# Pre-COVID Performance and Risk Assessment of Asset Management Companies; Evidence from an Emerging Market

**Fouzia Hadi Ali**[*]**, Javeria Barkaat**[**]**, Majid Ali**[***]**, and Muhammad Aamir**[****]

**Abstract**

*By using the Autoregressive Distributed Lag (ARDL), and the Emerging Market Z-Score Model, we have examined the performance and factor of riskiness of Pakistan's asset management companies, for the years pertaining to 2013-2018. Moreover, we also tested the stability of the ARDL model. The findings reveal that microeconomic and macroeconomic factors have a long-run impact on the performance of asset management companies (AMCs). Besides this, the Emerging Market Z-Score Model also categorizes the asset management industry in the safe zone, which indicates that the industry has no probability of default. This study was delimited to Pre-COVID data available for asset management companies that were taken into consideration. We can arguably conclude that the Post-COVID performance, and riskiness of AMCs might have inconsistent outcomes with our study. This study's findings may encourage, and aid investors, fund managers, and market makers to revisit their long-term investment patterns, keeping in mind the post-COVID short term volatility dynamics of the industry, which was the primary limitation of this study.*

**Keywords:** Emerging market Z-Score, asset management companies, ARDL, Pre-COVID.

**JEL Classification:** C3, C4, G3.

## 1. Introduction

The asset management industry is not independent of economic shocks. As Rizvi, Mirza, Naqvi, and Rahat (2020) have highlighted, the current coronavirus disease-19 (COVID-19) has been a surprisingly uncertain event, even greatly for financial markets. It is believed that asset

[*] Assistant Professor, Hailey College of Commerce, University of the Punjab, Lahore, Pakistan.
[**] Research Associate, Hailey College of Commerce, University of the Punjab, Lahore, Pakistan.
[***] Assistant Professor, Hailey College of Commerce, University of the Punjab, Lahore, Pakistan.
[****] Assistant Professor, Hailey College of Commerce, University of the Punjab, Lahore, Pakistan.

management companies (AMCs) play a significant role in boosting the pace of the emerging economies' financial stability (Ghosh, Adhikari, & Neogi, 2017). An emerging economy is primarily a country that is witnessing rapid economic growth (Vercueil, 2016). In emerging economies, asset management companies are considered to have the potential to prosper well in the financial system. In this regard, the asset management industry's worth has substantially increased to USD 89 trillion, as of the decade of 2010s, amounting to a total of USD 79 (BCG Global Asset Management Database, 2020). Likewise, the asset management companies have gained popularity in Pakistan as well. This is due to the assessment that a significant amount of focus was concentrated during the recent decade, on the asset management companies, in terms of the diversity and volume of funds that they have access to. According to the mutual funds association of Pakistan (MUFAP), about twenty asset management companies currently have a diverse range of 221 funds, as compared to the situation that prevailed 10 years back. This clearly shows the industry's importance that should not be undermined or ignored.

The progress and interest of the asset management companies, and the likely increase in the volumes show Pakistan's asset management industry's future investment potential. This is an area of research that should not be neglected, as it could provide useful insights for the relevant stakeholders. Over the years, Pakistan's mutual fund industry has witnessed remarkable growth. This happened primarily when the assets under the management grew to a staggering amount of PKR 607 billion, from PKR 25 billion. The most significant segment of the population of Pakistan comprises of the middle-class. While having little to invest, the rate of savings in this segment of the society is only 4.2 percent of the GDP. Therefore, it is beyond their means to invest and manage investments by themselves, in the same manner as the professionals do. Thus, the AMCs can grab the savings from this niche of the market, by introducing awareness for the public about the risk-related aspects, and the mitigation measures thereof. Usually, asset managers are considered connoisseurs in the field of investment, as they conduct fundamental and technical analyses, which investors usually are unable to do individually. The investors can let their savings grow for the short-term, medium-term, or long-term, in line with their investment objectives. However, investors lose the direct hold on securities, which the mutual funds usually keep, but ultimately these belong to the AMCs. Additionally, the transaction costs become minimal, as the AMCs transact in more substantial collective investments.

