Open-End Fund Performance Persistence: A Study on KC Libra Fund

Marco Mele

Abstract

In this paper, we investigate the performance persistence of KC Libra Fund over time horizons between 6 and 12 months based on a merged sample from the Lipper/TASS and CISDM databases for the time period from 2009 to 2013 with year dataset and 2013-2014 with daily dataset. After literature review, we use an econometric model to identify fund characteristics that are significantly related to performance persistence. In particular, this work after observing the high values of KC Libra Fund, we wants to compare this Fund with other similar in order to estimate its determinants. We will identify several fund characteristics that are strongly correlated with the probability of observing performance persistence and we will find only one fund characteristic with a strategy distinctiveness index that attempts to measure manager skills and the uniqueness of the hedge fund’s trading strategies. Finally, we conclude pointing out that the correlation between performance and low volatility of the KC Libra Fund makes it suitable for institutional investors even of the pension and social security institutions.

Keywords: Open-End Funds, Performance, Performance Persistence

JEL Classification: G11, G12, G23

1. Introduction

Talk about investment funds means addressing an issue that it has a long tradition in the world. Medium and long term investments in funds have a number of advantages over other forms of saving such as savings in banks, life insurance and the purchase of real estate. Shares in the funds are very liquid, which is very largely the result of professional management and the great dispersal of the investment. In this manner, confidence and trust in the fund are achieved. As described by M. Milovanovic and F. Galetic (2005) the number of investors in investment funds is increasing every day, which tells us that most people are satisfied with the results achieved, and with the characteristics of them: a) liquidity where it is possible to cash in or redeem purchased shares whenever the investor wishes, because the investment funds are able to transform non-cash resources, such as securities, into a cash form at very short notice. It is possible to withdraw funds from an investment fund without any exit or back-end commission, and the management company must pay the money into the investor’s bank within seven days of receiving the demand for redemption; b) security and yield where the first element of security is the investment of the resources into a great number of financial instruments, or securities (diversification). The resources are invested only in the safest financial instruments (Brigham, 2004). Long-term mean annual yields of the world’s investment funds range between 6 and 15%, which in terms of yield puts them level with equity and real estate. Because of the long term stability of yields, liquidity and low operating costs, investment funds are one of the best ways of saving long term; c) costs of investment in particular when investing in investment funds it is possible to calculate the entry and exit commissions, the management charges and the certificate issue charges. The amount of entry commission on the whole does not exceed 3% of the value of the investment augmented by tax, and back end load is mostly not charged. The management company’s fee can come yearly to at most 1% of the total assets of the fund, and the costs of issuing documents and redemption can come at most up to 5% of the value of the share certificate. Principles of calculating costs vary among the funds, and according to the nature of the

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share; d) Privacy of information about ownership of shares where this is guaranteed, and the protection against the possibility of other people using these assets unlawfully is very strong. All data recorded on electronic media are kept in perpetuity. The management company keeps records about the owners of shares and considers them highly confidential; e) Information because at any moment at all, an investor can find out the worth of his investment.

The relevant research conducted in the early stage of the open-end funds makes no distinction between closed-end and open-end funds. In particular, Detzler (1999) argues that in an efficient market, open-end fund managers cannot beat the market and any superior performance is simply luck and does not persist. Jensen (1968) and Sharpe (1966) support the efficient market hypothesis about these type funds, however, later studies such as Elton, Gruber, and Blake (1996), Goetzmann and Ibbotson (1994) and Hendricks, Patel, and Zeckhauser (1993) find that past performance of open-end funds can predict future performance.


Numerous authors examine fund performances in individual developed countries, such as studies on the U.K. market by Blake and Timmermann (1998); studies on Netherland by Plantinga and Groot (2001); studies on Australia by Bird, Chin, and McCrae (1983); France by Dermine and Roller (1992); Italy by Casarin, Pelizzon, and Piva (2007) and Panetta and Cesari (2002); Japan by Cai, Chan, and Yamada (1997); Sweden by Dahlquist, Engstrom, and Soderlind (2000). For emerging countries, although they have attracted the attention of investors all over the world, there have been much lesser studies on mutual funds; e.g., studies on the Greek market by Artikis (2001), Mylonas (1995), Noulas, Papanastasiou, and Lazaridis (2005) and Sorros (2001); and other markets by Agrawal (2007), Bekaert and Urias (1998), Borenstein and Gelos (2000), Gupta and Aggarwal (2007), Khan (2008), Muga, Rodriguez, and Santamaria (2007) and Ong and Sy (2004).

