The Shortcomings of Pension System in Turkey: Solutions with a New Model Proposed

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Abstract

Investing for retirement years due to future income concerns is one of the main reasons for people to make savings. Pension funds have always been important tools that match the idea of future investments. Despite the rapid development and increase in the size of the Turkish pension system in the last few years, major improvements and amendments in the current system are required for increasing the total size to OECD level, as well as attracting more participants by increasing the returns and providing alternative investment options. This study investigates the Turkish pension system and suggests a new model to solve the current problems of the system by structuring a sustainable model which may also be applied worldwide. A comprehensive pension system and comparative return analysis of different investment tools are conducted, and the new model is proposed based on creating a new pool of new investment tools consists of asset-based capital market instruments that are issued for long-term specific investment projects financing. While the new model brings a new perspective to the pension system, it also helps to solve the problems of both the current pension system and the financing of investment projects. In the study, policy recommendations and suggestions for major amendments to current pension system regulations are also made.

Keywords: Pension system, Interest-free investments, Asset-based financing

Jel Codes: E44, G23, H55

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Introduction

Investing for retirement years due to future concerns is one of the main reasons for people to make savings. Pension funds have always been important tools to match the idea of future investments. Pension is mainly an investment option to prepare people with an income when they are no longer getting a regular income. Mitchell and Fields (1996) define pensions as a benefit paid to employees who retire from their jobs after reaching a prearranged age. They named this benefit as “annuity” when it is paid periodically and regularly from the time the employees retire until death. Alternatively, if a single payment is made upon retirement, it is called a "lump-sum benefit." If a payment is made to an employee who leaves the company before reaching retirement age, this is not considered as a pension; but called as a "severance payment." Ruzgar (2008), defines the private pension plans as the combination of ratios of different investment tools. Among different fund mixes including bonds, stocks, bills that allow the participants to choose to invest in through pension funds, the interest-free investment options such as sukuk, gold, stocks of participating banks and real estate are also other investment options for the participants.

According to the OECD Pension Market in Focus Report 2018, as of the end of 2017, the total size of private pension assets reached to USD 43,4 trillion worldwide. The simple and weighted average of the representation of the pension funds as a percentage of GDP is 50.7% and 133.6% respectively in OECD countries. In Turkey, the history of the establishment of pension funds backs to 2003. Although the regulations about pension funds were issued in 2003, the pension funds in Turkey started growing only in 2013, soon after the amendment made to the law that provides additional 25% state contribution to the savings of the participants. As of January 2019, the total amount of the private pension funds and the total number of participants reached to around 90.3 billion TL and 6.85 million respectively. The government also started a new Auto Enrolment System in 2017, and within 2 years, the total size of the savings accumulated in this new system reached to 4,8 billion TL with 5 million participants. Although there is an increase in the total savings within last 6 years, the size of the pension funds in Turkey represents only 2.6 % of GDP of Turkey, which is far below the OECD average (Pension Monitoring Center, 2019, OECD Pension Report, 2018). Despite the 25% incentives provided, the average contributions of the participants are very low. Another problem that is needed to be resolved is the opt-out rate from the new Auto Enrollment System which exceeded 50% (Pension Monitoring Center, 2019). It is obvious that the Pension System in Turkey needs restructuring.

In that context, in this research, the pension system in Turkey is examined, and a new sustainable model is introduced. First, the current pension system of Turkey is explained, and the major problems are defined. Then, a comparative return analysis of different investment instruments is conducted. Finally, the new model which is based on creating a new pool of investment tools consists of asset-based capital market instruments that are issued for specific long-term investment project financing is explained. The model is structured by not only aiming to find solutions to problems of the current pension system and large investment

project financing but also creating a sustainable approach that may also be applied worldwide. In the study, policy recommendations and suggestions for major amendments to current pension system regulations are also made.

1. Literature Review

There are very wide researches in the world that focus on different aspects of pension systems. According to the research Mitchell and Fields (1996) made about designing pension systems in developing countries, in order to reduce the individual, employer, investment and national risks, the pension systems should be compulsory, should maintain a strong tie between benefits and contributions at both the individual and generational levels, should be able to invest the contributions in a reasonably globally-diversified portfolio, should be fully financed, only the elderly people should be benefited, should make monthly payments rather than making payments at once.

Attah-Bochwey (2014) analyzed different pension models in order to figure out the best practices and find out the weaknesses of the existing systems. He examined the systems in Chile, Switzerland, and Singapore and concluded that all the three systems are mandatory systems and cover all the employees except for self-employed, the financial resources collected in pension funds are very closely related with the national income in all three countries and the financial performances of the pension funds are remarkable including Chili which is experiencing high inflation problems. He also recommended that decreasing the cost of operation and improving its investment income are important to extend the life of the reserves of the social security pension funds and in order to increase the long-term savings, increasing the fund choices is important.

Ionescu (2013) suggested that the pension systems should consist of five pillars: social pension which provides a minimum protection, contributory system tied to wages; mandatory system corresponds to savings accounts, voluntary system based on individual payments, defined benefits or defined contributions paid by the employer and finally an access to healthcare and housing for supporting the senior people. According to Park and Estrada (2012), the last pillar is important in countries where parents used to be supported by their children in their old age. In their studies they made about the challenges and reform efforts for public pension systems in Asian countries, they defined the biggest failure of Asian pension systems as the high costs of transactions, the nonexistence of robust governance, poor-designed adequacy, affordability, robustness, and sustainability of the system and inadequate coverage of the population.

World Bank Human Development Network prepared a study in 2008 about the impacts of the financial crisis on the pension systems in emerging countries. According to the report, the pension funds as long-term investment instruments should be protected from sudden strategy changes and in order to be able to manage risks, the pension systems should be diversified and strengthened.

Howell (1958) listed the major points one should take into consideration when investing in pension funds as; safety of principal, the certainty of return, adequacy of return, tax aspects,

marketability, liquidity, capital appreciation, collateral value, freedom from care and maturity. Ambachtsheer et al. (1998) studied the main parameters that affect the fund performance as fund size, passively managed asset rates, and the quality of the fund's organization structure. They suggested that if the elements of the fund organization are developed, the pension fund performance can get improved. Shehu (2011) listed the financial risks of pension funds as labor income risk, inflation risk, interest rate risks, investment and annuity risk, pension fund manager's risk not being company owners, longevity risks, lack of intergenerational risk transfer, asset mix policy risks and exchange rate risks and recommended an establishment of enterprise risk management unit in the pension funds.

