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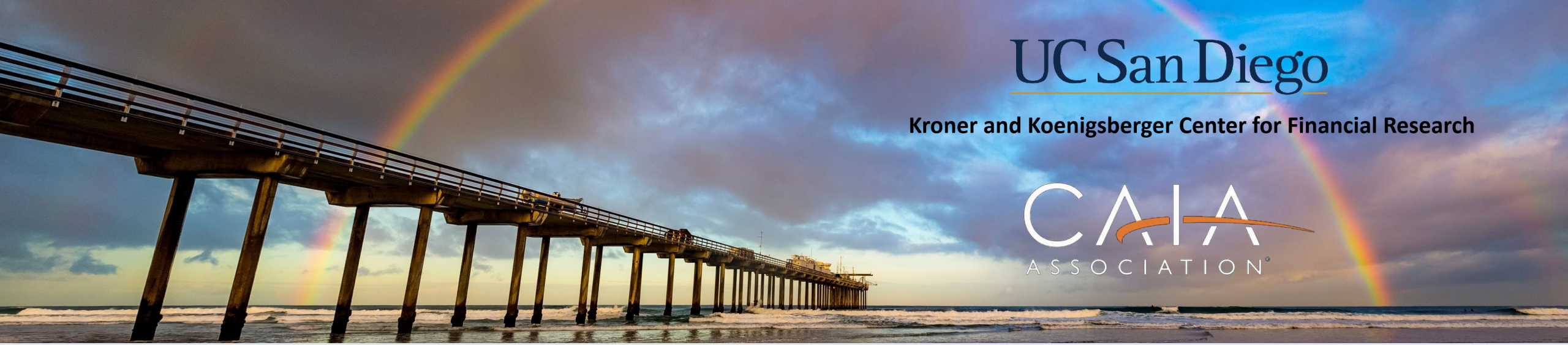
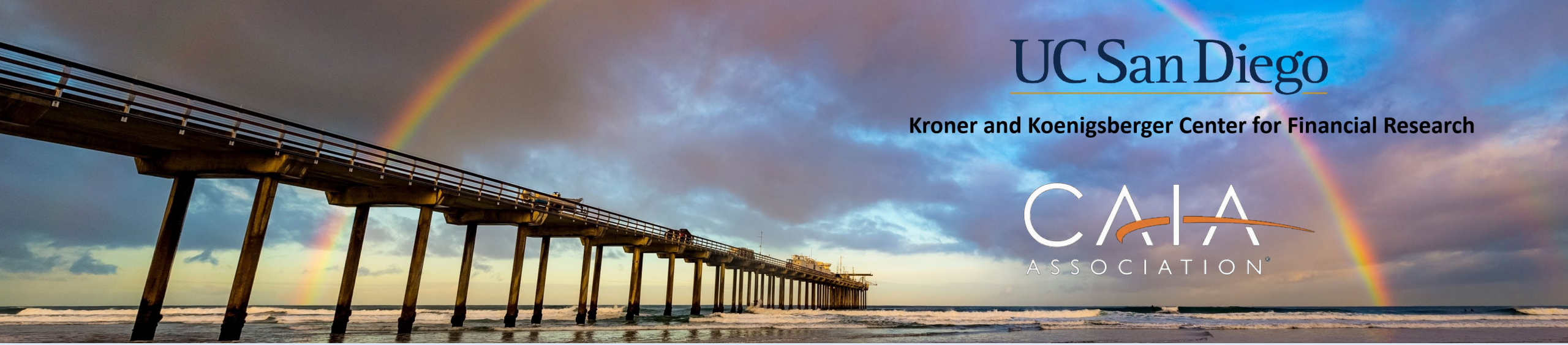


Opening Remarks: Day Two,

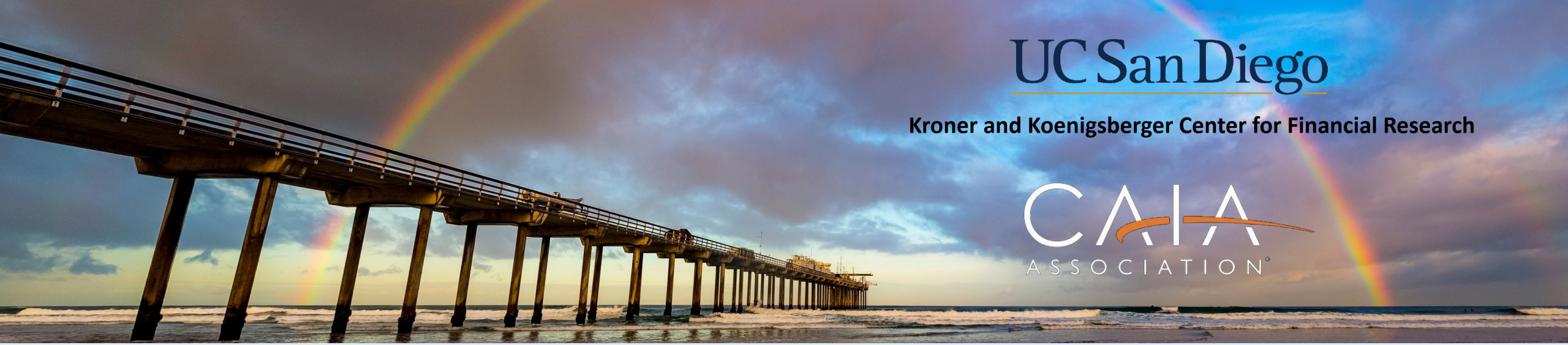
Molly Murphy (OCERS)



Talk to me! The relationship between academia and industry;

Ken Kroner, chair

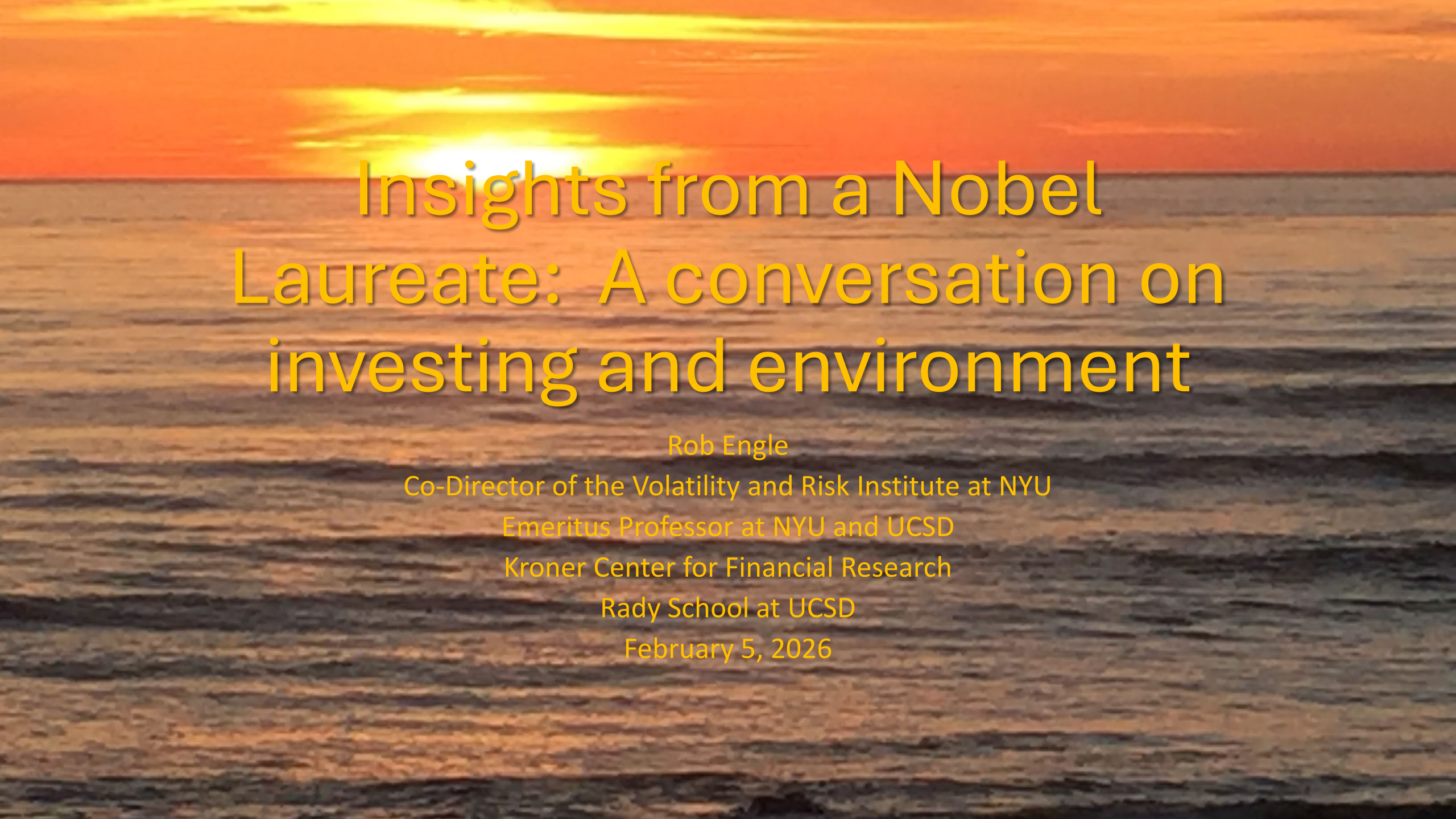
Panelists: Greg Brown (U. of N. Carolina), Andrew Karolyi (Cornell U.), Allan Timmerman (UCSD), Katy Kaminsky (AlphaSimplex), Robert Koenigsberger (Gramercy)



Insights from a Nobel Laureate: A conversation on investing and environment;

Michael Wissell (HOOPP), chair

Rob Engle (NYU)



Insights from a Nobel Laureate: A conversation on investing and environment

Rob Engle
Co-Director of the Volatility and Risk Institute at NYU
Emeritus Professor at NYU and UCSD
Kroner Center for Financial Research
Rady School at UCSD
February 5, 2026

OUTLINE

- I WILL SHOW HOW VRI MEASURES CLIMATE RISK AND ITS IMPACT ON ASSET PRICES.
- I WILL INTRODUCE A NEW CONCEPT: TERMINATION RISK
- I WILL DISCUSS POLICY OPTIONS FOR A GLOBAL PROBLEM.
- I WILL LOOK AT CURRENT EVENTS AND PREDICTIONS?

