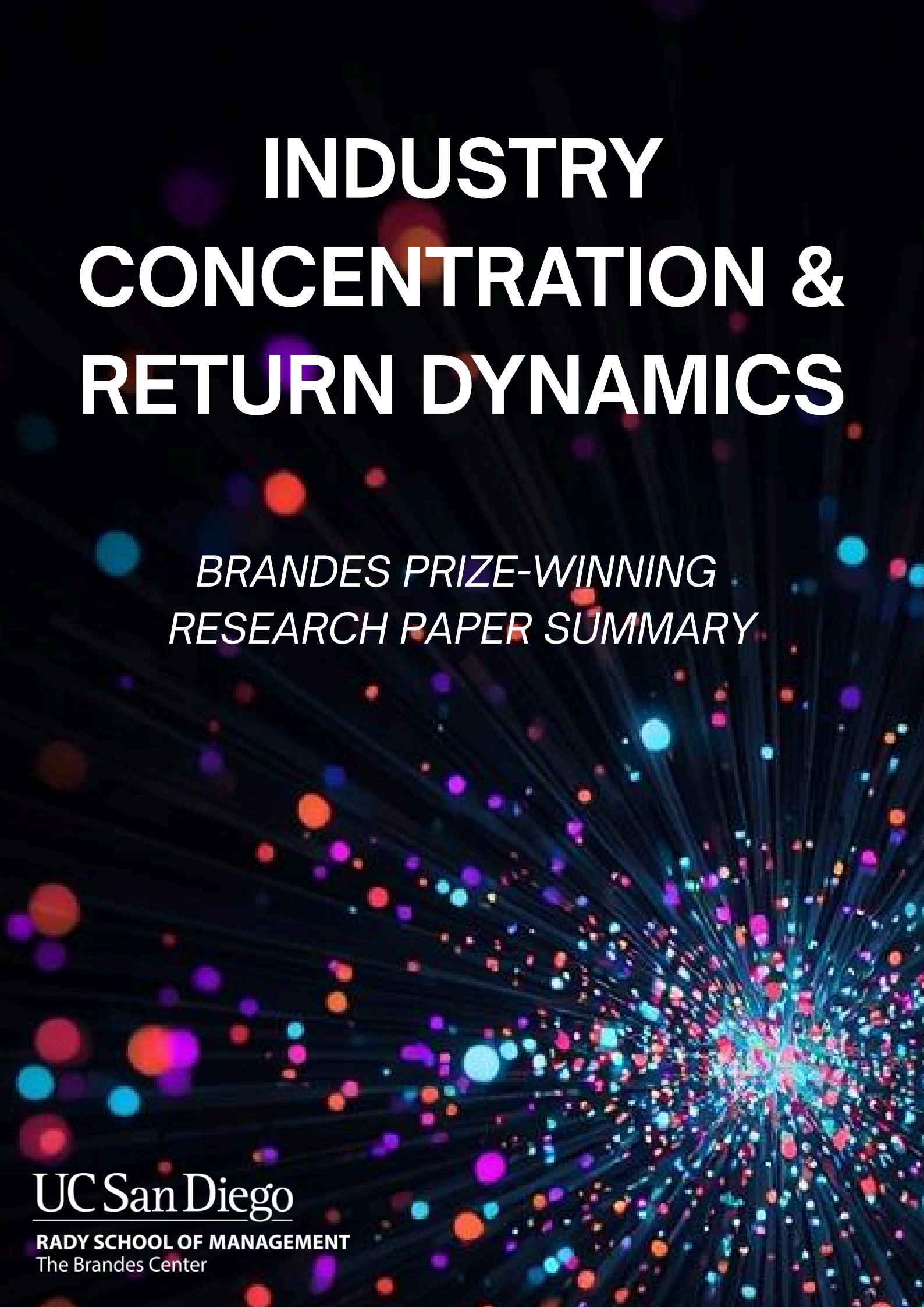
INDUSTRY CONCENTRATION & RETURN DYNAMICS

BRANDES PRIZE-WINNING RESEARCH PAPER SUMMARY



UC San Diego
RADY SCHOOL OF MANAGEMENT
The Brandes Center

Industry Concentration and Return Dynamics

Dr. Yanki Kalfa, Assistant Professor of Finance at the Fordham University Gabelli School of Business, led a discussion of his Brandes Prize-winning paper, "Industry Concentration, Sticky Profits and Return Dynamics" late in the first quarter 2026. Kalfa won the Prize in the Ph.D. students' category before joining Fordham in 2025.

