

INITIAL DISCLOSURE OF CLIMATE CHANGE RISKS IN THE CALIFORNIA MUNICIPAL MARKET

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OUTLINE

- **Introduction to Climate Change**
- **Main Research Question**
- **Initial Findings**
- **What's Next?**
- **Supplemental Resources**

Introduction to Climate Change

Why is Climate Change Important?

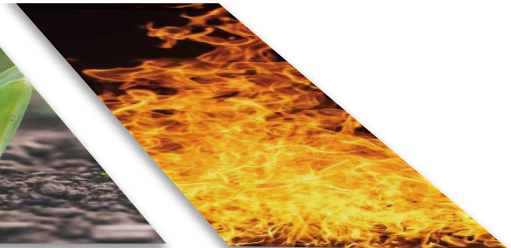
Sea Level

**Extreme
Weather**

Water Supply

Agriculture

**Natural
Disasters**



Additional Consequences of Climate Change

Increased regulation and associated costs of compliance are expected in order to mitigate the effects of human activity on climate change.

Climate Change in Context

Climate Risk = Investment Risk

“The evidence on climate risk is compelling investors to reassess core assumptions about modern finance.”

“These questions are driving a profound reassessment of risk and asset values. And because capital markets pull future risk forward, we will see changes in capital allocation more quickly than we will see changes to the climate itself. **In the near future – and sooner than most anticipate – there will be a significant reallocation of capital.**”



BLACKROCK

S&P Global


FEDERAL RESERVE BANK OF SAN
FRANCISCO



The
Economist

FitchRatings

Main Research Question

Main Research Question



To what extent are initial disclosure practices in the municipal bond market accounting for risks of climate change?

Do practices vary based on factors such as issuance size, debt purpose, geography, etc.?

Research Question Breakdown

To what extent are initial disclosure practices in the municipal bond market accounting for risks of climate change?

→ **175**

Official Statements (OS)
were reviewed in the
project sample

→ Unique California public enterprise revenue (PER) issuers who sold long-term debt in the past three fiscal years (2016-17, 2017-18, 2018-19). Private placements and loans were excluded.

Research Question Breakdown

To what extent are initial disclosure practices in the municipal bond market accounting for **risks of climate change**?

The study accounted for potential physical and transition risks of climate change.



Physical Risks

Risks due to environmental effects attributed to climate change such as sea-level rise, flooding, wildfires, severe drought, extreme weather, etc.



Transition Risks

Potential costs and other risks due to increased climate-policy regulation, changes in technology, and associated liabilities.