LONG TERM RISKS

- A risk is a bad outcome which has some probability of occurring.
- A long term risk is an event which is far in the future.
- Assets exposed to long term risk are less desirable than assets that are not. If the risk goes up, the price will go down even if the risk is far in the future.
- Climate risks are likely to be long term risks.
- We can think of both physical risks and transition risks as long term climate risks.
- Physical risks are geographically specific and are associated with fixed capital such as real estate.
- On the other hand, transition risk impacts sectors of the economy.

THE ECONOMICS OF CLIMATE MITIGATION

- Because emissions are free but impose costs on everyone, they are a classic externality. Markets cannot correct externalities because of free riders. These are people who get the benefit of better climate but do not pay the cost of decarbonizing.
- Government Choices to make decarbonization profitable and therefore successful in market economies:
  - **Tax carbon emissions**
  - **Subsidize renewable energy**
  - **Regulate emissions**
  - **Hope**

POLITICS OF DECARBONIZATION

- Governments recognize that there are winners and losers from decarbonization so policies can be hard to implement.
- However, everyone is a loser without decarbonization.
- Investors may recognize which firms will be winners and which will be losers from decarbonization and this influences stock prices and risk premia.
- I will show you estimates of this from VRI research for stocks, real estate, financial companies, funds.

- What are the risks of climate change?

HEDGE PORTFOLIOS

- A hedge portfolio is long assets that see this as an opportunity and short assets which are negatively exposed to the risk.
- Such a portfolio will fluctuate with the market view of the severity of the risk. If the risk is ultimately realized, the portfolio will rise as assets are repriced. The winners will have high valuations encouraging expansion.
- Investors could hold such a portfolio to reduce their exposure to climate risk or to make a bet on the long run impact of climate change.
- Such a portfolio is risk reducing, like insurance, so should in general underperform the market but will outperform if the risk turns out to be greater than initially expected by the market.
- I am not sure whether pension funds would naturally hold the risk for its premiums or avoid the risk. This probably depends upon the liability side.

PHYSICAL RISK HEDGE PORTFOLIOS

- Jung,Engle,Ge, Zeng(2025) "*Physical Climate Risk Factors and an Application to Measuring Insurers' Climate Risk Exposure*
- Portolios of residential and commercial real estate are traded as REITs, (real estate investment trusts). They have specific locations and characteristics so that they can be classified as high or low risk from climate physical risk.
- A physical risk hedge portfolio can be formed from low risk REITS minus high risk REITS.
- Property and Casualty insurers should have valuations that fluctuate with this hedge portfolio. The higher the risk of an insurer's portfolio, the greater the beta on the hedge portfolio.

TRANSITION RISK HEDGE PORTFOLIOS

- Parker and Engle "*Mirror mirror on the wall, who is the greenest of us all"* construct portfolios which are sensitive to:
  - Carbon tax (low emission minus high emission)
  - Renewable subsidies (clean energy minus fossil energy)
  - Regulation to reduce either the demand or supply of fossil energy (low fossil energy users minus heavy energy users)
- When the probability of political action on any of these policies increases, the hedge portfolio should increase. We can then measure the sensitivity of individual stocks to these hedge portfolios. We define green stocks as those that increase with the risk and brown stocks are those that decrease.

“MIRROR MIRROR” MEASURE OF GREEN

Table 4. Firm Rankings by Mean T-Statistic

Greenest		Brownest	
Rank	**Company (Sector)**	**Rank**	**Company (Sector)**
1	Procter & Gamble (Cons. Staples)	1	Caterpillar (Industrials)
2	MGE Energy (Utilities)	2	Flowserve (Industrials)
3	American States Water (Utilities)	3	Parker-Hannifin (Industrials)
4	Pepsico (Cons. Staples)	4	Eagle Materials (Materials)
5	Clorox (Cons. Staples)	5	Genesee & Wyoming (Industrials)
6	Spire (Utilities)	6	Dover Corp. (Industrials)
7	Unitil (Utilities)	7	Emerson Electric (Industrials)
8	Johnson & Johnson (Healthcare)	8	Phillips 66 (Energy)
9	California Water (Utilities)	9	Norfolk Southern (Industrials)
10	One Gas (Utilities)	10	Cummins (Industrials)

Note: This table shows the ranking of firms by their average PC1 t-statistic over the period 2010-2023. The left columns list the top 10 firms in decreasing order (the first ranked firm has the highest t-statistic), while the right columns list the bottom 10 firms in increasing order (the first ranked firm has the lowest t- statistic).

Logistic model of the probability of being top 20% of green firms on left and top 20% brown on right. Each with and without fixed effects for year and sector.

- GREEN FIRM CHARACTERISTICS:
- High profit margins, Low long term debt and interest expense, low book to market ratio, low market beta and idiosyncratic vol.
- High intangible assets and R&D controlling for fixed effects.
- Low Emissions. ESG data is not significant and E has the wrong sign.

- BROWN FIRM CHARACTERISTICS:
- Low advertising, low profit margin, high interest expense, high market beta, high book to market ratio
- Low CAPEX and intangibles with fixed effects
- High emissions. E score is insignificant or significantly wrong sign.

Dependent Variable:	1(Top 20%)		1(Bottom 20%)	
	(1)	(2)	(3)	(4)
Ln(Assets)	0.17***	0.10***	0.04**	0.18***
	(8.99)	(4.86)	(2.23)	(8.11)
CAPX/Assets	0.20	2.49***	1.36***	-1.93***
	(0.45)	(4.58)	(3.03)	(-4.20)
Share Intangible Assets	0.05	0.29**	-0.22*	-0.57***
	(0.41)	(2.37)	(-1.92)	(-4.20)
R&D/Sales	0.05	-0.07	-0.65	0.13**
	(1.27)	(-1.31)	(-0.94)	(2.33)
Advertising/Sales	0.04	0.70	-9.90***	-4.48***
	(0.06)	(0.87)	(-6.74)	(-3.47)
Gross Profit Margin	1.32***	0.37***	-1.33***	-0.30**
	(11.35)	(3.04)	(-10.42)	(-2.15)
LT Debt/Capital	-0.32**	-0.54***	-0.19	-0.08
	(-2.49)	(-3.87)	(-1.42)	(-0.58)
Interest Expense/Liabilities	-8.69***	-8.08***	7.03***	5.22***
	(-4.35)	(-4.26)	(4.54)	(2.88)
Z-Score	0.00	-0.00	-0.02**	-0.01*
	(0.92)	(-0.30)	(-2.37)	(-1.66)
Book/Market	-0.44***	-0.44***	0.19***	0.07
	(-6.27)	(-5.81)	(3.25)	(1.31)
Market Beta	-1.33***	-0.82***	1.19***	0.94***
	(-20.97)	(-12.44)	(22.89)	(15.08)
I-Vol	-8.76***	-16.11***	-7.93***	0.94
	(-3.23)	(-4.99)	(-3.18)	(0.35)
E-Score	-0.42***	-0.19*	0.27***	0.08
	(-4.54)	(-1.89)	(2.96)	(0.78)
Ln(Scope 1 + 2 Emissions)	-0.04***	-0.03**	0.10***	0.04***
	(-3.68)	(-2.25)	(7.89)	(3.59)
N	14,657	14,657	14,657	14,657
R^2	0.090	0.176	0.109	0.233
GICS Sector FE	No	Yes	No	Yes
Year FE	No	Yes	No	Yes

TRANSITION RISK for BANKS

- Jung, Engle and Berner,2025, "*CRISK: Measuring the climate risk exposure of the financial system", JFE*
- They carry out a stress test of financial institutions including banks and insurers to see how correlated their returns are with a transition hedge portfolio called "stranded assets".
- These results are posted on VLAB every day for the whole world so timely values can be observed.

- In Google, type *VLAB NYU* and open it. Then scroll down to *CLIMATE RISK*
- VLAB
- https://vlab.stern.nyu.edu/climate/CLIM.WORLDFIN-MR.CMES