Murphy and Musalem (2004) analyzed the effect of the accumulated savings of pension funds financial assets on national saving by conducting a panel data of 43 countries including several developed and developing countries. They concluded that while the voluntary based pension systems do not positively affect the national savings, the mandatory based system might have a positive impact on national savings.

There are some important studies that needed to be highlighted for interest-free pension funds made in the US and the UK. Moran (2012), in his study, seek the answer for whether Muslims can make investments in their employers' private pension plans by taking into consideration their religious principles in the US. He pointed out that most of the investment tools included in the American pension plans are not appropriate retirement instruments for Muslims. This situation makes the Muslims either to violate their religious beliefs or losing investment opportunity as they wait for the capital markets to provide alternative instruments compliant to their religious expectations. Manjoo (2012), investigated whether the pension system is suitable for Muslim philosophy and its compliance with Sharia rules in the UK. The results of the study exhibited that the idea behind the pension system is appropriate to the rules of Sharia which includes protection of life, family and wealth in the condition to be careful to annuities and nominees which are not allowed in Islamic law. The author also suggested a model including Sharia-compliant fund offered to British Muslims via National Employment Savings Trust (NEST).

The pension system in Turkey is studied in different aspects. Sonmez (2012), by using the Analytic Hierarchy Process (AHP), studied the criteria that determine the choices when entering a private pension system, and he concluded that minimum payment amount, fee for enrollment, level of risk, management costs reductions, fund operating annual costs and company reputation are the most important criteria for the people when they decide to enter the system.

Ural and Adakale (2009) analyzed the risks for the individual pension funds and concluded that while the stock funds are the factors which increase the total risk maximally; the public borrowing instruments increase the risks minimally. Korkmaz et al. (2010), studied the factors that affect the number of contributions paid by the participants to pension funds from January 2004 to July 2009 in Turkey. According to the results of their analysis, they concluded that the

financial and macroeconomic factors have an influence on the contributions on the payments made by the participants for the individual pension system. Increase in the value of Euro, Istanbul Stock Exchange Index (BIST) and industrial production parameters were listed as having a statistically positive effect on the contribution.

Kaya (2013) compared the participating banking with conventional banking in terms of pension fund returns and recommended more interest-free investment option with stable returns. Icke and Akbaba (2015) analyzed the performance of Islamic pension funds by comparing their returns with some benchmarks including BIST 100 Index, the risk-free rate in Turkey (which is yield of 3 years bonds), and gold index. Their results exhibited that except 1 among 31 funds investigated, Islamic funds perform better than the benchmarks used in the study.

Gokcen and Yalcin (2015) investigated the active pension funds in Turkey and pointed out the risks that the participants carry due to the poor management of the fund managers and underlined the inadequateness of current pension fund choices.

Akgiray et al (2016), in the study they compared the pension systems of Chili and Turkey suggested that by attracting infrastructure and real estate funds to invest in Turkish real estate markets through the auto-enrolment pension funds will help sustainable and high growth and will contribute to weaken the dependency of financial markets to the banking system. Before structuring the model, it is important to know about the dynamics, current regulations and the problems of the pension system in Turkey.

2. Pension System in Turkey

The history of the individual voluntary pension system in Turkey backs to 2003. Although in the early years, it could not attract the interests of the citizens, pension funds started growing in the last few years after the state contribution incentive which started in 2013. In the new regulation issued in 2013, the state started depositing 25% of the investment amounts of the participants' savings. Since then, the size of the pension funds and the total number of participants doubled. As of the beginning of 2019, the total fund size reached its peak at 90.3 billion TL and the number of participants increased from 4 to 6.85 million. Although the growth rate considerably decreased in 2018, the average yearly growth rate of the total fund size was reported as 19.80% (Pension Monitoring Center, 2019). Considering the sharp increase in both, the number of participants and the fund size, the total assets of the pension funds report 2.6% of the total GDP of Turkey, which is far below the OECD average. The increasing number of exits from the system is another critical signal for future projections.

In 2016, the government issued a new regulation to increase the size of the pension funds by auto-enrolling all the employees under the age of 45 to the system, effective by January 2017. Even though for those who are working it is mandatory to be enrolled in the system, it is free to leave after two months. In this new regulation, In addition to the 25% incentives, the government deposits 1.000 TL to each participant's pension account under some certain conditions. If an employee prefers to stay in the system after getting the right for retirement

and ask for annuity instead of a lump-sum payment, the government deposit additional 5% incentive to the participant's account. Within 2 years, the total size of the savings accumulated in this new system reached to 4,8 billion TL with 5 million participants (Pension Monitoring Center, 2019). It is aimed to include 14 million participants in the system by the end of 2019 (Insurance Association of Turkey (TSB), 2017).

Pension system targets long term savings but in Turkey, the average contract's term is 3.4 years. That seems another important problem. The monthly contribution of the participants is 233 TL, and the exit rate from the newly introduced auto-enrollment system is 54% during the two-month opt-out period. High expenses or indebtedness (71%), lack of affordability (56%), and lack of confidence in long-term investment (35%) are listed as the three most common reasons for opt-out. (Insurance Association of Turkey, 2017). That is also another big problem that is needed to be resolved.

In Turkey, the portfolio distribution of the pension funds consists of mainly treasury bills, corporate bonds, foreign securities, stocks and time deposits. Figure 1. shows the breakdown of the pension funds investment tools. The inadequateness of the interest-free investment options seems another problem for the people with religious concerns to enter the system.

The major problems of the current pension system are summarized below:

1. Despite the 25% incentives, the monthly contribution of the participants is too low, and there is a decline in the participants of the voluntary pension system in 2018. (Insurance Association of Turkey, 2017)

2. It has only been 2 years that the auto-enrolment is in force, but the opt-out rate from this new system is too high. (Insurance Association of Turkey, 2017)

3. The auto-enrolment system does not cover the people elder than 45 years old, the age group with higher income. (Pension Monitoring Center, 2019)

4. Although in the long-run pension funds provide a hedge against inflation, in the short-run, high-interest rates on time deposits, investing in precious metals such as gold separately and the traditional saving behaviors based on housing investments seem more attractive for Turkish citizens.

5. The current investment options are not adequate to attract more participants.

6. The current interest-free investment tools included in the pension fund alternatives are not enough to invite or keep people in the system with religious concerns.