Research Question Breakdown

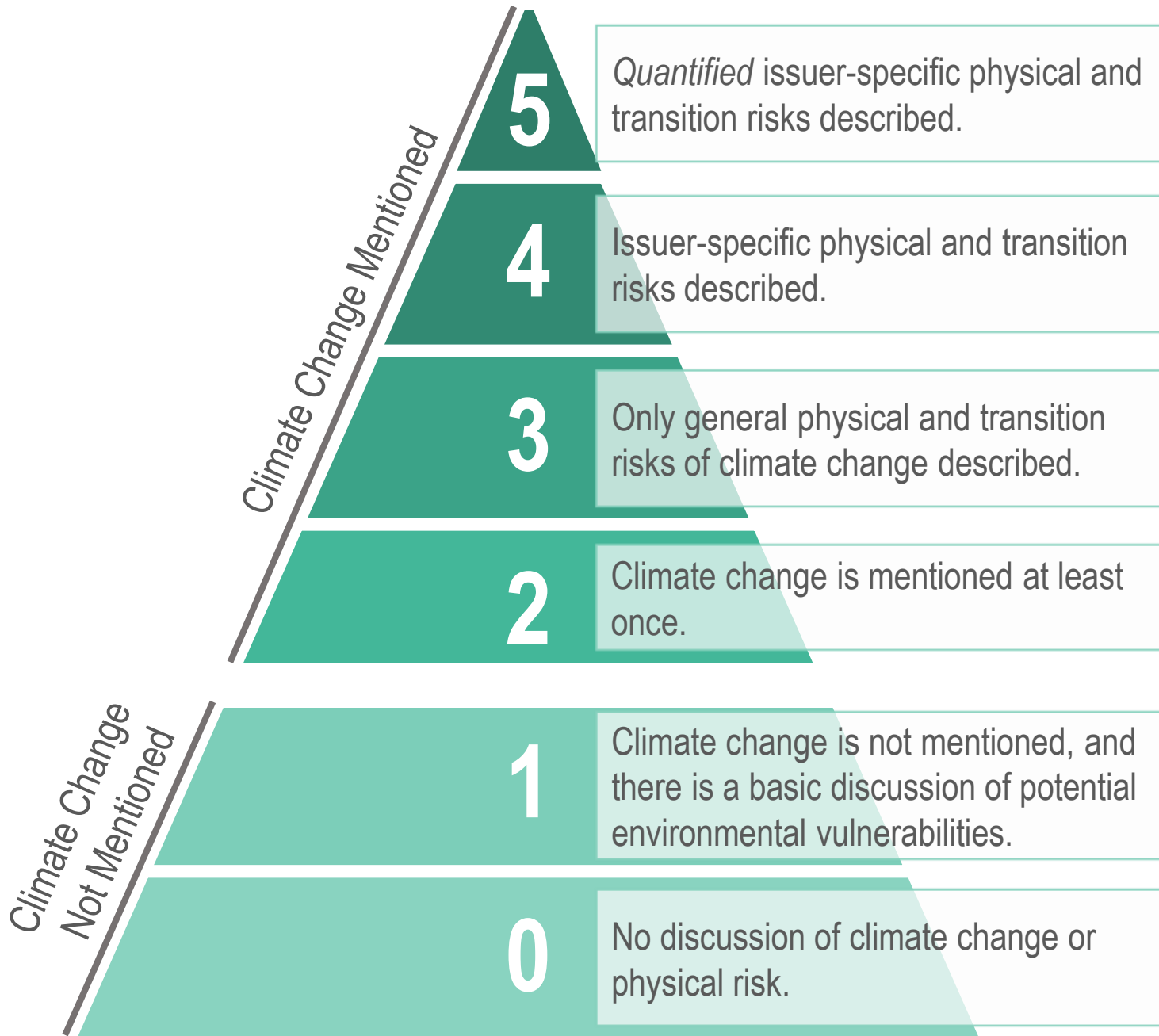
To what extent are initial disclosure practices in the municipal bond market accounting for risks of climate change?

→ Researchers used elements from existing frameworks to create our CDIAC rubric to evaluate each OS. Frameworks include:

- The Task Force on Climate-related Financial Disclosures (TCFD)
- CalPERS and Wellington Management
- Hawkins Delafield & Wood,* etc.

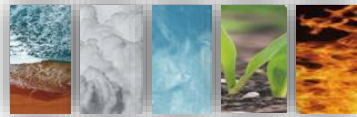
* The Hawkins Advisory framework focuses on cybersecurity risk and was adapted to be relevant to disclosure of risks attributable to climate change.

