

## Research Insights on Financial Regulation and Supervision

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## Objective of Regulation & Supervision

- **Objective of Regulation & Supervision:**
  - ➔ maximize social welfare.
- For Insurance & Pensions specifically, they aim to:
  - Protect Policyholders and Pension Beneficiaries.
  - Monitor insurer solvency and pension plan funding.
  - Monitor Executive Risk-taking incentives and their decisions.
  - Maintain Financial Stability.
  - Promote fairness and transparency.

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## My Research & Public Policy Implications

- Main Topics of my presentation today are:
  1. Compensation incentives for top executives,
  2. Risk-taking decisions and conflicts of interest,
  3. Discretion that regulated entities have,
  4. Exogenous shocks impacting executive decisions.
- And also to
  1. Invoke discussion and
  2. Make Public Policy Recommendations about Insurance & Pension Supervision.

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### Paper 1:

**Do U.S. Insurance Firms Offer the “Wrong”  
Incentives to Their Executives?**

**Journal of Risk & Insurance, 2011.**

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**Journal of Risk and Insurance** 




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**Do U.S. INSURANCE FIRMS OFFER THE “WRONG” INCENTIVES TO THEIR EXECUTIVES?**

Andreas Milidonis, Konstantinos Stathopoulos

First published: 13 May 2011 | <https://doi.org/10.1111/j.1539-6975.2011.01418.x> | Citations: 22


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**ABSTRACT**

We examine the relation between executive compensation and market-implied default risk for listed insurance firms from 1992 to 2007. Shareholders are expected to encourage managerial risk sharing through equity-based incentive compensation. We find that long-term incentives and other share-based plans do not affect the default risk faced by firms. However, the extensive use of stock options leads to higher future default risk for insurance firms. We argue that this is because option-based incentives induce managerial risk-taking behavior, which seeks to maximize managerial payoff through equity volatility. This could be detrimental to the interests of shareholders, especially during a financial crisis.

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## Major Concepts Explained

- **Default Risk:** Risk of not meeting financial obligations.
- **Executive Compensation Structure:**
  - Cash
  - Bonus
  - Stock Options:
    - Encourage short-term risk-taking.
  - Restricted Shares:
    - Encourage long-term viability of firm.

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## Executive Summary

- **Research Question:**

Is CEO pay structure related to insurance default risk?

- **Results:**

- Stock options → higher default risk.
- Restricted shares → no increase in default risk.

- **Conclusion:** Some executive compensation structures can promote excessive risk-taking.

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## Public Policy & Financial Stability Implications

- CEO incentives can impact solvency.
- Encourage disclosure of compensation structures.
- Recommend shift toward long-term executive rewards (e.g. restricted shares).

### Food for thought

- Does Insurance supervision assess executive pay as a risk factor?
- What do we do in Cyprus about this?
- Also, where can I access similar data for Cyprus?

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## Paper 2:

# Actuarial Independence and Managerial Discretion.

Journal of Risk & Insurance, 2016.

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Journal of Risk  
and Insurance



Original Article

### Actuarial Independence and Managerial Discretion

Shinichi Kamiya, Andreas Milidonis

First published: 12 December 2016 | <https://doi.org/10.1111/jori.12199> | Citations: 14

#### Abstract

Appointed actuaries are responsible for estimating the largest liability on property–casualty insurance companies' balance sheet. Actuarial independence is crucial in safeguarding accurate estimates, where this independence is self-regulated by actuarial professional institutions. However, professional conflicts of interest arise when appointed actuaries also hold an officer position within the same firm, as officer actuaries also face managerial incentives. Using a sample of U.S. insurers that employ in-house appointed actuaries from 2007 to 2014, we find evidence that officer actuaries have different reserving practices than nonofficer actuaries. This difference in reserving is associated with tax shielding and earnings management incentives. Results are consistent with managerial discretion dominating actuarial independence; they are economically significant and should be of concern to regulators and professional institutions.

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## Actuaries, Insurance Reserves & Financial Stability

### Definition of an Officer Actuary:

- **Officer actuaries** are in-house actuaries who also hold an executive position within their companies, such as Chief Actuary, or Chief Financial Officer, etc.
- **Officer Actuaries** are responsible not only for actuarial assessments but also for strategic decision-making and management of the company's operations.
- **Dual role can create potential conflicts of interest**, as the individual may face pressure to align actuarial judgments with broader corporate objectives.