Brandes Center Executive Director Bob Schmidt moderated the online discussion. Members of the Brandes Center Advisory Board and Academic Council attended.

Executive Summary

- Concentration, as measured by the Herfindahl-Hirschman Index (HHI), has been rising across most industries in the United States since the late 1990s.
- On average, returns for more concentrated U.S. industries earned about 3.5% a year more than competitive industries between 1990 and 2022.
- Kalfa's work shows expected profit growth has been more persistent in concentrated industries, citing auto makers or software and hardware companies like Apple. "Higher persistence makes profits more sensitive to booms and busts in the economy—which, in turn, also makes

Dr. Yanki Kalfa is an Assistant Professor of Finance at Fordham University's Gabelli School of Business focusing on empirical asset pricing.
"My research is about the differences in industry profits and returns, and why certain industries offer higher returns," he said. "I also focus on machine learning algorithms and their applications to return predictability."
Kalfa earned his BA from Penn State University, an MA from Johns Hopkins University and his Ph.D. in Finance at UC San Diego.
All charts in this report reflect Dr. Kalfa's analysis.
The complete version of Dr. Kalfa's Brandes Prize-winning paper may be found here.

them more sensitive to cash flow news," he said.

- As a result of this heightened sensitivity, the firms have higher risk premiums and higher conditional volatility during economic downturns.

- Kalfa said, "The take-home message is firms in concentrated industries offer higher risk premiums, but face higher volatility during economic downturns."

Industry Concentration and Return Dynamics

Kalfa started by noting that concentration has been rising across most industries in the United States since the late 1990s. While not shown in Exhibit 1, Kalfa said concentration had been decreasing between the 1970s and late 1990s.

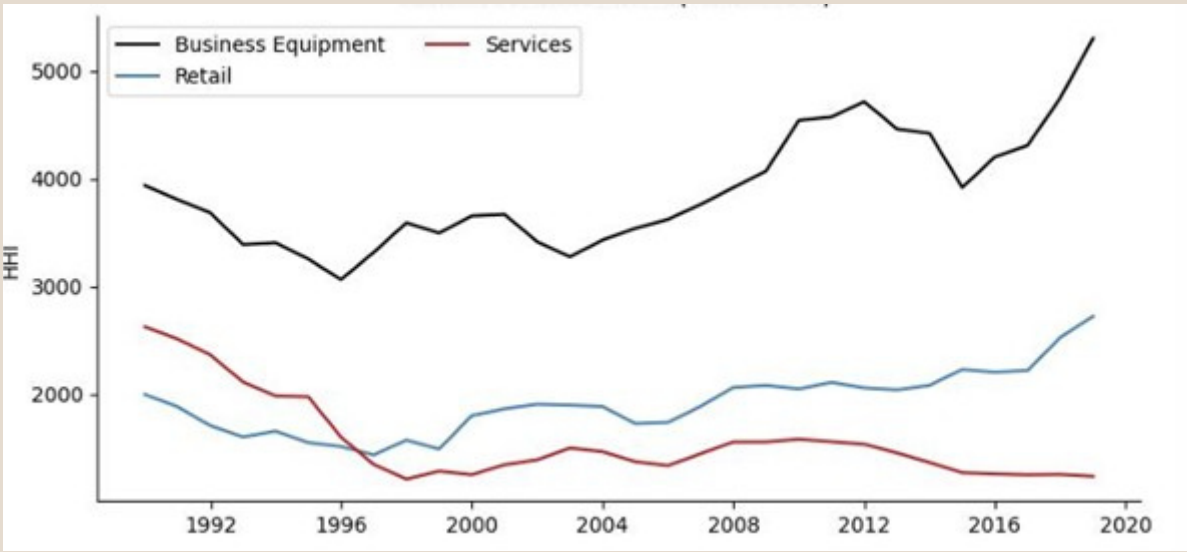
To measure concentration, Kalfa turned to the Herfindahl-Hirschman Index or HHI. He said the measure is used not only in academia, but also by the U.S. Department of Justice (DOJ).*

Next, Kalfa sorted industries by concentration and tracked returns for them vs. what he called competitive industry portfolios.