Scores in CDIAC Rubric

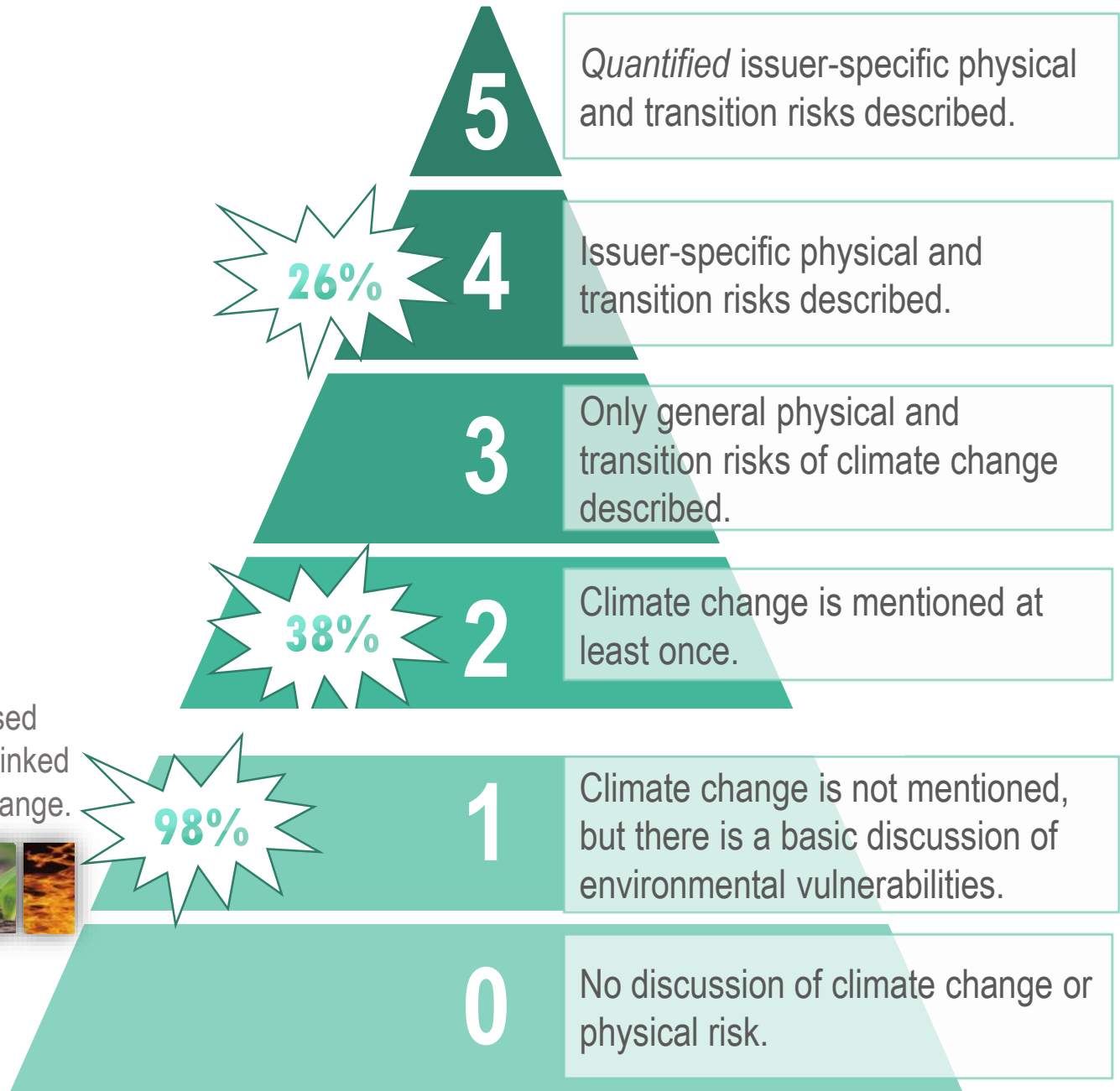


Initial Findings

Scores in CDIAC Rubric



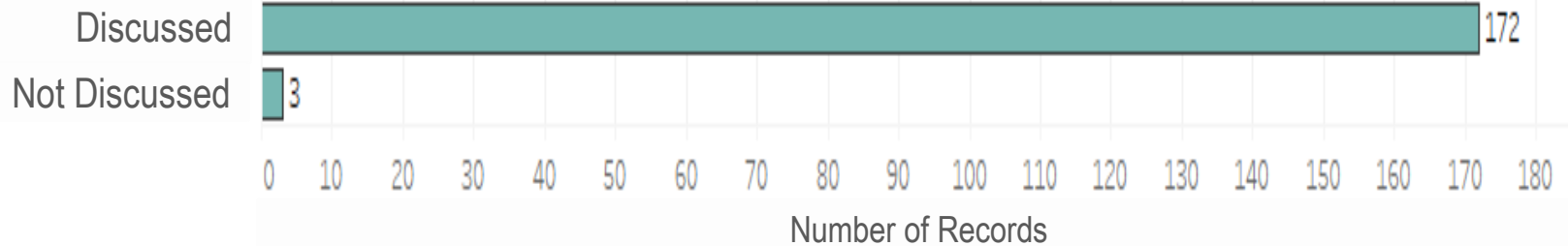
97% discussed vulnerabilities linked with climate change.



Comparison: Scores 1 and 2

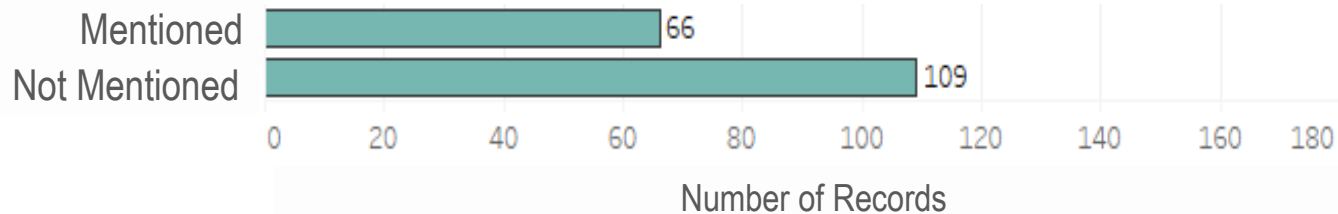
Score 1

The OS contains at least a basic discussion of natural disasters or other environmental vulnerabilities.

