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Factors of Pension Funds' Growth: An Empirical Analysis of Egyptian Pension Funds

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Abstract: *The goal of this research is to analyse the elements (corporate governance, regulatory framework, operational efficiency, investment strategy, and ethics) that affect pension funds and their ability to grow. The large asset base of the Egyptian financial sector can be better understood by reading this research. Principal component analysis was used to identify the key micro-factors that contributed to the increasing size of the pension fund. Later, the R2-change was examined as part of a hierarchical regression technique to examine the relative importance of each variable in the model. The examination of the data shows that all of the identified parameters, with the exception of fund restrictions in the final model, have a strong positive and substantial link with the growth of pension funds. Capital Market Board and Finance Ministry could benefit practically from the paper's methodology when making decisions about pension fund management and the fundamental factors underlying it. The study's micro-factors are drawn from a literature review of previous studies conducted in a variety of economies. This opens up the possibility of using the research as a basis for a comparative examination of pension fund growth across economies.*

Key Words: Pension Funds' Growth, Fund Governance, Fund Regulation, Operational Efficiency, Investment Strategy, Fund Ethics, Financial Sustainability

JEL Classification:

Introduction

Beginning its path to middle-income status in 1923, Egypt has seen remarkable economic and political shocks. After 95 years of economic growth, the country has reached the upper middle-income status. There are fascinating epochs in the growth of the economy. The Capital Market Board (CMB) of Egypt manages both institutional and individual pension funds within its purview. CMB has a binding agreement with the funds, that the board uses to actively manage the pension mutual funds in accordance with Pension Company's fund management policies. For the purpose of managing their money in today's dynamic and competitive markets, pension providers may also hire outside portfolio management firms under contract. In Egypt, pension funds have developed over the course of around two decades. It took approximately two and a half

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years from when the law was initially introduced in March 2000.

A DB plan can be effective in a country where residents are well protected by the law. Companies licensed by the Treasury Secretariat require an initial investment of $7,000,000, with the same amount due within three years. It is expected that the businesses would have solid IT and financial infrastructure when the initial capital burden has been alleviated. Typically, financial institutions own 51% of a company's stock. Portfolio management firms are responsible for overseeing the investments of such pension funds.

Before 2006, Turks had to sign up with one of three different social security institutions to receive social security benefits: a) SSK, for commercial and public sector workers; b) ES (Emekli Sandii), for government servants; and c) Ba-Kur, for independent contractors and farmers.

The decade-long deficit of about 475 billion YTL (at 2004 prices, equal to 110 per cent of Egypt's GDP) proved too much for these systems, and they collapsed as a result. Unifying all three systems into a single, stronger security structure was launched as a reform in 2006 to make up for these shortfalls and reach an established target in four decades, i.e., 2045. Figure-1 shows the economic trend of social security with and without the 2006 amendments, showing that the Egyptian economic system was not immune to the global financial crises of 2008.

The Egyptian government has just enacted new legislation that mandates all public employees must enrol in the pension system or face a penalty, in order to protect the workers' financial security. The primary goal of the law, which takes effect at the start of 2017, is to increase the national saving rate (Global Mobility, 2016).

Reasons for Selecting Egypt

Due to an array of factors, some of which are detailed below, the study intends to investigate the main drivers of growth and sustainability of pension schemes at the micro level of analysis. Following are some of the reasons for selecting Egypt as a unit of analysis:

- Compared to other OECD countries, the rate of people paying into social security is very low. The size of the informal sector and low levels of productivity and human capital suggest that the contribution rates are high, which is worse for Egypt than the higher tax rates of other wealthier countries (Gonenc, 2006).
- The average retirement age in Egypt is the highest among OECD countries. The average number of years a woman can anticipate spending in retirement is 32 years, thanks to the current pension eligibility age for women being 44 and the average number of years for males being 47 (life expectancy: 75). With a retirement age of 65, it's important to learn as much as possible about the pension system in the country of choice (Brook and Whitehouse, 2006).
- The OECD economy with the best performance in 2016 was Egypt, according to World Bulletin. The growth rate of 5.2% ranks it as Europe's second-fastest growing major economy. Factors contributing to the expansion of pension funds in a developing economy are an important area of study.
- The global financial crisis of 2008 affected economies of all sizes. The 2008 financial crisis was not factored into previous research on pension funds (Ersin et al, 2015). However, with a bigger sample size than before, the current analysis illustrates the effect of the global financial crises on the expansion of Egyptian pension funds.
- With an 11.6% growth of pension funds, Egypt and Denmark are the only OECD countries to have responded to global responses and surpassed them (Ersin et al, 2015).

