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PORTFOLIO RISK OF INTERNATIONAL DIVERSIFICATION OF KOSOVO PENSION FUND: A HISTORICAL PERSPECTIVE

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Abstract

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Finance do not stand on static variables like exact sciences, they are changeable and influenced from human actions. The question where to invest funds, is a crucial task for financial managers. The study aimed at assessing the portfolio risk of different asset managers of the Kosovo Pension and Saving Trust. In general, the assessment has been categorized in two historical perspectives. The first phase is an assessment of the portfolio risk of the fund from 2003 to 2009 and the second phase is from 2003 to 2013. In general, portfolio risk in the second stage has shown a reduction as compared to the first stage. However, the return side shows also a reduction in the second phase than the first one. The overall risk of Kosovo Pension and Saving Trust has been in accepted range. Majority of money have been invested in stocks which automatically exposes huge risk on KPST portfolio, since it is proven that financial markets are not stable and they are prone to asset bubbles.

Keywords: Kosovo Pension Fund, portfolio risk, correlation matrix, stock prices

INTRODUCTION

Pension is a planned scheme to diminish the poverty risk that pensioners might face on their retirement age. Pension scheme is viable instrument for sustainable income, in order to maintain an acceptable living standard on retirement. Pension policies and administrations have huge impacts on elder people not only on their standard of living, but also their risk of being exposed to poverty and social marginality during their lifetime (Andreas Hoff, 2008). Moreover, pension schemes have a noticeable impact on the current and future generation as the current generation carries enormous load for both past and future generations.

The new pension system in Kosovo was established and implemented in the period of 2001–2003, the new system made a great reform from a very inclusive system to contribution system. The new system stands on three pillars. The first pillar is composed of basic pension which is for all Kosovars aged 65 and older and disability pension; these funds are paid from governmental budget. The dispatch of the funds is through the banking system (Gubbels *et al.*, 2007). The other pension scheme is "pay as you go", which is painful and imposes huge burden on the current generations. With demographic problems (decline in population growth) that western countries are facing, this problem will be exacerbated in the near future (World Bank, 2015). While there is a widespread perception that "pay as you go" is a system based on trust and is considered as a Ponzi scheme where the current generation is paying the current retirees (Indiviglio, 2011; Laursen, 2010; Sowel, 2002).

The second pillar is collected from employer and employees in a range of 5 % up to 15 % of total salary. It is mandatory and with defined contributions, required for all working class of the country. The third pillar of the fund is an employee or employer sponsored pension fund. It is a supplementary fund which is voluntarily collected

from the participants. This pillar has no specific floor and ceiling limit (Hajdari, 2007).

The second pillar is under the supervision of Kosovo Pension Savings Trust (KPST), an independent body that operates according to the law approved by the parliament of Kosovo (Law and Saving Trust, 2015). Kosovo Pension and Savings Trust (KPST) operates since 2002, and is responsible for voluntary and mandatory pillar of the pension contributions. The collection process is administered centrally in order to reduce the administration cost. KPST is regularly supervised by the Kosovo Central Bank (Gubbels *et al.*, 2007).

The entire fund is also invested to the best profitable asset managers throughout the world. There is no legal restriction on investing locally or abroad. The main purpose of the investment is to protect the fund from erosion due to inflation. Meanwhile, it is also expected to get the maximum possible benefit out of the investment.

However, in the current dynamic and complex world system, investment in the international asset managers is not only risky but also hard to predict the risk itself. Hence, it is mandatory to study the portfolio risk of all asset managers associated with Kosovo Pension and Saving Trust (KPST). To the best of our knowledge, this is the first study in determining the portfolio risk of the KPST. Most of other studies have been focused on the system, and reforms to be conducted on the pension fund; in its focus to the risk part, this paper is another contribution to the existing literature.

The study attempted to draw a historical outlook of the risk-level contained by the Kosovo Pension and Saving Trust since it has been established in the course of standard models on risk capturing. KPST is a deep-seated concern for a fruitful fraction of Kosovar society that are endlessly contributing on the defined pension scheme where the future benefits are determined not just via aptitude of the staff within KPST, but also as a result of a world economic outlook and exclusively through the sustainability of financial markets. Future is unpredictable, since it depends on the decisions that are not made, in terms of government, consumers, geopolitics, natural world and etc.