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## Actuaries, Insurance Reserves & Financial Stability

### What are Insurance Reserves and their Importance?


- **Insurance Reserves:**
  - largest liabilities on insurance balance sheet.
  - set aside to cover future claims from policyholders.
  - Correlate with Insurer solvency and financial stability.
- **Under-reserving means:**
  - Keeping Insufficient funds to pay claims,
  - Endangers insurer solvency
- **BUT!**

**Under-reserving** ➡ **Increases Earnings.**

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## Executive Summary

- Officer Actuaries tend to  under-reserve.
- This suggests that the potential conflict-of-interest between actuarial integrity and managerial discretion, leads to sub-optimal decisions.
- **Result:** The conflict of interest that Officer Actuaries face, is associated with distorted financial statements, which might adversely affect policyholder security.

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## Public Policy & Financial Stability Implications

- Under-reserving could weaken solvency.
- Countries like UK and Canada prohibit dual-role actuaries.

### Food for thought

- Actuaries are self-regulated in most countries around the world. Is this effective?
- Even if actuaries are self-regulated, this happens within the supervisory framework of each country.
- Also, where can I access similar data for Cyprus?

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## Paper 3:

# CEO Inside Debt and Risk Taking: Evidence From Property–Liability Insurance Firms

**Journal of Risk & Insurance, 2017.**

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**Journal of Risk  
and Insurance**



Original Article

## CEO Inside Debt and Risk Taking: Evidence From Property– Liability Insurance Firms

Andreas Milidonis, Takeshi Nishikawa, Jeungbo Shim

First published: 21 July 2017 | <https://doi.org/10.1111/jori.12220> | Citations: 27

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### Abstract

We examine the incentive effects of CEO inside debt holdings (pensions and deferred compensation) on risk taking using the sample of U.S. publicly traded property–liability insurers. To represent managerial risk taking, we employ value at risk (VaR) and expected shortfall (ES), which capture extreme movements in the lower tail of insurer stock return distribution. We also estimate firm default risk, equity volatilities, and insurance-related risk as alternative measures of risk taking. We document that inside debt represents a significant component of CEOs' compensation in the insurance industry. We find that there is a significant and negative relationship between CEO inside debt holdings and risk-taking behavior. The results suggest that the structure of executive debt-like compensation could be a potential method of reducing managers' risk-taking incentives.

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## Major Concepts Explained

- **“Inside Debt”** = Deferred compensation like pensions and retirement packages.
- **Strong Risk-taking incentives** = Compensation package provides strong incentives (high “vega”) to increase short-term risk.
- **High “inside debt”** for CEOs, implies that CEOs prefer **conservative (i.e. low risk) strategies** to protect future payouts.

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## Executive Summary

- CEOs with more “Inside debt”  take less risk.
- “Inside debt” aligns CEO interests with debtholders, not just shareholders.
- CEOs with more “Inside Debt”  reduce
  - firm default risk,
  - firm stock return volatility
  - insurance-related risk.

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## Public Policy & Financial Stability Implications

- Inside debt can serve as a risk-control tool.
- Useful for regulators evaluating insurer solvency and risk alignment.

### Food for thought

- In the US, regulators rarely assess the structure of executive pay as a risk-control mechanism.
  - What about Cyprus?
- Also, where can I access similar data for Cyprus?

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## Paper 4:

### **Analyst coverage, Executive compensation & Corporate Risk-taking:**

Evidence from property–casualty insurance firms.

**Journal of Risk & Insurance, 2023.**

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**Journal of Risk and Insurance**


ORIGINAL ARTICLE

**Analyst coverage, executive compensation and corporate risk-taking: Evidence from property–casualty insurance firms**

Tao Chen, Shinichi Kamiya, Pingyi Lou, Andreas Milidonis 


First published: 18 July 2023 | <https://doi.org/10.1111/jori.12437> |  
 JEL classification: G22, G32

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**Abstract**

Using an exogenous drop in analyst coverage introduced by broker closures and mergers, we test for the causal impact of analyst coverage on corporate risk-taking, in an opaque industry. We document an increase in risk using several book-based and market-based risk measures, including tail and default risk measures. Results are driven by firms with stronger managerial risk-taking compensation incentives. The increase in risk is stronger in more opaque firms, and firms with weaker policyholder monitoring. Firm risk increases through at least one risk-taking action, such as investing firm assets in higher-risk bonds. Our study highlights the importance of stock analysts in affecting corporate risk-taking, especially in the presence of stronger managerial, compensation risk-taking incentives.

