

ISLAMIC PENSION FUNDS PERFORMANCE IN TURKEY

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Abstract

Pension funds poses an important place in terms of increasing and encouraging savings for economies of countries. Accordingly, the private pension system in Turkey, which entered into force on 27 October 2003, has been still under development. Therefore, the performance of the pension funds has a considerable indicator characteristic for investors to utilize their savings with these investment instruments. Beside these, in Turkey, for spreading saving ability to all components of the society investors who have Islamic sensitiveness have been channelized into pension funds with new “helal” pension funds. In this study, performance of these pension funds operating in Turkey in the period of January 2013 and August 2015 will be measured by using regression analysis with explanatory benchmarks. For this purpose single and multi regression models will be employed. BIST 100, Government Debt Securities (GDS), and Gold Price Indices will be employed as explanatory variables for the single and multi regression models applied to pension funds.

Keywords: Islamic Pension Investment Funds, Performance Measurement, Borsa Istanbul, Alternative and Participation Funds, Regression

Introduction

Individual pension systems, which are a complimentary system to national social security system, are being implemented in many countries and encourage people to fund their future with voluntary basis. With integration of the individual pension system private pension funds has become an important figure in economies.

People in developed countries mostly have been making savings by investing in pension funds for years. The role of private pensions as a source of income upon retirement has greatly increased over the past two decades, reflecting efforts by many countries to reduce unsustainable pay-as-you-go benefits. (Tapia, 2008)

Especially in OECD countries Pension funds' assets in 2014 top USD 25 trillion. Almost of the OECD countries, pension funds' assets had increased between the end of 2013 and the end of 2014. The greatest growths are found in Estonia, Korea, Luxembourg and Turkey where pension funds' assets increased by more than 20%, compared to their levels between 2014 and 2013. (OECD, 2015)

Pension fund assets showed an average annual growth rate of 8.2% between period of 2009-2013. The five biggest countries in the OECD area in terms of pension funds' assets were the United States, the United Kingdom, Australia, Canada and the Netherlands, altogether totaling USD 21.7 trillion or more than 85% of OECD pension funds' assets. The OECD weighted average asset-to-GDP ratio extended to 86.0%. In United States asset-to-GDP ratio was 84.6% whereas in Turkey this ratio was only 2% at the end of 2014. Pension funds in all the OECD countries offered positive real returns to the investors between December 2013 and December 2014, with an OECD weighted average at 4.5 %. (OECD, 2015)

The first legal regulation of the Turkish Individual Pension Law was completed in 1999 but the official publication was made in 2001 with the "Private Pension Savings and Investment System Law". On 27 October 2003, after the four-year preparation period individual pension system has been engaged in practice with 11 pension companies.

At the end of 2014, there are 19 pension companies and numbers of contracts reached to 5,807,319. The number of participants has grown around 23% and exceeded 5 million when compared to the end of the 2013. In the same period the total net asset value of the funds have been increased 38% surpassed USD 14 billion. Because Islamic Pension funds are in the core of our study, it is needed to give some details about these funds in Turkey. As of December 31, 2014, there are 24 interest – free pension mutual funds with a designation of “Alternative” and “Participation” in their titles, namely 12 in the flexible fund group, 3 in stocks, 2 in precious metals and 7 in standard fund groups. (PMC, 2014)

Fund performance contains various meanings and prominence for both investors and professionals for deciding invest or not to invest funds. Asset management companies are also evaluating the performance of the funds that they manage according to the comparison criteria and comparing the performance of other funds to get an idea on their achievements. Due to these reasons it is required to determine whether funds are managed successfully or not. Conclusively, whether funds are managed well or not can be understood by measuring the performance of funds (Korkmaz and Uygurturk, 2008, p. 115).

In finance literature, many studies have been made for measuring portfolio performance and these studies go back to 1960s. Sharpe (1966)

analyzed performance of 34 mutual funds according to Sharpe Ratio and Treynor Index and he found that majority of these funds did not have better performance than Dow Jones index.

Jensen (1968) examined the performance of 115 mutual funds between the years 1945-1964. In his study Jensen tried to measure selective ability of fund managers with “Jensen’s alpha” and he found that managers did not demonstrate any superior performance.