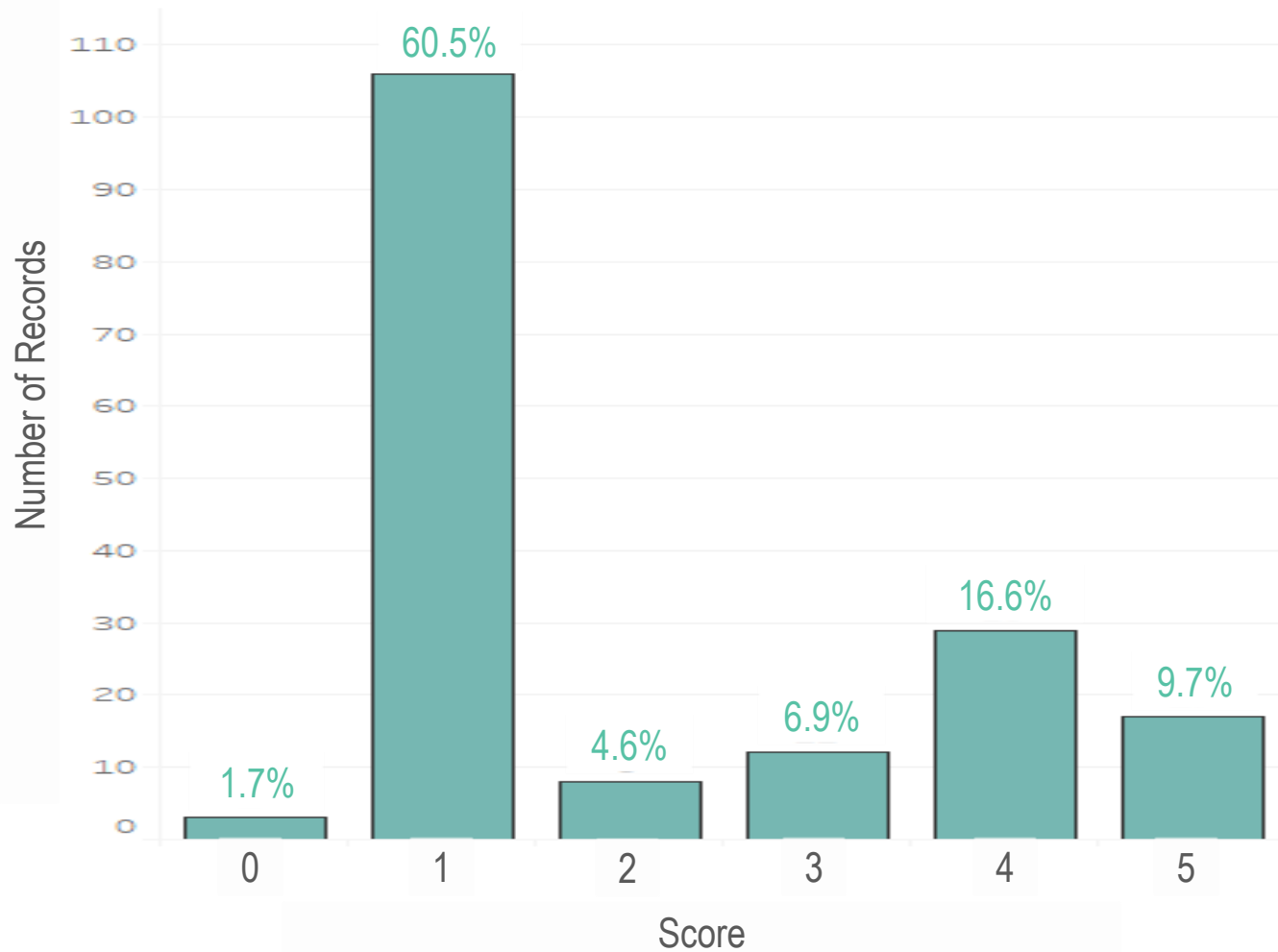


Score 2

Climate change is mentioned at least once.



