a trade-off between CPI and the unemployment rate, meaning that these two variables move in the opposite directions. Taking into account the fact that Libor always follows CPI, it can be concluded that the unemployment rate heads in a different direction from Libor as well. The minimal value of the unemployment rate is captured in 2022.

Table 2 shows the descriptive statistics regarding CPI, 12M USD Libor, interest rate on long-term bonds, unemployment rate, and annual return in the period from 2015 to 2024.

Table 2

DESCRIPTIVE STATISTICS

	<i>log (return)</i>	<i>log(USD libor)</i>	<i>log(CPI)</i>	<i>log(interest rate)</i>	<i>log(unemployment rate)</i>
<i>Mean</i>	6.03400	-1.74838	2.05250	-1.80413	-1.34769
<i>Standard Error</i>	0.05250	0.12996	0.01440	0.10647	0.01548
<i>Median</i>	5.95030	-1.68643	2.03662	-1.85182	-1.34560
<i>Standard Deviation</i>	0.16602	0.41098	0.04555	0.33667	0.04895
<i>Sample Variance</i>	0.02756	0.16890	0.00207	0.11335	0.00240
<i>Kurtosis</i>	-1.74607	-0.21760	-0.99839	-0.05438	-0.78780
<i>Skewness</i>	0.56091	-0.53669	0.68184	-0.34535	-0.14927
<i>Minimum</i>	5.86930	-2.52450	1.99957	-2.43510	-1.41737
<i>Maximum</i>	6.26530	-1.21896	2.12905	-1.35556	-1.26962
<i>Count</i>	10	10	10	10	10

Source: Author's calculations based on Excel

Tables 3 and 4 present a regression summary for annual return as well as summary statistics for all relevant statistical measurements.

Table 3

SUMMARY STATISTICS: MACROECONOMIC DETERMINANTS

<i>Regression Statistics</i>	
<i>Multiple R</i>	0.99225
<i>R Square</i>	0.98457
<i>Adjusted R Square</i>	0.97222
<i>Standard Error</i>	0.02767
<i>Observations</i>	10

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
<i>Regression</i>	4	0.24424	0.06105956	79.74259662	0.00010
<i>Residual</i>	5	0.00383	0.00077		
<i>Total</i>	9	0.24807			

Source: Author's calculation based on Excel

Table 4

REGRESSION SUMMARY FOR DEPENDENT VARIABLE: ANNUAL RETURN

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
<i>Intercept</i>	1.06420	0.65061	1.63570	0.16283
<i>log(USD libor)</i>	-0.14498	0.03235	-4.48173	0.00651
<i>log(CPI)</i>	2.49315	0.28679	8.69335	0.00033
<i>log(interest rate)</i>	0.31245	0.04449	7.02272	0.00090
<i>log(unemployment rate)</i>	-0.12080	0.21570	-0.56005	0.59961

Source: Author's calculations based on Excel

For multivariate regression, it is crucial to explain coefficients $\beta_0, \beta_1, \beta_2, \beta_3$ based on the formula (1) and Table 4. Coefficient β_0 shows that if USD Libor, CPI, interest rate on long-term bonds, and unemployment rate amount to 0, the theoretical value of annual return is 1.064 million dollars.

Coefficient β_1 presents that if USD Libor goes up by 1%, the annual return on average will decrease by 0.14%, considering CPI, interest rate on long-term bonds, and unemployment rate are constant.

Coefficient β_2 presents that if CPI goes up by 1%, annual return on average will increase by 2.49%, considering USD Libor, interest rate on long-term bonds and unemployment rate are not changed.

Coefficient β_3 presents that if the interest rate on long-term bonds goes up by 1%, annual return on average will increase by 0.31%, considering USD Libor, CPI, and unemployment rate remain constant.

Coefficient β_4 presents that if the unemployment rate goes up by 1%, annual return on average will decrease by 0.12 %, considering USD Libor, CPI and interest rate on long-term bonds do not change.

Focusing on Table 3, the major indicator is R-squared, and it shows that 98.5% of the variation in annual return is explained by variations of USD Libor, CPI, interest rate on long-term bonds, and unemployment rate. However, the standard error shows that the average distance of the original data from the regression model is 2.8%.