McDonald (1973) calculate monthly returns of mutual funds in the period of the years between 1964-1969 by using Sharpe, Treynor and Jensen criteria and also investigates the relationship between the returns and objectives of the funds. Finally, he found there is a positive relationship between return of the funds and their level of risk.

There are also some other studies on mutual funds performances: Blake, et. al. (1993), Simons (1998), and Detzler (1999) compare the performance of mutual funds with some benchmarks, in general, they found that mutual funds did not show better performance rather than benchmarks.

Thomas et al. (2014) analyzed pension funds in 34 OECD countries from 2000 to 2010 by using panel data analysis, they estimated the impact of pension fund assets invested in stocks and they asserted that the existence of pension funds in the stock markets is beneficial to the financial markets of OECD economies, because they found negative relationship between stock market volatility and presence of pension funds in financial markets.

In Turkey, there are some studies related with portfolio performances: Gürsoy and Erzurumlu (2001), measure mutual funds performances in Turkey they found that performance of mutual funds lagged behind the benchmarks.

Beside studies based on mutual fund performances there are also studies that analyzed pension funds performances in Turkey; Korkmaz and Uygurtürk (2007) tried to measure performances of 46 funds operating between January 2004 and June 2006. Their study proves that whereas funds were successful in uni- and bivariate analysis, funds were not so successful with three variable analysis. Also they asserted that funds performances declined with the increase in the numbers of variables with their analysis.

In another study Korkmaz and Uygurtürk (2008) compared the performances of mutual and pension funds with measuring timing ability of fund managers. In this study it is asserted that pension funds have better performance rather than mutual funds. In addition in this study no mutual fund can show any timing ability, only one pension fund show timing ability in analysis period.

Alptekin and Şıklar (2009) examined the performance of the pension funds from January 2007 to December 2008 by TOPSIS method, which is a multi-criteria decision-making method. At the end of the study funds were

arranged according to their performances.

Kurtaran and Kurtaran (2010) aimed to measure performance of stock growth pension mutual funds with various criteria in the period of December 2003 and December 2006. They asserted that analysis on pension funds performance in Turkey do not give any statistically significant result.

Açıkgoz et al. (2015), analyzed the relationship between the real growth rate of the stock pension mutual funds that have been involved in the individual pension system and the variables such as the number of fund participants, the real fund returns, fund operating expenses and share of fund assets to the total assets of the funds with panel data methodology, they used monthly data cover the period of January 2006 – September 2013. They found that whereas growth of the funds has positive relationship with group share of funds assets and number of participants in relevant fund, there is an inverse relationship between growth of funds and real return of the funds. On the other hand they did not find any relationship between growth of funds and fund operating expenses.

Gökçen and Yalçın (2015) examined Turkish pension funds in the period of 2004 – 2011 they found that pension funds in Turkey shows poor performance and they explain this situation with herding behavior among managers' asset allocation decisions.

In this study, performance of these pension funds operating in Turkey in the period of January 2013 and August 2015 will be measured by using regression analysis with explanatory benchmarks. For this purpose single and multi regression models will be employed. BIST 100, Government Debt Securities (GDS), and Gold Price Indices will be employed as explanatory variables for the single and multi regression models applied to pension funds.

Data And Methodology

Data

In our study we aimed to measure the Islamic Pension funds, which have been operated in Turkey since 2013. The funds, which are designated as “alternative” and “participation” in their titles are accepted interest-free pension mutual funds and suitable for Islamic requirements in finance industry. We include 31 Interest-free pension funds, which have operated in the period of 2013 and 2015 into our analysis. We calculate the weekly returns of these pension funds by following formula. Data for calculating weekly returns of the funds were obtained from Capital Markets Board of Turkey. (CMB, 2015)

$$\begin{aligned}
 R_i &= (R_t - R_{t-1})/R_{t-1} & (1) \\
 R_i &= \text{weekly returns of pension fund } i \\
 R_t &= \text{weekend price of fund } i \text{ in the period } t \\
 R_{t-1} &= \text{weekend price of fund } i \text{ in the period } t-1
 \end{aligned}$$

Variables

In our study, in order to explain the performance of the pension funds we use some explanatory variables by taking into consideration the portfolio structure of the pension funds these are Borsa Istanbul 100 index (BIST 100), Turkey Government Zero Coupon 3 year yield (Risk Free Rate) that is accepted as risk free rate and Gold Mining Price Index (GOLD Index). We obtain index data from Thomsonreuters.com.

