



Division of Economic and Risk Analysis



SEC Speaks
September 9, 2022

U.S. Securities and Exchange Commission

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Psychology and Finance



Chyhe Becker, Ph.D.
Deputy Director



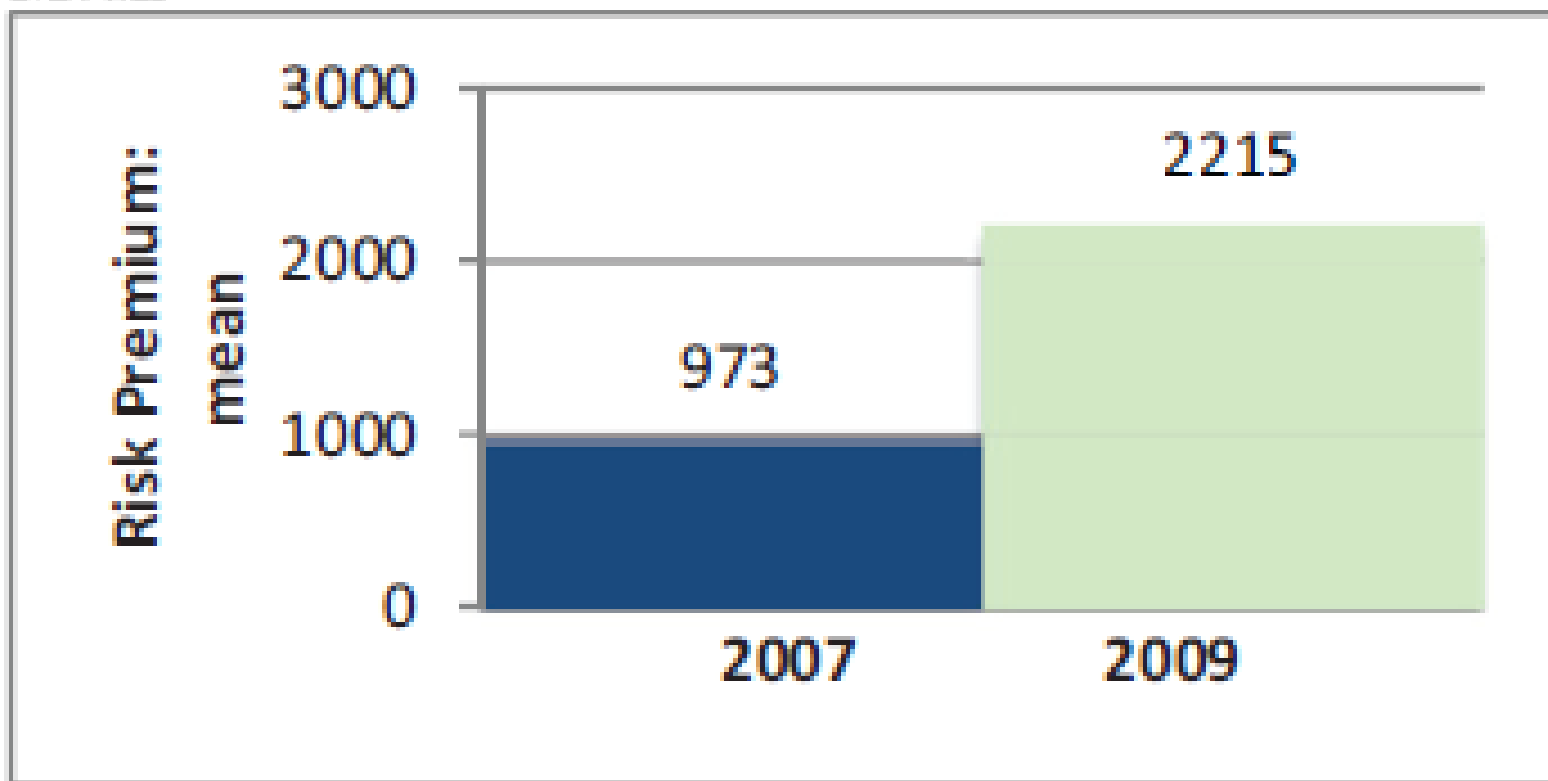
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Investment depends on experience