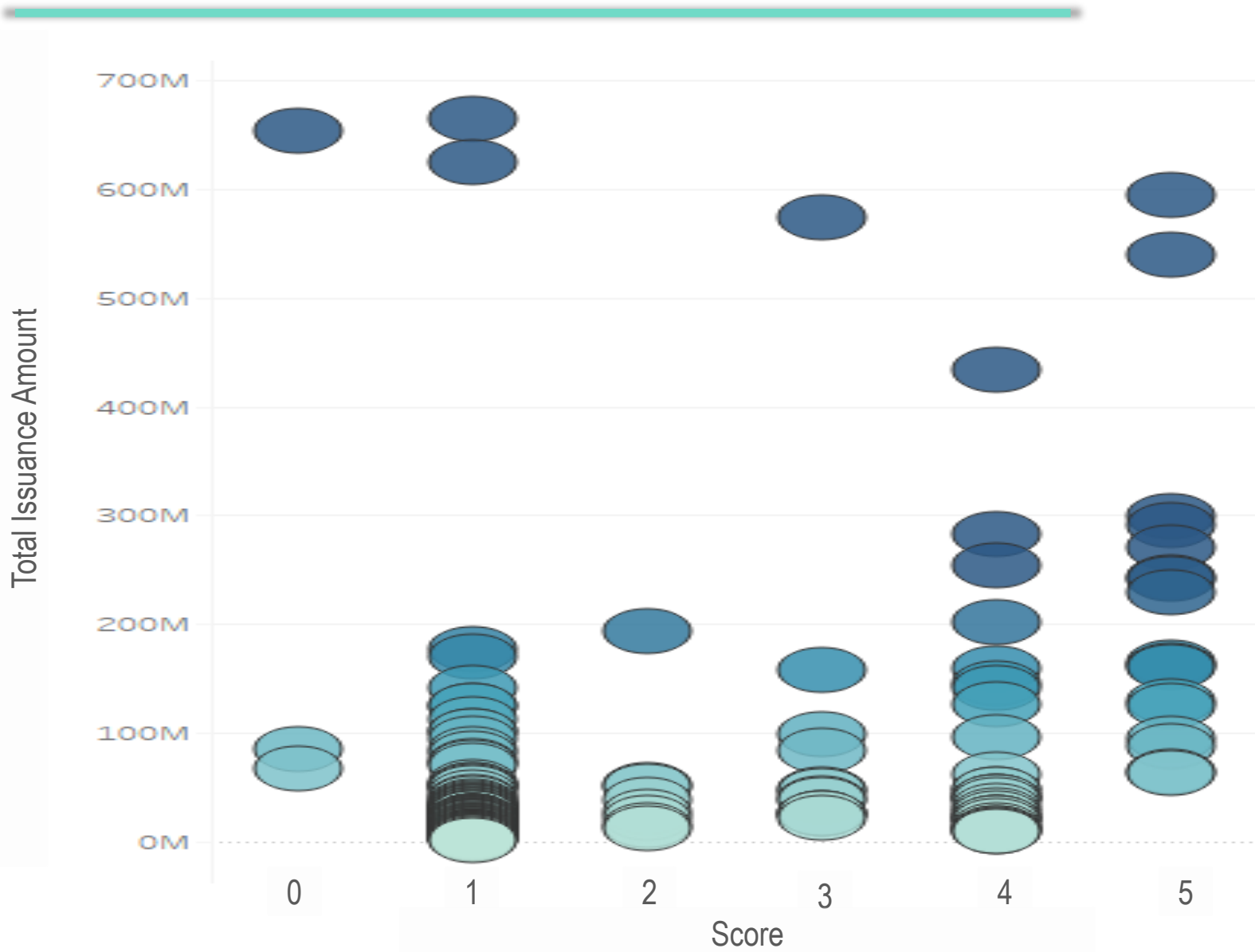
Score Distribution



Median Issuance by Score



Scores by Issuance Size: All Scores



Average Scores By County



Main Takeaways

Disconnect in Risk Versus Disclosure of Climate Change

Most issuers discussed physical risks and vulnerabilities linked with climate change (Score 1). Yet, less than four in ten even mentioned climate change.

Ability vs. Adoption

The distribution of scores implies an **adoption-based** issue in disclosing climate risks. Issuers who have adopted climate change into their disclosures tend to follow industry best practices.

Correlation With Issuance Amount

More developed disclosure practices are correlated with larger issuance amounts.