We also calculate these indexes weekly return by following formula:

$$\begin{aligned}
 R_i &= (R_t - R_{t-1})/R_{t-1} & (2) \\
 R_i &= \text{weekly returns of index } i \\
 R_t &= \text{weekend price of index } i \text{ in the period } t \\
 R_{t-1} &= \text{weekend price of index } i \text{ in the period } t-1
 \end{aligned}$$

Methodolgy

In this study in order to explain the performances of pension funds we employ regression analysis between variables. In our study, three different regression analysis is performed for pension funds. First regression analysis is applied between weekly return of fund *i* and BIST 100. Second analysis is performed between fund *i* with BIST 100 and Risk Free Rate. Finally, third regression is realized between fund *i* with BIST 100, Risk Free Rate and GOLD Index.

$$\text{RFUND}_{it} = \alpha_i + \beta \times \text{BIST100}_t + \mu \tag{3}$$

$$\text{RFUND}_i = \alpha_i + \beta_1 \times \text{BIST100}_t + \beta_2 \times \text{Risk Free Rate}_t + \mu \tag{4}$$

$$\text{RFUND}_i = \alpha_i + \beta_1 \times \text{BIST100}_t + \beta_2 \times \text{Risk Free Rate}_t + \beta_3 \times \text{GOLD}_t + \mu \tag{5}$$

Findings

Unit Root Test

Since the model estimated with non-stationary time series causes spurious regression problems, the results obtained do not reflect the real relationship between variables. Therefore, in this study in order to be sure that the time series are stationary or non-stationary unit root test is performed. One of the unit root tests is Augmented Dickey–Fuller (1981) that is used for examining the time series stationary in this study.

Dickey-Fuller (DF) test is performed on the basis of three regression equation:

$$\begin{aligned}
 \text{None trend and intercept} & \quad \Delta Y_t = \gamma Y_{t-1} + \mu_t \\
 \text{Intercept} & \quad \Delta Y_t = \alpha_0 + \gamma Y_{t-1} + \mu_t \\
 \text{Tend and intercept} & \quad \Delta Y_t = \alpha_0 + \alpha_{1t} + \gamma Y_{t-1} + \mu_t
 \end{aligned}$$

In unit root test we test the hypothesis H_0 : Data is stationary and H_1 : Data is not stationary. Unit root results of our study are presented in table