The other category of studies, as underline M. Milovanovic and F. Galetic (2005), directly investigates the open-end fund indices instead of several samples of open-end funds. Since the conclusions of these studies are free from the influence of the specific characteristics of the sample funds, the conclusions are less biased and more valid. Dong et (2008) apply the GARCH model and the EGARCH-M model to probe into the volatility of the open-end funds and find that the returns exhibit strong volatility persistence and in addiction the overall leverage effect is insignificant, and finally there is only a weak risk premium effect.

Several studies have employed extensive mutual fund return history and sophisticated statistical tools; meanwhile, many studies have applied only the conventional evaluation methods. In Thailand, given a limited number of studies of equity mutual funds, these studies have focused on closed-end funds rather than open-ended funds, even though open-ended funds enable one to track the indexes much better than closed-end funds (Bekaert & Urias, 1998). Furthermore, they have been restricted to the traditional fund performance measures. Using more several and different methods result in a range of outcomes compared to past studies, and this can increase a variety of choices of investment opportunity for individual investors. At the same time, the doubts whether or not the results obtained using diverse methods are reliable. At present, studies on open-end funds that take into account different investment styles are very rare. For example Wang and Sun (2011) investigate three open-end funds employing different investment styles. However, they can hardly represent the entire market and may lead to selection bias.
2. Empirical Analysis: The Model

The majority of insights on the subject, also at international level, has studied the issue of the performance of individual funds to correct the risk. Now we propose an innovative approach that tries to estimate, through the estimation of an econometric model, the performance achieved by each fund considered in the dataset. The study was conducted using an unbalanced panel consists of 2,288 international funds, with a total of 88562 observations drawn from Lipper/TASS and CISDM databases for the time period from two time series: 2009 to 2013 with year dataset and 2013-2014 with daily dataset. Before proceeding to the estimation of the synthetic indicator of the performance achieved by each Fund for all the funds managed traditional analysis was made of the performance of individual funds estimating the CAPM for each fund and obtaining a value of $\sigma$ for each of them. In particular, for to estimate the Funds we use:

$$R_{ijt} - r_{ft} = \alpha_{ij} + \beta (r_{b,ijt} - r_{ft}) + \epsilon_{ijt}$$  \hspace{1cm} (1)

Now, to account the presence of several outliers fund performance and benchmarks were preliminarily expressed in deviation from its medians and was later rebuilt an index of each Fund with the following formula:

$$\alpha_{ij} = K \left[ (r_{ijt} - r_{ft}) - \beta (r_{b,ijt} - r_{ft}) \right]$$  \hspace{1cm} (2)

with K is the median for the model.

After the model was estimated using robust estimates for funds and with a estimation robust panel (in all cases use was made, in addition to the transformation described, to the estimator H). There are two way: in the first case, the estimation produces an $\alpha$ and a $\beta$ for each fund that we have considered, in the second we assume the hypothesis of a single $\beta$ for each fund but we will find an $\alpha$ for each fund.

Even with the precautions described, the parameter estimates are, however, strongly influenced by the presence of outliers (outliers) of which most affected the estimates of the funds for which you have a smaller number of observations. In fact, the literature distinguishes three different types of anomalous observations for our analysis: a) good leverage points that they are observations that lie far from the average values of the explanatory variables but they are still very close to the regression line. They have high leverage but residues; b) vertical outliers that they are values are away from the mean of the dependent variable and affect mainly the estimation of the intercept of the regression line. They have leverage content but high residues and therefore also affect the estimates of the standard errors of the regression; c) bad leverage points: namely explanatory values that are outside of its space.

Fig 1: Outlier estimate

The figure 1 shows the presence of vertical outliers and bad leverage points to outside the area bounded by the two straight parallel lines (which identifies a range of confidence with the level of significativity with
95 per cent). In addition, the degree emphasizes the presence of several good leverage points within the area bounded by the two straight lines, arranged along a straight line but away from the origin.