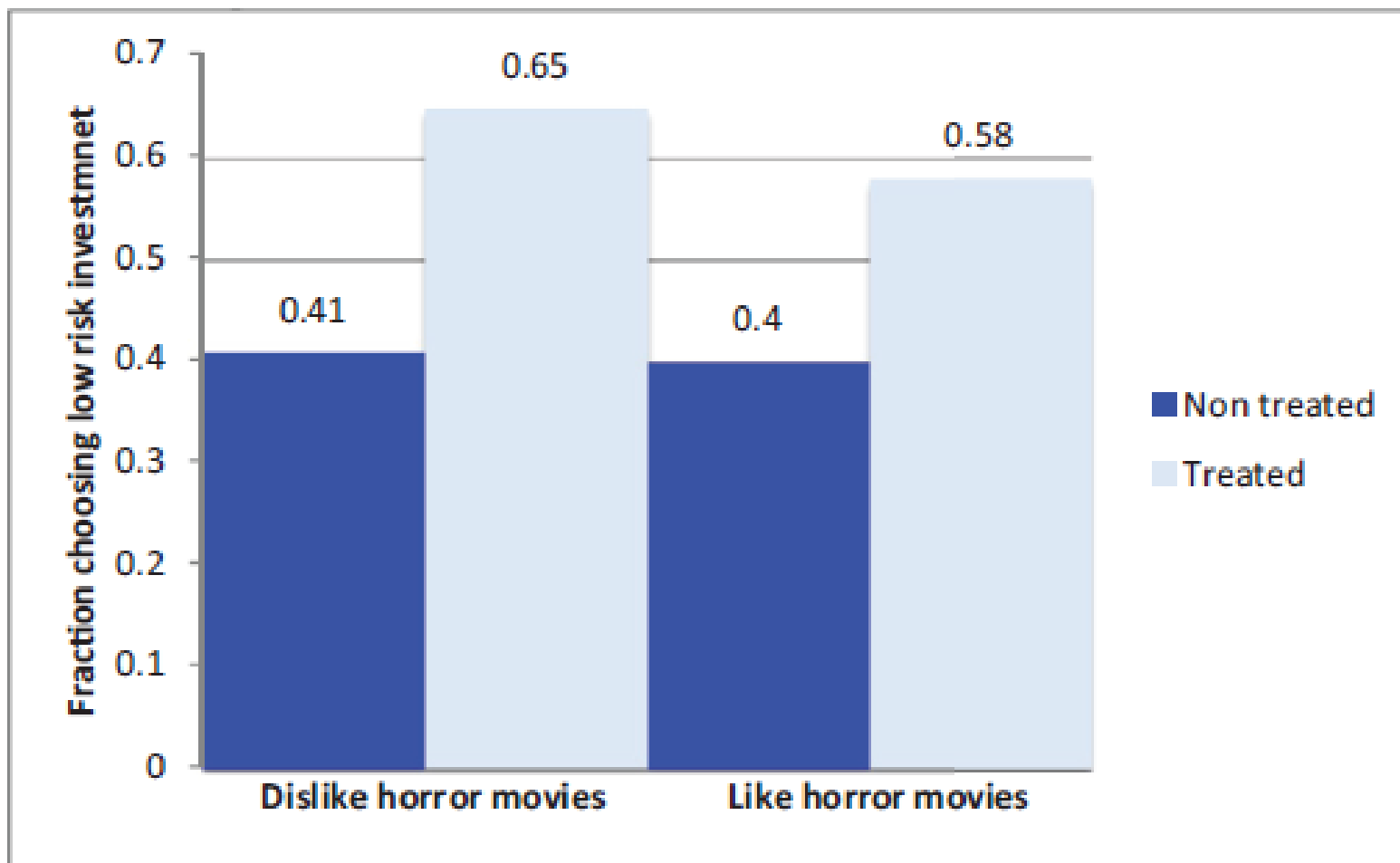
	<u>Hypothetical 40% Loss Experience</u>	
	<u>30 year olds</u>	<u>60 year olds</u>
Stock market participation rate	-7%	-3.50%

After the financial crisis, risk aversion increases



Guiso, L.; Sapienza, P., Zingales, L.; *Time varying risk aversion*; Journal of Financial Economics, Volume 128, Issue 3 (2018), pp. 403-421.

After a horror movie, risk aversion increases

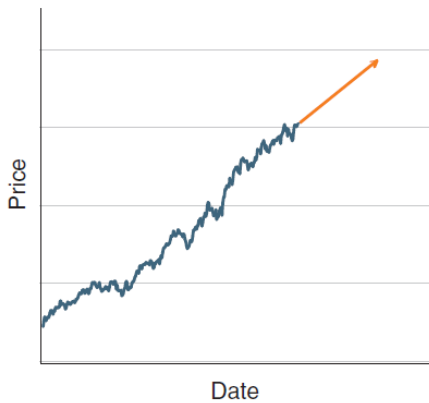


Guiso, L.; Sapienza, P., Zingales, L.; *Time varying risk aversion*; Journal of Financial Economics, Volume 128, Issue 3 (2018), pp. 403-421.

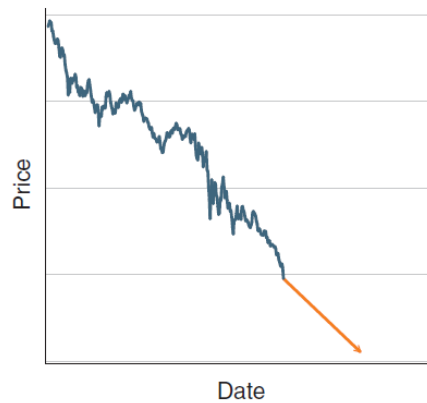
Pictures of boom vs bust affects investments

Treatment Pictures

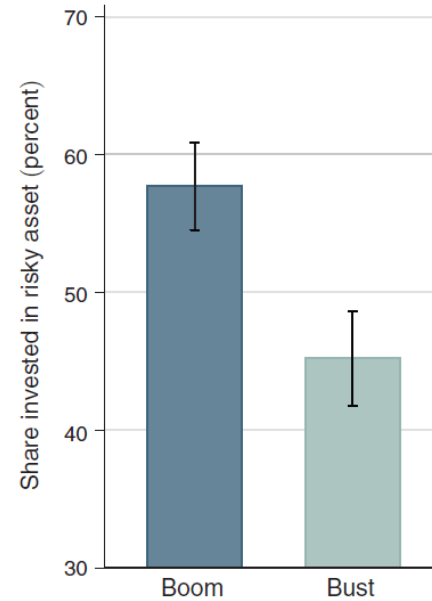
Panel A. Treatment Boom



Panel B. Treatment Bust



Effect



Evidence for Countercyclical Risk Aversion: An Experiment with Financial Professionals, aeaweb.org, pp. 866, 868.

Why Digital Identifiers?