Literature Background and Hypotheses Development

The current study was conceived after an extensive literature review. Some of these are

briefly depicted in Table 3 of the Appendix to further explain the study's findings. The following hypotheses were generated based on the literature to examine the micro-factors contributing to PFG.

Fund Regulations

Rules and regulations smoothen the growth path. According to Yermo and Tinga, (2007) and Muir (2022), regulations have a heavy influence on the growth of pension funds. Their study analyzes the impact of licensing, which allows a fund to operate legally and protects it under tax and other laws of the state. However, the implication of a large number of laws and regulations turns into an obstacle on the growth path reported by (World Bank, 2004), as a result, compliance costs increase and the concept of unified pension law for a block of states comes out as a remedy.

These set of laws need proper coordination by the managing authorities in case of such collapse the situation puts a reverse impact on the growth of pension funds by raising their cost (Asher & Nandy, 2006; Eijffinger & Shi, 2007) reported such situations in India and Europe respectively. Clark (2022) and Madero and Lumpkin, (2007) suggested the concept of a single regulating authority upon all pension funds and also defined its pros and cons. Pension funds of OECD countries have grown in terms of assets as a result of proper regulations (Madero and Lumpkin, 2007; Egli et al. 2022). In view of the literature current study aims to analyze the impact of regulations by formulating the following hypothesis:

- **H1:** Fund regulations have a positive impact on the growth of pension funds.
- **H2:** Pension fund governance has a positive impact on its growth.
- **H3:** investment strategies have a positive impact on the pension fund growth
- **H4:** Operational efficiency of pension funds positively affects their growth.
- **H5:** Ethical conduct of a pension fund has a positive/negative impact on its growth.

Theoretical Background and Conceptual Framework

The theoretical framework of a study lays forth the conceptual model of the study, outlining the intentional connections between the independent variables and their effects on the dependent variables. It also connects the required variables to the appropriate theories, showing how they, all fit together within a predetermined ontology. The study's theoretical framework provides an explanation of the conceptual model's connections to established theories.

Microeconomic considerations at the individual level are linked to the long-term viability and expansion of Egypt's pension fund firms, as shown in Figure 2 of the Appendix. The association between these variables and the dependent variable was determined after a thorough literature review was conducted. Furthermore, these personal aspects may affect the longevity and development of pension funds. Pension fund governance, pension fund legislation, operational efficiency, investment strategy, and ethics of a pension fund organization are all relevant considerations. Microeconomic Factors at the Individual Level are Depicted in Table 3 of the Appendix.

Data and Methodology

The section throws light upon the sampling method, questionnaire designing and mode of data collection, reliability tests for consistency of instruments, and various research techniques for the analysis of data. The model used for the research is based on an intensive literature review.

Primary research is a firm-level approach to measuring the magnitude of the factors affecting pension funds' growth. According to Creswell (2009) and Veal (2005), questionnaires or interviews are the most reliable way for organization-level data collection. Therefore, the study uses a questionnaire as a tool for the measurement. A firm-level survey was conducted by sending questionnaires to pension funds management companies in Egypt.

Population and Sampling

Target population basically refers to the entire specific elements of the population that lie in the paradigm of the research. The targeted population for the pension funds companies in Egypt. Sampling refers to the selection of a certain number of elements from the target population, with the ability to represent the characteristics of the entire targeted population. The sampling design process is composed of interlinked series of stages. In order to get the reliability of primary factors, all registered pension companies are considered to be population. The sampling unit is defined as the unit in which the population is described in the research i.e., in this study the unit for sampling is a registered pension company (Brohi et al., 2021; Brohi, Kalwar, et al., 2023; Brohi, Memon, et al., 2023; Ghaffar et al., 2021).