Now, in order to estimate a model \( \Gamma \) that represent the open-end Fund performance persistence we have used more than one way starting OLS after POLS, FE, GLS and FEDVM. Compared to our work literature has rarely used panel estimates for the evaluation of the results of the funds; moreover, an approach similar to that proposed in this paper has used the approach already followed by other economists (Racicot and Theoret, 2007). In these works are estimated in a model with three risk factors according to Fama and French’ (1993) theory.

In particular we are convinced that panel approach model could produce positive results compared to other models where used only type longitudinal and random studies are. However, we believe that simplify a study of this kind on the basis of these approaches would be unrepresentative of the reality of the funds considered: the effects are not in fact in finance fixed or random, but in both cases represent random variables not observed. Therefore, after estimating a panel model with effects FE and GLS try to use as a model for estimating the FEDVM where there will be:

\[
R_{ijt} - r_f^t = \alpha_{ij} + \Gamma + \beta(r_{ijt}^b - r_f^t) + \epsilon_{ijt} \tag{3}
\]

From a technical standpoint, the Hausman test rejects the alternative method, for instance, the GLS random effects method results insignificant 0.0000 level, thus providing a clear justification for e.g. the use of a Fixed. However, in our model there are many dummies variables that cannot be estimate with OLS model. So, we have developed a model capable to offers analytical results for \( \Gamma \) and \( \alpha_{ij} \). In particular, we can describe as:

\[
R_{ijt} - r_f^t = \alpha_{ij} + \Gamma + \beta(r_{ijt}^b - r_f^t) + \epsilon_{ijt} \tag{4}
\]

That is, by (4) can not eliminate the effect of outliers and separate the FE estimate in relation to the performance of the dummies, we will use (4) to estimate \( \Gamma \) with FEDVM, while \( \alpha_{ij} \) the we'll meet in the same econometric error term (\( \epsilon_{ijt} \)). Finally' ll use an estimator of the likelihood assuming that the residues are disposed in the sense of Normal Inverse Gaussian:

\[
R_{ijt} - r_f^t = \alpha_{ij} + \Gamma + \beta(r_{ijt}^b - r_f^t) + \phi_{ijt} \tag{5}
\]

where \( \phi \) is a random variable with mean 0.

3. Results

A) Model 1: FEDVM, using 720 observations Dependent variable: KC_L_Fund

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>std. error</th>
<th>t-ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>l_T</td>
<td>0.869706</td>
<td>0.862208</td>
<td>-1.009</td>
</tr>
<tr>
<td>l_alpha</td>
<td>1.19929</td>
<td>0.493731</td>
<td>2.429</td>
</tr>
<tr>
<td>l_vol</td>
<td>-2.66332</td>
<td>1.48570</td>
<td>-1.793</td>
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<tr>
<td>l_fail</td>
<td>0.00543</td>
<td>4.06590</td>
<td>1.681</td>
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Mean dependent var 26.20091 S.D. dependent var 4.485454

Sum squared resid 296.1328 S.E. of regression 2.537256
B) Model 1: FEDVM, using 720 observations Dependent variable: GM_R_R_X

<table>
<thead>
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<th>p-value</th>
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<tr>
<td>l_T</td>
<td>0.169706</td>
<td>0.829208</td>
<td>1.321</td>
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<td>l_alpha</td>
<td>1.189959</td>
<td>0.158951</td>
<td>2.123</td>
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<tr>
<td>l_vol</td>
<td>2.43597</td>
<td>1.298565</td>
<td>-1.899</td>
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<tr>
<td>l_fail</td>
<td>1.26529</td>
<td>6.231566</td>
<td>1.128</td>
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</tbody>
</table>

Mean dependent var 29.26559   S.D. dependent var 4.12549
Sum squared resid 276.1468    S.E. of regression 2.135465
R-squared 0.852536   Adjusted R-squared 0.851053
F(8, 46) 735.7481    P-value(F) 9.56e-16
Log-likelihood -100.5719  Akaike criterion 161.1439
Schwarz criterion 177.0457  Hannan-Quinn 167.2804