Literature Review

Governments are very sensitive to protect pensioner's money from the losses generated on international market arena (Srinivas and Yermo, 1999; Antolin *et al.* 2009), because of the political support they bring. This may arise two concerns. One, if the pension administrators are left free to invest the funds in any possible profitable portfolio and the other is if the fund administrators are legally restricted on the risk exposure. The additional concern is the alternative type of investments, other than core assets (traditional investments of pension funds); currently pension funds are invested not only in core assets but also on physical assets such as infrastructures as they are considered to be less sensitive to the risk and volatility (Inderst, 2009; Jump *et al.* 2011). Roldos (2004) suggest that there needs to be legal restrictions on the extent and type of foreign investments of pension funds, for macroeconomic stability and to hedge extreme risky circumstance of international markets.

According to Davis (1995) and Bonvin (1997), international investments are crucial elements on reducing risk exposure while enhancing earnings and optimizing the portfolio of diversified assets. An effective portfolio management of the pension fund is aimed at reducing risk while enhancing returns by investing in markets which are mostly uncorrelated. Returns should move in opposite direction compared to the local investments, as local markets are highly correlated since they are under one macroeconomic umbrella (Kurach, 2012).

Efficient and optimal portfolio diversification, balance the trade-off between risk and return as the main aim of an investment decision, since investors strongly believe that international diversification is a mandatory condition of hedging (Franzen 2010). Some also argue that internationally diversified bonds have better performance in terms of risk adjusted returns than equity portfolios (Curcuru. *et al.*, 2011 and Kurach 2012). However, international markets are proving to be unsustainable because of the speculative influences that are attached from different inputs, such as: government, central bank, human behaviour and etc.

The international diversification of pension fund for low income countries is not as easy as it may be for developed countries, because of the risk intolerant nature of low income countries; since people tend to be risk averse in their nature (Reisen, 1997). That is why hedging through using derivatives is suggested in some instances (Merton, 2002). The more conservative approach is used by the legislators, pension funds' investments are largely concentrated on the local market (Mercers, 2012).

The debate on home bias vs international investment of pension funds usually comes from concerns on various issues such as information asymmetry, transaction cost, conservatism behaviour, variation in accounting and tax rules, economic variety of countries and other socioeconomic factors (ASX and Rusell Investments, 2011). The other factor that could demotivate the international arena is the poor legal protection and lack of consistent stability in the political world to protect international investments (Tapia (2008); Sinha and Fiestas (2011)).

In the recent case pension funds have suffered two financial crises in one decade. The 2007/2008 financial crises have had a significant effect on many internationally diversified pension funds. However, numerous funds were immune on the last financial turmoil that started in the US and got spread all over the world. The resistance from these funds

could be attributed for strong risk management (Franzen, 2010). Given all facts, the purpose of portfolio diversification is reducing unsystematic risk (diversifiable risk). Hence, portfolio selection essentially means optimal allocation of financial securities within different asset classes in order to maximize the returns of the portfolio and reduce the risk level.

To the best of our knowledge, so far there is no empirical research that has been done on assessing the risk of the Kosovo pension fund. Hence, the result of this study would be beneficial for both the literature by showing the status quo, taking a list for developing country case. On the other hand, it will show the direction of risk of the pension funds; hence, policy makers would benefit out of it.