In Exhibit 2 on the following page , the blue line reflects cumulative returns of the most concentrated industries while the orange line shows the most competitive industry returns.

"On average, more concentrated industries earned about 3.5% a year more than competitive industries," Kalfa said between 1990 and 2021.

Exhibit 1 | Concentration (HHI) Has Been Increasing for Many U.S. Industries (1990-2019)



Source: Kalfa, "Industry Concentration and Return Dynamics." Date: 1990-2019

Schmidt asked if this performance difference would continue.

"I don't want the message to be 'concentrated industries earn alpha,'" Kalfa said. "It's not really alpha generation, it's more about risk compensation."

Next, Kalfa explored why firms in concentrated industries might outperform.

Concentration, Profit Growth Persistence and Sensitivity

"What I find is that expected profit growth is much more persistent in concentrated industries," he said, citing auto makers or software and hardware companies like Apple.

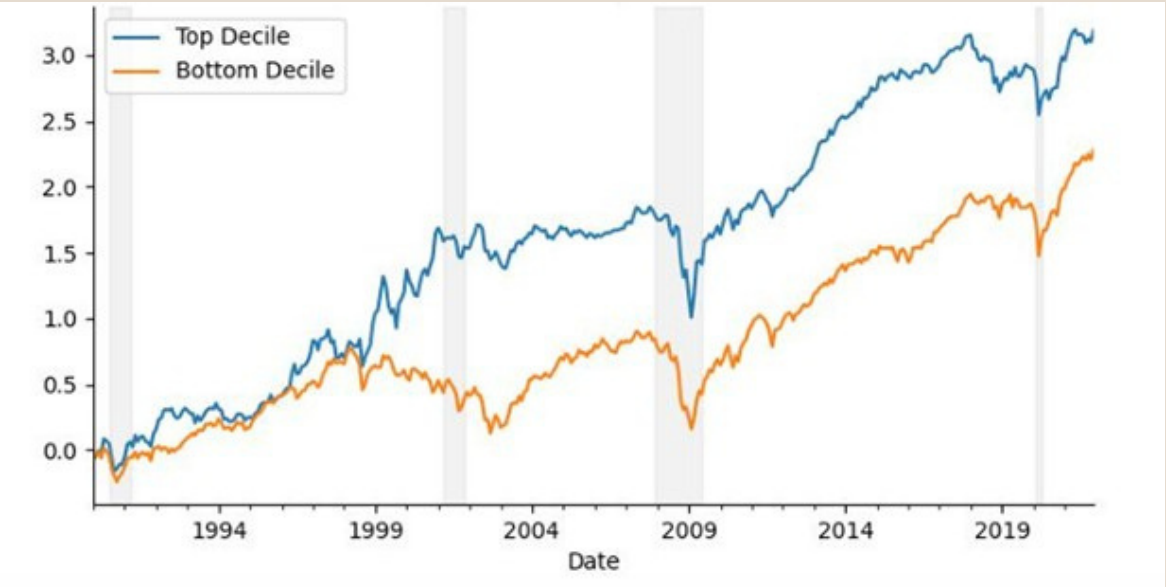
"Higher persistence makes profits more sensitive to booms and busts in the economy —which, in turn, also makes them more sensitive to cash flow news." He defined "cash flow news" as developments that might affect dividend growth, aggregate profit growth and/or cash flows.

As a result of his heightened sensitivity, the firms have higher risk premiums and higher conditional volatility during economic downturns.

"The take-home message is firms in concentrated industries offer higher risk premiums, but face higher volatility during economic downturns," he said, summarizing one of his key findings.

Exhibit 3 on the next page shows a 50% correlation between expected profit growth persistence and HHI.