C) Model 1: FEDVM, using 720 observations Dependent variable: GE_GA_X

<table>
<thead>
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<th>t-ratio</th>
<th>p-value</th>
</tr>
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<tr>
<td>l_T</td>
<td>0.032659</td>
<td>0.023594</td>
<td>1.456</td>
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<tr>
<td>l_alpha</td>
<td>1.000359</td>
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<td>3.165</td>
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<tr>
<td>l_vol</td>
<td>4.235698</td>
<td>1.023020</td>
<td>-1.001</td>
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<tr>
<td>l_fail</td>
<td>2.365989</td>
<td>6.020398</td>
<td>1.887</td>
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</table>

Mean dependent var 35.216846   S.D. dependent var 4.12549
Sum squared resid 176.1565     S.E. of regression 2.135465
R-squared 0.885236   Adjusted R-squared 0.87526
F(8, 46) 715.0025    P-value(F) 9.56e-16
Log-likelihood -180.5719  Akaike criterion 121.8839
Schwarz criterion 125.0484  Hannan-Quinn 127.1104
D) Model 1: FEDVM, using 720 observations Dependent variable: GL_LA_X

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>std. error</th>
<th>t-ratio</th>
<th>p-value</th>
</tr>
</thead>
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<tr>
<td>l_T</td>
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<td>1.002</td>
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<tr>
<td>l_alpha</td>
<td>1.597526</td>
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<td>3.889</td>
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<tr>
<td>l_vol</td>
<td>9.665698</td>
<td>1.755152</td>
<td>-1.135</td>
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<tr>
<td>l_fail</td>
<td>1.265263</td>
<td>0.079526</td>
<td>1.996</td>
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</tbody>
</table>

Mean dependent var: 22.12359
S.D. dependent var: 1.18525
Sum squared resid: 136.4269
S.E. of regression: 5.26546
R-squared: 0.801398
Adjusted R-squared: 0.801368
F(8, 46): 655.0465
P-value(F): 5.56e-19
Log-likelihood: -100.5559
Akaike criterion: 141.7359
Schwarz criterion: 145.0124
Hannan-Quinn: 147.1446

In the results we have chosen to present a representative sample of the funds used in order to better represent reality without burdening the discussion. Estimates confirm the unreliability of the method of least squares that results is unaffected by the presence of outliers, the slope of the line particularly impacted by bad leverage points. However it should be noted that $R^2$ adjusted for degrees of freedom is quite high and it is never less than 80%. the results of the empirical analysis carried out suggest that the estimates that shall take account of outliers and the maximum likelihood estimation under the assumption of non-normality residues are, in practice, equivalent; these estimates, can to capture satisfactorily the phenomena observed historically in market funds.

The study shows that only one of the funds considered to be a reasonable choice of return as a presence characterized by excellent performance and low volatility near impossibility of failure. In particular, shows a performance for every 10% of general market increases a value of 0.86 with a value of volatility even negative. This result would suggest that institutional investors can not invest in something risky, a truly optimal choice. We are talking, for example, the pension fund which certainly cannot risk causing losses on the collection of taxpayers. In addition, compared to the other funds in question, has a very low probability of failure, because the value of the coefficient is 0.005. This result is also confirmed by the goodness of the regression model: adjusted $R^2$-squared shows in fact a value close to 100% with the criteria of deviance perfectly homogeneous.

4. Conclusion

In the present work has been carried out an econometric analysis aimed at assessing the performance of open-end investment funds. The preliminary analysis of returns of individual funds has confirmed the modest performance of these funds during the period, in line with what has been observed in other similar work, especially when you consider the context, also the volatility and the risk of failure of the fund. These variables considered, in our opinion, are of great importance as their persistence in the model would be synonymous with high risk. Conscious of the fact that any econometric model has a margin of error and that the funds are acting according to the choices of the operators that govern them, only one fund has complied with the characteristics of good performance and low volatility over time, the KC Libra Fund. In addition, a critique of the model we have developed could be that the funds are considered to be very young. However,
to eliminate in the historical series that element we chose to use daily data leveling the probability of autocorrelation through the use of logarithms and controlling the various correlograms.

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M. Mele

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