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## Main concepts explained

- **Analyst Coverage** = Financial analysts cover all developments related to a specific firm and produce a forecast every quarter about their earnings.
- **CEO Strong Risk-taking incentives** = CEO Compensation package provides strong incentives (high “vega”) to increase short-term risk.
- **Opaqueness** = Difficulty in assessing a firm’s true risk or financial condition.

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## Executive Summary

- Study shows that when insurers lose analyst coverage,  
 they take more risk.
- Analysts serve as informal monitors — their absence  
 reduces external scrutiny.
- Risk-taking increases more in firms  
 with opaque structures and  
 CEOs with strong risk-taking incentives.

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## Public Policy & Financial Stability Implications

- Analyst coverage complements formal regulation by disciplining executives.
- When coverage drops, risk rises — especially where internal monitoring is weak.
- **Policy:** Stronger disclosure, board oversight, and alternative third-party monitoring in thin markets.

### Food for thought

- Who serves as the external monitor for insurers in Cyprus?
- Also, where can I access similar data for Cyprus?

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## Paper 5:

# Pension underfunding and the expected return on pension assets:

The impact of the 2008 financial crisis.

**Journal of Risk & Insurance, 2025.**

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ORIGINAL ARTICLE | [Full Access](#)

**Pension underfunding and the expected return on pension assets: The impact of the 2008 financial crisis**

Alexander Michaelides, Andreas Milidonis ✉ Panayiotis Papakyriakou

First published: 02 March 2025 | <https://doi.org/10.1111/jori.70003> | JEL classification: G11, G23, G32

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### Abstract

We use the 2008 crisis as an exogenous shock to the pension funding status of U.S. corporate defined benefit (DB) pension plans to examine its impact on the assumption of the expected return on pension assets (*ER*). Contrary to prior literature, we find that DB pension plans transitioning from funded to underfunded status make expense-reducing assumptions by increasing their *ER*. We also document that the *ER* manipulation is larger for plans whose funding after 2008 drops significantly. The funding deterioration conservatively generates a 28–79 basis points increase in *ER*, reducing the pension accounting expense by about 5.23%–14.76% (\$3.49 to \$9.85 million). Our results are robust to controlling for the shock induced by the global financial crisis on corporate performance and other potential channels affecting *ER*.

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## Pension Plans & Assumptions

- **Defined Benefit (DB) Plan** = Employer promises fixed retirement income.
- **Expected Return on Assets (EROA)** = Assumed Annual Gain on pension assets.
- **Inflated EROA:**
  - lowers pension expense (but no change on funding).
  - increases earnings.
  - makes the company “look” more attractive.

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## Executive Summary

- **We use the 2008 crisis as an exogenous shock to test impact on Pension assumptions.**
- After 2008, many DB pension plans became underfunded.
- Firms responded by raising expected return on pension assets (EROA).
- **Inflating EROA:**
  -  reduces pension expenses,
  -  increases company earnings.

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## Public Policy & Financial Stability Implications

- Firms can manipulate EROA to reduce reported expenses.
- Policy recommendation: align rules, cap assumptions, enhance disclosure and audit scrutiny.

### Food for thought

- In periods of crisis, pension assumptions are likely to be manipulated, especially by companies who are under extreme stress (such a significant decrease in their funding ratios).
- It is important for regulators to follow request justification of significant changes in such assumptions.

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## Public Policy Recommendations for Cyprus

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## Insurance (and Pensions) Supervision in Cyprus vs. EIOPA members