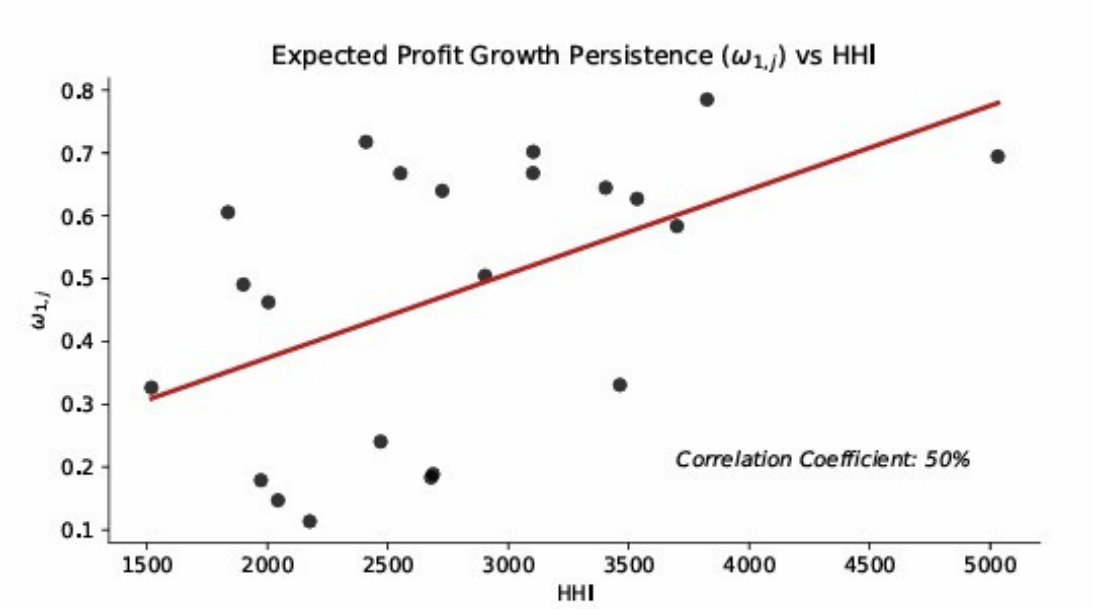
Exhibit 2 | Cumulative Returns for Portfolios in the Most Concentrated Industries Outperformed the Most Competitive Industries Between 1990 and 2021



Source: Kalfa, "Industry Concentration and Return Dynamics." Date: 1990-2022

Continuing to build his logical argument, Kalfa next asked, "Why should we expect this profit growth to be persistent?" He explained it using a measure of "product rigidity or fluidity" developed in 2014.** In essence, "rigid" products have little competition—and tend to exist in concentrated industries. "On the other side," Kalfa explained, "we have easily substitutable goods like T-shirts. It's far easier to find a substitute T-shirt as there is a lot of competition in this area."

Exhibit 3 | Expected Profit Growth and HHI Have Shown 50% Correlation (1976Q3 to 2021Q4)



Source: Kalfa, "Industry Concentration and Return Dynamics." Date: 1976Q3 to 2021Q4

Still, Kalfa said that highly concentrated industries have profit growth that is cyclically sensitive. He shared the results of a regression of profit growth persistence and cyclical sensitivity across concentration quintiles. Quintile 1 is most competitive; quintile 5 is most concentrated. The results are shown in Exhibit 4.

Exhibit 4 | High Profit Growth Persistence Has Led to Cyclically Sensitive Profits

Eqn.	$\Delta\pi_{j,t} = \alpha + \beta D_t^{Reces.} + \varepsilon_{j,t}$		
Quintiles	β	SE	P-Value
Q1	-1.96	1.03	0.06
Q3	-2.12	1.49	0.16
Q5	-4.01	1.58	0.01

Source: Kalfa, "Industry Concentration and Return Dynamics."

"What I'm hoping to get out of this is actually to understand how much of your profit growth gets affected when there is a recession, for example." For a highly competitive industry (Quintile 1), the profit growth drop was about 2.0%. However, among the most concentrated industries (Quintile 5), the drop was about 4.0%. Again, see Exhibit 4 on the prior page.

"Not only that, for Q1 and Q3 quantiles, these estimates are *not* statistically significant," Kalfa said. "However, for the most concentrated industries, the negative 4 percentage point result is actually highly significant [with a p value less than .05]."