Mike Willis
Associate Director
Office of Data Science and Innovation

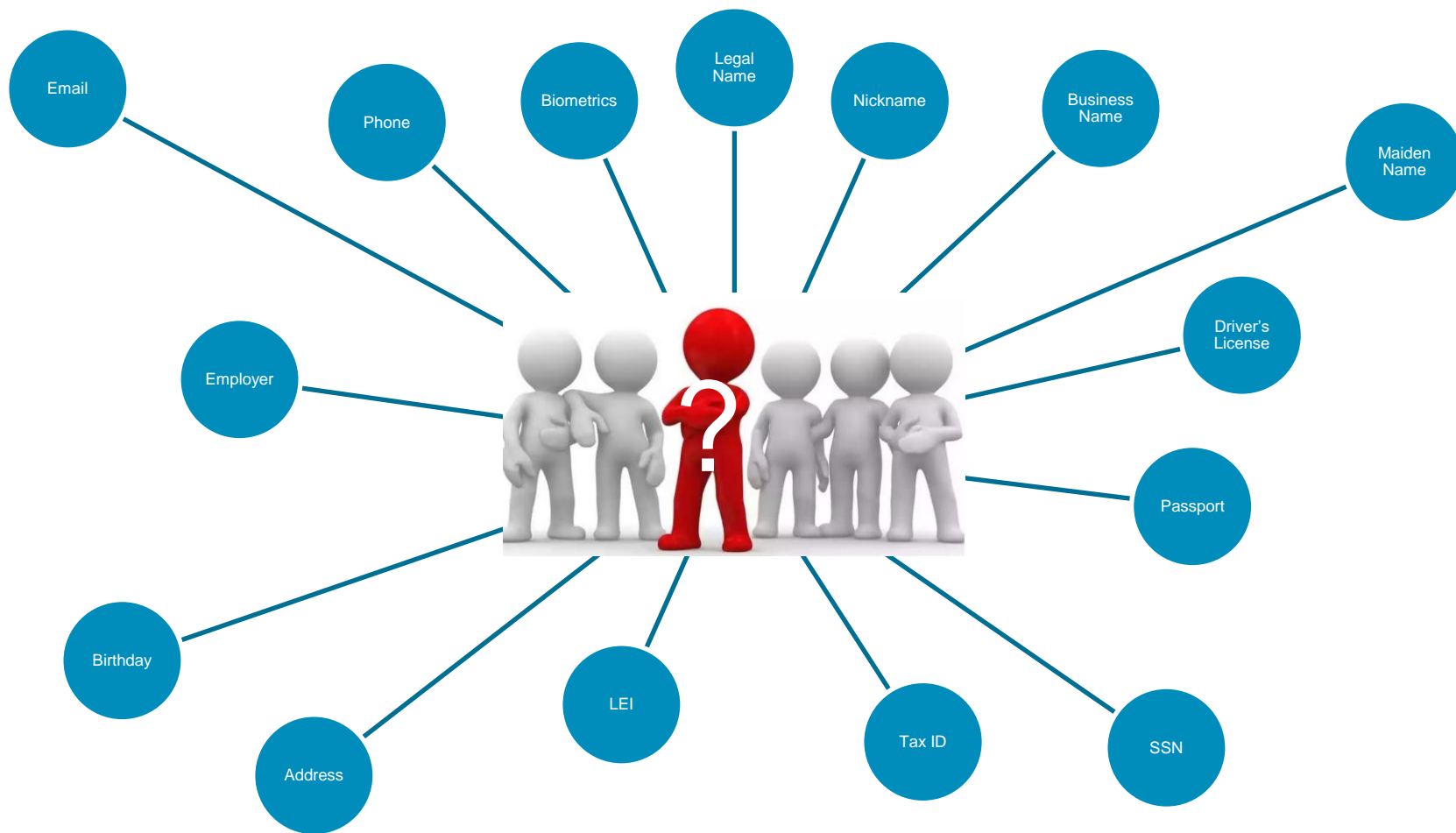


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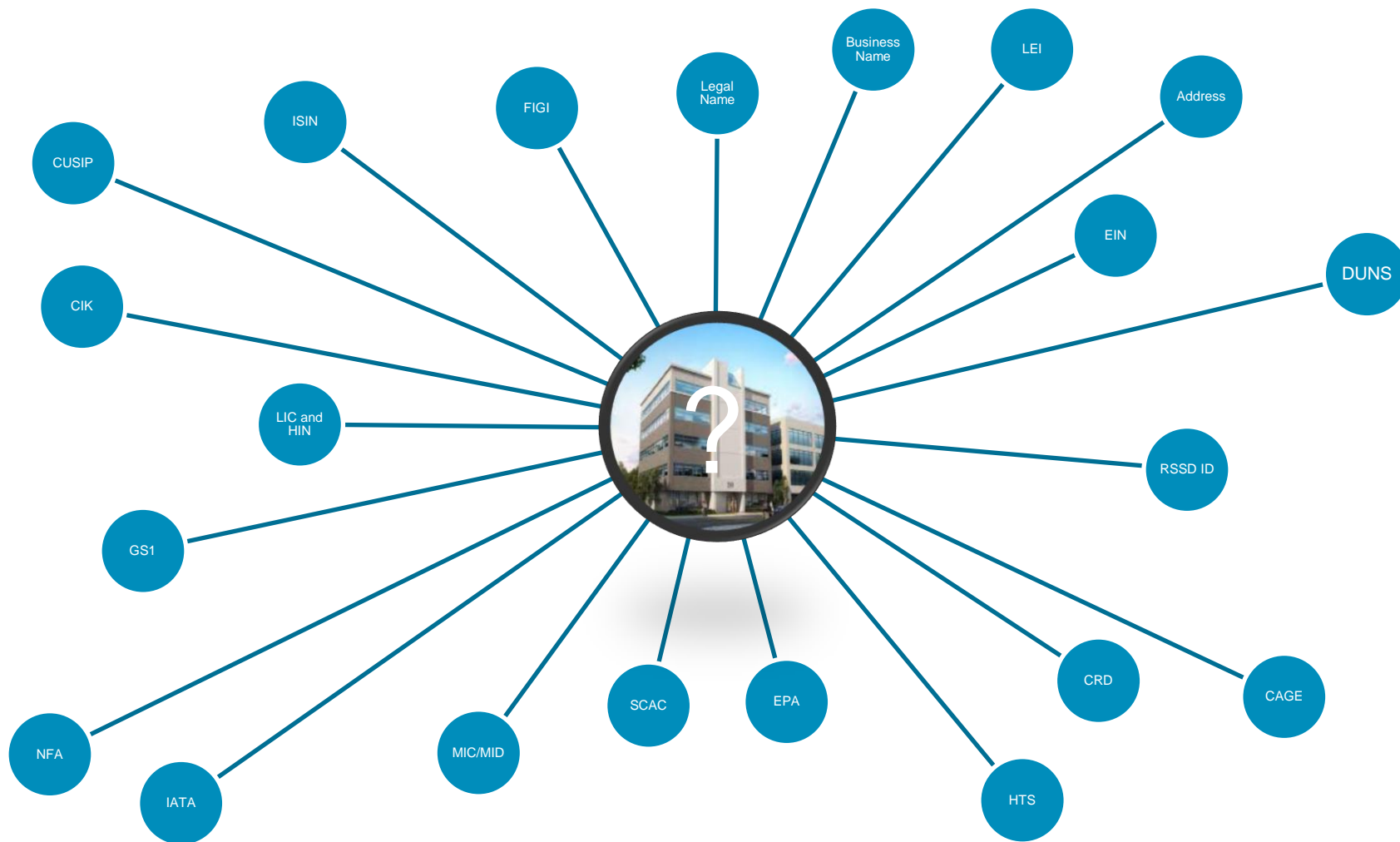
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How