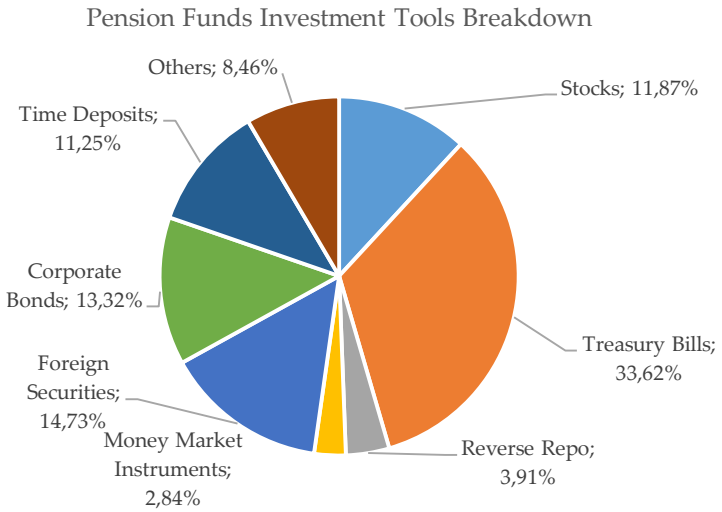
7. The sustainability of 25% of government incentive is questionable.

8. The structure of the pension system is changing very often. A more stable system with core principles is needed.

9. The fee structure which is based on a fee accumulated from the total contributed amount is not fair and needs to be restructured in accordance with the Islamic perspective.

10. The return rates of pension funds are not attractive enough to invite more participants.

Figure 1: Pension Funds Investment Tools Breakdown (SPK, 2018)



In that context, for a sustainable and a strong pension system, the current system is needed to be restructured.

3. Data, Research Methodology and Analysis

This study covers the period between October 2003, the date pension system came into effect and December 2017, the latest return information obtained from Pension Monitoring Center. The index and monthly return data of the average return of pension funds, treasury bills both in TL and foreign currencies, stocks (BIST 100), currency basket and CPI-consumer price index were obtained from the Pension Monitoring Center (PMC, 2019).

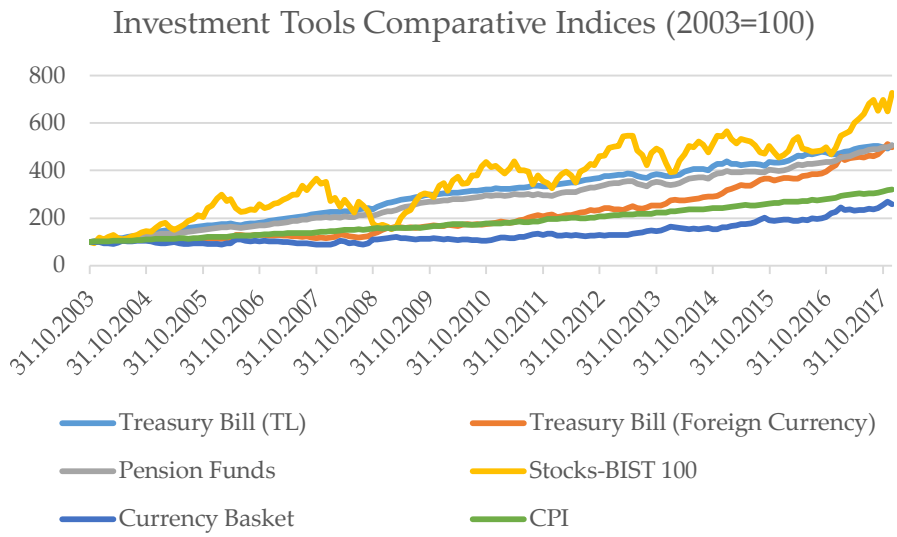
Table 1: The Collected Data

Variables	**Data Source**	**Period**
Average Returns of Pension Funds	Pension Monitoring Center	October 2003-December 2017
Average Returns of Treasury Bills (TL)	Pension Monitoring Center	October 2003-December 2017
Average Returns of Treasury Bills (Foreign Currencies)	Pension Monitoring Center	October 2003-December 2017
Average Returns of Stocks-BIST 100	Pension Monitoring Center	October 2003-December 2017
Average Returns of Currency Basket	Pension Monitoring Center	October 2003-December 2017
CPI – Consumer Price Index	Pension Monitoring Center	October 2003-December 2017

The average comparative return analysis, together with the Coefficient of Variation analysis are conducted by using the monthly return data of the variables. Coefficient of Variation (CV) is a measure used to calculate the total risk per unit of return of an investment. The ratio between the standard deviation of an investment by its average return gives the CV. Coefficient of variation provides a standardized measure of comparing the risk and return of different investments. The lowest coefficient of variation provides a better investment option for rational investors as the risk-averse investors aim to reduce their risk per unit of return. (Abdi, 2010)

Coefficient of Variation =Standard Deviation of the Investment/ Average Return of the Investment

Figure 2: The Investment Tools Comparative Indices (PMC, 2017)



The PMC accepts the date of the pension system came into effect as the 100 indices (2003=100), and within 14 years, the returns of the stocks in BIST 100 overperform the rest of the investment instruments. While providing a hedge against inflation, the average returns of pension funds are the same as the returns of treasury bills. That is because the major investment tools that the pension funds invest in are the treasury bills.

Table 2: The Average Returns, Standard Deviations, and Coefficient of Variation (EGM, 2017)

Period (2003-2017)	Treasury Bill (TL)	Treasury Bill (Foreign Currency)	Pension Funds	Stocks-BIST 100	Currency Basket	CPI
Average Returns	0,0097	0,0098	0,0097	0,0148	0,0062	0,0069
Standard Deviation	0,0130	0,0248	0,0137	0,0786	0,0361	0,0075
Coefficient of Variation	1,348	2,530	1,410	5,306	5,824	1,094

According to Ural and Adakale (2009), the stock funds are the factors which increase the total risk maximally and the public borrowing instruments increase the risks minimally. The results of the analysis are parallel with the findings of Ural and Adakale (2009) and the study of Sonmez (2012) who listed the level of risk as one of the decision criteria for the participants when considering entering the system Although the stocks have higher returns than the rest of the investment tools, it has the second highest coefficient of variation (CV), which means investing in BIST 100 stocks are risky. The riskiest investment tool is the currency basket. In the long run, it has also the lowest return. That is needed to be questioned while considering the currency basket as an investment option.