So, why should concentrated industries be compensated with better returns? "If there's higher persistence in profit growth, the present value coefficient in front of cash flow shocks is going to be higher. "And if that's the case, then based on this research, we can see that highly concentrated industries need to compensate investors for having cyclically sensitive cash flows. That's why we see the risk premium going up."

Kalfa extended his analysis to "cash flow" and "discount rate" news, applying the formula below.

$$r_{j,t+1} - \mathbb{E}_t[r_{j,t+1}] = \underbrace{\rho_{1,j}\mathcal{B}_{1,j}\left(\varepsilon^{g}_{j,t+1} + \omega_{2,j}\varepsilon^{F^{CF}}_{t+1}\right)}_{\text{Cash Flow News}} - \underbrace{\rho_{1,j}\mathcal{B}_{3,j}\left(\varepsilon^{\mu}_{j,t+1} + \delta_{2,j}\varepsilon^{F^{DR}}_{t+1}\right)}_{\text{Discount Rate News}}$$

"If there's a negative shock to discount rates, that actually improves your future investment opportunities," he said. "If interest rates are low, then you can go invest and make more money, hopefully in the future.

"However, if there's a negative shock to your cash flows, not only is today's cash flow impacted, the present value of your future cash flows are also impacted [without any improvement in your investment prospects]."

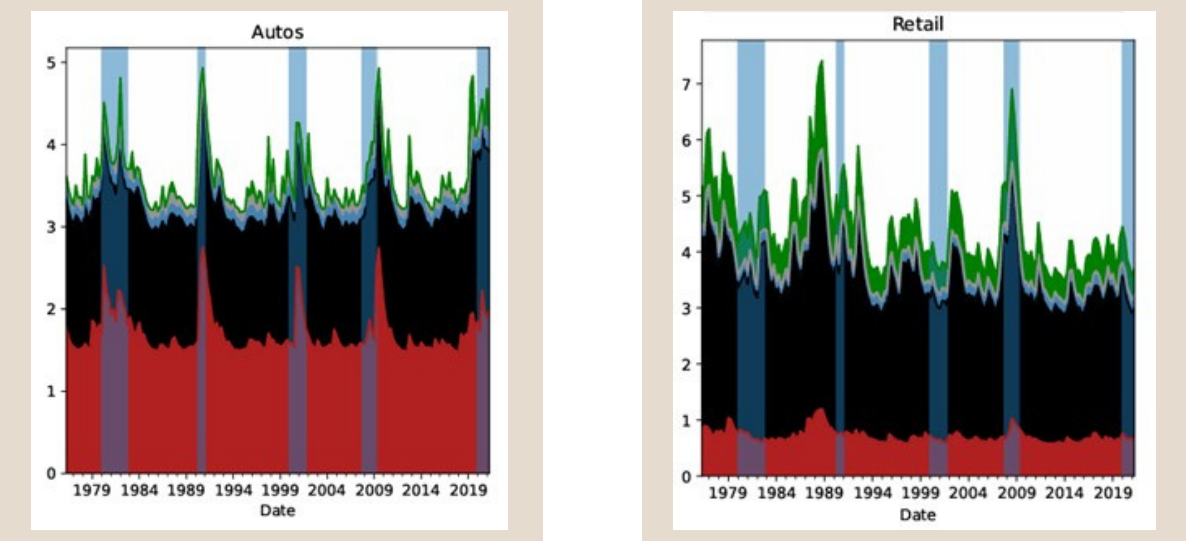
Ultimately, he reasoned that if an industry or a firm is highly sensitive to cash flow shocks or cash flow news, investors need to be compensated for these risks.

> "...we can see that these highly concentrated industries that are cyclically sensitive need to compensate investors for having cyclically sensitive cash flows. That's why we see this risk premium going up."
>
> *--Dr. Yanki Kalfa*

Volatility

Kalfa investigated volatility, decomposing it into two main components shown in Exhibit 5: cash flow shocks (in red) which reflects volatility due to cash flows and volatility due to discount rate shocks (in black). The green shading reflects the covariance between the two. The areas shaded in light blue in vertical bands correspond with recessions.