Interestingly, mutual funds in Pakistan have a distinctive structure. The AMCs have a principal role in the mutual funds' framework, while investing pooled money in diversified, liquid, and professionally managed investment schemes. These firms typically deal in mutual funds, pension funds, hedge funds, equities, debt instruments, etc. Besides this, asset management companies are registered under the Companies Ordinance 1984 as public limited companies. Moreover, they are also registered under the trade association, named as the Mutual Funds Association of Pakistan (MUFAP). MUFAP is a representative body, and licensed by the SECP. In compliance with the Non-Banking Financial Company Rules 2003, AMC ascertains a trust with the trustee, which can be a bank or a central depository company. The trustee also works as a custodian, supervises the transactions, and plays a key role in the clearing system. In addition to this, the registrar and transfer agents transact and document the investors' records. Reforms in the economy have been instrumental in this sector's growth. However, bearing in mind the Pakistani economy's scope and its contribution to the national savings, there is a long way for it to be in a legitimate position.

Motivated by recent studies, such as Rizvi et al. (2020), based on asset management companies and the role of COVID-19, we examined the Pre-COVID performance and riskiness of Pakistan's asset management companies. Admittedly, we faced some challenges as well. These included the non-availability of data on asset management companies, and the insufficient data on COVID-19, in order to conduct this research. Therefore, we thus delimited our analysis to the pre-COVID period. However, we can assert that since, to the best of our knowledge, there is no baseline study available in Pakistan's context, this study can work as a benchmark (a point of comparison), so as to study the post-COVID performance, and riskiness of asset management companies in the future.

## 2.  Literature Review

Some recent work on the performance and riskiness of asset management companies includes Rizvi et al. (2020); Klingebiel (2000); Gandolfi and Arcuri (2013); Bazo, Verdu, and Santos (2010); Tahir (2019), among many others who have worked on asset management companies using a diversity of context, variables, and data methodology. In this regard, the Altman Z-Score has been used to measure the creditworthiness for the financial firms, in order to predict the probability of default. Besides this, the Altman model has also been prompted by the fundamentals associated with Basel II and Basel III (Altman, 2018). This model has

become a standard epitome, to direct the firms to improve their decision making that may provide them with better investment returns. In their pioneering paper, Ghosh et al., (2017) predicted bankruptcy, by applying the revised Altman model on the service firms. They also evaluated five top-tier asset management companies of India from the years ranging from 2010-2011, to 2014-2015. Altman (2005) testified the accuracy of the Z-score in the non- US scenario, by estimating the risk of default of 30 Mexican firms. Similarly, after the credit turmoil, Georgios, Kalliopi, and Kalliopi (2012) also anticipated the risk of default of six Greek banks, via the Altman's Z-score and other relevant financial ratios.

Similarly, Sharma (2013) applied the model to the government and financial sector as well. The study indicated a probability of default, or bankruptcy of some companies. Moreover, Shaheen and Javid (2014) also investigated credit risk via company ratings.  In the same context, most studies in Pakistan provide evidence that is based on the probability of default of the companies that are listed in the Pakistan Stock Exchange across sectors, or on the mutual funds offered by the AMCs. However, to the best of our knowledge, no study is yet made to be available, that reveals the probability of default of bankruptcy in AMCs operating in Pakistan. Therefore, the present study examines the impact of macroeconomic and microeconomic factors on the performance and risk of twenty asset management companies, between the years 2013 and 2018. In order to measure the performance and risk of AMCs in emerging markets (EM), the Z-score has been applied to the data. The study results have helped to create a point of comparison for future studies, so as to assess the post-COVID performance and riskiness of asset management companies. Therefore, in light of the above discussion, the present study has the following research question:

i.   What is the impact of macroeconomic factors on the performance and risk of AMCs in Pakistan?

ii.  What is the impact of microeconomic factors on the performance and risk of AMCs in Pakistan?

