Mahtab Karimi

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Education

Ph.D. in Economics 2025(expected)

University of Washington, Seattle, U.S.
Fields of Study: Finance, Empirical Industrial Organization

Dissertation:

From Shares to Shields: The Role of Employee Ownership in Mitigating Data Breach Risks

M.SC. in Economics 2019

Sharif University of Technology, Tehran, Iran

Dissertation:

Transmission of U.S. Monetary Shocks and Policy Trade-offs in Open Economies

B.SC. in Computer Science 2016

Sharif University of Technology, Tehran, Iran
Minor Field of Study: Mathematics

Final Project:

Modeling and Simulation of Social Media Adoption Following the Introduction of a New Platform in Society

Research Interest

Empirical corporate finance, cybersecurity, stock-based compensation, AI applications in corporate settings

Job Market Paper

From Shares to Shields: The Role of Employee Ownership in Mitigating Data Breach Risks 2024

Causal inference, Staggered difference-in-difference, Matching, BERT models, NLP

Employees have a comparative advantage in monitoring their peers and other employees—an advantage that managers and executives do not have. I call this mutual monitoring and investigate whether it can protect firms from risks where a small mistake by one individual could cause significant harm, such as data breaches. To explore this, using AI(BERT models), I conduct a comprehensive textual analysis to identify distinct data breach incidents reported by the same firm. I then examine how the ratio of active participants in employee stock ownership plans (ESOPs) to total employees (the active ratio) affects the probability of a data breach incident. My findings indicate that a higher active ratio is associated with a lower probability of such incidents. Moreover, by analyzing the extensive and intensive margins of ESOP ownership, I find that two firms with the same ESOP value per employee can experience different levels of protection against data breaches due to variations in their active ratio; the distribution of ESOP assets within the firm matters in protecting against data breach incidents. Next, using a staggered differencein- differences model, I analyze how the first noticeable data breach in an industry impacts the active ratio of peer firms within the same industry. I find that ESOP firms increase their active ratio by 3 to 4 percentage points following the industry shock, driven by a 7 to 10 percent increase in the number of ESOP owners within those firms. Notably, this change remains persistent after excluding financial firms and industry shocks coinciding with the years 2007 and 2008.

Published Work & Working Papers

The Role of Target Firm Non-executive Employees' Information in M&As 2023

Transmission of U.S. Monetary Shocks and Policy Trade-offs in Open Economies 2020

Pension Funds Governance: Issues and Challenges 2018

Joint work with Prof. A. Ebrahimnejad

Professional Experience

Political Risk and Stock Markets *Winter 2022-Fall 2022*
Research Assistant

Pension Funds Investment and Governance *Spring 2018-Fall 2018*
Data Analyst and Research Assistant

Welfare Effects of Air Pollution *Winter 2018*
Research Assistant

- Developed a Python algorithm to process and analyze news content for research on political risk in stock markets.
- Extracted and analyzed a sample of 1,000 news articles using sentiment analysis techniques.
- Designed a regulatory framework for pension fund governance and analyzed 40 years of investment trends. Researched global pension systems to identify best practices for comparative analysis.
- Contributed to the design of a market-based policy to reduce air pollution in Tehran through extensive literature reviews and policy evaluations.

Skills

Computer Languages
Expert: Python, R, Stata — Advanced: SQL, MATLAB, Java.

AI
Large Language Models (BERT), Fine tuning

Skills in Progress
Decentralized Finance (DeFi), Fintech, and Blockchain

Teaching Experience

Independent Instructor

Introduction to Macroeconomics	*Summer 2022*
Introduction to Microeconomics	*Winter 2023*
Math Camp instructor for Ph.D. students	*Sep 2021*
Logical Circuits	*Winter 2015*
Algorithms and Problem Solving Laboratory	*Winter 2013-Spring 2014*

Teaching Assistant

Corporate and Intellectual Property Law	*Winter 2024 and 2025*
PhD-level Microeconomics Analysis III: Contract Theory	*Spring 2022*
PhD-level Microeconomics Analysis II: Game Theory	*Winter 2021*
PhD-level Microeconomics Analysis I	*Fall 2021*
Business Analytics: Pricing Analytics in R	*Spring 2022*
Investment, Capital and Finance	*Spring 2021*
Microeconomics I	*Fall 2018*
Financial Economics I	*Spring 2018*
Human-Centered Data Science, Master of Data Science (in Python)	*Fall 2023 and 2024*
Statistical Inference in Applied Research in R	*Spring 2023*

Activities & Awards

Hired for Data Analyst I Role, Sustainability Science and Innovation Team, Amazon *2021*
(Unable to proceed due to CPT restrictions)

Attended: UW Foster Summer Finance Conference	*Summer 2022*
Attended: Foster Pacific Northwest Finance Conference	*Fall 2022*
Presented: Ph.D. Seminar, Foster School of Business	*Fall 2024*
Presented: Brownbag Seminar, Department of Economics, UW	*Fall 2024*
Presented: Global Innovation Exchange Program, UW	*Winter 2024*
James K. & Viola M. Hall Fellowship	*2019*
James O. York Fellowship	*2019*

REFERENCES

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Abstracts of published works and working papers

The Role of Target Firm Non-executive Employees' Information in M&As

- In this work, I explore whether a firm looking for a takeover target can use a target firm's non-executive information as a signal of the potential worthiness of the acquisition. Specifically, I use the stock purchased by rank-and-file employees in the Employee Stock Purchase Plan (ESPP) of the target firm as the signal. Utilizing a novel dataset of all public target firms' ESPP purchases since 2000, I find that the acquirer's abnormal return at merger and acquisition (M&A) announcements increases with the target firm's non-executive ESPP purchase ratio. Furthermore, acquisition synergies, measured as the acquirer-target combined cumulative abnormal returns at M&A announcements, also increase with the target's non-executive ESPP purchase ratio. However, I do not find a significant effect of the target's ESPP purchase ratio on the deal premium. Overall, my findings suggest that valuable information held by non-executives of a target firm, prior to the M&A announcement, to some extent serves as a credible signal for acquisition outcomes.

Pension Funds Governance: Issues and Challenges

- The Iranian pension system has faced multiple challenges and significant deficits over the past years. This has made the pension system reform a top priority and improving the governance of pension funds is increasingly recognized as an important element of such reform. This paper highlights the main differences between the effectiveness of internal and external corporate governance mechanisms in corporations and pension funds. We argue that the typical external governance mechanisms that help align the interest of managers and main stakeholders, namely shareholders, in corporations, are not applicable in the context of pension funds. As a result, the governance of pension funds mostly relies on internal governance mechanisms and, in particular, the board of trustees. We offer tentative thoughts and solutions about the structure of the board of trustees and other internal governance mechanisms.

Transmission of U.S. Monetary Shocks and Policy Trade-offs in Open Economies

- Klein and Shambaugh (2015) explore the impossible trinity by analyzing how interest rate transmission differs across countries with varying exchange rate systems and capital flow restrictions. They argue that the significant differences in transmission coefficients among these groups support the trilemma. However, the accuracy of their results depends on the equality of covariances between unobservable factors and interest rate changes across the compared groups. To address potential bias and the global influence of the U.S. economy, this study replaces base-country interest rate changes with exogenous U.S. shocks estimated around FOMC meetings. The findings reveal that mid-open capital control systems can effectively limit the transmission of U.S. monetary shocks, with countries using floating exchange rate systems being less impacted compared to those with fixed systems. Unlike Klein and Shambaugh, this study does not find evidence that semi-fixed exchange rate systems offer similar protection, but it confirms that long-term capital controls can shield countries from external shocks.