The following study is an exploratory type of study conducted in Egypt by using primary analysis. The Under-secretariat of Egypt and the Ministry of Finance and Pension Monitoring Centre keep a record of registered pension companies in Egypt. According to the above-mentioned sources, there were nineteen companies registered at the end of year 2018. Table-1 in Appendix describes the details of the pension-registered firms in Egypt in 2018.

All nineteen companies were taken as the population of the study and the same numbers of companies were considered as the sample for study for the cross-sectional primary study in the year 2018. For this study, an equal proportional sampling has been adopted (Sekaran 2000). This approach was adopted in order to get the best equal representation of the population keeping in mind the time and cost constraints. The approach also helps to gather information regarding respondents promptly, professionally, and efficiently. Through e-mails, personal visits and using references, 380 questionnaires were sent (20 questionnaires in each company) and in return, a sample of 174 questionnaires were collected, which is almost forty-six per cent of the targeted respondents.

Data Collection

As the respondents to the study were mostly top to middle management people i.e., CEOs, Managers etc. professional emails were sent to them along with personal visits. Prior interview proper appointment was made. The questionnaire was designed in clear English and Egyptian so that it could be easily understood by the participants. The data collection period was from October 2017-October 2018. The semi-structured questionnaire (a multidimensional scale) was used to carry out the survey. The measurement instruments were evaluated before starting data collection. For the cognitive relevance conformation, the questionnaire was first sent to some operational managers to test the reliability. The instrument was developed by adopting existing multi-dimensional scales to capture pension growth determinants, based upon ten related questions which were answered at a five-point Likert scale. The independent variable dimensions i.e., factors responsible for the growth of pension funds were adopted from several popular studies. Multiple items were measured on a five-point Likert scale from "Not Important" to "Very Important" where; 1= Not Important, 2=Less Important, 3= Fairly Important, 4= Important and 5= Very Important.

Questionnaire Design

The questionnaire was designed on the factors mentioned in the studies of Casanova (2001) and Catalan (2004). The questionnaire can be broken into the following sections with respect to its functions:

Section-1 "Company Information"; the topmost section is designed to know about the title of the company, this was to ensure that the respondent belongs to the listed company, and to identify the scenario of outsourcing in a particular company, which distinguishes it from the rest.

Section-2 "Demographics"; the second part of the questionnaire to know about the one who is responding to the investigation about the study, since the respondent's professional information assures the reliability

of the information he provides about his organization. This includes; the designation, working experience, gender, age and academic qualification of the respondent (Gill et al., 2020; Kalwar et al., 2020; Memon et al., 2020).

Section-3 "Pension Growth" the section is designed to know about the measures that contribute towards the pension growth of the firm. There are eleven different questions asked about pension growth factors, all of them were measured on a five-point Likert scale from "Not Important" to "Very Important" where; 1= Not Important, 2=Less Important, 3= Fairly Important, 4= Important and 5= Very Important.

Section-4 "Factors for Pension Funds Growth" this section is based on the pension funds growth factors measurement; the factors are measured by asking various questions separately about each of them, the details are:

A series of questions were asked to measure the pension funds' governance, pension fund regulations, operational efficiency of a pension fund company, investment strategy of a pension fund company, and pension fund ethics. All of them were measured at a five points Likert scale i.e. (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree. Here is the table describing briefly some of the items used to measure the related variables.

Variables and Their Measurement

In Appendix Table-5 shows how different constructs for the study are measured:

Proposed Methodology

The pilot study was conducted with fifteen known respondents; to find out if is there any need to elaborate on any area of the research tool. After that, a few amendments were made to the questionnaire to make it more clear for respondents in the context of Egypt. After the entire process, it was assumed that the questionnaire was deemed to be suitable for the data collection process. The data for the study was analyzed through (SPSS) Statistical Package for the Social Sciences and STATA. A variety of statistical techniques were used on the data obtained through the questionnaire, elaborated as under:

To check that the instrument items were underlying the same constructs and are homogeneous, the data set obtained through the questionnaires was subjected to this reliability test. According to the study conducted by Nunally, (1978) Cronbach's alpha needs to cross the threshold of 0.6 and the results of the analysis reflect the same, which are discussed in the results section of the study in detail.