CRISK AND MARGINAL CRISK

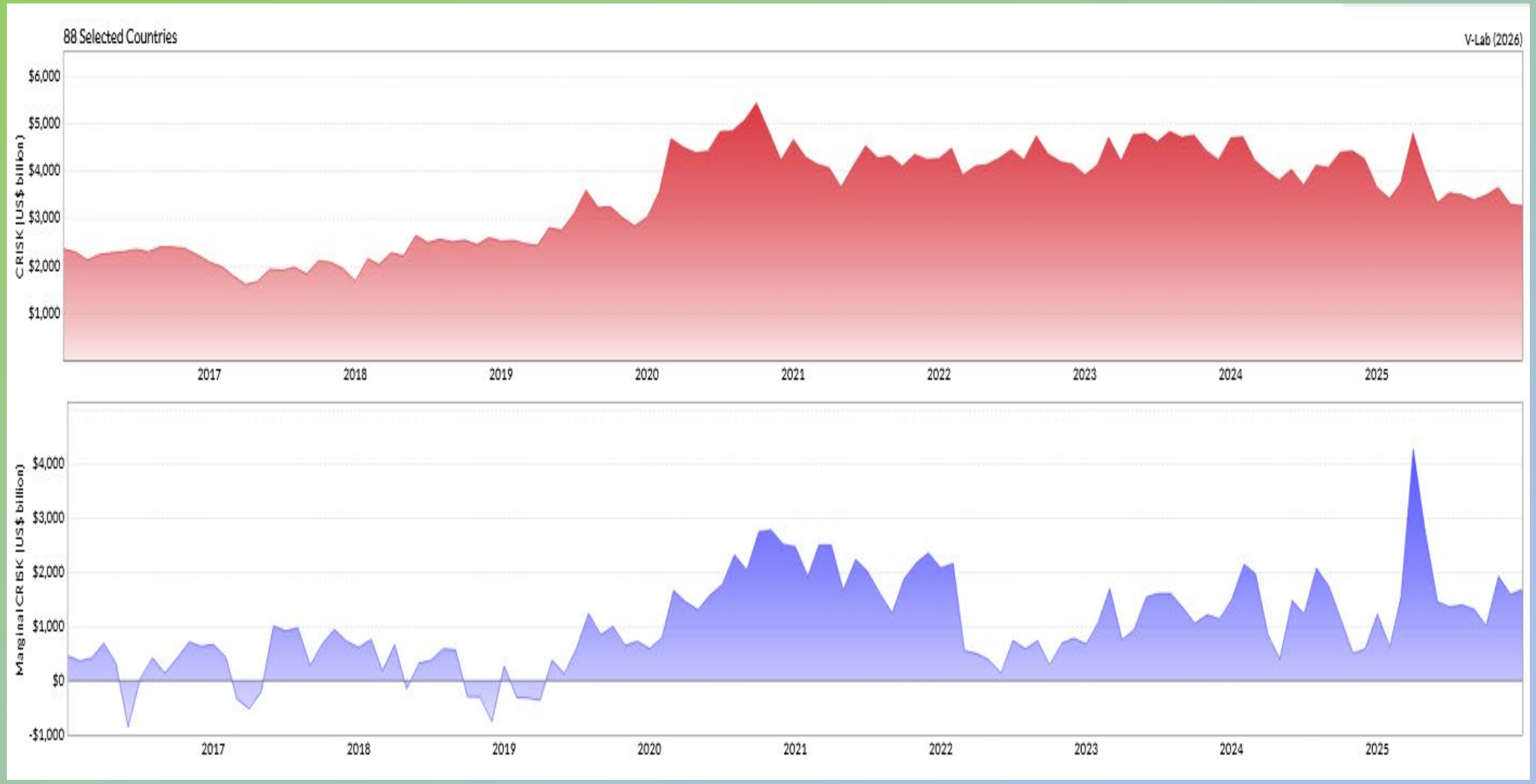
- CRISK is a measure of capital adequacy – how much capital would this institution need to raise to continue to function after a big rise in climate transition risk?
- Marginal CRISK is a measure of exposure – how much would this firm's market cap fall after a big rise in climate transition risk?

- CRISK is the expected capital shortfall of a bank under climate stress
- CS=k(D+W)-W where k is a prudential capital ratio set to 8% here, D is balance sheet liabilities and W is the market value of equity.
- CRISK=E(CS conditional on climate stress)
- Marginal CRISK = CRISK-CS , i.e. the difference between stressed capital shortfall and unstressed capital shortfall.

CRISK AND MARGINAL CRISK CITIBANK 1/23/26

US CRISK AND MARGINAL CRISK 1/23/26

WORLD CRISK AND MARGINAL CRISK 1/23/26

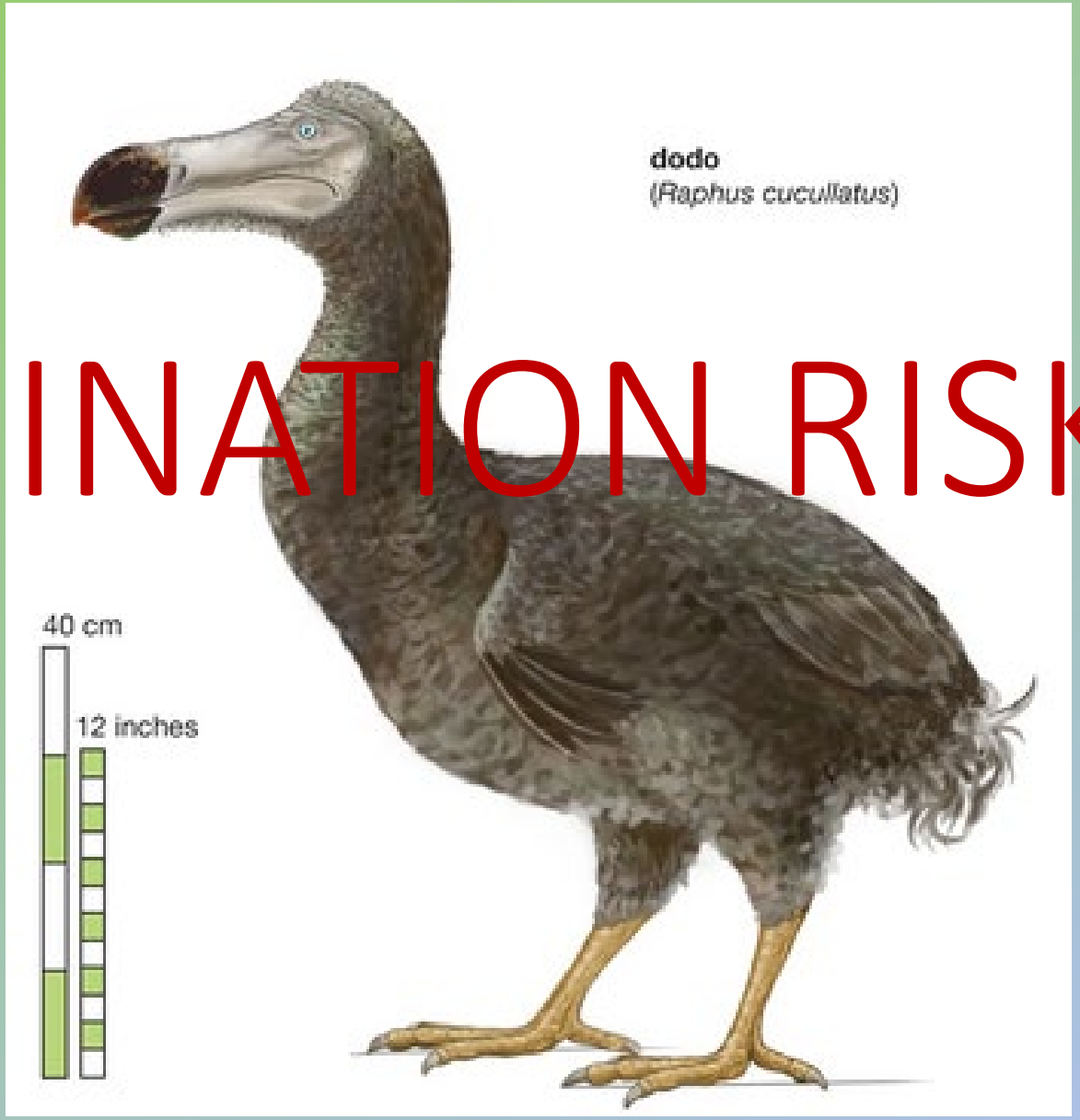


WHAT HAVE WE LEARNED?

- Many firms and assets are exposed to climate risk. Investors care and so do the managers.
- If the climate continues to get worse, these brown assets are likely to become less and less profitable, until they go out of business. This might be because of rising physical risks or powerful mitigation policies or individual preferences.

- How should firms operate that face TERMINATION RISK?
- We don’t teach this in business schools. Maybe we should!!

TERMINATION RISK



AN EXAMPLE: A LUXURY BEACH FRONT HOTEL

- Termination risk is a particular form of long term risk. This is the risk that a business will not be viable after an uncertain point in the future.
- There are many reasons why a business may end including increased competition, technology, policy change and climate change.
- We will consider the management of a luxury beach front hotel that will almost inevitably be destroyed by sea level rise at some not too distant time. How should this be managed?
- Other famous examples are horse carriages, vacuum tubes, Kodak, rayon, tobacco, floppy disks, Blockbuster video and many others.
- We will be considering fossil energy!!


The Inglenook

HOW SHOULD WE MANAGE THIS HOTEL?

- Sell if you can but you won't get replacement value.
- Do not upgrade if the payback period is long compared to the termination date. Reduce investment.
- Withhold maintenance and even taxes improving the net income at least temporarily.
- If other hotels act the same, then the aggregate supply of beach front luxury rooms may shrink leading to increased room rates and possibly increased profits.
- Investors in this hotel should value their ownership based on the present discounted value of future expected cash flows up to the termination date adjusted for risk.

WHAT WE SHOULD SEE:

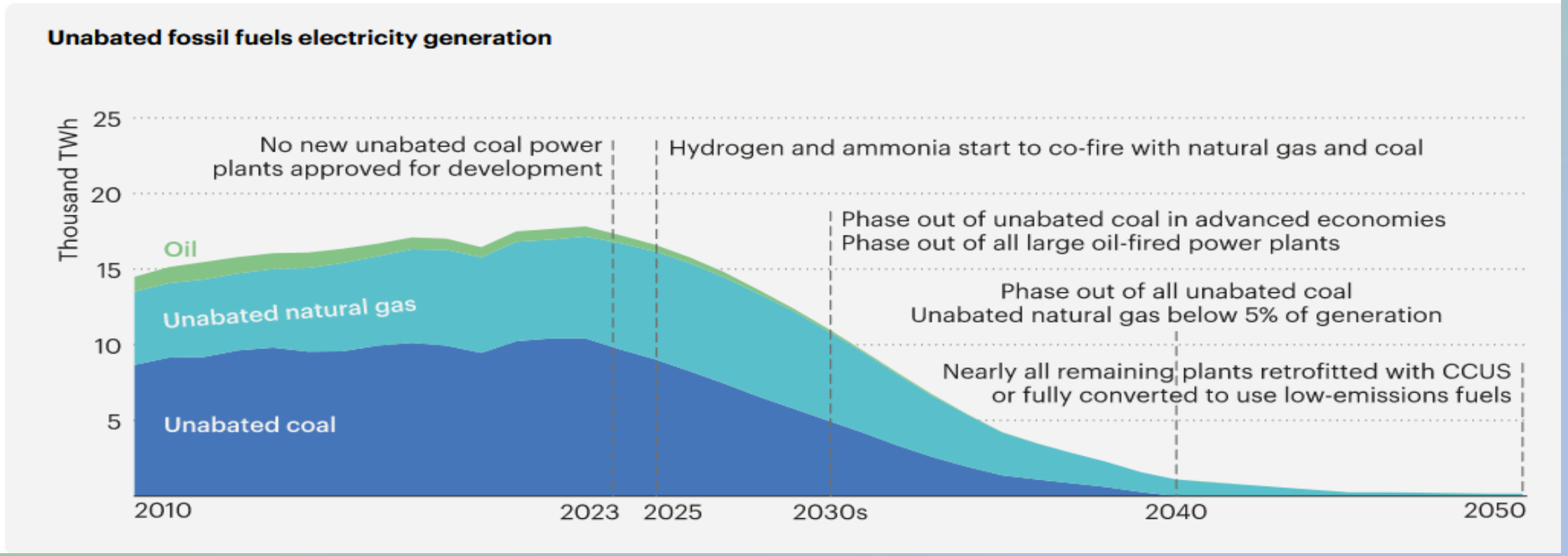
- Low P/E ratios as there are not many years left and there is risk.
- Low P/B ratios as the market value of the hotel is likely to be much less than its book value.
- High expected returns to the stock as risk depresses the value.
- Declining market capitalization from stock buy-backs and high dividends and/or falling stock prices.
- If demand increases, earnings will increase but supply response may be weak.
- The manager might choose to diversify with the high cash flow, however unless there are important synergies, investors would prefer cash back. Furthermore, the high cost of capital would discourage such expansion.
- If some hotels cut their prices to increase business, then all will lose. We might expect consolidation to better harvest monopoly rents.