MATERIALS AND METHODS

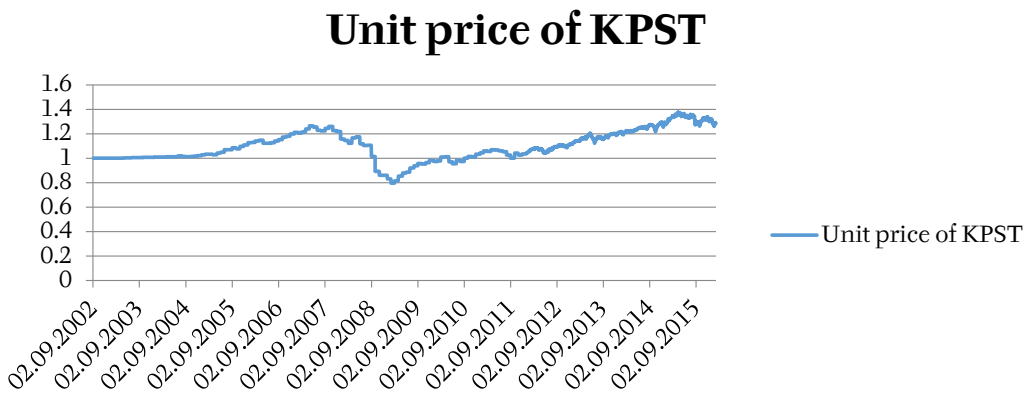
This study aimed at assessing the portfolio risk of the Kosovo pension fund for nine asset managers. Data for this study have been gathered from annual reports of the fund authority from year 2003 to 2013. Methodological approach is mainly driven through quantitative analyses based on a risk return trade-off on each asset manager within the overall portfolio of the Kosovo Pension and Saving Trust. The risk-return trade-off of corporate finance concepts has been extensively used to explain the risk of KPST.

RESULT AND DISCUSSION

Pension Trust Performance during 2008

Kosovo Pension and Saving Trust (KPST) is non-profit organization, and its purpose is to amplify the value of allocated investments in steady and sustainable approach. According to risk classifications, common stocks are the riskiest assets within the asset class portfolio investments; they pretend higher return and as reaction carries higher risk than other asset classes. During the period of US financial crisis (2007/2008) Kosovo Pension and Saving Trust had invested 60 % on common stocks (equity investments), 17 % on corporate bonds, and 12 % on credit market, 5 % on banks certificates, and 1 % in a money market (KPST, 2008).

Therefore, the main component within KPST is equity investments. Diversification is determined through sufficient allocation of investments among different asset managers, 60 % of the allocated recourses were dependent on the performance of one asset manager (Vanguard).



1: *Overall KPST price movements.*
Source: Kosovo Pension and Saving Trust, annual report 2008

I: *Allocation of investments within different asset managers during the crisis period*

Asset Manager	Asset Class	2008	2007
Vanguard	Equity	60 %	60 %
Schroder	Corporate Obligations	17 %	17 %
European Credit Management	Credit Market	12 %	17 %
FX Concept and Auriel Capital Management	Deposit Bank Certificates	5 %	0 %
ABN ARMO	Money Market	1 %	1 %

Source: Kosovo Pension and Saving Trust

II: *Weighted Average Returns of Kosovo Pension and Saving Trust 2003-2009*

Block I			Block II		
Asset Manager	**R-return**	**W x R**	**Asset Manager**	**R-return**	**W x R**
ABN-AMRO	0.015475	0.00831	**Fortis BNB**	0.02	0.000329
Vanguard	0.036	0.017818	**Auriel**	-0.2043	-0.00409
Schroder	0.044825	0.200575	**Raifaisen Bank Kosovo**	0.0471	0.00212
Ecm-Dec	0.00625	0.000582	**Pro-credit Kosovo**	0.04205	0.000946
Ecm-Ecl	-0.00989	-0.00088			

Source: Annual Reports of Kosovo Pension and Saving Trust 2003-2009

KPST was exposed to the enormous level of risk because of the USA crisis in 2007/2008. In 2008 there were accumulated approximately 370 million euro (KPST, 2008), given that 60 % of them were equity investments throughout Vanguard Equity Fund, subsequently 141 million euro were invested in common stocks. Taking the difference between the maximum price (1.2650) and the minimum one (0.7966), KPST had a 66 million euro "unrealized losses" because of the US economic downturn (1.2650–0.7966 = 0.4684*141.000.000 = 66.044400). They are well thought-out as "unrealized losses" since shares are not sold. According to the KPST, investments in common stock are long term investments we ought to operate with the theory of expectations for the motive that common stock prices will drive up in long term prospect. This logic may possibly be applied to individual investor who might wait for common stock prices to grow up, but as far as this is defined pension scheme, Kosovo pensioners are highly depended on the boosts and busts of common stocks (capital gains and dividends).