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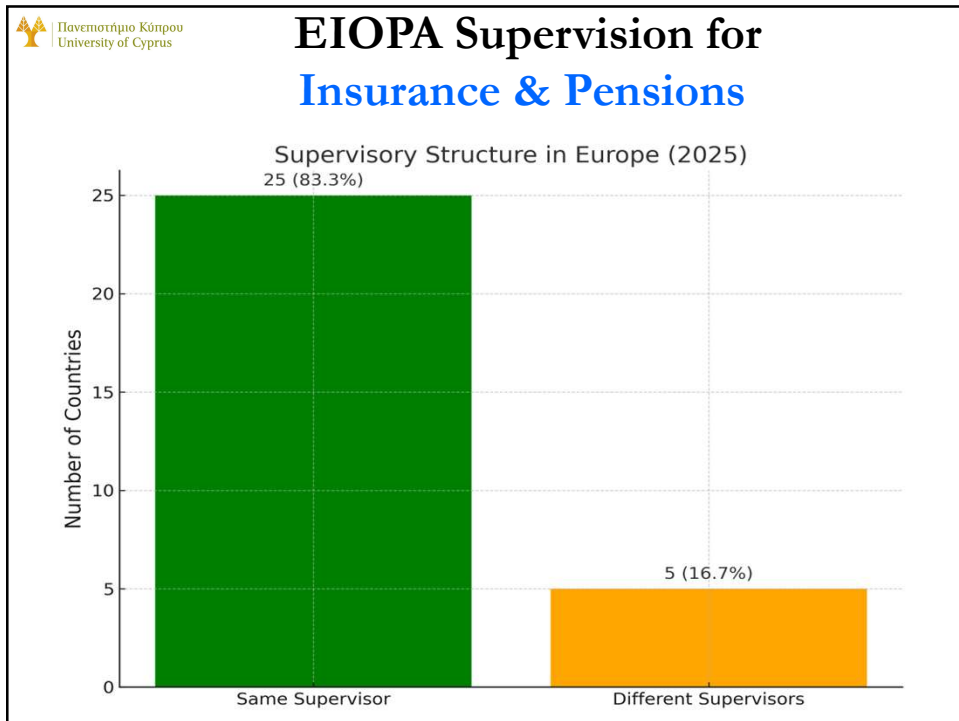
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<h3 style="margin: 0;">EIOPA Supervision for Insurance &amp; Pensions</h3>			
Country	Insurance Supervisor	Pension Supervisor	Same Supervisor?
1	Austria Financial Market Authority (FMA)	same	TRUE
2	Belgium Financial Services and Markets Authority (FSMA)	same	TRUE
3	Bulgaria Financial Supervision Commission (FSC)	same	TRUE
4	Croatia Croatian Financial Services Supervisory Agency (HANFA)	same	TRUE
5	<b>Cyprus</b> Insurance Companies Control Service (ICCS)	Registrar of Institutions for Occupational Retirement Provision	FALSE
6	Czech Republic Czech National Bank (CNB)	same	TRUE
7	Denmark Danish Financial Supervisory Authority (Finanstilsynet)	same	TRUE
8	Estonia Estonian Financial Supervision Authority (Finantsinspektsioon)	same	TRUE
9	Finland Financial Supervisory Authority (FIN-FSA)	same	TRUE
10	France Autorité de Contrôle Prudentiel et de Résolution (ACPR)	same	TRUE
11	Germany Federal Financial Supervisory Authority (BaFin)	same	TRUE
12	Greece Bank of Greece	same	TRUE
13	Hungary Central Bank of Hungary (MNB)	same	TRUE
14	Iceland Central Bank of Iceland	same	TRUE
15	Ireland Central Bank of Ireland (CBI)	The Pensions Authority	FALSE

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 <b>EIOPA Supervision for Insurance &amp; Pensions</b>				
Country	Insurance Supervisor	Pension Supervisor	Same Supervisor?	
16	Italy	IVASS	Pension Funds Supervisory Commission	FALSE
17	Latvia	Financial and Capital Market Commission (FCMC)	same	TRUE
18	Liechtenstein	Financial Market Authority (FMA)	same	TRUE
19	Lithuania	Bank of Lithuania	same	TRUE
20	Luxembourg	Commissariat aux Assurances (CAA)	same	FALSE
21	Malta	Malta Financial Services Authority (MFSA)	same	TRUE
22	Netherlands	De Nederlandsche Bank (DNB)	same	TRUE
23	Norway	Financial Supervisory Authority of Norway (Finanstilsynet)	same	TRUE
24	Poland	Polish Financial Supervision Authority (KNF)	same	TRUE
25	Portugal	Portuguese Insurance and Pension Funds Supervisory Authority	same	TRUE
26	Romania	Romania Insurance and Pension Funds Supervisory Authority	same	TRUE
27	Slovakia	National Bank of Slovakia (NBS)	same	TRUE
28	Slovenia	Insurance Supervision Agency (AZN)	Securities Market Agency (ATVP)	FALSE
29	Spain	Directorate-General for Insurance and Pension Funds (Spain)	same	TRUE
30	Sweden	Swedish Financial Supervisory Authority	same	TRUE


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## Policy Recommendations for Cyprus (1/5)