DO FOSSIL ENERGY COMPANIES FACE TERMINATION RISK?

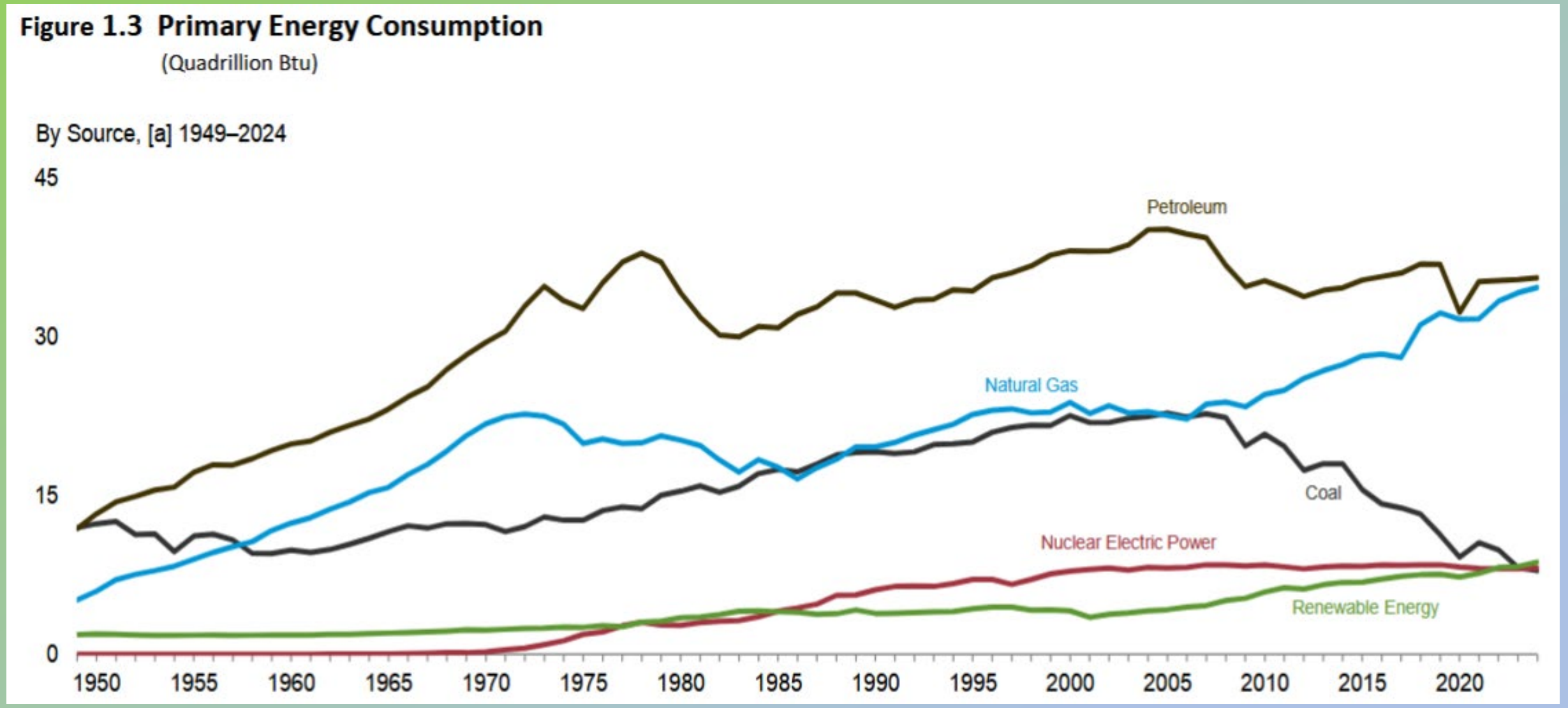
IEA MODEL FOR NET ZERO

Unabated fossil fuels in electricity generation

Electricity output from unabated fossil fuels falls by 40% to 2030 and virtually disappears by 2050, as plants are run less, retired, retrofitted with CCUS or repurposed to use low-emissions fuels.

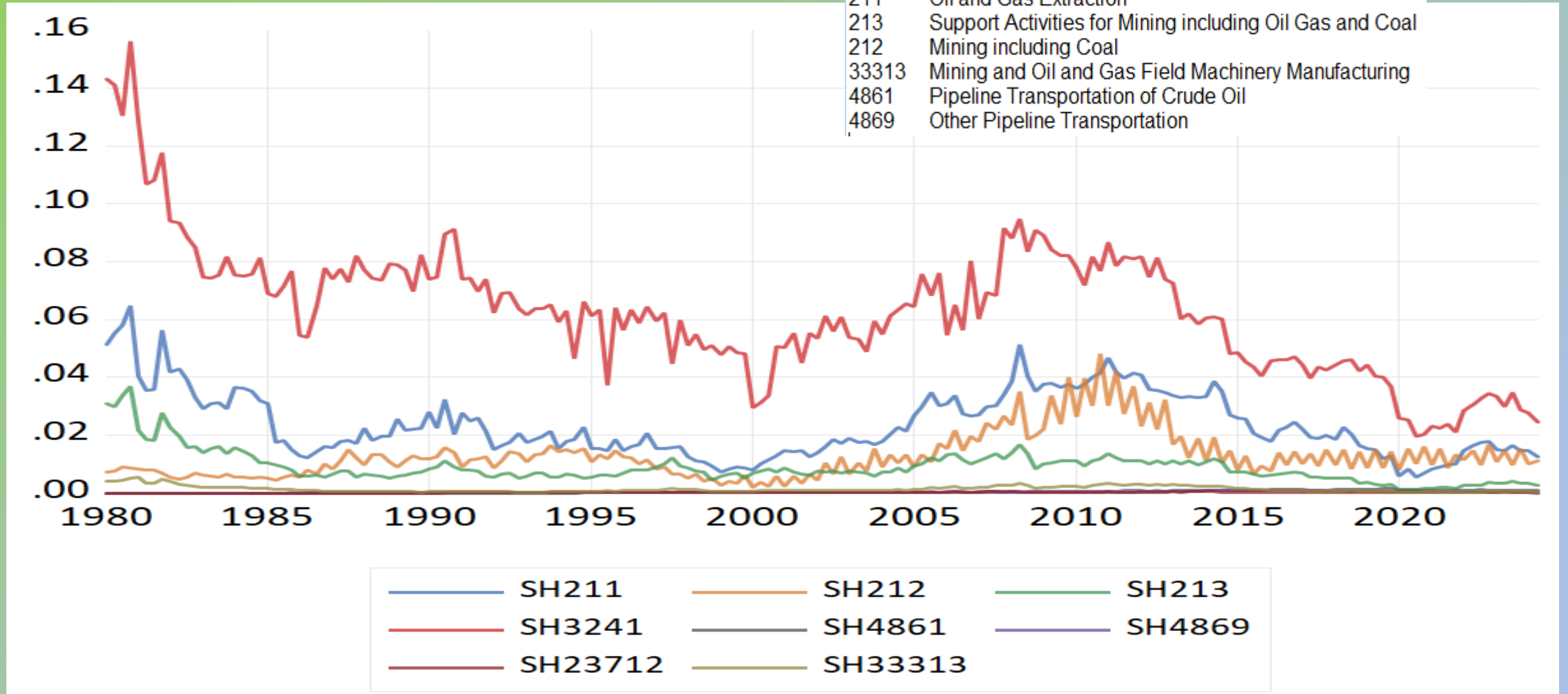


PRIMARY ENERGY SOURCE USA FROM EIA



MARKET CAP SHARES:US

3241	Petroleum and Coal Products Manufacturing
211	Oil and Gas Extraction
213	Support Activities for Mining including Oil Gas and Coal
212	Mining including Coal
33313	Mining and Oil and Gas Field Machinery Manufacturing
4861	Pipeline Transportation of Crude Oil
4869	Other Pipeline Transportation