In order to examine whether the macroeconomic factors have an impact on annual return, it is necessary to follow Table 4 with all the p-values.

Table 4 shows that USD Libor, CPI, and interest rate on long-term bonds have p-values which are below 0.05, and it can be concluded that H_1 , H_2 and H_3 are accepted. Therefore, it can be concluded that USD Libor, CPI, and interest rate on long-term bonds have a significant impact on annual return.

As far as the unemployment rate is concerned, its p-value is above 0.05, and it can be concluded that it does not have a significant impact on annual return.

After the calculation with regression, it can be summarized that the results correspond to the results of the mentioned authors in the study. In this study, it is claimed that USD Libor, CPI, and interest rate on long-term bonds positively impact annual return, as was presented in the other studies beforehand.

The only explanatory variable in this study that has no effect on annual return is the unemployment rate, and that is proved by other authors as well.

CONCLUSION

Macroeconomic determinants play a vital role in the market and influence all institutional investors. From the perspective of this research, it is essential to habitually follow the trends of particular macroeconomic factors. In other words, it can be implied that CPI, 12M USD Libor, and interest rate on long-term bonds positively affect annual return and consequently their fluctuations are of a major importance for Man Group. In other words, a long-term follow-up on these variables is mandatory for strong hedge fund performance. On the other hand, it can also be concluded that the unemployment rate negatively affects annual return, and its trend might well be easily left out while considering macroeconomic events.

The impact of macroeconomic factors on hedge fund performance should be periodically examined since the macroeconomic environment can be turbulent. Moreover, inaccurate and irrelevant data could result in poor hedge fund performance. That is why the quality of the obtained data from the market is of great significance and makes the analysis comprehensive.

Considering all crucial elements of the study, it can be summarized by saying that this study may well be used as a relevant example further in the hedge fund industry since it makes a connection between hedge fund performance and macroeconomic events.

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REZIME

Makroekonomska kretanja imaju značajan uticaj na funkcionisanje finansijskih tržišta i poslovanje finansijskih institucija širom sveta. Promene u ključnim makroekonomskim pokazateljima utiču na investicione odluke, upravljanje rizicima i ostvarivanje prinosa, zbog čega je kontinuirano praćenje ovih faktora od posebnog značaja za investitore i upravljače fondovima. U tom kontekstu, cilj ovog istraživanja jeste da ispita uticaj odabranih makroekonomskih determinanti na poslovanje hedž fondova, sa posebnim osvrtnom na ostvareni godišnji prinos. Kao nezavisne varijable u modelu uključeni su indeks potrošačkih cena (CPI), 12-mesečni USD LIBOR, kamatna stopa na dugoročne državne obveznice i stopa nezaposlenosti, dok je zavisna varijabla godišnji prinos hedž fonda. Empirijska analiza zasnovana je na podacima

hedž fonda Man Group, sa sedištem u Ujedinjenom Kraljevstvu, pri čemu analizirani period obuhvata godine od 2015. do 2024. godine. Podaci o makroekonomskim pokazateljima prikupljeni su za isti vremenski period, čime je omogućeno ispitivanje njihove međusobne povezanosti sa performansama fonda. Za analizu odnosa između varijabli primenjen je log-log regresioni model, koji omogućava procenu elastičnosti prinosa u odnosu na promene makroekonomskih faktora. Dobijeni rezultati pokazuju da indeks potrošačkih cena, 12-mesečni USD LIBOR i kamatna stopa na dugoročne obveznice ostvaruju pozitivan i statistički značajan uticaj na godišnji prinos hedž fonda. Nasuprot tome, stopa nezaposlenosti nije pokazala statistički značajan uticaj na ostvarene prinose u posmatranom periodu. Nalazi istraživanja ukazuju na to da pojedini makroekonomski indikatori predstavljaju važne determinante uspešnosti hedž fondova i mogu biti korisni pri donošenju investicionih odluka, proceni rizika i kreiranju strategija upravljanja portfoliom u uslovima promenljivog makroekonomskog okruženja.