## 3.   Data and Methodology

The secondary data was gathered from the World Development Indicators, and the financial statements of AMCs (see the list in Appendix), through their annual reports.  All the AMCs that were available were selected, as the annual reports were available only from the years

pertaining to 2013 to 2018, so the data collected was from a time span of five years only. In Pakistan, unlike the availability of published annual reports of mutual funds offered by AMCs, the annual reports of AMCs are typically not publicly available. Therefore, special written requests and permissions were sought from the Registrar of Companies, and the Securities and Exchange Commission of Pakistan (SECP) in Islamabad, in order to acquire and use the current research data. In terms of the data's relevance, the pre-COVID 19 data can be used to create a benchmark for future studies, so as to extend the same research on post-COVID 19 data, and offer a point of comparison based on the findings of the current study. Since the pandemic is still ongoing, future studies can be extended on the data for the next five years, starting from the year 2019. Moreover, company ratings, and the EM Z-Score were used as the dependent variables for the purpose of this study.

The microeconomic variables that have been taken into consideration, comprise of the total turnover ratio (TR), expense ratio (ER), net asset value (NAV), and the size. Whereas, the macroeconomic variables include the interest rate and inflation. Both the micro and the macroeconomic variables are the explanatory variables that have been taken into account. At the same time, company ratings are used to determine the credit soundness of the company crucially. The company ratings are usually measured when the issue of trust of the stakeholders comes to the surface. According to the rankings extracted from PACRA and VIS, the rating scale sourced from the VIS website positions AM1 to be excellent, AM2++, AM2+, AM2 to very good, AM3++, AM3+, AM3 to be good, AM4++, AM4+, AM4 to adequate, and AM5 to be a weak AMC. Moreover, the Emerging Markets Z-Score measures the probability of default of the firm as well. Other than that, the Altman's model has also been referred to, so as to predict distress. It is popularly known as the EM Z-Score model for non-manufacturing firms, and is computed as:

$$EM\ Z-Score\ = 3.25 + 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05\ X_4 \qquad (1)$$

For the standardization of a score with a value of zero of the default firm, a positive 3.25 has been incorporated in the equation. Here, $X_1$ is the ratio of the working capital to total assets. On the other hand, the value of $X_2$ can be obtained by dividing the retained earnings to the total assets. Similarly, $X_3$ can be obtained by dividing the earnings before interest and taxes, to the total assets. Lastly, $X_4$ is calculated by dividing the net worth of the firm, with the total liabilities. If the computed score comes out to be higher than 2.60, it can be assumed that the firm is in a safe zone; where the

prospects of distress are very few. However, if it lies between the ranges of 1.10 to 2.60, then the firm falls into the grey zone, and the prospects of distress increase. If, however, it is less than 1.10, the firm goes into the danger zone, and the propensity of distress is very intense at this point.

The total turnover ratio measures the firm's trading activity, and is computed by the net revenue divided by the total assets. The data relating to this variable has been extracted from the annual reports of AMCs, which show the expense ratio, measured by the total operating expenses of AMCs divided by the total assets, and then multiplied by 100. In addition to this, the annual reports have been used to extract the data of this ratio. Net assets value (NAV) has been computed by the firm's net assets, divided by the number of its units, as extracted from the annual reports. It is expected that the firm's size would eventually influence the performance and risk; therefore, we have used it as a control variable in this study. This variable has been computed by taking the natural log of the firm's total assets, which have been sourced from the balance sheets of AMCs. The interest rate is taken to be the lending rate that was prevalent in the country at the time of data collection. The data regarding this factor was extracted from the World Development indicators via the World Bank Website. Moreover, we used inflation data from the World Development Indicators as well. Keeping these intricacies in mind, the following equations were formulated:

$$CR_{it} = \beta_0 + \beta_1 TR_{it} + \beta_2 NAV_{it} + \beta_3 ER_{it} + \beta_4 Size_{it} + \beta_5 INF_{it} + \beta_6 IR_{it} + \mu_t. \tag{2}$$

$$EM\ Z-Score_{it} = \beta_0 + \beta_1 TR_{it} + \beta_2 NAV_{it} + \beta_3 ER_{it} + \beta_4 Size_{it} + \beta_5 INF_{it} + \beta_6 IR_{it} + \mu_t. \tag{3}$$

Where, the IR measures the interest rate, INF stands for inflation, ER denotes the expense ratio, TR is the total turnover ratio, NAV is the Net Assets Value, and the SIZE is denoted by the size. Finally, μt is the error term for the regression equation, where *i* represents AMCs, and *t* represents the time.