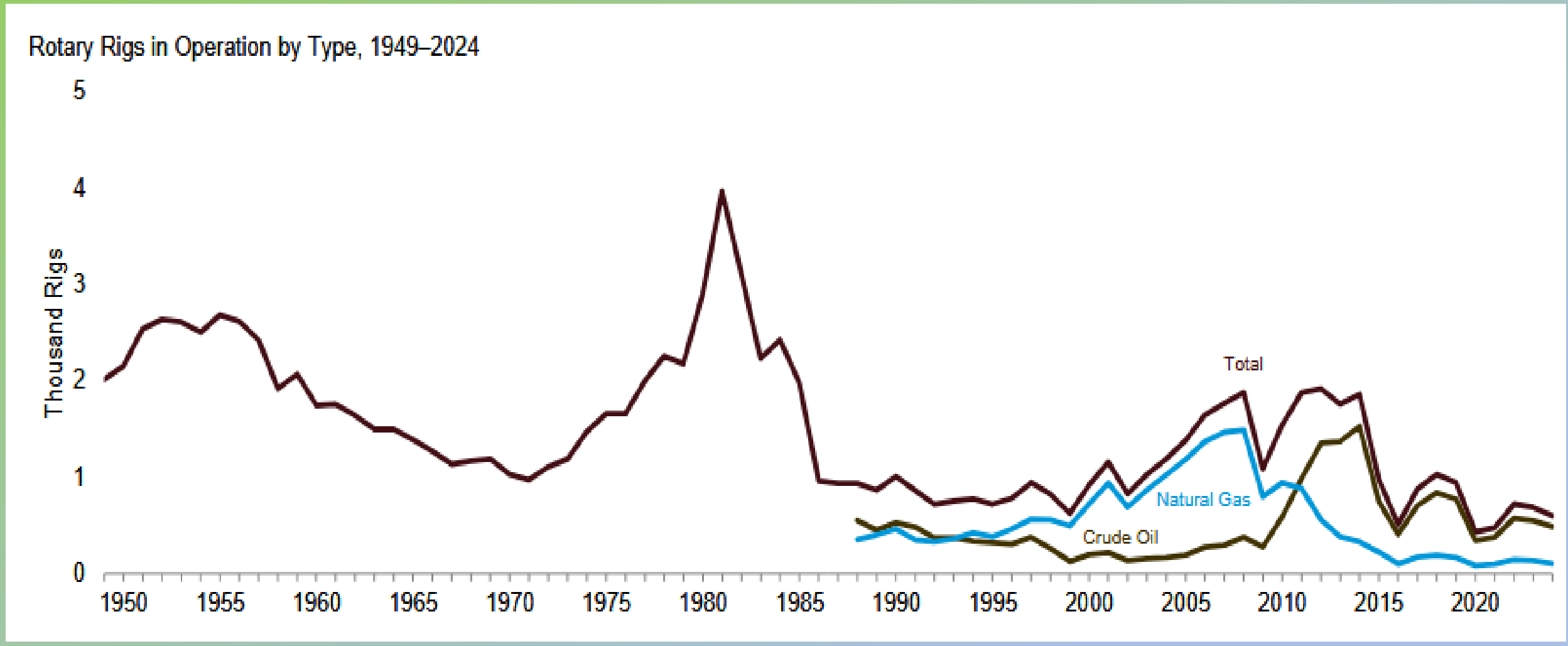
SECTOR VALUATION JANUARY 24,2026

No.	Name	Market Cap	P/E	Fwd P/E	PEG	P/S	P/B	P/C	P/FCF	EPS past 5Y	EPS next 5Y
1	Energy	3870.55B	17.60	15.65	2.43	1.20	1.90	13.08	14.40	18.60%	7.23%
2	Financial	14281.43B	18.47	14.98	1.55	2.38	1.93	10.08	13.81	12.34%	11.91%
3	Utilities	1758.62B	20.89	16.61	1.94	2.46	2.18	25.55	108.46	6.47%	10.76%
4	Healthcare	8826.10B	27.13	20.03	1.71	2.00	4.73	17.27	24.45	5.82%	15.91%
5	Consumer Defensive	4391.21B	27.65	20.99	3.52	1.47	5.09	23.00	25.11	6.37%	7.86%
6	Basic Materials	2942.59B	28.58	17.50	1.17	2.54	2.98	16.86	34.54	11.43%	24.49%
7	Consumer Cyclical	9575.10B	29.92	24.30	1.97	2.02	4.89	11.59	45.74	20.20%	15.17%
8	Industrials	7194.69B	30.58	24.49	2.45	2.54	5.49	21.58	32.59	11.44%	12.48%
9	Communication Services	12522.49B	32.71	28.99	1.89	5.21	6.91	24.17	32.20	24.75%	17.32%
10	Real Estate	1694.27B	34.19	30.75	2.47	4.23	2.36	20.89	22.47	1.76%	13.83%
11	Technology	26175.63B	38.57	23.55	1.45	7.52	10.00	26.10	39.53	33.76%	26.58%

SECTOR OVERVIEW JANUARY 24,2026

No.	Name	Stocks	Market Cap	Dividend	P/E	Fwd P/E	PEG	LTDebt/Eq	Debt/Eq
1	Energy	248	3870.55B	3.86%	17.60	15.65	2.43	0.63	0.70
2	Financial	1016	14281.43B	1.84%	18.47	14.98	1.55	1.00	1.69
3	Utilities	107	1758.62B	2.88%	20.89	16.61	1.94	1.60	1.80
4	Healthcare	1086	8826.10B	1.48%	27.13	20.03	1.71	0.75	0.83
5	Consumer Defensive	245	4391.21B	2.43%	27.65	20.99	3.52	0.95	1.09
6	Basic Materials	275	2942.59B	1.65%	28.58	17.50	1.17	0.49	0.55
7	Consumer Cyclical	561	9575.10B	0.76%	29.92	24.30	1.97	0.94	1.17
8	Industrials	683	7194.69B	1.12%	30.58	24.49	2.45	1.08	1.21
9	Communication Services	270	12522.49B	0.56%	32.71	28.99	1.89	0.65	0.72
10	Real Estate	261	1694.27B	3.89%	34.19	30.75	2.47	1.28	1.70
11	Technology	773	26175.63B	0.59%	38.57	23.55	1.45	0.49	0.56

Energy Information Agency



MERGERS AND ACQUISITIONS

- 2026 US GOVERNMENT “captured” Venezuela – now trying to persuade oil majors to invest
- 2023 EXXONMOBIL purchased PIONEER NATURAL RESOURCES $64B
- 2023 CHEVRON purchased HESS CORP $60B
- 2019 OCCIDENTAL PETROLEUM purchased ANADARKO $55B
- This is both termination for the acquired company and consolidation for the acquiring company. No net expansion of the industry.

IMPLICATIONS OF TERMINATION RISK

- President Trump's efforts to support fossil energy and coal in particular, have not been very effective in raising P/E or P/B ratios, or increasing investment. The ratios have increased but they are still lowest.
- Oil and coal outputs have increased slightly this year leading to falling energy prices. Gas has not.
- Planning by fossil energy firms will take Termination risk into account and the long term threat of decarbonization will continue to drive emissions downward even in the face of government resistance.
- The discussion of climate has been silenced and much research has been defunded. But climate silence will not stop climate change.
- Current anti-climate policies will simply postpone the decline.

HAS SUSTAINABLE INVESTING BEEN PROFITABLE?

- According to VLAB tabulations of types of sustainable funds on January 23,2026

One Year Summary Statistics

Category	Return	Volatility	Sharpe Ratio	α_{CAPM}
All (154)	27.23%	20.57%	1.05	10.99
Broad ESG (126)	21.53%	19.22%	0.91	6.98
Carbon Trading (3)	12.57%	22.11%	0.41	8.77
Fossil Fuel Free (32)	21.59%	21.36%	0.78	6.56
Low Carbon (72)	15.39%	17.74%	0.70	2.14
Sustainable Sector (46)	49.48%	25.92%	1.64	26.83

Five Year Summary Statistics

Category	Return	Volatility	Sharpe Ratio	α
All (120)	6.57%	19.56%	0.20	
Broad ESG (109)	6.65%	19.20%	0.21	
Carbon Trading (1)	15.13%	28.74%	0.39	
Fossil Fuel Free (31)	4.09%	21.78%	0.09	
Low Carbon (71)	8.93%	17.08%	0.30	
Sustainable Sector (31)	1.06%	24.99%	-0.03	

TOP 5 SUSTAINABLE FUNDS FOR 2025

1 YEAR: 103 OUT OF 154 HAD CAPM ALPHA>0

5 YEAR: ONLY 13 OUT OF 120 HAD CAPM ALPHA>0

Security	Return	Volatility	Sharpe Ratio	α_{CAPM}
Sprott Critical Materials ETF	163.25%	39.99%	3.99	83.89 (2.79)
VanEck Green Metals ETF	123.97%	32.14%	3.75	64.99 (2.61)
iShares Global Clean Energy ETF	75.08%	23.37%	3.06	43.95 (3.20)
Fidelity Clean Energy ETF	82.19%	26.13%	3.01	46.36 (2.96)
Elevation Series Trust - Trueshares Eagle Global Renewable Energy Income ETF	50.46%	16.03%	2.93	32.75 (2.90)
Amplify Lithium & Battery Technology ETF	82.90%	28.45%	2.79	45.81 (2.66)

GLOBAL CLIMATE POLITICS

GLOBAL POLITICS

- Countries recognize that if they decarbonize and other countries do not, they will get little benefit from their efforts. Each country therefore has an individual incentive not to decarbonize. These countries can be called free rider countries. By cancelling its climate regulations and incentives, the US has become a free rider country.

- However, there is a better solution when all countries cooperate in decarbonizing.
- How can we achieve the cooperative solution rather than the self interested solution in a global setting where there is no government that can enforce cooperation?

STRATEGIES

- Cooperation is contagious. Cooperate on other things and then climate becomes easier.
- Collaboration by academics may move the electorate and governments.
- Multi-national corporations have much to gain from cooperative solutions and can influence governments.
- Climate leaders.

ROLE OF CLIMATE LEADERS

- It is expensive to be a leader in climate mitigation. Free riders get the same benefit but pay no costs. They are likely to be competitors.
- But leaders do get benefits too.
  - Leaders may benefit through first mover advantages in marketing, selling business services, hiring, and capital markets.
  - Also, by developing green technologies, they incentivize others to innovate, thus reducing the ultimate damages or carbon taxes, possibly sufficiently to reward their leadership role.
  - This is a game theory concept called Stackelberg leader. See Acharya et al.(2025) https://ssrn.com/abstract=5083775

ECONOMIC REASONS TO COLLABORATE

- The falling cost of renewable energy will make decarbonization an opportunity rather than a cost in many countries and sectors.
- The ability to sell green technology to a global market is a profitable strategy which also helps the planet decarbonize.
- The vast demand for power for AI will require big investments in renewable energy because it is cheap and fast and because AI demand should be able to tolerate the intermittency of solar and wind.