- Insurance and Pensions have a long maturity horizon.
- Similar horizon should be in place for their supervision.
- **At least 80% of EIOPA members supervise Insurance and Pensions under one roof.**
- In Cyprus: **supervision is split between two Ministries of the Government.**  **Why?**

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## Policy Recommendations for Cyprus (2/5)

**Ideal Scenario: Independent Authority to Supervise both  
Insurance & Pensions.**

**Stockwatch:**  
26/4/2021



Ερ.: Κατά καιρούς τέθηκε επιτακτικά η ανάγκη για ανεξαρτητοποίηση του θεσμού του Εφόρου Ταμείων Επαγγελματικών Συνταξιοδοτικών Παροχών. Διαφαίνεται ότι ένα από τα εμπόδια είναι η αντίθετη άποψη του συνδικαλιστικού κινήματος. Ανεξάρτητα αυτών, γιατί επιβάλλεται η ανεξαρτησία του θεσμού αυτού που βρίσκεται επί δεκαετίες κάτω από την ομπρέλα του Υπουργείου Εργασίας, Πρόνοιας και Κοινωνικών Ασφαλίσεων;


Απ.: Η σύντομη απάντηση είναι ότι χρειάζεται μακροπρόθεσμος σχεδιασμός σε θέματα συντάξεων και ασφαλιστικών προϊόντων, ιδιαίτερα στον κλάδο ζωής, αφού, τόσο οι συντάξεις, όσο και οι ασφάλειες, έχουν μακροπρόθεσμο ορίζοντα εκπλήρωσης.

Αντιθέτως, ο βραχυπρόθεσμος σχεδιασμός που χαρακτηρίζει το υφιστάμενο σύστημα, όχι μόνο δεν συνάδει με το πιο πάνω πλαίσιο, αλλά δεν φαίνεται να τυγχάνει της δέουσας εμπιστοσύνης από τους πολίτες, σύμφωνα και με σχετικές έρευνες αξιοπιστίας της Stockwatch.

Θα έλεγα ότι αυτός είναι ο κύριος λόγος που **χρειάζεται η σύσταση νέας, Ανεξάρτητης Εποπτικής Αρχής για τον συνταξιοδοτικό και τον ασφαλιστικό τομέα, η οποία να λειτουργεί με καθαρά τεχνοκρατικά κριτήρια** κάτω από την ομπρέλα της Ευρωπαϊκής Ένωσης.

Συνεπώς θεωρώ ότι η δημιουργία ενός τέτοιου ανεξάρτητου θεσμού, θα ενισχύσει την εμπιστοσύνη των πολιτών στον τομέα ασφάλισης και συντάξεων αυξάνοντας την τάση μακροχρόνιας αποταμίευσης, που επίσης πάσχει στην Κύπρο σε σχέση με την Ε.Ε.


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## Policy Recommendations for Cyprus (3/5)

**2<sup>nd</sup> Best Scenario:** Insurance and Pension Supervision could go under the **Central Bank of Cyprus**.

**Stockwatch:**  
26/4/2021




**Ερ.:** Ποια πρέπει να είναι η διαδικασία διορισμού και στελέχωσης των στελεχών αυτής της ανεξάρτητης αρχής; Αυτή θα γίνεται από το εκάστοτε υπουργικό συμβούλιο ή τον εκάστοτε υπουργό Οικονομικών; Ποιος θα διορίζει έφορο και διευθυντές της αρχής, δεν θα μιλάμε για διάβρωση της ανεξαρτησίας του θεσμού; Η βουλή θα πρέπει να έχει ρόλο;

**Απ.:** Η νέα εποπτική αρχή θα πρέπει να είναι πάνω από όλα ανεξάρτητη. Πρέπει επίσης να έχει βαθιά γνώση στους κλάδους ασφάλισης και συντάξεων, όπως επίσης και σε θέματα που απασχολούν γενικά τον χρηματοπιστωτικό τομέα όπως την καταπολέμηση βρόμικου χρήματος. Πρέπει επίσης να έχει δύναμη και να δεσμεύεται από το αντίστοιχο ευρωπαϊκό θεσμικό πλαίσιο.