Exhibit 4 | Volatility Across the Automotive and Retail Industries (1976Q3 to 2021Q4)



Source: Kalfa, "Industry Concentration and Return Dynamics."

Kalfa noted that for the automotive industry, a highly concentrated industry, cash flow component of volatility surges during recessions-and then disappears. However, for the retail industry, historically, most of the volatility during recessions was driven by discount rate shocks. Kalfa added, "If [an industry has] higher sensitivity to cash flow shocks, then the risk around its cash flow is also going to be higher. And that's what we measure in these charts.

"We expect that because a highly concentrated industry is more sensitive to cash flow shocks, returns are going to react more relative to competitive industries."

He added that the charts in Exhibit 5 and others in his research report illustrate concentrated industries have been more sensitive to cash flow shocks. "You expect the cash flow component of volatility to blow up," he said. "And that's what we see."

As he neared the end of his prepared comments, he said, "I've hopefully convinced you that concentrated industries' profits are cyclically sensitive, which makes their exposure to cash flow shocks much more salient. And not only that, but their volatility is also driven mostly by cash flow shocks."

Volatility, Recessions and Sharpe Ratios

Last, Kalfa shared results of his work that addressed how much of an industry's volatility is impacted by a recession.

"I regressed volatility of an industry with a recession dummy variable, and show that for the more competitive industries, volatility goes up by about 0.14," he noted. "But for the most concentrated industries, it's doubled. And not only that, it's also highly significant [again, with a p-value below .05]."

Kalfa used these findings to compute Sharpe ratios, a measure of volatility-adjusted returns —and, again, regressed them against a recession dummy variable.

"The Sharpe ratio for a competitive industry goes down by about .02 during a recession," he said. "But for a more concentrated industry, it actually drops by 0.09, so that impact is actually more than doubled—and it's statistically significant."

See Exhibit 6 with volatility results in the left panel and Sharpe ratio results on the right. Again, quintile 1 is most competitive; quintile 5 is most concentrated.

Exhibit 6 | For Concentrated Industries, Recessions Correspond with Higher Volatility and Lower Sharpe Ratios vs. More Competitive Industries

Eqn.	$Vol_{j,t} = \alpha_j + \beta D_t^{Reces.} + \varepsilon_{j,t}$			$SR_{j,t} = \alpha_j + \beta D_t^{Reces.} + \varepsilon_{j,t}$		
Quintiles	β	SE	P-Value	β	SE	P-Value
Q1	0.14	0.08	0.09	-0.02	0.01	0.22
Q3	0.20	0.07	0.00	-0.01	0.02	0.56
Q5	0.28	0.05	0.00	-0.09	0.04	0.02

Source: Kalfa, "Industry Concentration and Return Dynamics."

Open Discussion

When the floor was open to questions, Schmidt asked about the intersection of "persistent profitability" in concentrated industries and how that profitability is cyclically sensitive and could be affected by either macroeconomic and/or firm-specific shocks.

"There's a part of me that thinks [firms in concentrated industries] might be immune from macroeconomic fluctuations," Schmidt said. "And when you say 'cash flow shocks,' I think of company-specific shocks, more so than a macroeconomic shock, but maybe the two are kind of intertwined?"

Kalfa said he aggregated cash flows at the economy level to determine how much the economy grew at various points in terms of profits. And he aggregated cash flows at industry levels, too. He noted he's not focusing on the profit levels, but the *change* —or how much profits grow.

"Profit growth persistence is higher [in concentrated industries]," he said. He used Amazon as an example. As it grows larger and captures a greater share of the market and becomes a larger part of an increasingly concentrated industry, investors expect its profit growth to be more persistent.

But when a shock comes—like a recession—Kalfa asked, "Are you going to buy a new car? Probably not. So, at the industry level—not at the firm level—a recession may have a higher impact on industries that have cornered the market and [their goods] are super expensive relative to other goods."

This key point reflects what Kalfa cited in his work as "product rigidity." In essence, if it's costly to buy a product from any company in a concentrated industry (such as autos), that entire industry is more vulnerable to a macro shock, such as a recession.

Schmidt also asked about returns and higher expected profitability growth. "I can see this in two ways. If my expected profitability is high—and the delta for that is high—then part of me might think future returns should be better than companies that can't deliver such growth in profits. But another part of me says, 'Well, prior returns may be really good, but future returns are going to be lower amid some reversion to mean.'"