To observe the relationship between two or more normal variables, correlation analysis is used. Pearson's correlation coefficient is used if two variables were at least interval-level variables. It measures the strength of variables' involvement and forms the scale to relate the variables

Conformity Factor Analysis (CFA) is the most common statistical technique which is adopted by social research. It outlines the relationship between variables of the study by classifying factors. This method basically shrinks the variety of large data into a small number of factors explaining the relationship of variables clearly. It constructs reliable tests that the factors are forming the same construct.

The main reason for CFA is to confirm that the constructions of measures are consistent with their purpose of construction.

Economic Model

An economic model shows the generalized relationship of economic variables and describes how independent variables can affect the dependent variable of the study(Brohi, Kalwar, et al., 2023; Brohi, Memon, et al., 2023; Irfan Ahmed et al., 2016; MEMON, 2018; Memon, Kalwar, et al., 2021; Memon et al., 2020; Memon et al., 2014; Memon et al., 2016; Memon, Sahito, et al., 2021; Memon et al., 2022; Park, 2017). Here, the dependent variable is pension funds growth and predictors or independent variables are pension funds governance, pension funds regulations, pension funds

efficiency, pension fund investment strategy and pension funds ethics.

$$PFG = f(PF\ govern. + PF\ regulations + PF\ Efficiency + PF\ Invest + PF\ Ethics)$$

Hierarchical Regression Analysis is a type of regression technique specialized for identifying the contribution made by an additional predictor above and beyond those entered previously in order to observe additional validity, as a means for statistical control. The regression involves sequential entry of the variables in the model; however, this entry order is based upon theoretical significance (Kerlinger 1986). Henderson & Velleman, (1981) suggests in their study that the researcher knows the significance of variable order better than the computer. The technique is more useful when the variable has a correlation between them, which is favourable in the current study. Change in R-square is the charming feature of this method as it highlights the change in model fit caused by such variable addition (Bhatti et al., 2021; CHANDIO et al., 2016; Kalwar et al., 2019; Marvi et al.; Memon, 2010; Qureshi et al., 2022; Soomro et al., 2021; Talpur et al., 2016; Talpur, Chandio, et al., 2014; Talpur, Memon, et al., 2014; Talpur, Napiah, et al., 2014).

In this study, the technique is used to identify the impact of each of the PF-growth factors. Five sets of models are analyzed as depicted by the table below. Park and Valenzuela, (2009) implied the idea of long hierarchical regression by adding variables one after another to evaluate the contribution of each variable along with other predictors. A hierarchy is implemented in the current study to analyze the same in the context of pension funds growth in Egypt. The series of econometric models are as under

Hierarchical Regression Equations	
Step1	$PFG_i = \beta_0 + \beta_1 FG_i + \varepsilon$
Step2	$PFG_i = \beta_0 + \beta_1 FG_i + \beta_2 FR_i + \varepsilon$
Step3	$PFG_i = \beta_0 + \beta_1 FG_i + \beta_2 FR_i + \beta_3 OE_i + \varepsilon$
Step4	$PFG_i = \beta_0 + \beta_1 FG_i + \beta_2 FR_i + \beta_3 OE_i + \beta_4 IS_i + \varepsilon$
Step5	$PFG_i = \beta_0 + \beta_1 FG_i + \beta_2 FR_i + \beta_3 OE_i + \beta_4 IS_i + \beta_5 FE_i + \varepsilon$

Where:
PFG= Pension Funds Growth
FG= Pension Funds Governance
FR= Pension Funds Regulations
OE= Operational Efficiency of Pension Funds
IS= Investment Strategy of Pension Funds
FE= Pension Funds Ethics
ϵ= Error Term

Results Analysis and Discussion

Appendix Table-4 shows the characteristics of the sample of Egyptian pension companies used for the analysis in the current study. Table-5 shows the variables used for this study along with their sub-contents. Table-6 shows the correlation matrix and VIF for the study. By observing the third column of the table we come to know that pension funds growth (PFG) has a significant and positive relationship with all other independent variables of the study. Moreover, the second column of VIF (variance inflation factor) does not show any type of multicollinearity problem in the data as all of its values are less than ten.