do you identify an individual?



How do you identify an entity?



Questions

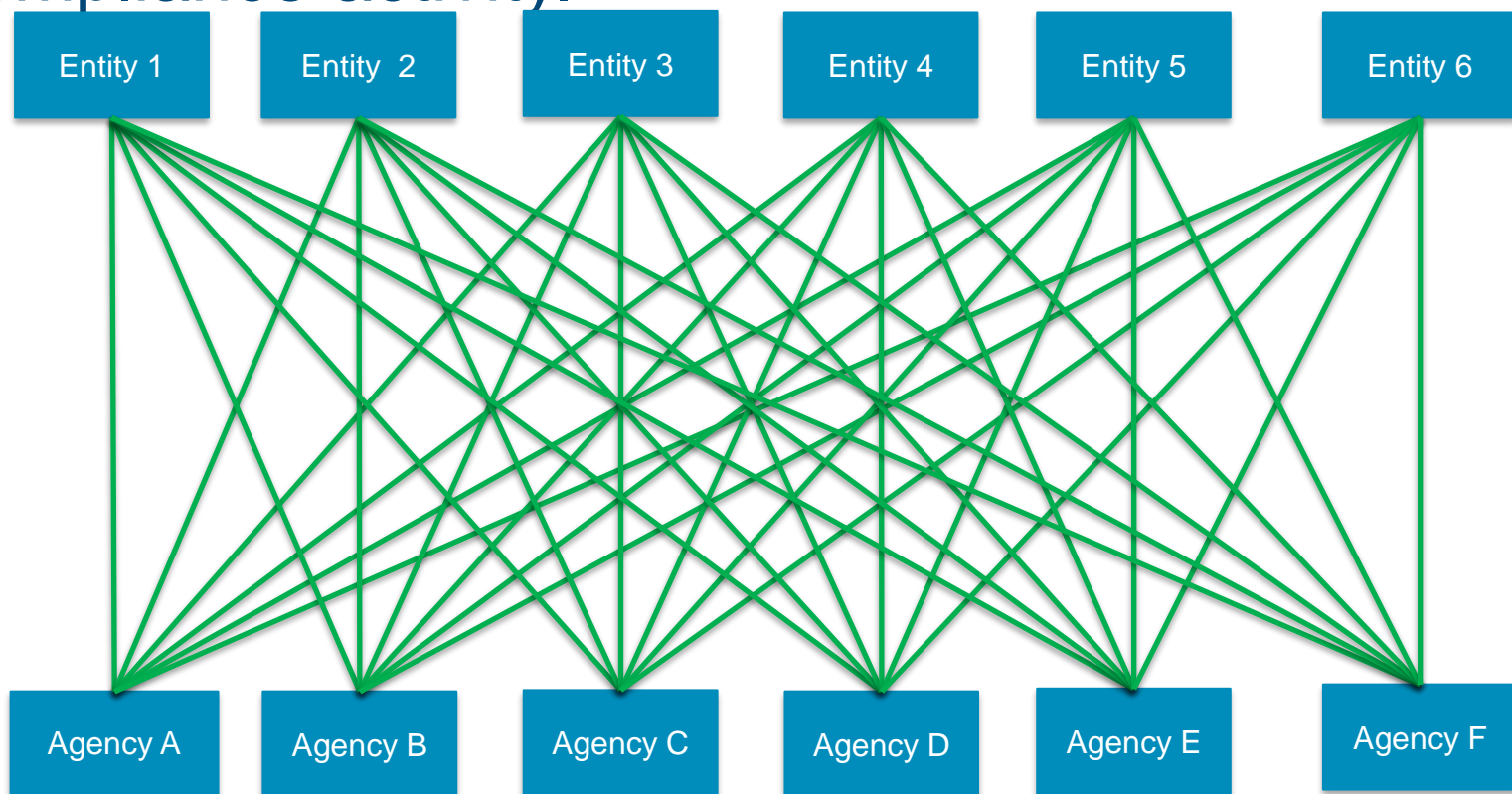
- How many user names and passwords do you have?
- How many ways are there to identify your legal entity?