Table 1: Unit Root Test Results

CO DE	PENSION FUND	ADF Statist ics	McKinnon Critical Values		
			1%	5%	10%
AER	ANADOLU HAYAT EMEKLİLİK A.Ş. ALTERNATIVE CONTRIBUTION PMF	- 3.2426 2*	- 2.58 5050	- 1.94 3612	- 1.61 4897
AG A	ASYA EMEKLİLİK VE HAYAT A.Ş. GOLD PARTICIPATION PMF	- 8.7949 86*	- 2.58 4539	- 1.94 3540	- 1.61 4941
AG B	ASYA EMEKLİLİK VE HAYAT A.Ş. GROWTH PARTICIPATION FLEXIBLE PMF	- 15.939 62*	- 2.58 1951	- 1.94 3175	- 1.61 5168
AG D	ASYA EMEKLİLİK VE HAYAT A.Ş. PARTICIPATION STANDARD PMF	- 2.7610 49*	- 2.58 5587	- 1.94 3688	- 1.61 4850
AG E	ANADOLU HAYAT EMEKLİLİK A.Ş. ALTERNATIVE FLEXIBLE INCOME PMF	- 11.508 64*	- 2.58 1951	- 1.94 3175	- 1.61 5168
AG G	ASYA EMEKLİLİK VE HAYAT A.Ş. GROWTH GROUP PARTICIPATION FLEXIBLE PMF	- 11.088 02*	- 2.58 1951	- 1.94 3175	- 1.61 5168
AG H	ASYA EMEKLİLİK VE HAYAT A.Ş. STOCK PARTICIPATION GROWTH PMF	- 12.178 94*	- 2.58 1951	- 1.94 3175	- 1.61 5168
AG M	ASYA EMEKLİLİK VE HAYAT A.Ş. FLEXIBLE PARTICIPATION PMF	- 4.7260 90*	- 2.58 2204	- 1.94 3210	- 1.61 5145
AG T	ASYA EMEKLİLİK VE HAYAT A.Ş. ALTERNATIVE CONTRIBUTION PMF	- 2.2273 16**	- 2.58 5587	- 1.94 3688	- 1.61 4850
GE A	GARANTİ EMEKLİLİK VE HAYAT A.Ş. ALTERNATIVE FLEXIBLE PMF	- 11.456 26*	- 2.58 1951	- 1.94 3175	- 1.61 5168
GES	GARANTİ EMEKLİLİK VE HAYAT A.Ş. ALTERNATIVE STANDARD PMF	- 3.0355 53*	- 2.58 6550	- 1.94 3824	- 1.61 4767
GH L	GARANTİ EMEKLİLİK VE HAYAT A.Ş. ALTERNATIVE CONTRIBUTION PMF	- 3.6444 45*	- 2.58 5050	- 1.94 3612	- 1.61 4897
HEE	AXA HAYAT VE EMEKLİLİK A.Ş. ALTERNATIVE FLEXIBLE GROWTH PMF	- 9.0694 94*	- 2.58 7607	- 1.94 3974	- 1.61 4676
HER	AXA HAYAT VE EMEKLİLİK A.Ş. ALTERNATIVE CONTRIBUTION PMF	- 6.7315 50*	- 2.59 0065	- 1.94 4324	- 1.61 4464
HH A	HALK HAYAT VE EMEKLİLİK A.Ş. ALTERNATIVE CONTRIBUTION PMF	- 3.8540 85*	- 2.59 1204	- 1.94 4487	- 1.61 4367
HH D	HALK HAYAT VE EMEKLİLİK A.Ş. STANDARD PARTICIPATION PMF	- 4.6487 11*	- 2.58 5962	- 1.94 3741	- 1.61 4818

HH M	HALK HAYAT VE EMEKLİLİK A.Ş. STOCK PARTICIPATION PMF	- 11.188 34*	- 2.58 5587	- 1.94 3688	- 1.61 4850
HH N	HALK HAYAT VE EMEKLİLİK A.Ş. PARTICIPATION FLEXIBLE PMF	- 11.078 44*	- 2.58 5587	- 1.94 3688	- 1.61 4850
KE A	KATILIM EMEKLİLİK VE HAYAT A.Ş. ALTERNATIVE CONTRIBUTION PMF	- 3.8273 62*	- 2.60 7686	- 1.94 6878	- 1.61 2999
KEB	KATILIM EMEKLİLİK VE HAYAT A.Ş. ALTERNATIVE STANDARD PMF	- 3.2287 04*	- 2.60 3423	- 1.94 6253	- 1.61 3346
KEF	KATILIM EMEKLİLİK VE HAYAT A.Ş. ALTERNATIVE GOLD PMF	- 6.9253 23*	- 2.60 2794	- 1.94 6161	- 1.61 3398
KE G	KATILIM EMEKLİLİK VE HAYAT A.Ş. ALTERNATIVE FLEXIBLE PMF	- 6.2872 44*	- 2.60 2794	- 1.94 6161	- 1.61 3398
KE H	KATILIM EMEKLİLİK VE HAYAT A.Ş. ALTERNATIVE STOCK GROWTH PMF	- 7.5108 08*	- 2.60 2794	- 1.94 6161	- 1.61 3398
KE K	KATILIM EMEKLİLİK VE HAYAT A.Ş. GROUP ALTERNATIVE FLEXIBLE PMF	- 6.8569 45*	- 2.60 7686	- 1.94 6878	- 1.61 2999
MH A	METLİFE EMEKLİLİK VE HAYAT A.Ş. ALTERNATIVE CONTRIBUTION PMF	- 6.2164 51*	- 2.59 5745	- 1.94 5139	- 1.61 3983
MH S	METLİFE EMEKLİLİK VE HAYAT A.Ş. ALTERNATIVE STANDARD PMF	- 7.8622 12*	- 2.59 3121	- 1.94 4762	- 1.61 4204
VER	VAKIF EMEKLİLİK A.Ş. ALTERNATIVE CONTRIBUTION PMF	- 10.821 73*	- 2.58 4539	- 1.94 3540	- 1.61 4941
VE Y	VAKIF EMEKLİLİK A.Ş. GROUP FLEXIBLE GROWTH PMF	- 11.833 36*	- 2.58 1951	- 1.94 3175	- 1.61 5168
VG B	VAKIF EMEKLİLİK A.Ş. GELİR AMAÇLI ALTERNATIVE GOVERNMENT DEBT STANDARD PMF	- 5.3640 03*	- 2.58 5587	- 1.94 3688	- 1.61 4850
ZH A	ZİRAAT HAYAT VE EMEKLİLİK A.Ş. ALTERNATIVE STANDART PMF	- 11.007 53*	- 2.58 1951	- 1.94 3175	- 1.61 5168
ZHT	ZİRAAT HAYAT VE EMEKLİLİK A.Ş. ALTERNATIVE CONTRIBUTION PMF	- 2.4552 46**	- 2.58 5587	- 1.94 3688	- 1.61 4850
BIS T10 0	BORSA ISTANBUL 100 ENDEKSİ	- 11.432 35*	- 2.58 1951	- 1.94 3175	- 1.61 5168
GO VT	GOVERNMENT 3 YEAR BOND YIELD	- 11.276 17*	- 2.58 2076	- 1.94 3193	- 1.61 5157
GO LD	GOLD INDEX	- 12.693 08*	- 2.58 1951	- 1.94 3175	- 1.61 5168