This paper has also employed the Autoregressive Distributed Lag Model (ARDL), so as to recognize the impacts of the micro and macroeconomic factors, on the performance of AMCs. Nevertheless, the properties of all the variables, such as stationarity, were attested before the ARDL estimation. Other than that, an Augmented Dickey-Fuller (ADF) test has also been applied, in order to testify the stationarity. Also, to test the unit root, the ADF test has been referred to, which determines the

variables' stationarity, except for the company ratings, which is a dummy variable. ADF follows the IID identical independent distribution, and has been given preference due to its simplicity in dealing with the panel data.

## 4.   Results and Discussion

This section presents the data analysis, results, and discussion of the two ARDL models. It is noteworthy that the results are based on both the models that have been taken into consideration. In the first model, the company ratings have been used as the exploratory variable. While the impact of the micro and macroeconomic variables have been used to observe their influence on the long-run performance of AMCs. In the second model, the EM Z-Score has been taken as the dependent variable, wherein the effect of the micro and macroeconomic variables, on the risk of AMCs has been examined. Moreover, the stability tests such as CUSUM and CUSUMQ have also been conducted for each of the ARDL models. Finally, the coefficient of error correction has been discussed.

Table 1 depicts the results of the ADF test, for the determination of stationarity. The results revealed that some variables tend to become stationary at a certain level, while other variables become stationary at the very first difference.

**Table 1: Result of Augmented Dickey-Fuller Unit Root Test**

| Variables | Order of integration | ADF test statistic | Probability |
|-----------|---------------------|--------------------|-------------|
| TR | I (0) | 57.6934 | 0.0346* |
| NAV | I (0) | 66.1637 | 0.0057** |
| ER | I (0) | 64.5154 | 0.0083** |
| Size | I (0) | 66.7024 | 0.0051** |
| INF | I (I) | 57.4752 | 0.0361* |
| IR | I (I) | 58.6369 | 0.0288* |
| Z_Score | I (0) | 98.4102 | 0.0000*** |

*Source:* Researcher's computation following APA format
*Note:* $*P < 0.05$, $**P < 0.01$, $***P < 0.001$

Since the variables are in the combination of I (0) and I (I), which fulfills the assumptions of ARDL proposed by (Pesaran, Shin, & Smith, 1996), this state of the art approach has provided authentic results. This is in contrast to the Johansen-Jesulius Cointegration, which typically requires all the variables to be stationary at I (I). The lag length has been selected, based on the Akaike Information Criterion (AIC), which automatically selects the lag length for the variables. So, the first model's lag length is

based on ARDL *(1, 1, 0, 0, 1, 1, 0)*, which described that one lag of the variables pertaining to TR, CR, SIZE, and INF, has been used. Similarly, for the second model, the lag length is ARDL *(1, 0, 0, 1, 0, 1, 0)*, which shows that one lag of the EM Z-Score, ER, and IR has been taken into consideration. Table 2 represents the short-term dynamics of the Autoregressive Distributed Lag Model 1. The outcomes have represented that the coefficient of determination is 0.69196, which indicates that the overall goodness of fit of the estimated model is 69.19 percent. This also seems to imply that the explanatory variables explain 69.19 percent of the entire variations, in the performance of the AMCs.