In order to test the significance of each of them inter-item reliability was analyzed; Table-7 reports the reliability index for both the dependent and independent variables along with the number of measures used to construct them. According to Field, (2009) all of the items fall in the region of a good measure as all of them reported a significant value of Cronbach's Alpha i.e. $\alpha > 0.6$. Table 7 in Appendix shows that all of the constructs of the study are reliable

The KMO statistic as per the table-9 in appendix reports the adequacy of the sample i.e. factor analysis is greater than 0.7 lying in a good zone. Bartlett's test report is significant as well ($p<0.001$) proving that factor analysis is appropriate.

From the table-8 in the appendix, core factor loadings behind pension growth could be seen clearly, fund governance, fund regulations, investment strategy, and pension funds ethics come up to be the most prominent factors that affect outsourcing decisions. However, operational efficiency follows with fewer factor loadings than the other three.

Table-10 depicts the hierarchical regression results of all independent variables with the pension funds growth (as dependent variable), describing the results of five models of the study which includes the coefficients of each variable along with their direction and strength. Model-1 shows that pension funds governance has a positive and significant relationship with the PFG at a 1% level of significance. If the value of 'pension funds governance' is increased by one unit, then the value of 'pension funds' will be increased by 0.216 units. The value of the adjusted R-square for model-1 is 0.092 means that this model describes the 9.2% explanation for the change in the pension funds due to a change in funds governance. These results are inconsistent with past research work and support the theory of governance for investors' protection. According to this theory, if the pension fund is managed properly and governed for achieving the organizational goals then it will grow fast and will contribute to the growth of the economy i.e. if directors or trustees do not have any hidden personal objectives and they are working according to the prescribed governance mechanism, the pension funds company will be sustainable in the long-run.

It is observed that all of the variables contribute significantly towards the growth of the pension funds, all four hypotheses lie in the acceptance zone.

Conclusion

The purpose of this study was to analyse the significance of micro-economic variables on the financial sustainability and growth of pension funds, with a sample size of 19 pension fund firms in Egypt. To examine the PFG, a semi-structured questionnaire was created and distributed to all pension fund firms. The findings from the hierarchical regression model corroborate the findings from earlier studies and existing theories like the pooling theory, the utility theory, the Institutionalists' approach, the theory of immunization, the theory of economic regulations, the theory of optimal efficiency and profitability in accounting, and the theory of governance. We can conclude, then, that the aforementioned and detailed microeconomic elements play a significant and contributively role in the long-term viability and expansion of Egypt's pension fund firms.

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Appendix

Table 1

Pension Registered Firms in 2018

S. No	Company Name
1	Aegon Hayat ve Emeklilik AŞ
2	Allianz Hayat ve Emeklilik AŞ
3	Anadolu Hayat ve Emeklilik AŞ
4	Asya Emeklilik ve Hayat AŞ
5	Avivasa Emeklilik ve Hayat AŞ
6	Axa Hayat ve Emeklilik AŞ
7	Bereket Emeklilik ve Hayat AŞ
8	BNP Paribas Cardif Emeklilik AŞ
9	Cigna Finans Emeklilik ve Hayat AŞ
10	Ergo Emeklilik ve Hayat AŞ
11	Fiba Emeklilik ve Hayat AŞ
12	Garanti Emeklilik ve Hayat AŞ
13	Groupama Emeklilik AŞ
14	Halk Hayat ve Emeklilik AŞ
15	Katılım Emeklilik ve Hayat AŞ
16	MetLife Emeklilik ve Hayat AŞ
17	NN Hayat ve Emeklilik AŞ
18	Vakıf Emeklilik AŞ
19	Ziraat Hayat ve Emeklilik AŞ

Table 2

Pension Indicators of Egypt

Pension Companies	19
Pension Plans	1000
Pension Funds	245
Pension Intermediaries	34,738
Participants	5,879,363
Pension Contracts	6,710,762
Accumulated Funds	~ $15.5 Bill.
Source: Ministry of Finance Egypt	

Table 3

Individual-Level Factors

Symbol	Variable	Literature Review	Expected Relation	Supporting Theory
PFG	Pension funds growth (individual)		DV	Utility Theory+ Institutionists' Approach
F Gov.	Fund Governance	Catalan, (2004) Mitchell and Yang, (2005) Bikker and Dreu, (2009) Njuguna, (2010) Loopstra, et al,, (2016) Bebchuk and Fried, (2004)	Positive	Theory of Governance for Investors' Protectionism