*,** shows series are significant at 1% and 5% level of significance respectively.

As it can be observed in table 1, unit root test shows that all of the series are stationary at 1% level of significance except ZHT, however, it has not a unit root at 5 % level of significance.

Results of Regression Analysis

Univariate and multivariate regression analysis results of our study are presented in table 2,3, and 4. Successes of the funds are determined according to α equation from the formula 3,4, and 5. At the end of the analysis funds, which have positive and significant α coefficient, they are accepted successful among other pension funds compared with the benchmark variables

Table 2: Univariate Regression Analysis Results

Code	BIST 100	Alfa
AER	0.01851***	0.001317*
AGA	-0.24451*	0.001615
AGB	0.117886*	0.001412
AGD	0.020736**	0.001033*
AGE	0.157015*	0.001183**
AGG	0.126647*	0.001355*
AGH	0.530542*	0.002209
AGM	0.025525*	0.001249*
AGT	0.016368**	0.001259*
GEA	0.16913*	0.000967**
GES	0.004105	0.001245*
GHL	0.026885**	0.001252*
HEE	0.132488*	0.001401**
HER	0.028268	0.001828*
HHA	0.038992*	0.001863*
HHD	0.012599	0.001172*
HHM	0.536494*	0.001042
HHN	0.201056*	0.000986
KEA	0.014793**	0.001783*
KEB	0.005927	0.001549*
KEF	-0.15252	0.004016
KEG	0.073379*	0.001227**
KEH	0.387725*	0.001232
KEK	0.082738*	0.001885*
MHA	0.027346*	0.001517*
MHS	0.069668*	0.001449*
VER	0.069387*	0.001512*
VEY	0.241243*	0.001327**
VGB	0.078406*	0.001504*
ZHA	0.113595*	0.000988**
ZHT	0.019572**	0.001123*

Table 3: Bivariate Regression Analysis Results

Code	BIST 100	GOVT	Alfa
AER	-0.021235	-0.021235*	-0.021235*
AGA	0.001486	56.57048	0.001217
AGB	0.129409*	8.046274	0.001309
AGD	-0.005863	-15.54572**	0.001142*
AGE	0.150275*	-3.432969	0.001141**
AGG	0.117782*	-4.742617	0.001319*
AGH	0.528991*	1.058865	0.002052
AGM	0.014190	-6.873352	0.001267*
AGT	-0.016739	-19.34923*	0.001395*
GEA	0.146823*	-14.25316	0.001061**
GES	-0.014089	-11.59697*	0.001301*
GHL	-0.024027	-29.75580*	0.001461*
HEE	0.124866*	-4.599344	0.001419**
HER	-0.013377	-25.02859**	0.001971*
HHA	0.022834*	-9.608193	0.001903*
HHD	-0.047834*	-35.52383*	0.001409*
HHM	0.464513*	-42.31239	0.001324
HHN	0.156579*	-26.14462***	0.001160
KEA	0.010077	-2.600889	0.001799*
KEB	0.005045	-0.511397	0.001552*
KEF	-0.058340	54.56162	0.003678
KEG	0.083596*	5.918926	0.001190***
KEH	0.468595*	46.84839	0.000942
KEK	0.092098*	5.161410	0.001854*
MHA	0.021818	-3.229168	0.001531*
MHS	0.061741*	-4.672599	0.001471*
VER	0.027681	-24.37539**	0.001683*
VEY	0.223234*	-10.48343	0.001321***
VGB	0.060363*	-10.61345***	0.001575*
ZHA	0.088385*	-15.57386***	0.001052**
ZHT	-0.017438	-21.63037*	0.001276*