**Table 2: Autoregressive Distributed Lag Estimates**

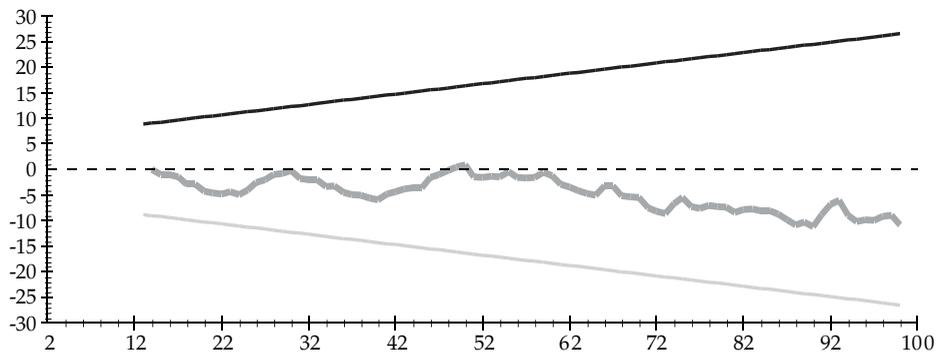| Regressor | Coefficient | Standard Error | T-Ratio [Prob] |
|-----------|-------------|----------------|----------------|
| CR(-1) | 0.6472 | 0.0711 | 9.0993 [0.000] |
| TR | -2.2997 | 0.3473 | -6.6214 [0.000] |
| TR(-1) | 1.1651 | 0.3477 | 3.3506 [0.001] |
| NAV | -0.00016 | 0.00016 | -1.0024 [0.319] |
| ER | 0.00954 | 0.00225 | 0.4236 [0.673] |
| SIZE | -0.0505 | 0.0163 | -3.1101 [0.003] |
| SIZE(-1) | 0.0379 | 0.0159 | 2.3759 [0.020] |
| INF | -0.0779 | 0.0525 | -1.4845 [0.141] |
| INF(-1) | -0.0916 | 0.0528 | -1.7344 [0.086] |
| IR | 0.1502 | 0.0392 | 3.8263 [0.000] |

*Note*: The dependent variable is company ratings.
Where, *R-Squared* = 0.69196, *R-Bar-Squared* = 0.66081 and *F-statistics* =22.2136 [0.000]

The results indicate that the turnover ratio has a negative significant bearing on the performance of AMC in Pakistan. Whereas, the lag of turnover ratio has a significant positive impact on the performance of AMCs. This outcome indicates a long-term relationship between the turnover ratio and performance. So we can infer that the increase in the trading activity in the preceding period, leads to better ratings. Besides this, the estimated result reveals that the net asset value has a negative influence, while the expense ratio has a positive, but insignificant influence on the company ratings. In the same context, Huang, Pilbeam, and Pouliot (2019) also suggested that an increase in the expense ratio, due to the added costs, combined with active managerial practices, tends to enhance the performance of firms. It can also be inferred that the expense ratio is allied with the efficiency of the mangers. In this regard, the outcome is in line with the results put forth by Chen, Hong, Huang, and Kubik, (2004). Moreover, the size of AMCs has a negative, and significant effect on the company ratings as well. In contrast, the lag of size shows a significant and positive bearing on the performance of AMCs. This reveals that large

AMCs, in terms of their size, will be able to capture a good rating, and then perform better. The estimates further reveal that inflation has a negative, but insignificant impact on the performance of AMCs in Pakistan. These results are in line with a study conducted by Linter (1973). The majority of the results of the present study have followed the a-priori expectation. Lastly, the results also revealed that the interest rate has a positive and significant influence on the performance of AMCs in Pakistan.

Additionally, this study has also analyzed the stability of the first model. The cumulative sum of recursive residuals (CUCUM), and the sum of the square of recursive residuals (CUSUMQ) have been applied correspondingly, in order to accomplish this purpose. In this regard, Figures 1 and 2 depict the plots of the CUSUM and CUSUMQ, which have been observed to be well within the critical margins of 5 percent. It can therefore be inferred that the model is relatively stable.

**Figure 1: The straight lines represent critical bounds at a 5 percent significance level**



*Source*: Researchers' Computation 2020

**Figure 2: The straight lines represent critical bounds at a 5 percent significance level**
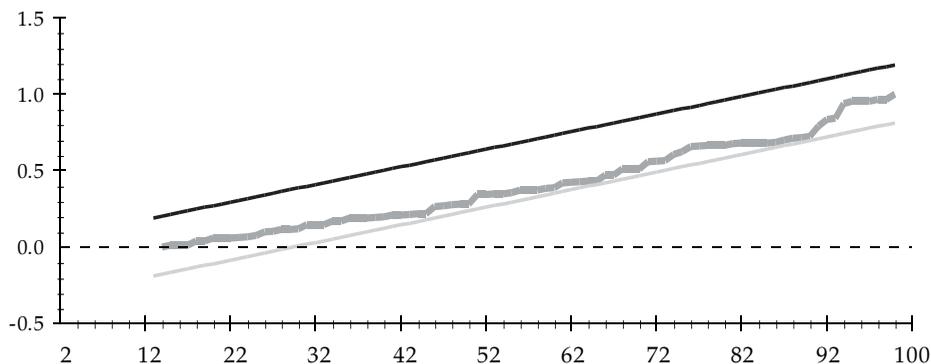


*Source:* Researchers' Computation 2020

Table 3 represents the outcomes of the long-run estimates of model I, using the ARDL approach. Since the turnover ratio, inflation, and interest rate are significant in statistical terms, there happens to be long-run stability in the model of AMCs' performance, specifically in Pakistan's context.