- Near Lhasa, the capital of Tibet, a Chinese power company recently installed *150 megawatts of solar panels at 17,000 feet* covering an area seven times the size of Manhattan. They soak up sunlight that is much brighter than at sea level because the air is so thin.
- Power Construction Corporation of China completed a 480-megawatt solar project last year at an altitude of 4,000 feet on the plateau of the Atacama Desert in Chile.
- Qinghai's Talatan solar project dwarfs these. It has a capacity of 16,930 megawatts of power, which could run every household in Chicago. It is still expanding, adding panels with a target of growing to 10 times the area of Manhattan in three years. Another 4,700 megawatts of wind energy and 7,380 megawatts of hydroelectric dams are nearby.
- Renewable energy helps China power 30,000 miles of high-speed train routes and its growing fleet of electric cars. At the same time, cheap electricity enables China to manufacture even more solar panels, which dominate global markets and power artificial intelligence data centers.


MANHATTAN
TALATAN SOLAR PARK
5 miles

With Cheap Chinese Solar, Developing Countries Leapfrog U.S. on Clean Energy

A solar installation in Tinginaput, India. ABBIE TRAYLER-SMITH / PANOS PICTURES / DEPARTMENT FOR INTERNATIONAL DEVELOPMENT

UTILITY SCALE GENERATING UNITS PLANNED TO COME ONLINE NOV 2025-OCT 2026

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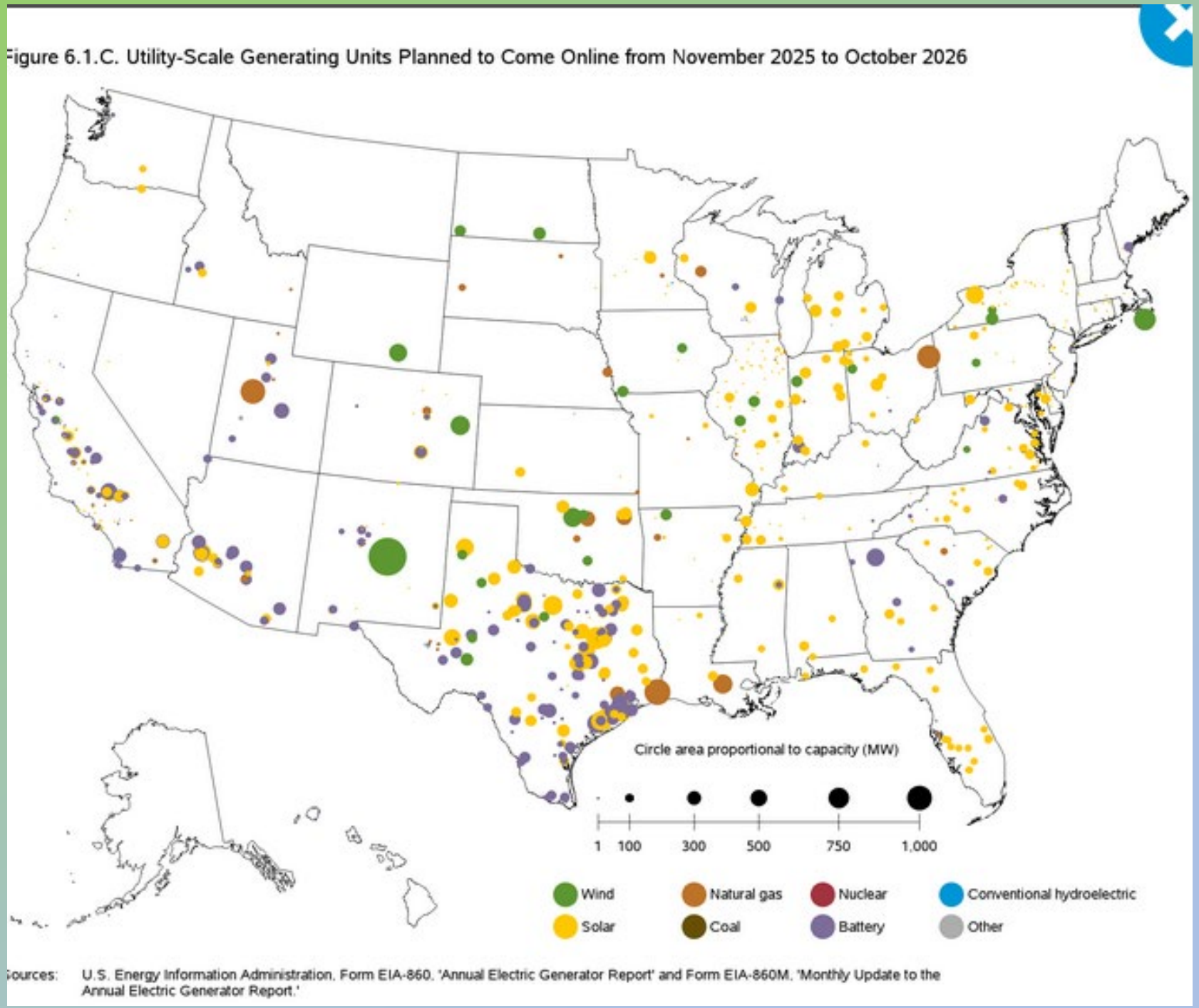


A liquefied natural gas tanker at the Sabine Pass export terminal in Cameron, Louisiana. CALLAGHAN O'HARE / BLOOMBERG VIA GETTY IMAGES

It's a 'Golden Age' for U.S. LNG Industry, But Climate Risks Loom

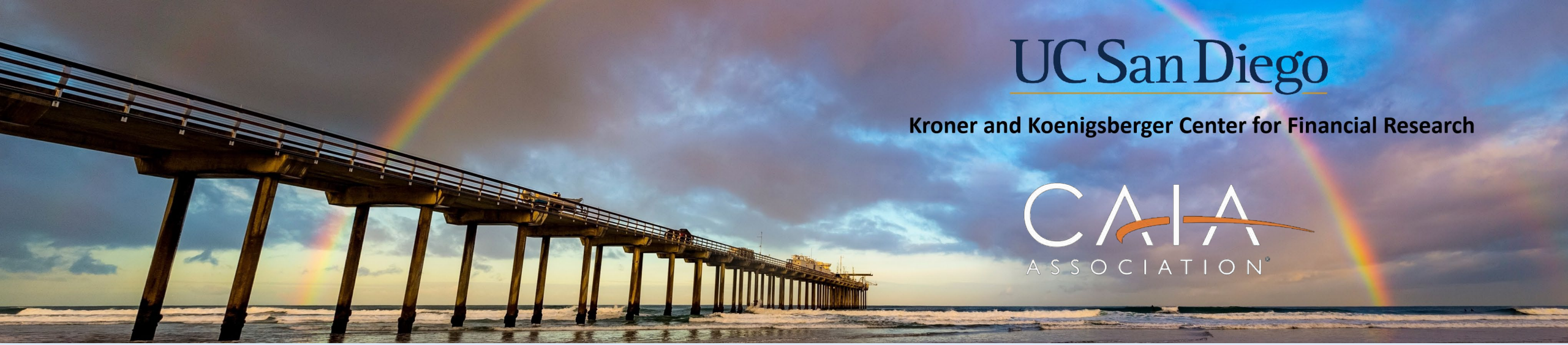
Under the Trump administration's policies, new liquefied natural gas terminals are moving ahead, with exports of LNG expected to double by 2028. But as the U.S. pressures trade partners to buy more fossil fuels, analysts warn of the climate and economic risks of an LNG boom.

WILL WE STOP CLIMATE CHANGE?

- I am an optimist and believe that ultimately renewable energy will be so desirable that it will dominate our energy market.
- I believe that the economic policies of the Trump administration will be damaging to the US and rest of the world and will be reversed and revised after the consequences are realized. Last week at the World Economic Forum, the risks were on display.
- The captains of industry will see that deregulation and lower corporate taxes and massive deficits are not sufficient for national prosperity.
- The electorate will reembrace climate mitigation as climate disasters rise.
- I can only hope that this will all occur in time to repair international relations and reduce both climate and other geopolitical risks.


What kind of world will we inherit?


But if we can
tell them that
we have it
solved, ...



Blended panel: Measuring the value proposition of the investment consulting industry; David Tien, CPPIB, chair

Choosing Pension Fund Investment Consultants, Matteo Bonetti (De Nederlandsche Bank)

Discussion of Alternatives and Consultants Panel
Scott Chan (CalStrs), Prakash Kannan (GIC), Stephen McCourt (Meketa Investment Group)

Choosing Pension Fund Investment Consultants

Aleksandar Andonov (UvA), Matteo Bonetti (DNB), Irina Stefanescu (FED)

Joint KKCFR and CAIA Conference
5 February 2026

DeNederlandscheBank
EUROSYSTEEM

Bonetti, M. (Matteo) (FM_RM)

What do we do?

We examine the role of investment consultants in shaping the investment policies of pension funds.

Motivation:

- Widely used and increasing pension fund-consultant relations: as of June 2024, consultants advised $ 19.5 trillion in pension assets.
- Existing studies primarily examine the supply side of the consulting market, focusing on consultants' recommendations, searches, and product-level outcomes (e.g., Goyal and Wahal, 2008; Jenkinson, Jones, and Martinez, 2016)
- We know much less about the **demand for consulting services** by pension funds and how these advisory relationships shape portfolio decisions at the pension fund level over time.

