BOĞAZIÇI UNIVERSITY

MASTER'S THESIS

Comparison of Welfare Effects of Default and Individualized Lifecycle Pension Investments in Turkey

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Comparison of Welfare Effects of Default and Individualized Lifecycle Pension Investments in Turkey

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Declaration of Authorship

I, Ravshanbek KHODZHIMATOV, declare that this thesis titled, "Comparison of Welfare Effects of Default and Individualized Lifecycle Pension Investments in Turkey" and the work presented in it are my own. I confirm that:

- This work was done wholly or mainly while in candidature for a research degree at this University.
- Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated.
- Where I have consulted the published work of others, this is always clearly attributed.
- Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work.
- I have acknowledged all main sources of help.
- Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself.

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Abstract

Department of Economics
The Institute for Graduate Studies in Social Sciences

Master of Arts in Economics

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by Ravshanbek KHODZHIMATOV

The Thesis Abstract is written here (and usually kept to just this page). The page is kept centered vertically so can expand into the blank space above the title too...

Özet

Turkiyedeki Standard ve Kisisellestirilmis Emeklilik Yatirimin Refaha etkilerinin kiyaslanmasi

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BIST30

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reidin

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Cholesky adjusted random series

In order to create K random series which are correlated exactly like K deterministic series we have in mind, we can multiply independent random variables with the Cholesky decomposed part of the deterministic series. To illustrate this, let Σ be a correlation matrix of matrix X consisting of variables $x_1, x_2, ..., x_K$. Obviously the matrix is symmetric and the diagonal consists of 1s. Let $\Sigma = LL'$ be a Cholesky decomposition of this matrix. Now, let Ω be a vector of K independent random variables $\epsilon_1, \epsilon_2, ..., \epsilon_K$ with variance 1. Consequently, the variance-covariance matrix of Ω is an identity matrix. Then we claim that the product $L\Omega$ has the same correlation structure as X. The proof is below:

$$
\begin{gathered}
cov(L\Omega) = E[(L\Omega)(L\Omega)'] = E[L\Omega\Omega'L'], \\
cov(L\Omega) = L \cdot E[\Omega\Omega'] \cdot L' = L \cdot var(\Omega) \cdot L', \\
cov(L\Omega) = L \cdot I \cdot L' = LL' = \Sigma
\end{gathered}
$$

Appendix B

Munk's mean-variance solution

Appendix C

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