4. The New Model Suggested and Discussions

The New Model

According to the HSBC Future of Retirement Turkey Report (2015), pension funds are the second choices of both for working and retired people in Turkey for future investments. The same report underlines that the savings of the Turkish people will be enough only 8 years after retirement, and the rest of 18 years, far above the world average which is 7 years, a new source of income is needed. 79% of the people who are working and 81% of retired people perceive the real estate investments as an important source of collecting income from monthly rents they get when they are retired. 33% of the people do not make enough savings because they make school payments for their kids and 32% of them pay their mortgage loan instead of enrolling to a pension plan (HSBC, 2015).

The results of the HSBC report open a path to combine pension system with real estate investments, as well as providing side incentives to participants, such as getting discounts for tuition fees, medical examinations, etc.

According to the report prepared by the Insurance Association of Turkey (TSB) in 2017, the reasons that people are leaving the auto-enrolment system are listed as;

- Lack of trust due to the bad experiences about past regulations,
- The age limit set as 56, and the participants perceive that this age limit is not for their benefits but protecting the system,
- Being suspicious about the system where people think that the government set this system to create additional sources for treasury,
- Being able to withdraw the accumulated savings due to insufficient salaries,
- The investment tools that carry interest on is against their belief,
- The bad return performance of the funds,
- 41% of them are already in the voluntary pension system.

The report of TSB underlines the trust, sustainability, return performance and the negative effect of voluntary and auto-enrolment systems to each other.

According to the Katilim Emeklilik January 2019 Report, the total size of the interest-free funds reached to 12.1 billion TL. Despite the inadequateness of the interest-free fund options, there is a sharp increase in the total size, as the total savings directed to interest-free pension funds were 1,4 billion TL in January 2015.

Table 3: Interest-Free Funds Size vs. Total Funds Size (Katilim Emeklilik, 2019)

Date	Interest-Free Funds Size (billion TL)	Total Funds Size (billion TL)	Interest-Free Funds/Total Funds
January 2015	1,4	38,13	3,67%
January 2016	2,2	47,98	4,59%
January 2017	3,24	60,814	5,33%
January 2018	6,1	79,5	7,67%
January 2019	12,1	92,7	13,05%

Figure 3: The Growing Rate of the Interest-Free Funds (Katilim Emeklilik, 2019)

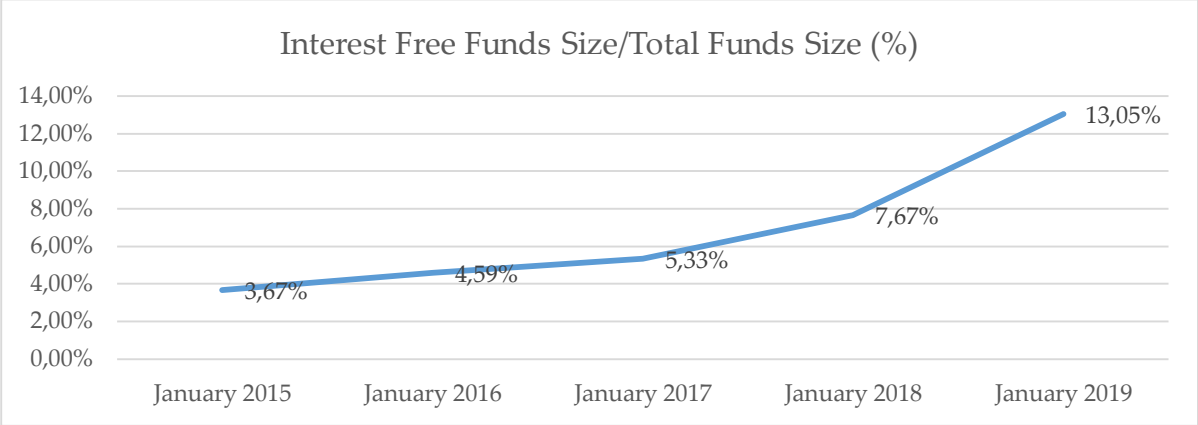


Table 4: Expert Profile of the Focus Group

Number	Title	Experience Area	Experience	Education Level
1	Academician	Working as a professor of finance at one of the most prestigious universities in Turkey and ex-chairman of the capital market boards	More than 30 years	PhD
2	Academician	Working as an associate professor of construction management at one of the most prestigious universities in Turkey	More than 15 years	PhD
3	Academician	Working as an assistant professor of finance at one of the most prestigious universities in Turkey and ex-manager at central securities depository	More than 20 years	PhD

4	Academician	Working as an assistant professor of econometrics at one of the most prestigious universities in Turkey	More than 10 years	PhD
5	Chairman	Working as the chairman of one of the largest banks in Turkey	More than 30 years	BA
6	Chairman	Working as the chairman of a real estate sales company	More than 30 years	BA
7	Chairman	Working as the chairman of a fund management company	More than 25 years	PhD
8	Management Consultant	Working as a management consultant, experienced in finance and insurance industry	More than 25 years	BA
9	Coordinator	Working as a technical coordinator for one of the largest EPC contractors, experienced in infrastructure projects financing	More than 15 years	MBA
10	Director	Working as an asset director for a real estate development company, experienced in fund management and real estate	More than 15 years	MSc.
11	Director	Working as investment director for an investment company, experienced in finance, real estate, and banking industries	More than 15 years	MA

In that context, the new model suggested in this study is structured based on; traditional investment behaviors of the people by combining the future expectations, taking into consideration religious and social concerns and expenditure plans and building a trust on the system.

The model is integrating the long-term investment project financing with pension funds long-term savings. After the model was structured, a set of discussion was made with the experts in the real estate industry, finance, insurance, fund management, and capital markets and took its final shape after their contributions. The profile and experience of the experts whom the model discussed are shown in Table 4.

All the experts whom the model discussed with, gave positive feedback about the structure of the model and its contribution to the Turkish pension system, capital markets as well as the future development of long-term investment project financing and their impacts to the growth of the economy.

The common idea of the experts was the need for new and amended regulations to be issued and strong governance requirement. Such an important model can only be successful by the

support of the government and important policy implications on this issue. One important point that was underlined was the sustainability of the model. The model which is capable of financing large scale projects may accomplish this with sustainable fund flows from pension savings. This can be achieved with the successful operations of the projects financed and the returns the investors get by investing in the instruments proposed in the model. Figure 4 describes the main concept of the model proposed, and an example of the framework of the model for city hospital projects is provided in Figure 5.