Why Digital identifiers?

- Zero Trust Architecture (ZTA)
- ZTA adoption mandated for Federal Agencies:
 - January 19, 2022 [Memo](#) on Improving the Cybersecurity of National Security Systems
 - May 12, 2021 Whitehouse Executive Order – Improving the Nations Cybersecurity ([14028](#))

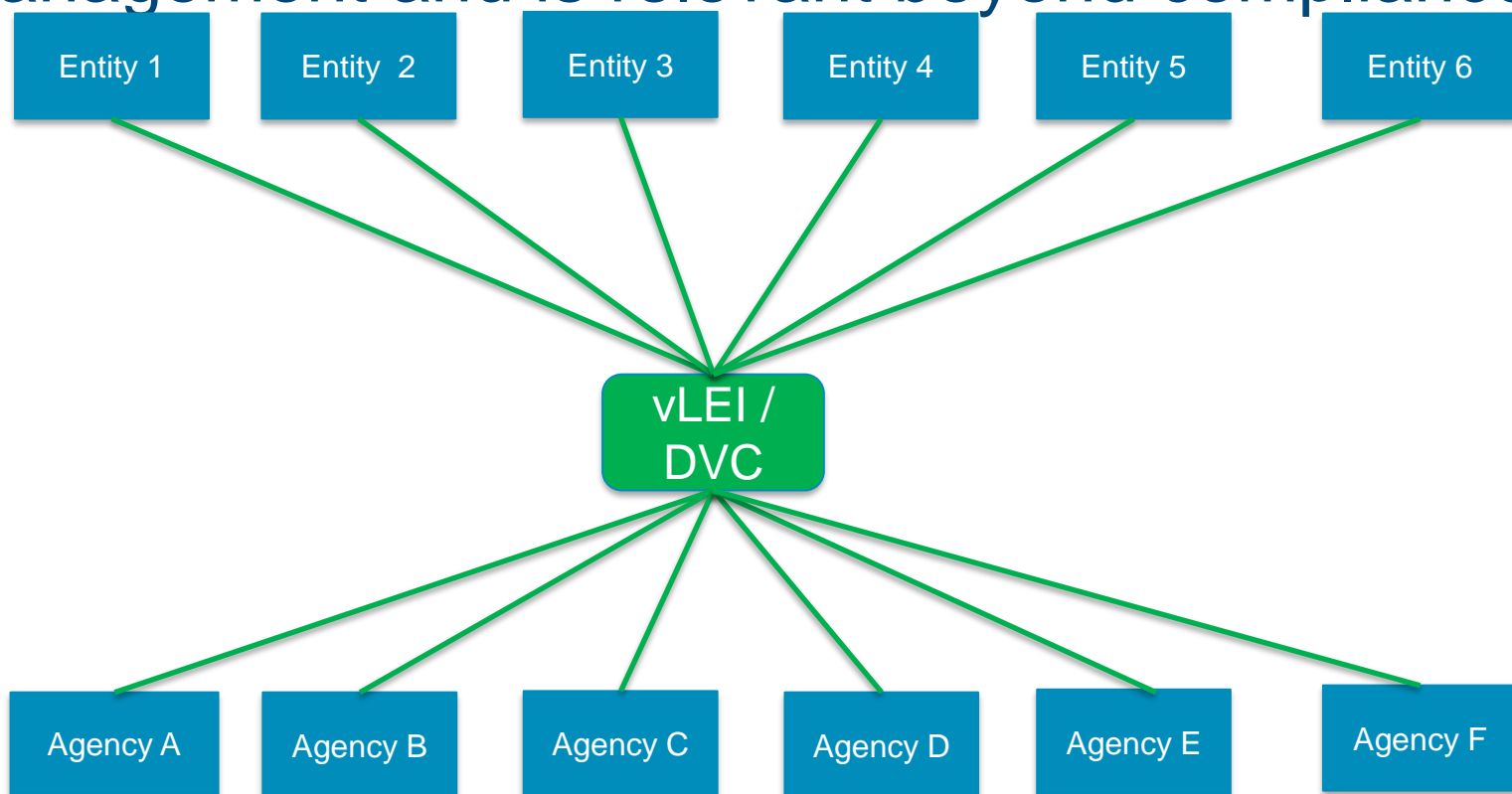
Problem or Opportunity?

Agency specific identifiers are not useful beyond compliance activity.



Problem or Opportunity?

Standardized identifier streamlines identity management and is relevant beyond compliance.



Additional Considerations

- There are additional topics for consideration as part of ZTA implementations including:
 - Standards for:
 - Individuals Acting in a Business Capacity (e.g. employees, board members, third party auditors, etc.) [ISO 17442:2020](#)
 - Natural Persons (e.g. personal family & friends) [ISO 24366:2021](#)
 - W3C Digital Verifiable Credential [here](#)
 - Binding the identifier to the entity/individual
 - Agency collaborations (via Login.gov?)
 - Others



Eugene Canjels, Ph.D.
Assistant Director
Office of Litigation Economics



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September 9, 2021

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Office of Litigation Economics (“OLE”)

STAFF	30+ economists: academic and industry experience
ROLE	Provide financial, economic, and statistical analyses to assist the SEC in the investigation and litigation of potential securities laws violations
TESTIMONY	Over half of our staff have provided live or written testimony
SCOPE	Experts, rebuttal experts, summary witnesses
AVAILABLE	To Enforcement, DOJ, and other agencies

SEC v. Lemelson, case 1:18-cv-11926, D. Mass.