**Πιστεύω ότι μια τέτοια αρχή θα μπορούσε να δημιουργηθεί εντός της Κεντρικής Τράπεζας για τους πιο κάτω λόγους:**

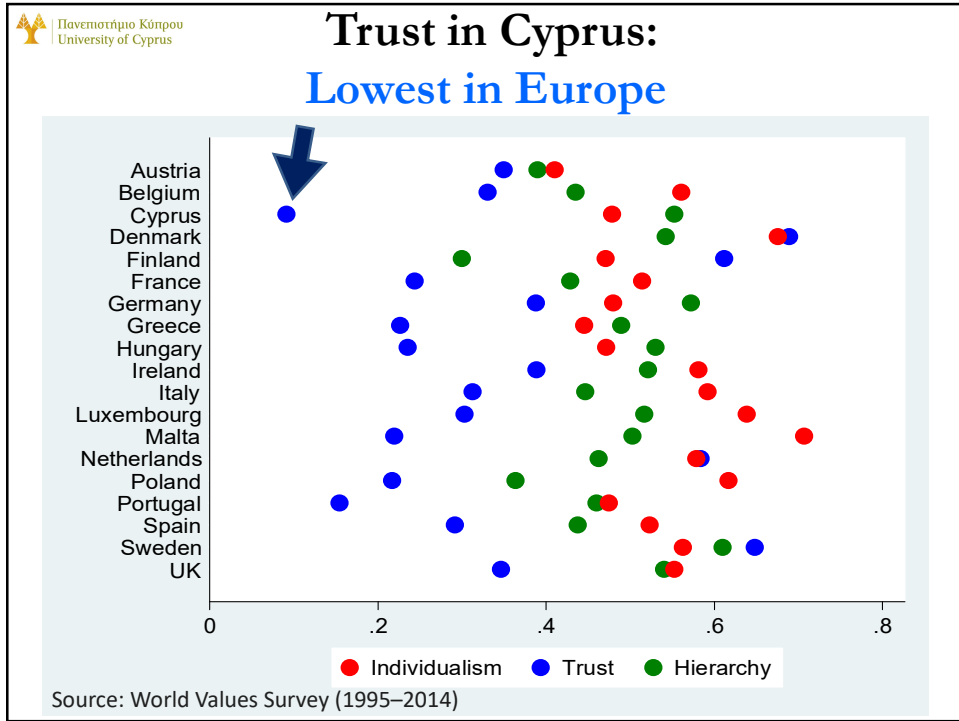
- Είναι ένας από τους ανεξάρτητους θεσμούς στην Κύπρο που δεσμεύεται από ένα πολύ δυνατό Ευρωπαϊκό θεσμικό πλαίσιο.
- Υπάρχει ήδη μεγάλη τεχνογνωσία και υποδομή που μπορεί να χρησιμοποιηθεί (Οικονομίες κλίμακας).
- Από τις 31 χώρες που συμμετέχουν στο ΕΑΑΕΣ, πάρα πολλές χώρες ήδη συμμετέχουν μέσω της Κεντρικής τους Τράπεζας.
- Η Κεντρική Τράπεζα είναι μέρος του Ευρωσυστήματος που προσφέρει τεχνογνωσία σε θέματα όπως την καταπολέμηση βρόμικου χρήματος, για να καλύψει επίσης και τους κλάδους ασφάλισης και συντάξεων.

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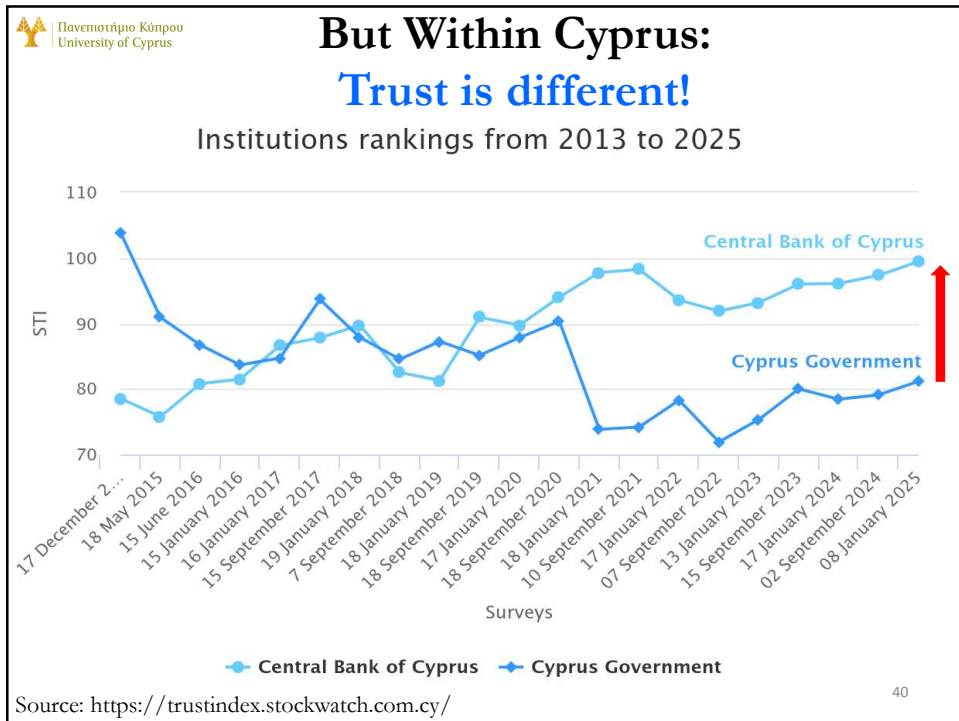
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## Why Central Bank of Cyprus for Insurance and Pension Supervision?