Portfolio Risk of Kosovo Pension and Saving Trust (KPST) until 2009

There is constantly a risk reward trade off on the investment management. In order to get the image of how much risk the portfolio was holding-on, we need to detect for the expected return.

$$WARIS = \sum_{i=1}^{n} E_i \, xW_i = 9.9\% \qquad (1)$$

Explanation: WARIS denotes weighted average returns of total asset manager (2003–2009), E_i indicates average returns of individual asset manager for nine asset managers (2003–2009), W_i shows the weights of individual asset managers (2003–2009).

The risk of the asset managers has been calculated using the following approach (Annex I):

$$\sigma^2 = \sum\sum w_i w_j \sigma_i \sigma_j \phi_{(i,j)^6} \qquad (2)$$

$$\begin{aligned}
&\sigma^2(port) = w_1^2\sigma_1^2 + w_2^2\sigma_2^2 + w_3^2\sigma_3^2 + w_5^2\sigma_5^2 + \\
&+w_6^2\sigma_6^2 + w_7^2\sigma_7^2 + w_8^2\sigma_8^2 + 2w_1w_2 2\sigma_1\sigma_2\phi(1,2) + \\
&+2w_1w_3\sigma_1\sigma_3\phi(1,3) + 2w_1w_4\sigma_1\sigma_4\phi(1,4) + \\
&+2w_1w_5\sigma_1\sigma_5\phi(1,5) + 2w_1w_6\sigma_1\sigma_6\phi(1,6) + \\
&+2w_1w_7\sigma_1\sigma_7\phi(1,7) + 2w_1w_8\sigma_1\sigma_8\phi(1,8) + \\
&+2w_2w_3\sigma_2\sigma_3\phi(2,3) + 2w_2w_4\sigma_2\sigma_4\phi(2,4) + \\
&+2w_2w_5\sigma_2\sigma_5\phi(2,5) + 2w_2w_6\sigma_2\sigma_6\phi(2,6) + \\
&+2w_2w_7\sigma_2\sigma_7\phi(2,7) + 2w_2w_8\sigma_2\sigma_8\phi(2,8) + \\
&+2w_3w_4\sigma_3\sigma_4\phi(3,4) + 2w_3w_5\sigma_3\sigma_5\phi(3,5) + \\
&+2w_3w_6\sigma_3\sigma_6\phi(3,6) + 2w_3w_7\sigma_3\sigma_7\phi(3,7) + \\
&+2w_3w_8\sigma_3\sigma_8\phi(3,8) + 2w_4w_5\sigma_4\sigma_5\phi(4,5) + \\
&+2w_4w_6\sigma_4\sigma_6\phi(4,6) + 2w_4w_7\sigma_4\sigma_7\phi(4,7) + \\
&+2w_5w_6\sigma_5\sigma_6\phi(5,6) + 2w_5w_7\sigma_5\sigma\phi(5,7) + \\
&+2w_5w_8\sigma_5\sigma_8\phi(5,8) + 2w_6w_7\sigma_6\sigma_7\phi(6,7) + \\
&+2w_6w_8\sigma_6\sigma_8\phi(6,8) + 2w_7w_8\sigma_7\sigma_8\phi(6,8) \\
&\ldots\ldots\ldots\ldots\ldots\ldots = 0.0386 = 3.87\%(AnnexI)
\end{aligned}$$

Formula Explanation: compounding structure of formula has: correlation coefficient within each asset manager (ρij), standard deviation (σ), variance (σ^2)and their weights (ω).

Within 8 asset classes treated in the portfolio diversification risk (2003–2009/ Annex I), there are 37 correlation coefficients contained within KPST asset managers annualized returns. Standing on the results, majority of asset classes is moving in the same direction, average portfolio correlation is *rij* = 0.21. But the highest interest is within equity investment managers such as Vanguard vs. Schroder (*rij* = 0.79), Vanguard vs. ECM-DEC (*rij* = 0.93), Vanguard vs. ECM-ECL (*rij* = 0.95). Almost all returns are moving in the same direction. Since the lack of long run historical data on an annualized basis on Vanguard and Schroder, most important correlation is within Vanguard and ECM-DEC where two asset managers' returns are moving almost in the similar path. From this stand point of view, we can conclude that the only risk that KPST should have diversified is not done, as far as diversifiable risk is not eliminated. Until 2009 riskiness of the portfolio is 3.87 % (σ^2 = 3,87%), while arithmetic average return was in a range of 2.5 %. The average correlation of the portfolio till 2009 is *Rij* = 0.199 calculated from 37 correlation coefficients from each asset manager within them.