Geographical Variations Likely Not Based on Risk

Climate-related disclosure practices vary across California geographically, but variations do not appear to be based in actual geographic risk.

What's Next?

What's Next for CDIAC?

Publish Research

- Publish CDIAC report with full findings later this year
- Include additional results including expanded geographical and time-based analyses
- Feature this topic in upcoming Debt Line articles

Communicate Findings

- Present findings at upcoming educational events
- Include best practices and practical applications from model issuers
- Integrate relevant climate tools and resources

Ongoing Monitoring

- Continue monitoring this emerging topic for updates
- Consider future expansions of this research to other samples, etc.

Collaborate

Supplemental Resources

Resources

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Climate Disclosure Frameworks

- [Taskforce for Climate-related Financial Disclosure](#)
- [Wellington Management and CalPERS](#)

Climate Risk Analysis

- [Four Twenty Seven](#)
- [risQ](#)
- [Jupiter](#)

Other

- [Cal-Adapt](#)
- [National Climate Assessment](#)
- [Integrated Climate Adaptation and Resiliency Program](#)
- [Intergovernmental Panel on Climate Change](#)



Q&A

*“Doubts are good. Confusion is excellent.
Questions are awesome.*

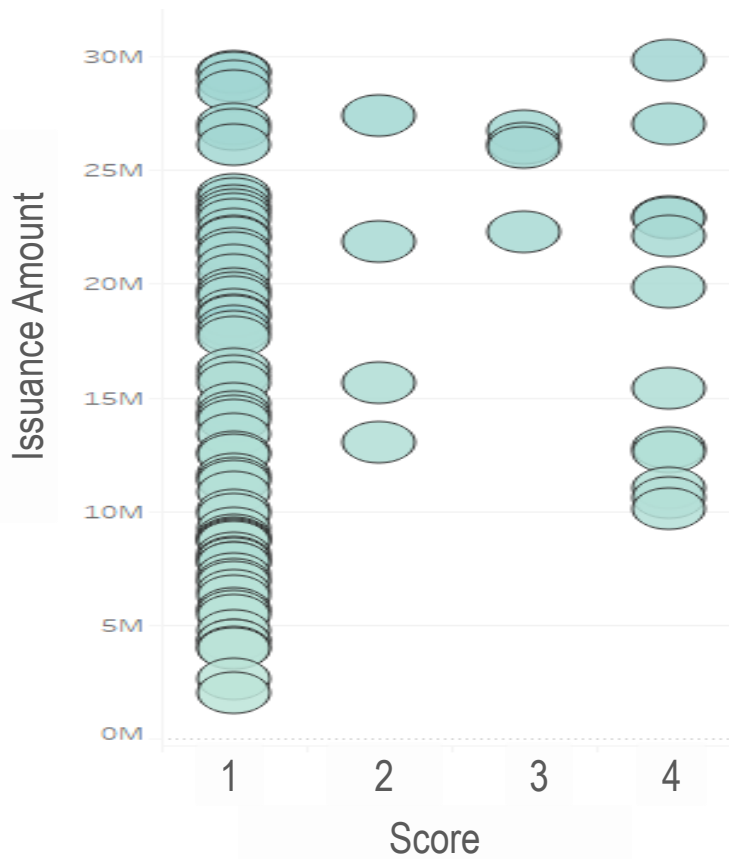
*All these are attempts to expand the
wisdom of mind.”*