Allegations

- Short-and-distort campaign

Assignment

- DERA expert found that public statements made by Lemelson were associated with abnormal declines in the stock price

Outcome

- Lemelson was ordered to pay a Tier III civil penalty in the amount of \$160,000

USA v. Hild, case 1:19-cr-602, S.D.N.Y.

Allegations

- Inflate valuation of reverse mortgage bond portfolio

Assignment

- DERA summary witness demonstrated post-purchase increase of fair values

Outcome

- Hild, Live Well's founder and ex-CEO, was convicted of five conspiracy and fraud counts

SEC v. McDermott, case 5:19-cv-4229, E.D. Pa.

Allegations

- Investment Advisor improperly charged his client transaction costs - “double dipping”

Assignment

- DERA expert rebutted defense expert. Defense expert was subsequently precluded from giving testimony
- DERA summary witness at trial

Outcome

- Jury found that Defendants violated 206(1) and 206(2) of the Investment Advisors Act

SEC v. Abhi Batra, case 2:21-cv-434, C.D. Cal.

Allegations

- Free-riding scheme

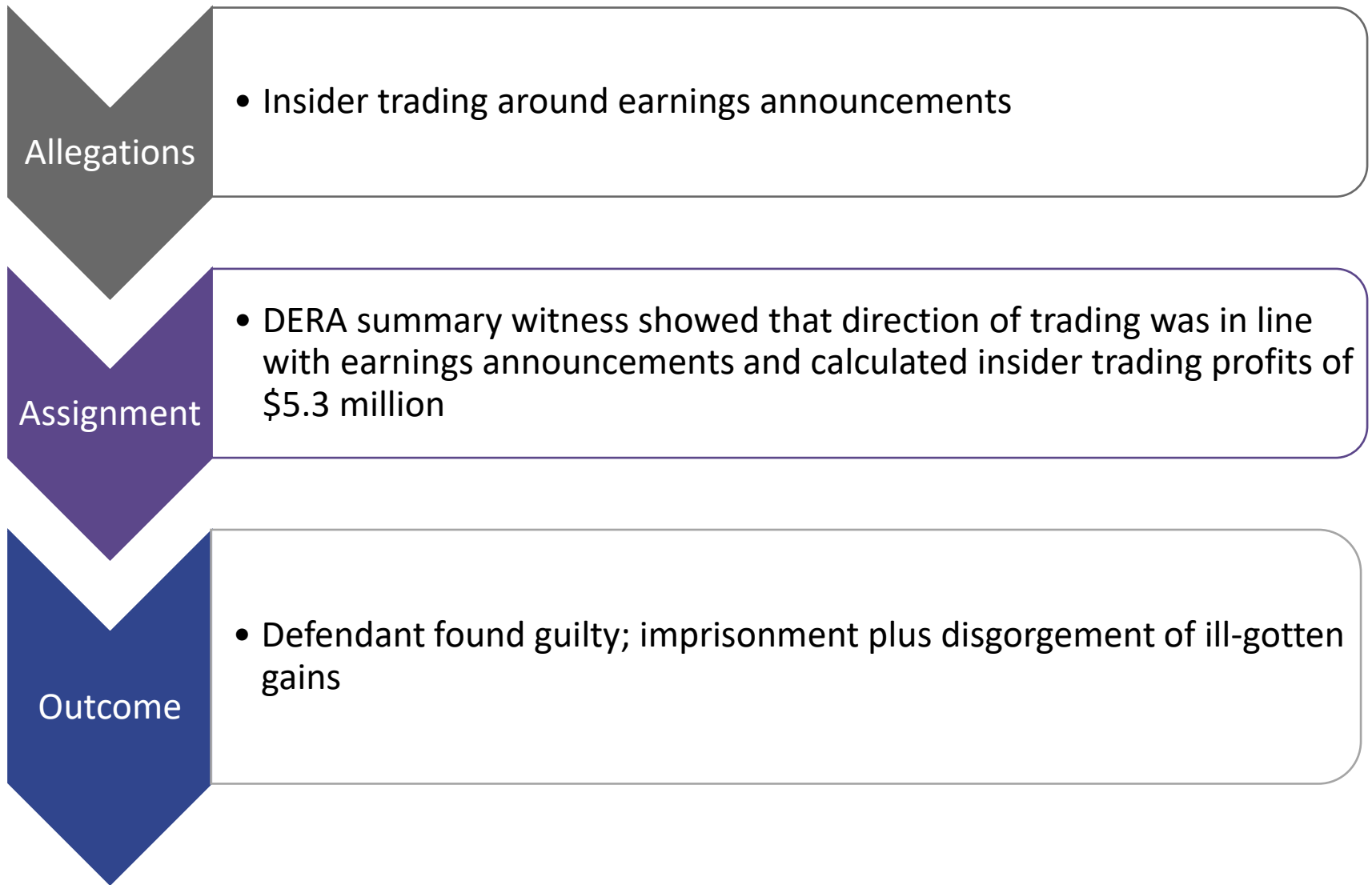
Assignment

- DERA expert wrote declaration estimating ill-gotten gains

Outcome

- Default Judgment. Disgorgement plus PJI as calculated by DERA expert

USA v. Blakstad, case 1:19-cr-486, S.D.N.Y.