**Table 3: Long Run Estimates using ARDL**

| Regressor | Coefficient | Standard Error | T-Ratio [Prob] |
|---|---|---|---|
| TR | -3.2162 | 0.9309 | -3.4547 [0.001] |
| NAV | -0.00046 | 0.00044 | -1.0360 [0.303] |
| ER | 0.00270 | 0.00631 | 0.4285 [0.669] |
| SIZE | -0.0359 | 0.0298 | -1.2027 [0.232] |
| INF | -0.4805 | 0.2275 | -2.1120 [0.037] |
| IR | 0.4257 | 0.0799 | 5.3228 [0.000] |

*Note.* The dependent variable is Company Ratings.

The error correction representation reveals that the error correction term is significant and negative, as desired according to the objectives of the study. In precise terms, the ECM (-1) is valued at 0.35279. We can also infer that an alteration to the long-run equilibrium, in reaction to the disequilibrium due to the short-term variability of the proceeding point in time, is at a speed of 35.28 percent.

Table 4 signifies the estimates of the ARDL model II. The coefficient of determination is 0.49740, which implies that the overall goodness of fit is at a point of 49.74 percent. It suggests that the macro and microeconomic factors explain 49.74 percent of the total fluctuations in the EM Z-Score. It is noteworthy that the EM Z-Score measures the default propensity. The

results show that the turnover ratio, and the net asset value have an insignificant, but negative impact on the EM Z-Score of AMCs, specifically in Pakistan. This result is also consistent with the conclusions of Chen et al. (2002). Besides this, the expense ratio also negatively affects the EM Z-Score, at a 10 percent significance level. This implies that an increase in the expense ratio, due to the expenses related to active management, lessens the risk in AMCs (Huang et al., 2019). In light of the model's outcomes, the lag of expense ratio has a significant and positive impact on the default risk of AMCs.

Moreover, the results also reveal that the variable 'size' has a significant and positive effect that is pertinent on the risk of AMCs operating in Pakistan. This result shows that the bigger AMC, in terms of size, possess ample resources, so as to cope with the unexpected circumstances before the real crunch occurs. Similarly, the rate of interest rate has a significant and positive influence on the riskiness that is associated with AMCs. In contrast, the lag of interest rate has a negative, but significant impact on the EM Z-Score of AMCs. Lastly, the estimated results also revealed that the inflation rate has a negative and significant influence on the risk that exists among AMCs in Pakistan. The findings are grounded on the fact that the stretching force that is used to retrieve, and consume the expandable items, results in curb savings. This result lends credence to the outcomes of (Lemantile, 2017) and (Linter, 1973).

**Table 4: Autoregressive Distributed Lag Estimates**

| Regressor | Coefficient | Standard Error | T-Ratio[Prob] |
|-----------|-------------|----------------|---------------|
| Z_SCORE(-1) | 0.5572 | 0.0871 | 6.3982[0.000] |
| TR | -9.6156 | 5.9266 | -1.6225[0.108] |
| NAV | -0.00203 | 0.00324 | -1.4091[0.162] |
| ER | -0.0908 | 0.0467 | -1.9465[0.055] |
| ER(-1) | 0.1025 | 0.0434 | 2.3617[0.020] |
| SIZE | 0.9614 | 0.2851 | 3.3716[0.001] |
| IR | 2.6745 | 0.6051 | 4.4201[0.000] |
| IR(-1) | -1.4857 | 0.5082 | -2.9236[0.004] |
| INF | -0.6327 | 0.9419 | -.6716[0.504] |

*Note.* The dependent variable is EM Z-Score**.**
Where, *R-Squared* = .49740, *R-Bar-Squared* =.45272 and *F-statistics* = 10.8162 [0.000].