The city hospitals in Turkey, which are very popular investment tools regulating under PPP model may be financed by Islamic hospital REITs, and both local and international investors, especially the financial institutions which are currently funding these hospitals would be interested in purchasing the shares of these newly established Islamic hospital REITs. There are very remarkable examples of Islamic REITs that fit the model as Islamic investment tools. Among these, Al-'Aqar Healthcare REIT, established in Malaysia in June 2006 and was listed in the Main Board of Bursa Malaysia in August 2006 is a good example for hospital project financing in Turkey. Al-'Aqar Healthcare REIT was originally established to own and invest in Shariah-compliant properties which comprise 6 hospitals. Since its establishment, the number of properties increased from 6 to 22 properties in Malaysia. They also developed one healthcare project in Australia. (Al Aqar, 2017). Ripain and Ahmad (2016) analyzed the performance of Al-'Aqar Healthcare REIT in between 2006 and 2015. They used trend analysis focusing on dividend distribution per unit and net asset value (NAV) of the company. Their results exhibited that Al-'Aqar Healthcare REITs has the capability to attract investors. The dividend distribution per unit and net asset value have an upward trend because it is backed by various quality assets.

Energy and infrastructure projects are also other investment areas that Islamic REIT, as well as infrastructure REITs may invest in, due to their nature of complying to Shariah principles. Combining the PPP models with infrastructure REITs may also be another option for project financing. According to the report published by Deloitte in 2010, both brownfield and greenfield infrastructure projects are recommended to be financed by REITs. This may bring liquidity, incremental stability, capital market access and taxation advantages.

The second Islamic REIT, Al-Hadaharah Boustead REIT, with an initial investment in palm oil plantation was established in February 2007. The third Islamic REIT and world's first Islamic industrial/office REIT, Axis REIT, was initially launched as conventional REIT in August 2005 but subsequently restructured to be Shariah-compliant in December 2008. Both of these REITs were also Malaysian based.

Figure 4: The Model Proposed

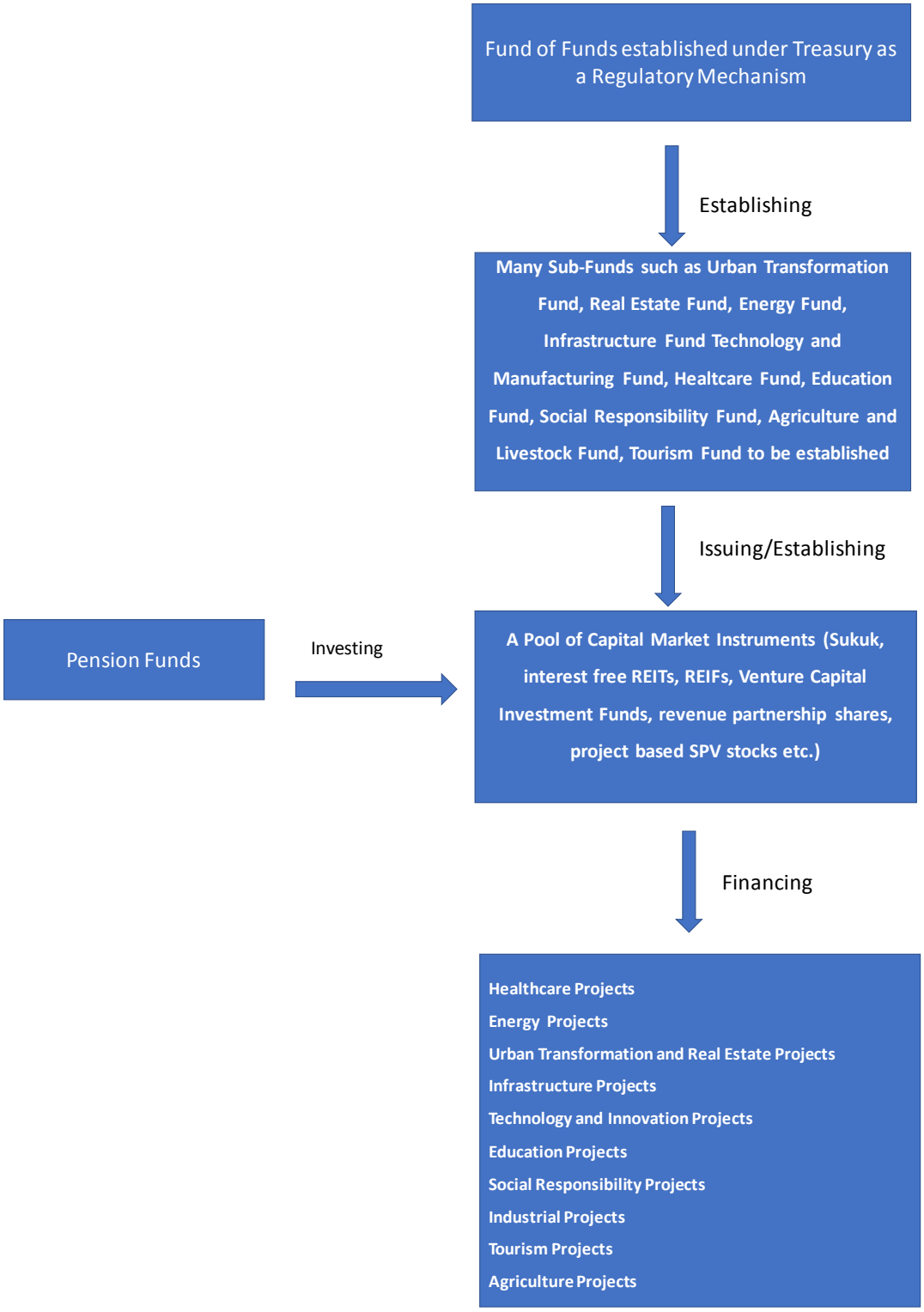
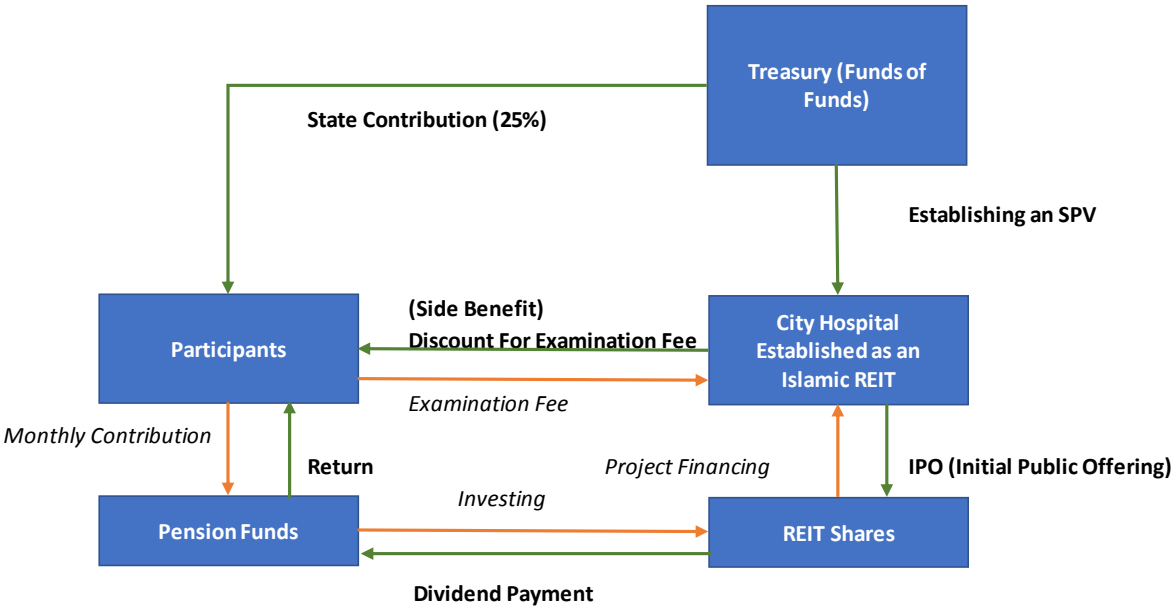