Then, Schmidt added, "But I also think in some of these monopolistic industries, the companies haven't shown reversion to mean. I think of Amazon and NVIDIA."

He cited a comment from a webinar The Brandes Center hosted a couple weeks earlier in which a panelist (Bill Nygren) said NVIDIA's recent profit growth has been better than what analysts forecast several years ago.

Kalfa said from a simple "first finance class" perspective, "If I think that Amazon's profit is going to be higher and higher and higher and higher going forward, why should there be a reversal? If expected profit growth is supposed to go up and up and up and up, just by pure valuation, you would think that it should have higher returns, or it should have a higher price."

Schmidt agreed, but noted the recent book by famed investor Jeremy Grantham who wrote about the handsome returns he made over decades earlier in his career by relying on profit margin reversion.

But as Grantham was finishing his book in the first quarter of 2025, he wrote, "…profit margins used to be the most reliably mean-reverting data in finance. Yet over the last 25 years, margins have climbed to an unusually high level and stayed there."*** (363)

Kalfa countered that if a firm continued to corner more and more of the market, why would you expect profits to decline?

Schmidt agreed—and wondered if the government might step in to break up some monopolistic businesses.

Kalfa said it's really difficult to predict such action, but noted that some industries are inherently more concentrated. He noted mining.

"Getting into that industry demands a lot of capital up front. In addition to these barriers to entry, existing companies are investing in their own business to improve it—to offer better products or streamline their service.

"If we decided to break that up, then we're basically saying, 'Stop innovating,'" Kalfa said.

Board member Rhonda Berger asked about competition from outside the United States —regardless of U.S. action (or inaction) on policy changes. She also asked about how AI might affect industry dynamics.

Kalfa said the first question gets to the heart of his research. "You can be concentrated and investors expect you to grow more, but when a shock comes, especially to your cash flows, your returns are going to adjust more than competitive industries."

Whether it's a macro event, such as a new and/or cheaper technology from outside the United States that threatens market share or a company-specific event, "Returns are going to react immediately in a very, very abrupt or shocking way," Kalfa said.

With respect to AI's influence, Kalfa said he's no expert in the area, but said entry into this industry already is difficult. "Of course, there is competition, but if these firms aren't doing well, they will lose out or be acquired."

Schmidt asked about any connection between Kalfa's work and value investing. Kalfa deferred to papers by John Campbell.**** [See the Endnotes for details.]

"What they argue is value itself has higher sensitivity to cash flow shocks. That's why investors need to be compensated for that. He also argued the value premium still lives within industries. But again, that premium itself is not an alpha. It's actually compensation for risk—and you're specifically compensated for cash flow risk.

"And their argument has been that, throughout these past several years, there have been shocks to aggregate cash flows which impacted value investors more than growth investors."

Schmidt asked about effects on valuations.

“My paper actually supports higher valuations for these concentrated industries,” Kalfa said. “And the reason why they have higher valuation is because they're expected to have higher and higher cash flows over time. But, there's a caveat.

“When a shock comes, that valuation might drop pretty harshly, and I think that's exactly what Rhonda was saying with what happened to NVIDIA. Something happened and there was an adjustment. When that shock comes, the adjustment, the magnitude of the adjustment itself, is going to be much, much larger in a concentrated industry relative to a competitive industry.”

Dr. Allan Timmermann, Brandes Center Academic Council member and UC San Diego Rady School Distinguished Professor of Finance, said, “My takeaway is that concentration is both a blessing and a curse because it goes both ways. You may be concentrated, but there's a target on your back. How long do you think NVIDIA is going to reign supreme in this industry?

“They're signing all sorts of partnership deals on the financing side. They're super smart about it,” he said. “They tie in customers with investing billions and billions of dollars in their products. But that's because they know that there's so much competition, given the profit margins. So I think this fits in nicely with Yanki's story.”

“My paper actually supports higher valuations for these concentrated industries. But, there's a caveat. When a shock comes, that valuation might drop pretty harshly.”