Symbol	Variable	Literature Review	Expected Relation	Supporting Theory
F. Reg.	Fund Regulations	Capelle and Lum, (2008) Impavido, (2005) Stewart, (2009) Casanova, (2010) Yermo and Tinga, (2007) World Bank, (2004) Asher and Nandy, (2006b) Madero and Lumpkin, (2007) Hu et al., (2007) Eijffinger and Shi, (2007) Odundo, (2008) Blomeetal, (2007) Cihak and Podpiera, (2006) Shah, (2005) Sunden(2000)	Positive	Theory of Economic Regulations (Structural and Conduct Regulation)
Op. Eff.	Operational Efficiency	Pecchenino and Polland (2005) Herbertsson, (2001) OECD, (2009) Stanko, (2002) Cocco and Volpin, (2005), Stanko, (2002)	Positive	Optimal Efficiency
Invest	Investment Strategy	Eichholtz & Margaritova, (2009) Eaton and Nofsinger, (2001) OECD, (2009b) Campbell and Viceira, (2002) Bikker et al., (2009) Springer and Cheng, (2006) Kake, (2006) Olivia and Mitchell, (2008) Hugman, (2008) Baron, (2008)	Positive	Theory of Pooling and Accounting Profitability Theory and Theory of Immunization
Pf. Ethics	Pension Fund Ethics	Clark and Urwin, (2009) Tower and Impavido, (2009) Chapman, (2006) Shin, S. (2018) Benson, and O'Neill, (2007) Walsh et al, (2017) Ambachtsheer. (2007) Gifford and Nogueira-Godsey, (2011)	Positive or Negative	Agency Theory, Asymmetric Information and Transparency

Table 4

Sample Characteristics

Variable	Item	Frequency	Percentage
Gender	Male	105	60.3
	Female	69	39.7
Age	Up to 24yrs	24	13.8
	25-34yrs	45	25.9
	35-44yrs	76	43.7

Variable	Item	Frequency	Percentage
	45-54yrs	24	12.8
	above 55yrs	5	3.9
Education	Graduate	31	17.8
	Masters	82	47.1
	Professional	44	25.3
	Other	17	9.8
Experience	1-5yrs	47	27.0
	6-10yrs	86	49.4
	11-15yrs	25	14.4
	above 16yrs	16	9.2
Designation	Staff	37	21.3
	Trustee	15	8.6
	Manager	87	50.0
	Assistant Manager	56	32.2
	Other	16	9.2

Table 5

Variables Measurement

Fund Governance
1. The CEO's management of the retirement fund
2. The pension plan is responsible for the ongoing training of trustees.
3. The pension scheme's ability to effectively communicate with its members.
4. The pension plan's ability to prevent bias in decision-making
5. The pension system's oversight of service providers' efficiency
6. Trustees' responsibilities under the pension plan are specified.
7. The pension program's reliable system for measuring performance
8. The plan entails contracting out expert money management
9. The pension fund hires service providers through a bidding process
Fund regulations
CMB's role as a watchdog for pensions and other retirement benefits.
The CMB controls the prices that service providers can charge.
The tax that the Egyptian Revenue Authority collects from pension fund participants on their taxable income.
The program is in line with the fees set by the CMB (Corporate Monitoring Board).
CMB's mandate of four annual regulatory meetings between the schemes and their service providers.
CMB's use of a risk-based approach to pension fund monitoring
Compliance with CMB's rules on financial reporting
The Capital Management Board's (CMB) risk tolerance limitations
Operational Efficiency
Controlling the scheme's mounting administrative expenses
The CMB-mandated deadline for processing benefits is strictly observed.
The strategy makes use of an efficient internal control mechanism.
The length of time spent in board meetings
The effectiveness of the scheme's benefits processing system
Decisions made with member input

Employees' trainings on a regular basis
Always keeping an eye on the funding level (the ratio between the scheme's liabilities and assets)
The plan that follows CMB rules in order to save on compliance expenses