Figure 5: The Framework of the Model (An Example for City Hospitals)



Razali et al (2015) investigated the risk-adjusted performance analysis between Islamic REITs (Is-REITs) in a mixed-asset portfolio in between November 2008 and December 2014. They compared Is-REITs in a mixed-asset portfolio consists of shares and bonds and their results exhibited that Is-REITs outperform both shares market and bonds market.

Table 5: Islamic REIT Performance (Razali et al, 2015)

	Shares	**IREITs**	**Bonds**	**Cash**
Average Annual Return	16,18%	26,02%	3,46%	0,45%
Average Risk	10,48%	14,30%	3,23%	1,46%
Risk/Return Ratio	0,65	0,55	0,94	3,24
Sharpe Ratio	1,5	1,79	0,93	
Rank	2	1	3	

Mohamad (2016) analyzed the performance of Shariah real estate investment trusts with conventional ones and her results provided evidence indicating that the two performances of two structures are significantly different, and performance of Islamic REITs were found better compared to conventional REITs.

From the global cases, it can be concluded that Islamic REITs can invest in many different investment areas including healthcare, retail, manufacturing, technological, and industrial and warehouse and logistics project in the condition to comply the Islamic law principles. These investment areas support the idea of providing financing through Islamic REITs for large government projects including city hospitals, technological investments, and energy and infrastructure projects.

In the world, there are also many types of REITs established for different purposes, including apartment REITs, correctional facility REITs, data center REITs, diversified REITs, farmland REITs, government and defense REITs, healthcare and senior housing REITs, hotel REITs, industrial REITs, infrastructure REITs, life science REITs, mall REITs, manufactured housing REITs, mortgage REITs, residential single-family and property REITs, retail REITs, self-storage REITs, student housing REITs, timberland REITs (Investsnips, 2017, REITs, 2019). Some of these types of REITs may also be established in Turkey by issuing additional regulations and amendments.

Sukuk is another investment instrument that is capable of providing financing for large projects. Sukuk may finance many projects in Turkey including universities, technology start-ups, large renewable energy and infrastructure projects.

The sukuk market, although slowed down in 2015. is still one of the pioneer markets of Islamic finance. The total global sukuk issuance reached to 767.1 billion USD as of 2015 (IIFM, 2015). Khazanah Nasional Berhad, the Malaysian sovereign wealth fund, is one of the major active players in the Islamic capital market in terms of sukuk issuances and equity investments. In Dubai, UAE, the Emirate's sovereign wealth fund and the Investment Corporation of Dubai, are also issuing sukuk for Sharī'ah-compliant investments. There are many diversified areas that sukuk is used for financing. Among these areas, three interesting cases which may be suggested as complementary financing tools to the model were selected. In order to support life-saving health and immunization programs in the poorest countries of the world, the International Finance Facility for Immunization ("IFFIm") issued a truly landmark transaction in Islamic finance – a $500 million "Vaccine Sukuk" in December 2014. The issue was one of the largest debuts Sukuk issued by an international entity, as well as the first fully "socially responsible" Sukuk issuance in the international capital markets. Another socially responsible Sukuk, called Sustainable and Responsible Investment (SRI) Sukuk is an interesting case to be mentioned. Before discussing SRI, it is important to describe the Social impact bonds (SIBs), which are a relatively new concept to the world. SIBs are contractual commitments in the public sector to help improve social outcomes, which will eventually result in public sector savings. In a typical SIB, investors pay for the project at the beginning and then are paid based on the outcomes accomplished by the project. In this context, instead of focusing on inputs or outputs, the social outcomes are important. The outcomes are predefined and measurable. The first ever SIB was issued in September 2010 by the UK government in order to finance a prisoner rehabilitation program. The US, specifically New York City, launched a similar prisoner rehabilitation program in 2012. Canada, Belgium, the Netherlands, Germany and Australia also issued SIBs. The Securities Commission Malaysia (SC) launched its Sustainable and Responsible Investment (SRI) Sukuk Framework in August 2014 in order to enable the financing of socially responsible investments. The rising trend of green bonds and social impact bonds globally to finance a wide range of sustainable activities such as those addressing the needs of the country like infrastructure and small businesses are the main reasons behind the SC to set up this SRI Sukuk framework within an Islamic fixed income

investment concept. Renewable energy or reduced greenhouse emissions, projects improving the quality of life for society, educational projects falling under the community and economic development category are the main projects that SRI Sukuk is interested in. The MYR 1 billion Khazanah Ihsan Sukuk Program is the first program approved by the SC Malaysia under its SRI Framework. Khazanah has issued a MYR 100 million tranche in May 2015 for a tenor of 7 years. The inaugural issuance proceeds termed as the 'First Sukuk Ihsan" is used to finance schools under a private school program identified for 2015. The Ihsan Sukuk is considered another milestone in product innovation in the Islamic capital market from Malaysia. (IIFM, 2015)

By issuing sukuk, companies or governments can provide financing for their real estate investment projects. From the global sukuk cases, in addition to common financial applications, it can be concluded that different types of sukuk can provide financing for social responsibility projects, educational facilities, infrastructure projects, renewable energy projects, as well as technology start-ups.