III: *Correlation Coefficient within asset managers from 2003–2013*

Block I		Block II		Block III		Block IV	
Combination	**Correlation**	**Combination**	**Correlation**	**Combination**	**Correlation**	**Combination**	**Correlation**
Rij(1,2)	–0.81822615	**Rij(2,16)**	–0.8856425	**Rij(3,16)**	–0.5520684	**Rij(8,15)**	–0.960909
Rij(2,3)	0.816220637	**Rij(2,17)**	0.97714663	**Rij(3,17)**	0.9700623	**Rij(8,16)**	0.2437554
Rij(2,7)	0.998437587	**Rij(3,7)**	0.9358524	**Rij(7,8)**	0.3533383	**Rij(8,17)**	0.9345261
Rij(2,8)	0.782886603	**Rij(3,8)**	0.78627042	**Rij(7,14)**	–0.911392	**Rij(9,10)**	–0.83644
Rij(2,9)	0.950005345	**Rij(3,9)**	0.93288166	**Rij(7,16)**	–0.914303	**Rij(9,14)**	0.7311747
Rij(2,10)	–0.91711679	**Rij(3,10)**	–0.7908234	**Rij(8,9)**	0.9961576	**Rij(9,17)**	0.9615245
Rij(2,14)	–0.18376605	**Rij(3,14)**	0.16236469	**Rij(8,10)**	–0.792198	**Rij(10,14)**	–0.380531
Rij(2,15)	0.978753967	**Rij(3,15)**	0.75048646	**Rij(8,14)**	0.3919061	**Rij(14,15)**	–0.999331
						Rij(15,16)	–0.92397252
Portfolio risk						0.023894666	0.023894666
Excepted return						0.07985295	0.07985295
Average Correlations						0.114759	0.114759
Nr. Of Correlations						33	33

Source: Authors own calculations.

Portfolio Risk of KPST (2003–2013)

Applying the same methodology, with the extension of data till 2013 in order to capture if KPST has reduced the riskiness of a portfolio. There have been eliminated some correlation coefficients for those asset managers that have only data on annual returns less than 3 years because it moves correlation coefficient either +1 which it inclines portfolio risk or – 1 which reduces to much portfolio risk.

Given the limitations, until 2013 there were thirty three correlation coefficients; the whole portfolio risk of KPST until 2013 is $\sigma^2 = 2.83$ %, while the average arithmetic return of the portfolio is 2.53 %, and the average correlation coefficient of the portfolio is in the range of $Rij = 0.114$. In 2009 the portfolio risk was $\sigma^2 = 3.87$ %, while weighted average return was in a range of 2.5 %. The average correlation of the portfolio till 2009 was $Rij = 0.199$, calculated from 37 correlation coefficients within each asset manager.

While the average arithmetic return of the portfolio is 2.53 %, and the average correlation coefficient of the portfolio is in a range of $Rij = 0.114$. Compared to 2009 the portfolio risk has been reduced from 3.87 % (2009) to 2.83 % (2013), decline of 38.5 % compared to 2009. The average correlation coefficient has declined from = 0.2 in 2009 to the range of = 0.114, a decline of 43 % since 2009. While arithmetic average returns in 2009 were in a scope of 2.5 % and in 2013 aggregated annual returns since the KPST has been established are approximately 3 %. Hence, it can be inferred that there has been a huge positive performance on KPST since 2009, first on the return side and we can attribute that to the US stock market and other countries where the money is invested. Acknowledgment for KPST is to be attributed for the risk diversification (reduction of unsystematic risk) where the board has been able to reduce the overall correlation coefficient within their asset managers and in the same time incline average returns.