USA v. Blakstad, case 1:19-cr-00486, S.D.N.Y.



Summation of the opposing side:

“[T]he SEC witness who testified, was to my mind, I submit, the ideal witness. He was fair. He did not argue or advocate as a lawyer would. He testified as a witness with an understanding that he is there to testify to facts and objective truth.”

Use of AI in Financial Regulation



Marco Enriquez, Ph.D.
Senior Applied Mathematician
Office of Data Science



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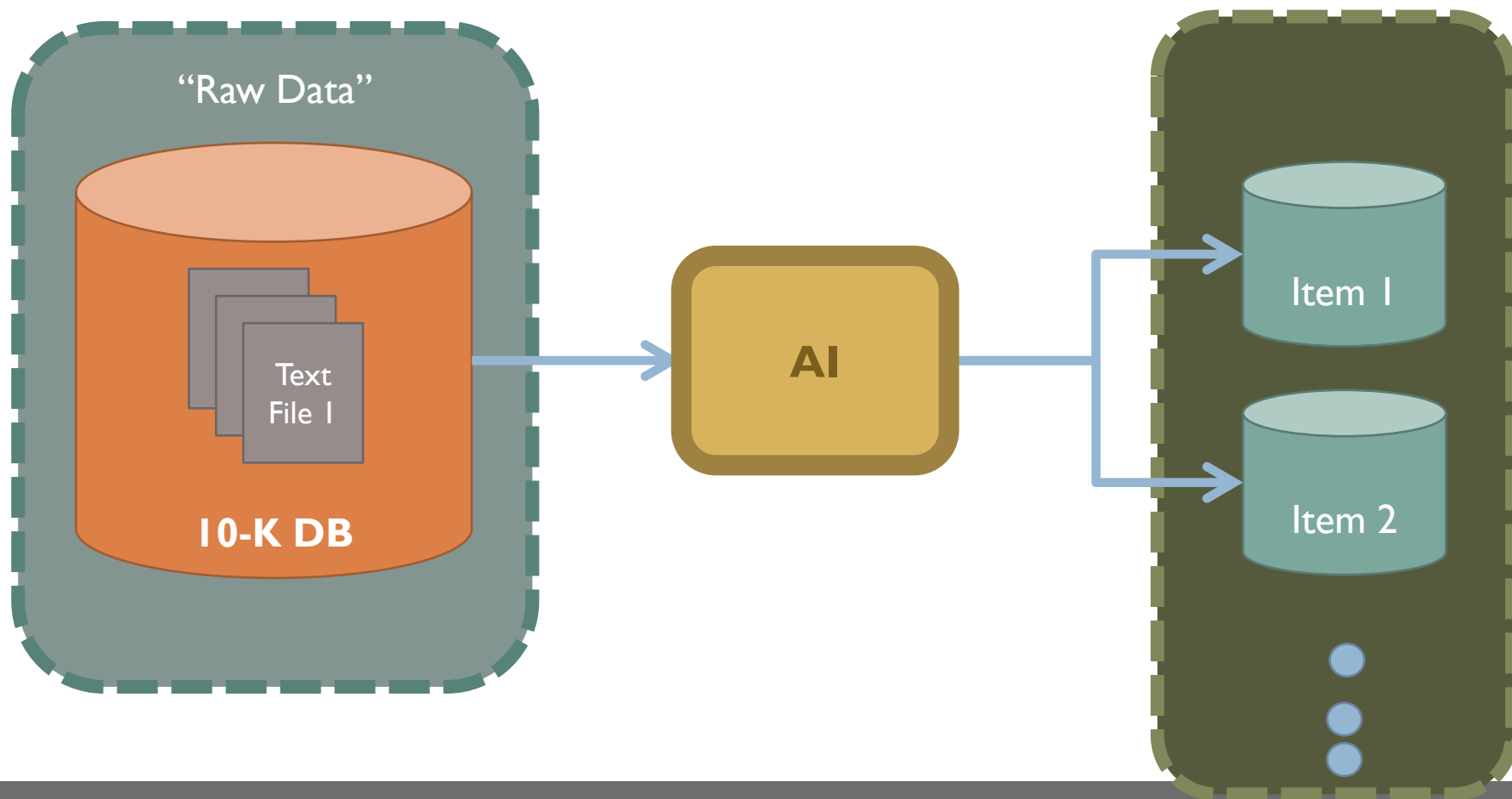
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Overview

- Increase in registrants outpaces workforce growth
 - Implication : regulatory datasets also growing rapidly
- Regulators turning to Artificial Intelligence (AI) technologies
 - Supervisory Technology or “SupTech”
 - Enablers : technology advances and staff’s ML knowledge
- This talk: select examples of how we have successfully used AI to help with the SEC’s mission