Other investment tools that are promising for start-ups is private equity/venture capital investment funds (VCIFs) and venture capital private equity investment trusts (VCPET). The model also suggests establishing VCIFs and VCPETs for technology project financing and directing the savings to these funds.

The model developed is aiming to bring solutions about the current pension system, as well as creating a new sustainable source of long-term financing for large investment projects. In the lights of the reasons and global examples mentioned above and after the suggestions and recommendations of the experts discussed with, the model is structured as follows:

1. Establishing a Fund of Funds as the main investment and financing regulatory mechanism under Treasury.

2. Establishing many specific sub-funds under the regulatory Fund of Funds. These sub-funds are suggested to invest in infrastructure, healthcare, technology, innovation, industrial, social responsibility, education facilities, renewable energy, agriculture, real estate, tourism and urban transformation projects.

3. For each specific investment project (city hospitals, energy investments, infrastructure projects, technology and innovation investments etc), it is planned to issue various capital market instruments including sukuk, green bonds, revenue partnership shares, project-based SPV stocks, establishing interest free real estate investment trusts, real estate investment funds and venture capital investment funds.

4. Directing the current and future savings of the participants in the pension funds to these new pools of investment instruments issued under the sub-funds.

Table 6 shows the suggested interest-free capital market instrument for the model proposed in Figures 4&5, the benefits and the global examples. The solutions that the model brings to the current problems of the system are summarized in Table 7.

Table 6. The Sub-Funds and the Proposed Capital Market Instruments

Number	Sub-Category/Fund	Applicable Interest-Free Capital Market Instrument	Does current regulation support the proposed model	Consumer benefit	Government benefit	World Examples
1	Healthcare	real estate investment trust	There is no obstacle to establishing a healthcare REIT in the regulation, the dividend payment should be mandatory	Side benefits/returns	No need to provide guarantees as they provide at PPP projects	Al-'Aqar Healthcare REIT, established in Malaysia in June 2006 and was listed in the Main Board of Bursa Malaysia in August 2006
2	Industrial	venture capital investment fund, real estate investment trusts		Side benefits/returns	New sources for project financing	Sabana REIT, the Singapore based and the world's largest Islamic REIT was established in 2010 and listed in the Singapore Exchange Securities Trading Limited in order to make investments industrial real estates including high-tech industrial,
3	Infrastructure	Sukuk, infrastructure real estate investment trust	There is no obstacle to establishing an infrastructure REIT in the current regulation	Side benefits/returns	New sources for project financing	
4	Technology and Innovation	venture capital investment fund, REIT	There is no obstacle to establish a technology and innovation VCIF or REIT in the regulation -	Side benefits/returns	New sources for project financing	

			the dividend payments should be mandatory			chemical warehouse and logistics, warehouse and logistics, and general-industrial projects
5	Education	venture capital investment fund	There is no obstacle to establishing a healthcare REIT in the regulation	Side benefits/returns	New sources for project financing	The Securities Commission Malaysia (SC) launched its Sustainable and Responsible Investment (SRI) Sukuk Framework in August 2014 in order to enable the financing of socially responsible investments. Renewable energy or reduced greenhouse emissions, projects improving the quality of life for society, educational projects falling under the community and
6	Energy	Sukuk, REIT, venture capital investment fund	There is no obstacle to establishing an energy VCIF in the regulation	Side benefits/returns	New sources for project financing	
7	Social Responsibility	sukuk	The social responsibility funding system is needed to be reshaped in accordance with the proposed model	Transparency	Better management for social facilities	

						economic development category are the main projects that SRI Sukuk is interested in
8	Agricultural	real estate investment trust	No obstacle in the current regulation, the dividend payment should be mandatory	Side benefits/returns	New sources for project financing	Al-Hadaharah Boustead REIT, with an initial investment in palm oil plantation, was established in February 2007 in Malaysia
9	Real Estate and Urban Transformation	real estate investment fund	The pension funds can make investments to real estate investment funds and sukuk	New interest-free investment tools/returns	New sources for project financing	There are different REITs and REIFs established in the world and Turkey
10	Tourism	real estate investment trust, real estate investment fund	No obstacle in the current regulation, the dividend payment should be mandatory	Side benefits/returns	New sources for project financing	

Table 7: Problems of the Current Pension System vs the Solutions the Model Brings

Problems of the Current Pension System	Solutions the Model Brings to the Consumers	Solutions the Model Brings to the Government
The monthly contribution is too low	Additional side incentives such as discounts for examination, tuition fees, toll fees, etc. are recommended to attract people to	The more the contribution increases, the more the government will have the opportunity to finance more investment projects.

	increase their monthly contributions.	
The opt-out rate is high	If provided reasonable returns to the consumers, the construction and operation period of the investment projects are long enough to keep them in the system,	For those who are willing to direct their savings to the pool of interest-free capital market instruments that finance investment projects, an amendment to close the exit for a certain period is recommended
People above 45 years old are not included in the auto-enrolment	An amendment that includes this age group in the system is recommended. That may increase the total savings as the age group above 45 years old have a higher income.	An increase in total savings may increase the possible financing amount for investment projects.
Returns are not attractive	The returns based on the success of the projects are expected to be higher than the current average returns	The higher returns may increase the trust in the system.
Inadequate investment instrument options	Many alternative new investment tools are recommended to be issued and included in the new investment pools	The more new investment instruments, the more the capital markets get enhanced.
Insufficient interest-free investment tool options	Asset-based new interest-free investment instruments are recommended to be issued and included in the system. That may increase the number of participants who has religious concerns	The government may provide good alternatives for investments and build trust for citizens with religious concerns.
The fixed management fee of the portfolio management companies which manage the pension funds is not Sharia-Compliant and is needed to be remodeled.	Instead of a fixed management fee, a success fee based on the return of investments is recommended. That may also provide trust for the people who hesitate to invest in the pension funds.	A success fee based on the increase in the returns is fairer and more compliant to Sharia Law. That may open a new discussion for the rest of the fund management fees.
The sustainability of 25% of government incentives	The more returns the funds make, the more participants keep staying in the system. If the side incentives	As the side incentives attract the people and as the returns get higher, 25% of

	and returns are good enough for the sustainability of the system, the people may not be affected by the decrease in the 25% state incentives.	government incentives may decrease gradually. That may help the government to direct these incentives to other investment areas.