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## Why Supervision at the Central Bank of Cyprus?

1. It is an independent institution.
2. The Trust Index of the Central Bank has an upward trajectory, is higher than the respective index of the Government and it is also less volatile.
3. There is already significant expertise and infrastructure that can be utilized (economies of scale).

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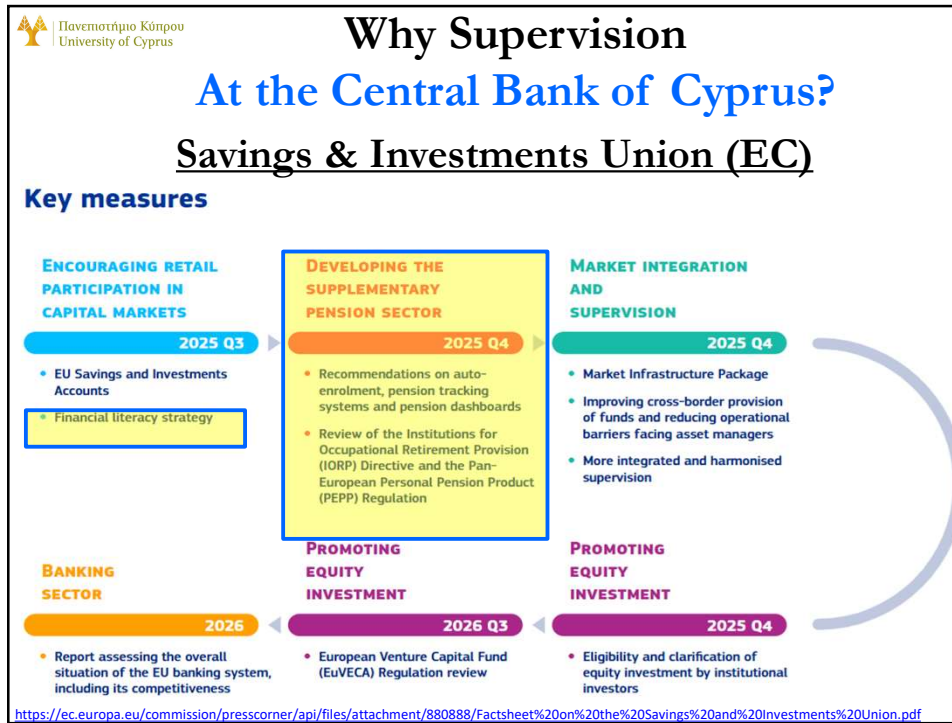
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## Why Supervision At the Central Bank of Cyprus?

4. It is part of the Eurosystem, which provides expertise in areas, such as anti-money laundering.
5. Some large insurance companies belong to banks.
6. Forthcoming “Savings & Investments” Union:
  - Exposes consumers to investment risk through their insurance and pension products.
  - **Financial Literacy** Initiative is led by the Central Bank.

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## Policy Recommendations for Cyprus (5/5)

- Increase Transparency:

5. Make investment returns publicly available and comparable for insurance and pension products.
6. Make Charges and Fees by Insurance companies and Pension Funds publicly available and comparable.
7. Publish Data on Corporate Governance, Organizational Structure and Compliance.

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## Questions?

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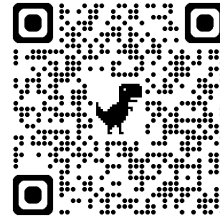
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## Thank you

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