For the second model, the CUSUM and CUSUMQ measures are applied, respectively, in order to check whether the model is stable or not. Figures 3 and 4 present the CUSUM and CUSUMQ plots within the critical boundaries of 5 percent. Hence, the stability of the model is evident from the plots.
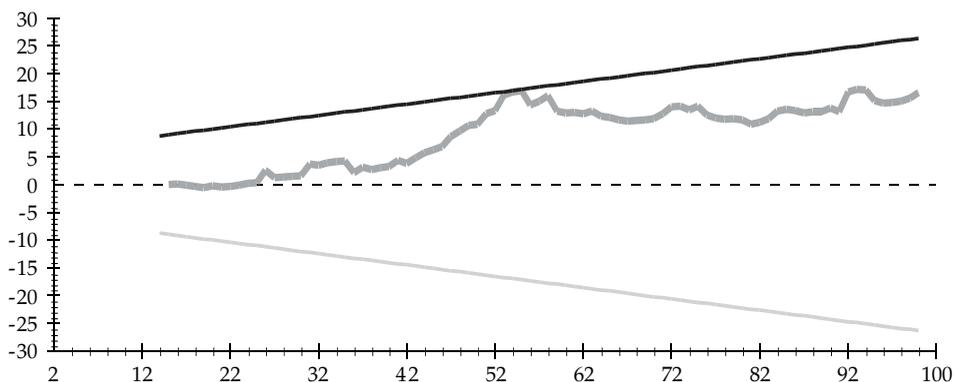
*Note:* The straight lines represent critical bounds at a 5 percent significance level.
*Source:* Researchers' Computation 2020
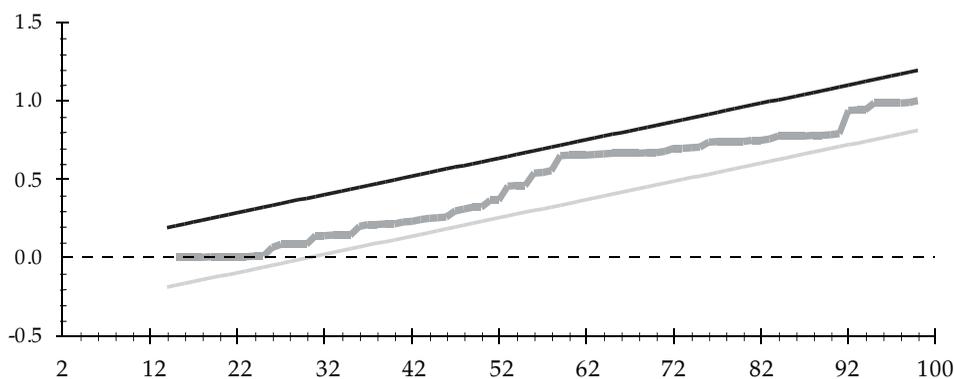


*Note:* The straight lines represent the critical bounds, at a 5 percent level of significance.
*Source:* Researchers' Computation 2020

Table 5 presents the outcomes of the long-run estimates of model II, using the ARDL approach. Meanwhile, with the interest and inflation rates being statistically significant, it can be inferred that long-run stability endures in the model of risk, among the AMCs in Pakistan.

**Table 5: Long Run Estimates using ARDL**

| Regressors | Coefficients | Standard Errors | T-Ratio[Prob] |
|---|---|---|---|
| TR | -21.7173 | 13.4726 | -1.6120[0.110] |
| NAV | -0.00103 | 0.00700 | -1.4730[0.144] |
| ER | 0.0265 | 0.1249 | 0.2118[0.833] |
| SIZE | -0.0147 | 0.4052 | -0.0364[0.971] |
| IR | 2.6849 | 0.9234 | 2.9076[0.005] |
| INF | -1.4289 | 2.1432 | -0.6667[0.507] |

*Note.* The dependent variable is EM Z-Score

From the re-parameterization of the error correction estimates, it is evident that the ECM (-1) indicates a negative sign, and is significant, statistically at a 5 percent significance level. In more specific terms, the ECM (-1) is valued at 0.44276. Therefore, we can deduce that the adjustment to the long-run equilibrium, in reaction to the disequilibrium by short term inconsistencies of the proceeding point in time, is at a speed of 44.28 percent.