Investment Strategy

Investments may be made in any company within the scope of the scheme
The scheme's investment committee's final say
Trustees should have liability insurance.
More money is put into bonds and Treasury bills (fixed-income securities) than into stocks.
The CMB's investment portfolio is subject to certain constraints
The Scheme verifies the rates provided by the investment managers independently.
The establishment of a policy for managing risks
Adopting investment ideas based on the results of fund managers' market research
Establishing quarterly investment return goals and developing plans to meet them.
Having a well-defined investing strategy that is strictly adhered to.
The Board of Trustees has delegated all investment authority to the Investment Committee

Fund Ethics

Protecting trust matters.
A stringent code of behaviour
Honest information sharing with members
Meeting all stakeholder needs
Avoiding decision bias
Poor investment or policy losses in pension funds
Trustee authority usage

Table 6

Correlation Matrix

	VIF	PFG	FG	FR	OE	IS	FE
PFG		1					
FG	3.42	0.153**	1				
FR	4.21	0.133***	-0.182	1			
OE	3.16	0.251*	0.447**	-0.093*	1		
IS	2.54	0.496**	-0.167**	0.0161	-0.193**	1	
FE	1.86	0.541***	-0.0251	-0.0794**	0.0808**	-0.378**	1

*, **, *** shows significance at 10%, 5% and 1% respectively.

Table 7

Reliability Test

Variable name	No of Items	Cronbach's Alpha
Pension Funds Growth	11	0.683
Fund Governance	9	0.71
Fund Regulations	8	0.81
Operational Efficiency	9	0.838
Investment Strategy	11	0.704
Pension Funds Ethics	7	0.703

Table 8

Factor Analysis; Factors behind PFG

Rotated Component Matrix [a]		
	Component	
	1	2
Fund Governance	0.675	0.385
Fund Regulations	0.854	-0.062
Operational Efficiency	0.073	0.729
Investment Strategy	0.383	0.667
Pension Funds Ethics	0.616	0.238
Extraction Method: Principal Component Analysis.		
Rotation Method: Varimax with Kaiser Normalization.		
a. Rotation converged in 2 iterations.		

Table 9

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.743
Bartlett's Test of Sphericity	Approx. Chi-Square	208.643
	Df	15
	Sig.	.000

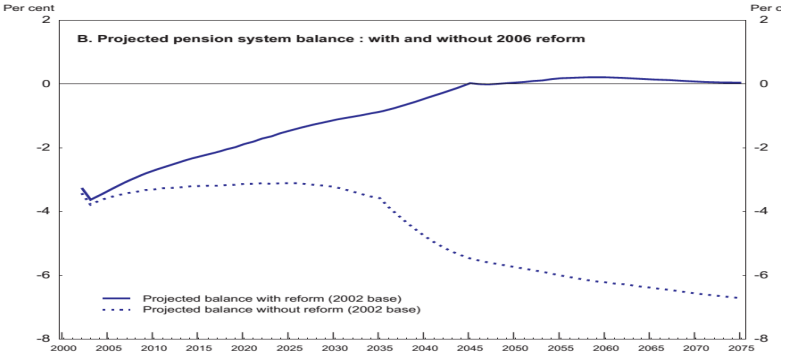
Table 10

Hierarchical Regression Analysis

	(1)	(2)	(3)	(4)	(5)
VARIABLES	FG	FR	OE	IS	FE
FG	0.216***	0.154*	0.120*	0.282**	0.186**
	(0.051)	(0.093)	(0.042)	(0.062)	(0.052)
FR		0.346***	0.143**	0.312*	-0.221***
		(0.165)	(0.232)	(0.119)	(0.145)
OE			0.123***	0.283**	0.143*
			(0.030)	(0.061)	(0.023)
IS				0.362***	0.241***
				(0.052)	(0.073)
FE					0.318**
					(0.054)
Constant	0.151***	0.106***	0.179***	0.221**	0.119***
	(0.21)	(0.32)	(0.33)	(0.76)	(0.42)
Observations	174	174	174	174	174
Adj. R-squared	0.092	0.172	0.378	0.394	0.423
Adj. R^2-Change	0.092	0.08	0.206	0.016	0.029
*, **, *** shows significance at 10%, 5% and 1% respectively.					

Figure 1

The effect of 2006 reforms on the growth of the pension system in Egypt



Source: Social Security Institutions.