Discussions

The new model is aimed to shift the investment direction from treasury bills and corporate bonds to the future incomes of the invested projects by investing in a pool of asset-based capital market instruments. That will increase the interest-free asset-based investment tool options and may attract people with religious concerns. If the model is applied, it is believed that the share of the interest-free capital market instruments where the current pension funds invest in will increase and the shares of the majority of interest-bearing investment instruments shown in Figure 1. such as corporate bonds, treasury bills, time deposits and reverse repo will decrease gradually.

As Akgiray et al (2016) suggested, opening the door for investing in real estate and urban transformation projects through real estate capital market instruments may match the idea of the traditional investment behavior of the people focused on home investments. Providing an alternative home buying system through the high amount of monthly contribution to the pension funds may replace the mortgage loans with high-interest rates. That may decrease the loan load of the banks and shift their focus on financing investment projects.

Financing education, energy infrastructure and healthcare projects by enabling the pension funds investing in the pool of capital market instruments issued may increase the returns as well as the side benefits for the participants. For instance, if the people direct their savings to a pool of investment instruments consists of the capital market instruments that finance the education, energy, infrastructure and healthcare projects, they may get discount for tuition fees, fees of medical examinations, energy bills and toll fees for highways, tunnels and bridges.

Directing the savings to technology and innovation projects financing through investing in venture capital investment funds issued may make the people as the shareholder of a rapidly growing and cash generating company. That may increase the returns of the participants.

In summary, the model is structured as an ecosystem where their savings will serve for increasing their welfare in their daily lives before they even get retired and get the benefits of the projects they indirectly financed through the pension fund options they selected.

Conclusions and Recommendations

The pension system in Turkey has been developing since 2013 when the government started providing 25% incentives in addition to the savings of the participants enrolled in the voluntary pension system. This was followed by the new regulation came into force in 2017, which enrolls all the people currently working under the age of 45 in the auto-enrollment

system with the option to opt-out after two months. The cumulative size of the pension funds and participants in both systems reached to 95,1 billion TL and 11,65 million respectively. Although this seems to be good progress within 6 years, the rate of the total savings over the GDP is only 2.6%, very far below the OECD average (Pension Monitoring Center, 2019, OECD Pension Report, 2018). In addition, the current pension system has major problems that are needed to be resolved such as decreasing the opt-out rate from auto-enrolment system, increasing the monthly contribution of the participants, providing alternative investment instruments which include new interest free fund options, including more people in the system and creating a sustainable model by building a trust on the system.

The new model proposed in this study is aiming to bring solutions to these problems by integrating the pension system with large investment project financing based on directing the savings to the new pool of interest-free capital market instruments issued for specific investment projects. The current high-interest rates are not sustainable for financing long term projects and alternative financing tools are needed for long-term investment projects. The model also brings a solution to the financing problems of investment projects.

The model suggests establishing a Fund of Funds as the main investment and financing regulatory mechanism under Treasury and creating many specific sub-funds under the regulatory Fund of Funds to invest in infrastructure, healthcare, technology, innovation, industrial, social responsibility, education facilities, renewable energy, agriculture, real estate, tourism and urban transformation projects. For each specific investment project (city hospitals, energy investments, infrastructure projects, technology and innovation investments etc), it is recommended to issue various capital market instruments including sukuk, green sukuk, revenue partnership shares, project-based SPV stocks, establishing interest free real estate investment trusts, real estate investment funds and venture capital investment funds. Directing the current and future savings of the participants in the pension funds to these new pools of investment instruments issued under the sub-funds may bring a new sustainable approach to the pension system.

The pension funds are seeking long-term investment tools with reasonable sustainable returns where they can keep their investments for long periods. It is believed that starting with directing even a very small percentage of the total contributed amount to the new investment pool suggested in this study may create leverage for future project investments. Although the interest-free investment tools that the pension funds invest in is less than 15% (SPK, 2018), the total savings in the auto-enrolment system directed to interest-free funds is growing. For sustainable growth, new interest-free investment tools are needed. The long-term interest-free capital market instruments that finance investment projects suggested in the model seem to be a solution for increasing the interest-free investment tool options. Besides, providing side benefits such as discounts in toll fees in the highways, medication fees or energy bills may be another solution both to keep the participants in the system for long terms, to create trust on the system and structure perception of collective benefits. The increase in returns, the side

benefits and the trust in the system may result in an increase in the number of the participants and the size of the funds in the system.

For those who want to direct their savings to the abovementioned pool of interest free capital market instruments which finance the long-term investment projects, the main amendment recommendation to the current regulations is making the auto-enrolment pension system mandatory for a certain period of time to get the benefits of the long-term returns of the investments and stop the opt-out process of the participants. The second important recommendation is amending the regulation by including the people elder than 45 years old, the age group with a higher income level, in the system. That may increase the total size of the pension funds. Enabling the participants, who opted-out from either the voluntary based or auto-enrollment systems within the last two years to be included in the system, and for those who want to re-enter the system, it is recommended to give them the right to receive the 25% government incentives in the condition that they deposit the minimum total contribution amount of the total duration passed since they left the system. It is also recommended to give them the right of retirement without considering the period they left the system. Providing different investment tools for different age and interest categories are also suggested. For instance, providing alternative investment/retirement options such as enabling the participants to use their savings for initial payments of home purchasing and directing their monthly contributions for paying the rest of the cost of the houses by monthly instalments based on yearly rental increases may also open a discussing for creating a real estate-based pension system that match the traditional investment behaviors of the people. Starting a new campaign to introduce the new model by announcing the pension system participants as the shareholders of the investment projects and emphasizing the side benefits may increase the interest in the new pension model.

In the model proposed, the projects are planned to be financed by the savings accumulated in the pension funds by investing in the pool of different capital market instruments. After the model provides sustainable growth and reasonable stable returns for foreign investors, the international pension funds, sovereign wealth funds, insurance companies, banks and other financial institutions may be included in the model either as co-investors or creditors. That may also increase direct and indirect foreign investments in the country.

If structured with government support and governed properly, the model suggested in this study may also increase the sizes of the private real estate investment trusts, funds, infrastructure funds, venture capital investment funds that the pension funds may invest in due to its asset-based structure. The more asset-based interest-free investment tools increase, the more funds may be involved in the system and increase the total size.

One of the main limitations of the study is the lack of the rate of returns of the real estate investment funds, venture capital investment funds and sukuk coupon rates as the history of these instruments issued in Turkey goes only a few years back. It is suggested to analyze the fund performances of the current funds. The more Islamic capital market instruments are issued, and more return data are collected, the model suggested may be more reliable and sustainable.

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