The study is not free from its due limitations. The present study has only focused on five years of data. Hence, the future studies should focus on data that is available for extended years as well. Moreover, the study results are generalizable according to an emerging market like Pakistan, so the future studies should ideally focus on cross-country comparisons that come under the definition of emerging markets.

## 5.  Conclusion

This paper attempts to assess the impact of macro and microeconomic variables on the performance and risks that exist among the AMCs in Pakistan, by using the state-of-the-art approach, ARDL model. The findings suggest that the performance of the AMCs is significantly sensitive to its own lag term, trading activity, its lag, size of AMCs of the current and preceding period, and the interest rate. Whereas the risk is affected by its lag term, the expense ratio of the current and preceding year, the size of the AMC, and the interest rate in current and the previous years. The study has also focused on the EM Z-Score of all the AMCs that are listed in MUFAP, and appropriately evaluated the performance and risks. The findings reveal that the overall the mutual fund industry is in a safe zone, except for two AMCs, namely Faysal AMC and Habib AMC, which happen to be in the grey zone, and require close attention by the SECP.

The precision of the EM Z-Score in the literature that is based on financial distress primarily led this research to choose the Altman's model. This is so because the ratios in the model, best fit the mutual funds industry. The results of this study are equipped to enable potential investors and financial institutions to better comprehend the factors of performance and risk among the AMCs. In this regard, the respective companies should be anxious about the factors that drag down the Z-Score of the AMCs, and improve their performance by understanding what factors tend to have a crucial impact on their respective performance variables. In a nutshell, the objective of boosting up the revenues, and

lessening the risks, are very well, and practically achievable. This is a starting point for researchers and practitioners for looking into a more reliable research in the advanced context of AMCs in Pakistan.

This study's findings may help investors, fund managers, and market makers to revisit their long-term investment patterns, keeping in mind the post-COVID short term volatility dynamics of the industry, which was the main limitation of our study. Moreover, this study will also help the policy-making authorities to improve their policies, provide incentives like improving the legal and information systems, etc., so as to create an investment-friendly environment in order to motivate the investors.

The study advocates the usage of EM Z-Score, as it is unbeaten in 90 percent of the cases that it is applied to. This study also suggests using the EM-Z Score, as part of a mandatory disclosure, for all the AMCs listed in the MUFAP. It also recommends the regulatory bodies to publish the financial statements of AMCs publicly, in the same manner as their respective funds' financial statements are published and accessible to the public. This will help future researchers to get an open and candid access to the financial data of AMCs. Even though the AMCs in Pakistan can offer safe investment opportunities to the middle-class investors, who primarily dominate the Pakistani population, the overall investment is still believed to be low. The regulatory bodies should play a role in introducing relevant awareness campaigns for the public, so as to propagate safer investment opportunities to small savers.

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*Appendix*

**List of Asset Management Companies listed in MUFAP**

| Sr. No. | AMCs |
| --- | --- |
| 1 | ABL Asset Management Company Limited |
| 2 | AKD Investment Management Limited |
| 3 | Al Meezan Investment Management Limited |
| 4 | Alfalah GHP Investment Management Limited |
| 5 | Atlas Asset Management Limited |
| 6 | AWT Investments Limited (Formerly: Primus Investment Management Limited) |
| 7 | 786 Investments Limited (Formerly: Dawood Capital Management Limited) |
| 8 | BMA Asset Management Company Limited |
| 9 | Faysal Asset Management Limited |
| 10 | First Capital Investments Limited |
| 11 | Habib Asset Management Limited |
| 12 | HBL Asset Management Limited |
| 13 | JS Investments Limited |
| 14 | Lakson Investments Limited |
| 15 | Magnus Investments Advisors Limited |
| 16 | MCB-Arif Habib Savings and Investments Limited |
| 17 | National Investment Trust Limited |
| 18 | NBP Fund Management Limited (Formerly: NBP Fullerton Asset Management Limited) |
| 19 | Pak Oman Asset Management Company Limited |
| 20 | UBL Fund Managers Limited |