Our paper:

- Why public pension funds **hire consultants**, take-up advice, and consequently **adjust asset allocations and manager selection.**

→ Influence of consultants on allocation and performance

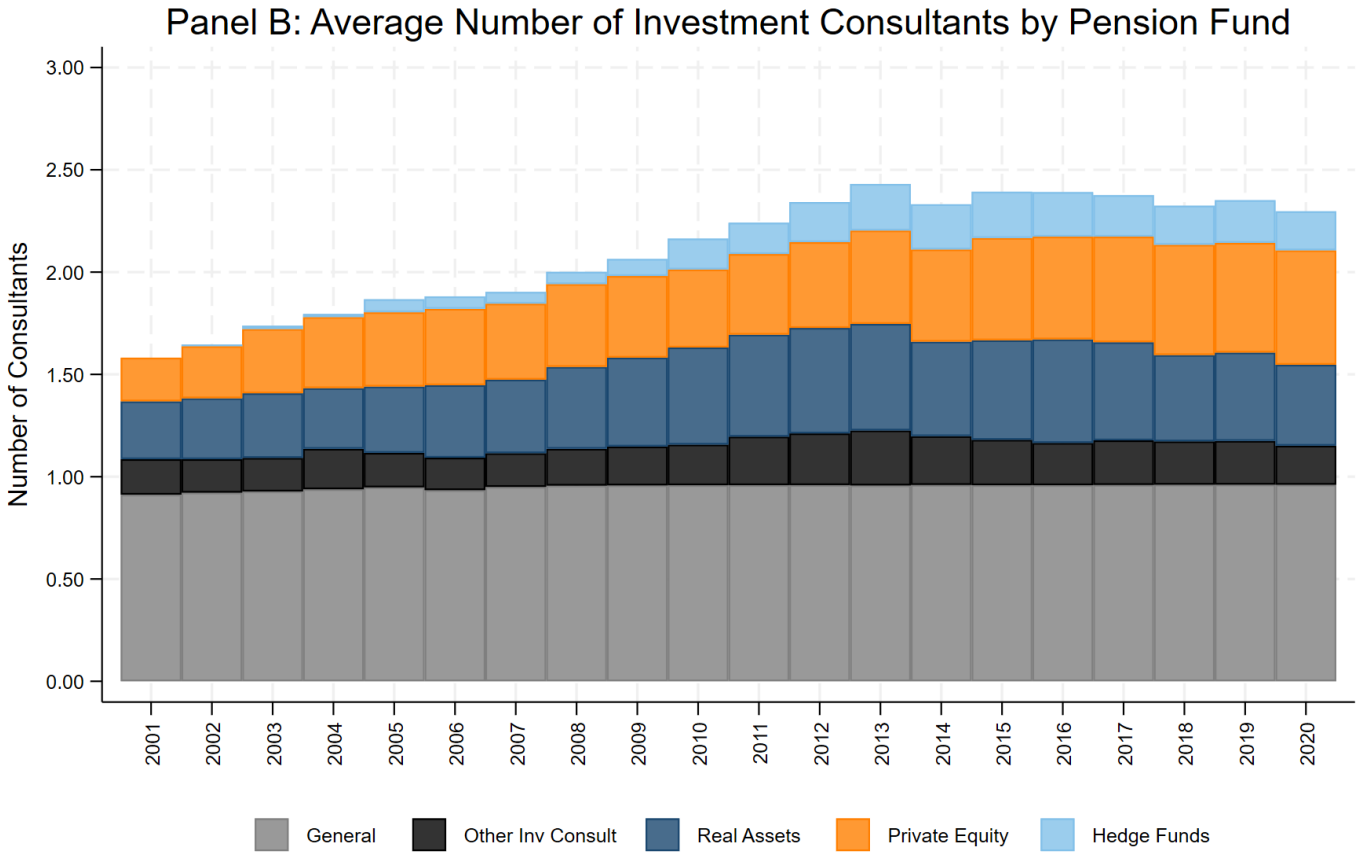
Empirical Setting: U.S. Public Pension Funds

173 pension funds: 138 from PPD and 35 hand-collected. 91% of AUMs.

Consultants names: hand-collection of 6,085 observations.

- General (asset allocation policy and return expectations/benchamrking)
- Specialized (managerial selection in alternatives)
- 1,966 obs. with fees.

Managerial selection: Preqin data on 22,744 investments in private funds (buyout, VC, real estate, infra).



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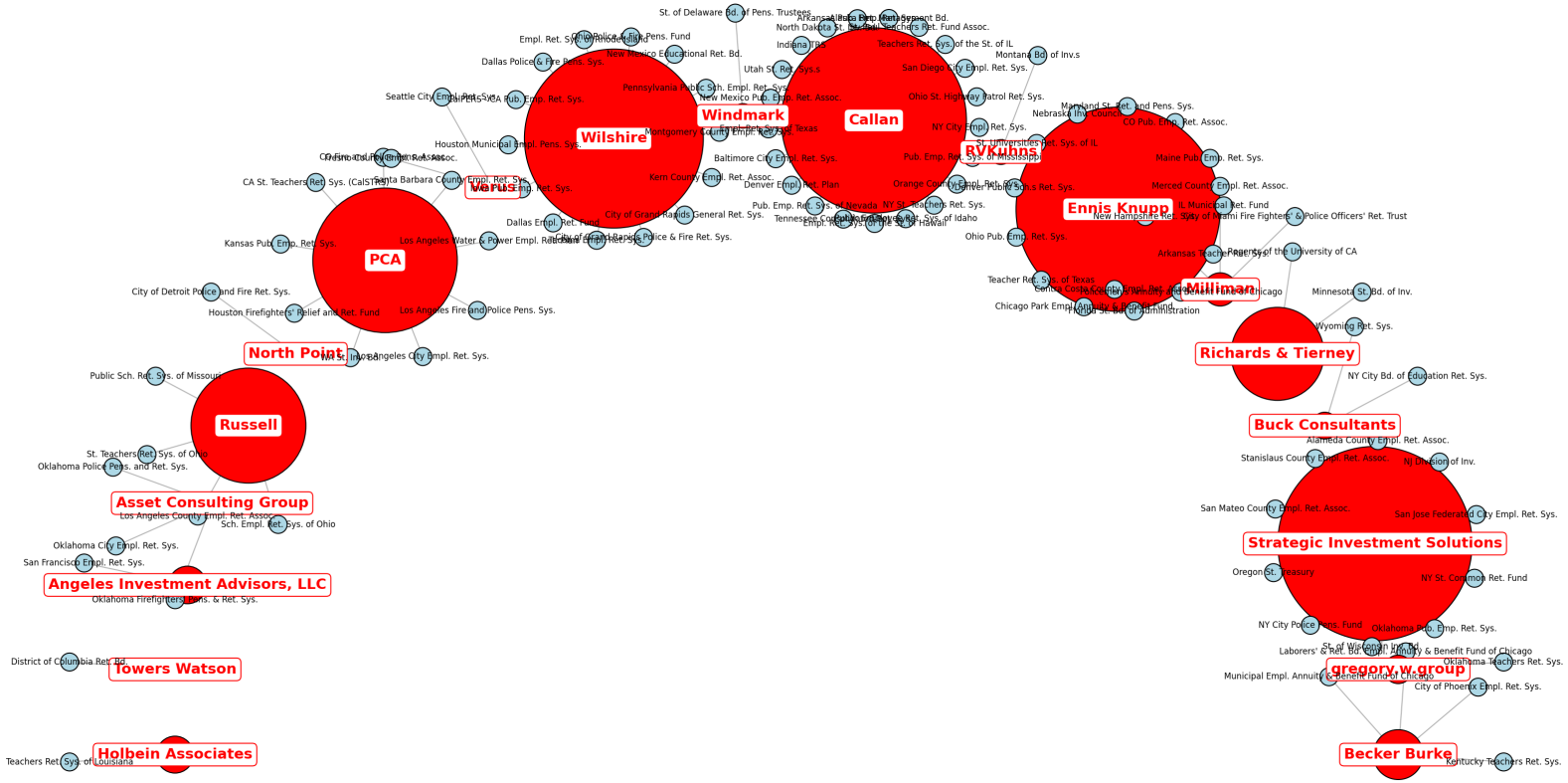
Pension fund-consultant relationships in 2005



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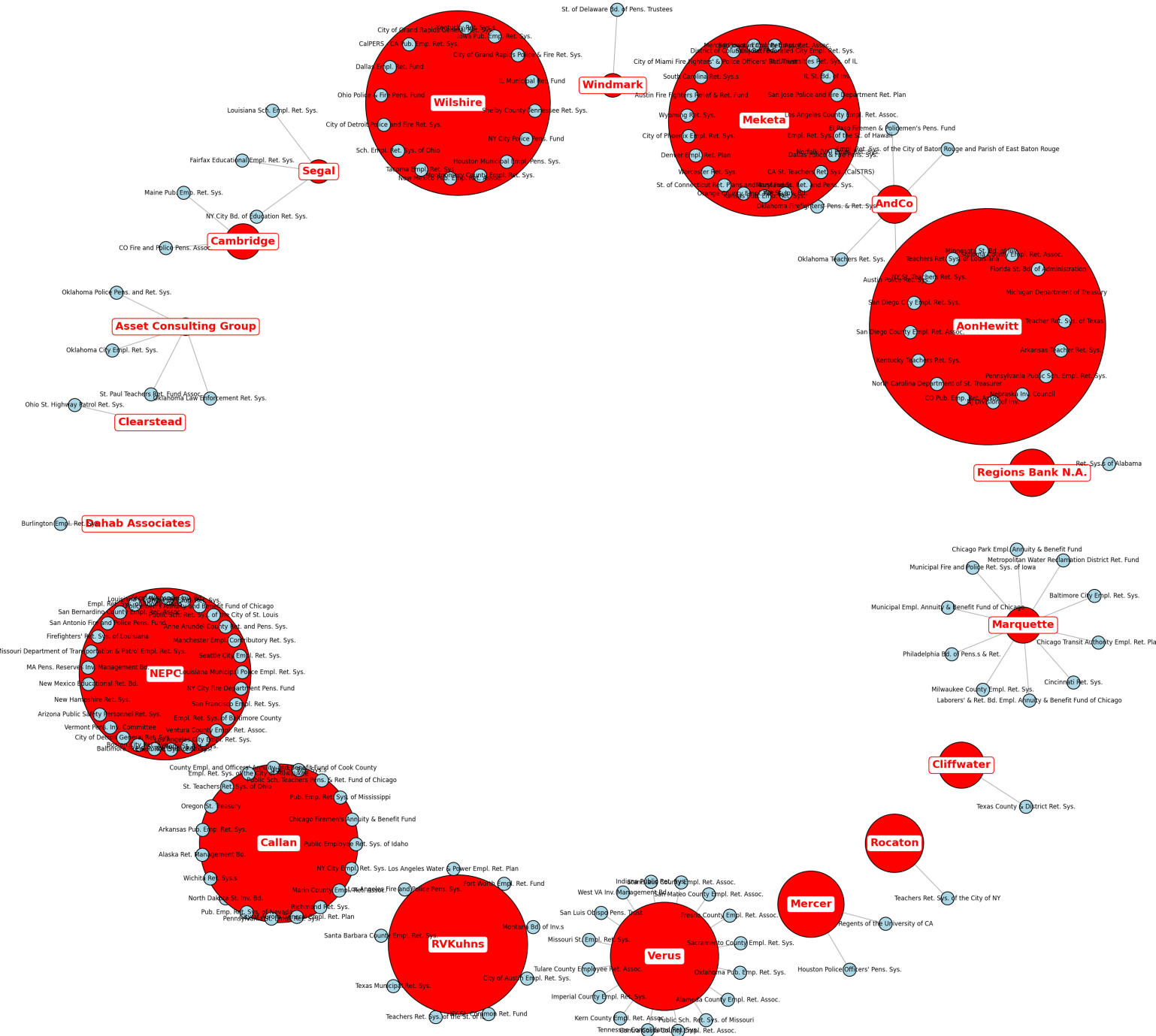
Pension fund-consultant relationships in 2020