— Manoj Arora

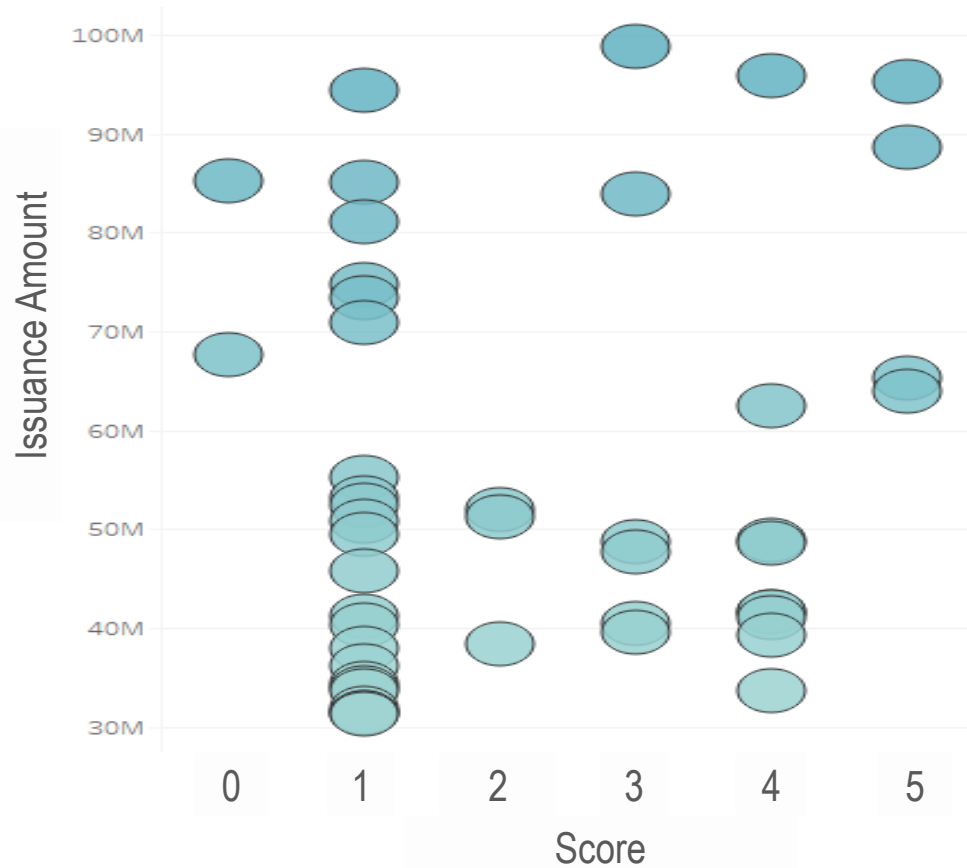
Appendix

Scores by Issuance Size

Small: Under \$30,000,000

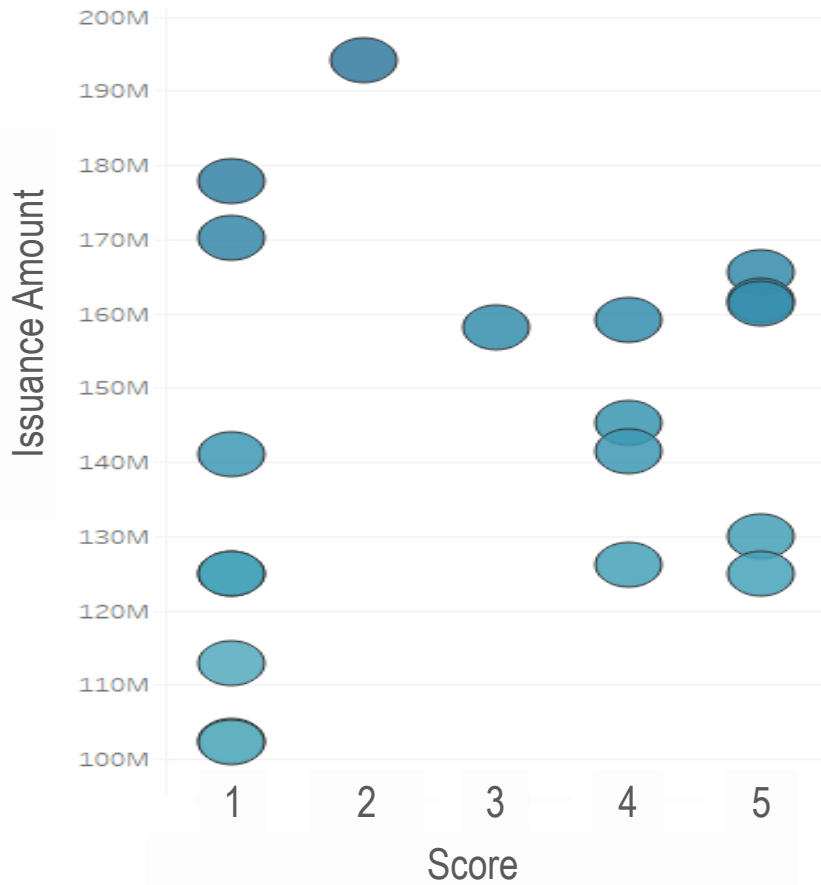


Medium: \$30,000,000 - \$100,000,000



Scores by Issuance Size *continued...*

Large: \$100,000,000 - \$200,000,000



Extra Large: Over \$200,000,000