Table 4: Three-variable Regression Analysis Results

Code	BIST 100	GOVT	GOLD	Alfa
AER	-0.014878	-0.014878*	-0.014878	0.001486*
AGA	-0.205967**	54.12397	0.066658*	0.001161
AGB	0.115823**	7.572098	0.016533	0.001336
AGD	0.002427	-15.19754**	-0.009487***	0.001150*
AGE	0.147867*	-3.516996	0.002930	0.001146**
AGG	0.113490*	-4.892421	0.005223	0.001328*
AGH	0.510786*	0.423446	0.022154	0.002088
AGM	0.012404	-6.935685	0.002173	0.001270*
AGT	-0.009906	-19.06226*	--0.007819***	0.001402*
GEA	0.149049*	-14.17546	-0.002709	0.001057**
GES	-0.014037	-11.59000**	-0.000992	0.001301*
GHL	-0.014714	-29.36465*	-0.010657***	-0.010657*
HEE	0.128586*	-4.393636	-0.004087	0.001414**
HER	-0.021642	-25.74240**	0.007761	0.001981*
HHA	0.024418***	-9.464230	-0.001582	0.001902*
HHD	-0.044323*	-35.24322*	-0.003668	0.001413*
HHM	0.438712*	-44.37475	0.026957	0.001294
HHN	0.147300*	-26.88639***	0.009696	0.001150
KEA	0.016283	-1.610249	-0.004333	0.001820*
KEB	0.008370	-0.027516	-0.003074	0.001568*
KEF	-0.217508	31.40328	0.147104*	0.002900
KEG	0.089417*	6.765831	-0.005380	0.001219***
KEH	0.512911*	53.29625	-0.040957	0.001159
KEK	0.112765*	8.460318	-0.014428	0.001925*
MHA	0.022319	-3.142212	-0.000543	0.001533*
MHS	0.068759*	-3.567549	-0.007077	0.001482*
VER	0.035367	-24.05258**	-0.008795	0.001691*
VEY	0.217887*	-10.67004	0.006506	0.001331***
VGB	0.058095*	-10.79452***	0.002361	0.001572*
ZHA	0.092656*	-15.42476***	-0.005199	0.001043**
ZHT	-0.012462	-21.42138*	-0.005694	0.001280*

According to the analysis results, significant α values shows that only 1 of the 31 funds is failed in the given period, that is, 23 funds are successful. In fact, 17 funds are successful at the 1 % level of significance. On the other hand it is also found that adding new variables in to the equation has no effect on the funds performances. Neither sign nor level of significance change has been observed with multi-variate analysis.

Conclusion

Individual pension system such a system that people make investments on voluntary basis and also encouraged to make savings, increases its prominence in the Turkish financial system day by day. In Turkey because of the demographic structure and some people's religious

sensitivities these people preferred to stay away from the financial markets. In 2013, in order to attract these people in accordance with their sensitiveness government make some amendments and pension fund companies are encouraged to make new interest-free pension funds. These “helal” funds are called as “alternative” and “participation” funds.

In our study, we aimed to analyze performance of these funds whether they provide more returns or not when they are compared with the some benchmarks. For this purpose we obtain weekly data of these funds in the period of 2013 and 2015 from website of Capital Markets Board of Turkey and compared them with three benchmarks; Borsa Istanbul 100 Index, Risk free rate in Turkey (which is yield of 3 year bonds), and Gold Index.

Finally, as a result of the analysis, we find that only 1 fund in 31 funds failed, however, 23 of them performed better than benchmarks in the given period. Therefore, these funds stay as a best investment alternative for people who have religious sensitiveness.

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