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General consultants (GCs) turnover and impact

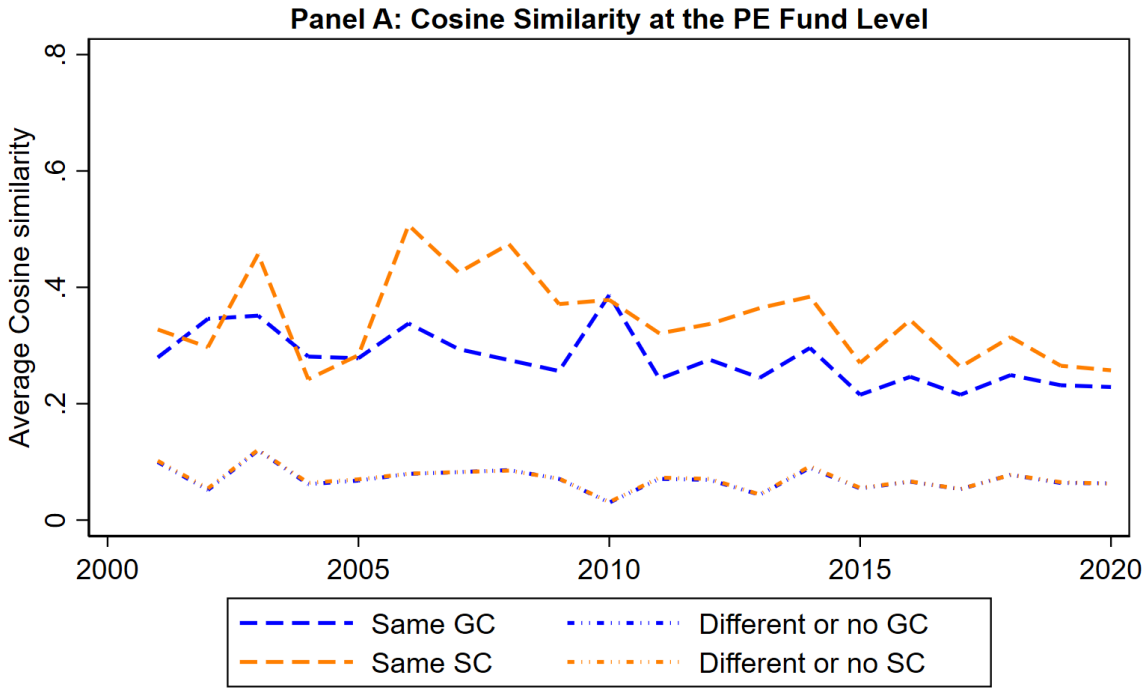
Demand of GCs	General consultant turnover is strongly linked to sustained **peer-adjusted under-performance**.
Post hiring allocation changes	Significantly **larger absolute changes** to pension fund target allocations in the first two years of the mandate.
Post hiring convergence in allocation	Pension funds adjust their **target allocations toward the average allocations** of other clients advised by the newly hired GC. Significant economic impact:a 10 pp higher allocation to alternatives among the new GC's other clients in year t-1 corresponds to a 2.64 pp increase in the pension fund's own allocation to alternatives.
Post hiring performance	**No strong evidence** supporting that reallocation post-hiring improves overall performance

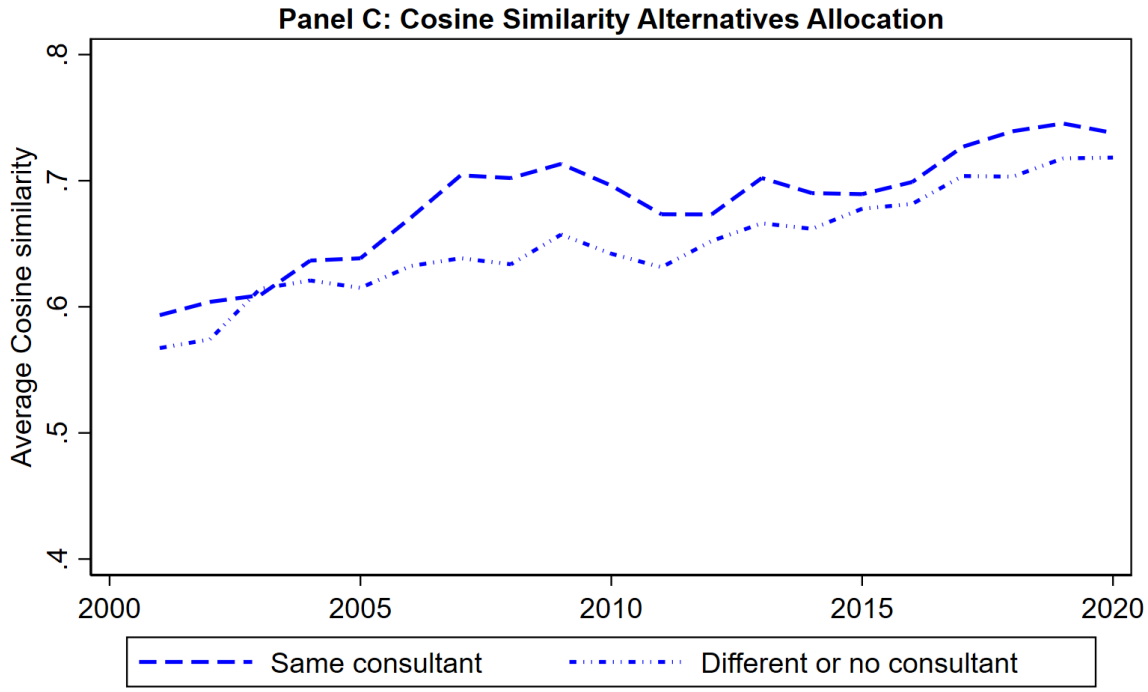
Specialized consultants (SCs) hiring and impact

Demand of SCs	**Hiring is driven primarily by asset allocation** → 10 percentage point gap between target and actual allocations increases the probability of hiring a SC by 1.8 percentage points.
Post hiring access to investments	**Network effects**: a pension fund is 4 times more likely to invest in a PE fund if another pension fund using the same PE consultant also invests in the PE fund.
Access and scalability	SCs can help pension funds in scaling up allocation and can be gatekeepers to investment opportunities → SCs roughly **double the number of investments per year**. **No consistently better access** to highly sought-after private funds: (i) avoid first-time funds; (ii) access oversubscribed funds; (iii) access to coinvestments and separate management accounts.
Post hiring performance	**Little evidence** indicating that SCs improve performance in private assets measured as: PME, IRR and MOIC

Portfolio similarity

- **Cosine similarity**: degree of overlap in investment portfolios between 0 and 1.
- Pension funds advised by the **same GC or SP exhibit substantially higher similarity** throughout the sample period.
- **In PE, similarity remains stable despite a large expansion in the investable universe.**
- **Similarity in alternative asset mixes increases over time.**





Summary: What do we find?

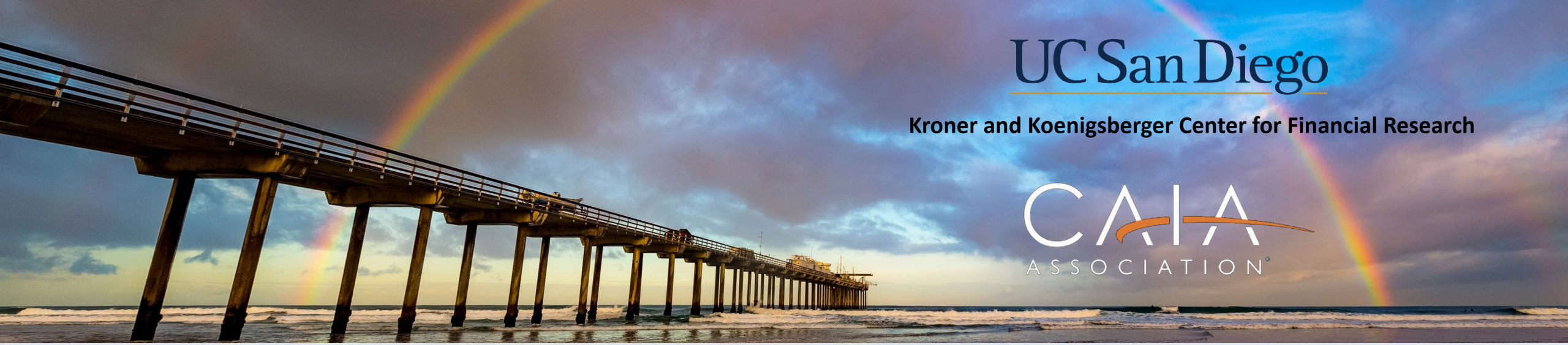
- Demand of general consultants is driven by peer-adjusted performance, whereas demand of specialized consultants is driven by asset allocation needs.

- After hiring a new consultant, pension funds adjust their asset allocations toward the average portfolios of the consultant's existing clients and are more likely to invest in private funds connected to the consultant's network Begenau, Liang, and Siriwardane (2025).

- These reallocations and investments do not improve performance or expand access to superior opportunities.

→ **Consultants role appears to be less about tailored advice and more about propagating common decision frameworks and coordinating flows across investors.**

- As the consulting industry has become more concentrated, this convergence around consultant hiring aggregates into a broad clustering of portfolio structures and common exposures across the U.S. public pension industry.



Closing Remarks

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