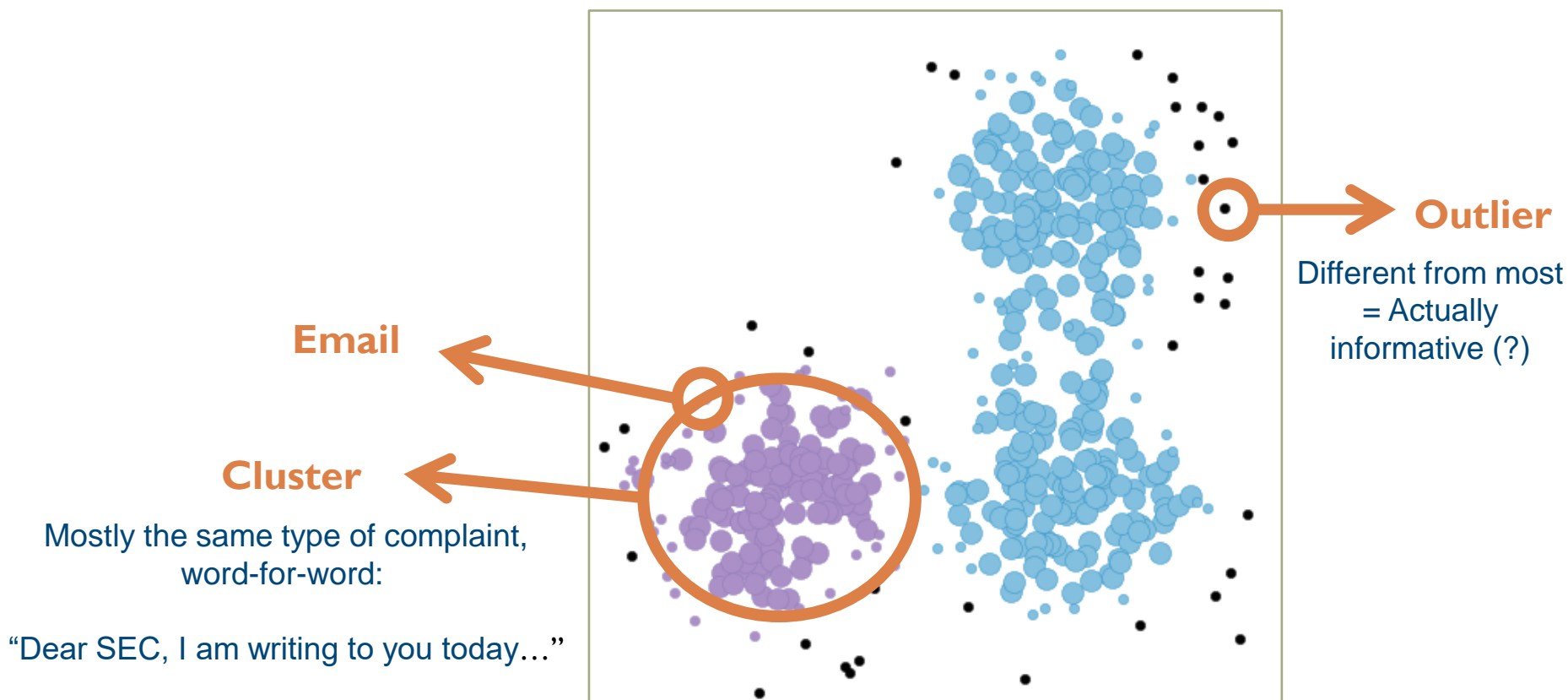
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Structuring Filings



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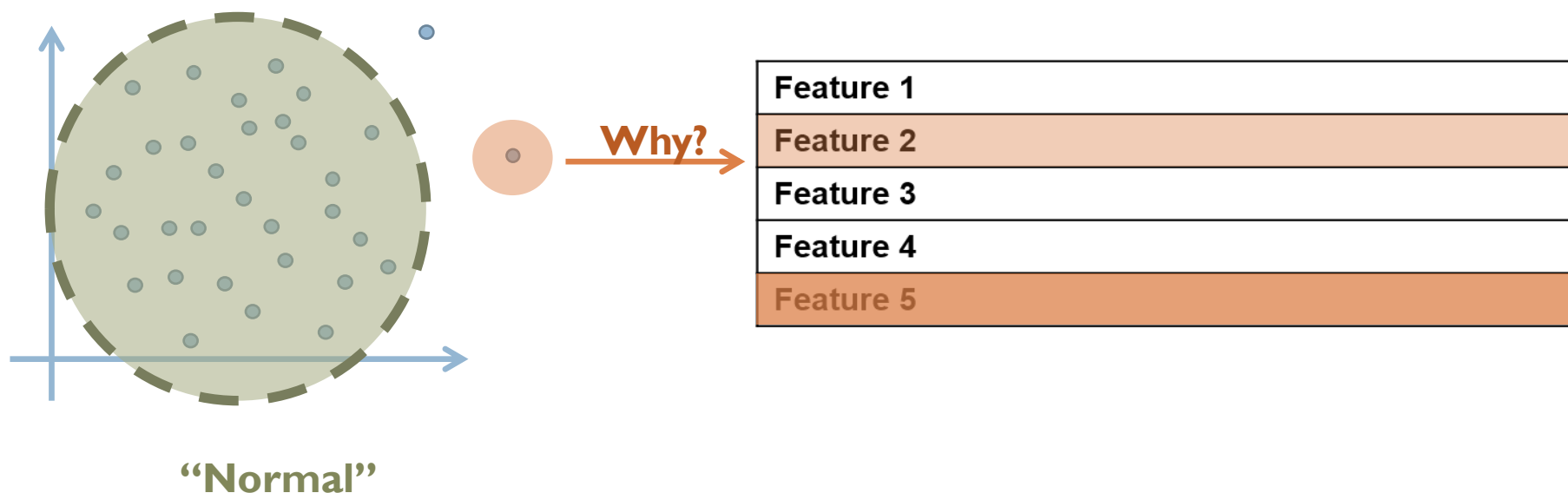
Automated Template analysis



Office of Data Science (“ODS”)

Explainable AI and insider trading

- Find suspicious accounts by learning “normal” trading behavior



Office of Data Science (“ODS”)

Conclusion

- Regulators are paying attention to AI
 - Access to compute power: less of an issue, though transition pains remain
 - Mainly focused on machine learning and information extraction
- Myriad use cases: textual, tabular, time series data
 - Natural Language Processing is a growth area
- Ongoing challenges: interpretability, accounting for potential biases, etc.