Still it depends, which approach is used in appraising annual returns; the comparison of weighted average returns until 2009 (9.9 %) and weighted average returns until 2013 (9.2 %), shows significant difference from arithmetic average. This decline in weighted average returns, might have been because of the fact that KPST has reduced the risk exposure.

CONCLUSION

Kosovo Pension and Saving Trust (KPST) is a defined pension scheme where each individual, contribute to his or her own pension scheme (future benefits). Kosovo does not have a stock market where money would have been invested in financial securities, opposed to these limitations majority of the money were allocated abroad in the form of financial securities (more than one billion euro). Diversification of the portfolio is the only accountability for the KPST, in order to diminish the unsystematic risk that comes from lack of diversification. Standing on the general diversification formula, Kosovo Pension and Savings Trust (KPST) brightly reduced the risk of the portfolio, but on the other part the weighted average return has declined. Correlation coefficient went from 0.2 (2009) to 0.114 (2013), a decline of 43 % from 2009. Portfolio risk has declined from 3.87 % (2009) into 2.38 % (2013) a decline of 38.5 %. KPST has reduced the correlation within asset managers which is a general intention of portfolio managers. Weighted average return might have declined for various reasons

such as: reduction of the correlation within asset managers, less investment in risky assets or because companies where the money were allocated did not perform according to the expectations. Since we are witness that financial markets are highly volatile, less exposure on equity investments by KPST would enable current contributors to be more relaxed on their long run returns. KPST should be legally constrained on their equity investments (risk exposure) by the parliament of Kosovo, because of the fragile economy and high level of structural unemployment that the country is facing.

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Appendix: Annex I

Returns of each asset manager

Asset Managers	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
ABN-AMRO	0.011	0.0172	0.0169	0.0167							
Vanguard		0.0159	0.173	0.1395	0.0387	–0.3956	0.2445	0.0818	–0.069	0.143	0.369
Schroder				0.022	0.0418	–0.0145	0.13	0.0891	–0.0091	0.08	0.109
BNY Mellon									0.007		0.148
State Street										0.053	0.032
BNP Paribas								0.0099	0.001		
Aquila RP7									0.025	0.052	0.087
ECM-DEC				0.0394	–0.0342	–0.4779	0.4977	0.1177	–0.0303	0.105	0.027
ECM-ECL				0.0294	–0.0242	–0.3991	0.358	0.1209			
Fortis BNB					0.0081	0.0422	0.0097	0.0049			
Auriel						–0.3187	–0.0899				
Qeveria e Kosoves										0.03	0.021
FX concepts						0.1353	–0.034				
Raifaisen Kosovo						0.0354	0.0588	0.035	0.0225	0.022	0.005
Axa Gilb								–0.002		0.057	0.145
NLB Pr.								0.0356	0.0361	0.035	0.006
Pro-Credit Kosovo						0.0313	0.0528	0.052			
Average return	0.011	0.01655	0.0494	0.0494	0.00604	–0.15129	0.1364	0.059	–0.00099	0.0578	0.0949

Weights of each asset manager

Asset Managers	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
ABN-AMRO	0.913	0.6611	0.4897	0.078							
Vanguard		0.2819	0.4984	0.544	0.5813	0.512	0.552	0.431	0.3584	0.383	0.445
Schroder				0.187	0.1831	0.224	0.219	0.134	0.1056	0.091	0.137
State Street										0.046	
BNP Paribas							0.016		0.1121		0.189
BNY Mellon									0.087	0.118	
ECM-DEC				0.09	0.0886	0.123	0.073	0.046	0.0352	0.031	0.034
Aquila RP7									0.0892	0.104	0.038
ECM-ECL					0.089	0.0886	0.142	0.076	0.048		
Fortis BNB					0.0144	0.019		0.166			
Auriel					0.0239	0.02					
FX concepts					0.0239	0.034					
Qeveria e Kosoves										0.019	0.075
Raifaisen Kosovo						0.047	0.043	0.041	0.0352	0.023	
Axa Gilb								0.1	0.1496	0.162	0.082
NLB Pr.								0.034	0.0279	0.023	
Pro-Credit Kosovo						0.024	0.021				

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