--Dr. Yanki Kalfa

Disclosures

This document is for general information and educational purposes only, and must not be considered investment advice or a recommendation that the reader is to engage in, or refrain from taking, a particular investment-related course of action. Any such advice or recommendation must be tailored to your situation and objectives. You should consult all available information, investment, legal, tax and accounting professionals, before making or executing any investment strategy. You must exercise your own independent judgment when making any investment decision.

Past performance is not a guarantee of future results.

No investment strategy can assure a profit or protect against loss.

Diversification does not assure a profit or protect against a loss in a declining market.

All information contained in this document is provided "as is," without any representations or warranties of any kind. We disclaim all express and implied warranties including those with respect to accuracy, completeness, timeliness, or fitness for a particular purpose. We assume no responsibility for any losses, whether direct, indirect, special or consequential, which arise out of the use of this presentation.

All investments involve risk. There can be no guarantee that the strategies, tactics, and methods discussed in this document will be successful.

It should not be assumed that any security transactions, holdings or sector discussed were or will be profitable, or that the investment recommendations or decisions we make in the future will be profitable or will equal the investment performance discussed herein.

Stocks of small companies usually experience more volatility than mid and large sized companies.

Data contained in this document may be obtained from a variety of sources and may be subject to change. We disclaim any and all liability for such data, including without limitation, any express or implied representations or warranties for information or errors contained in, or omissions from, the information. We shall not be liable for any loss or liability suffered by you resulting from the provision to you of such data or your use or reliance in any way thereon.

Unlike bonds issued or guaranteed by the U.S. government or its agencies, stocks and other bonds are not backed by the full faith and credit of the United States. Stock and bond prices will experience market fluctuations. Please note that the value of government securities and bonds in general have an inverse relationship to interest rates. Bonds carry the risk of default, or the risk that an issuer will be unable to make income or principal payment. There is no assurance that private guarantors or insurers will meet their obligations. The credit quality of fixed income investments is no guarantee of their safety or stability. Investments in private credit

Disclosures-2

securities may include additional risks that investors should be aware of such as credit risk, prepayment risk, possible illiquidity and default, as well as increased susceptibility to adverse economic developments.

International and emerging markets investing is subject to certain risks such as currency fluctuation and social and political changes; such risks may result in greater price volatility. Strategies discussed herein are subject to change at any time by the managers in their discretion due to market conditions or opportunities.

Please note that all indices are unmanaged and are not available for direct investment.
Nothing in this document should be interpreted to state or imply that past results are an indication of future performance. Investing involves substantial risk. It is highly unlikely that the past will repeat itself. Selecting an advisor, fund, or strategy based solely on past returns is a poor investment strategy.

The Regents of the University of California and UC San Diego are not connected or affiliated with, nor do they endorse, favor, or support any product or service of Brandes Investment Partners, L.P.

Endnotes

* The U.S. Department of Justice website offers this definition of the HHI: “The HHI is calculated by squaring the market share of each firm competing in the market and then summing the resulting numbers. The HHI takes into account the relative size distribution of the firms in a market. It approaches zero when a market is occupied by a large number of firms of relatively equal size and reaches its maximum of 10,000 points when a market is controlled by a single firm.” More details here: https://www.justice.gov/atr/herfindahl-hirschman-index

**Hoberg, Gerard, Gordon Phillips and Nagpurnanand Prabhala. “Product Market Threats, Payouts, and Financial Flexibility.” Journal of Finance. Feb. 2014, Vol. 69 Issue 1, p. 293-324

***Grantham, Jeremy, and Edward Chancellor. *The Making of a Permabear: The Perils of Long-Term Investing in a Short-Term World*. New York: Atlantic Monthly Press, 2026.

****Campbell, John, Y., and Tuomo Vuolteenaho. 2004. "Bad Beta, Good Beta." American Economic Review 94 (5): 1249–1275.

****John Y. Campbell, Stefano Giglio, and Christopher Polk, "What Drives Booms and Busts in Value?," NBER Working Paper 31859 (2023), https://doi.org/10.3386/w31859.

UC San Diego
RADY SCHOOL OF MANAGEMENT

2Q26

THE BRANDES CENTER
9500 Gilman Dr. #0553
La Jolla CA 92093

CONNECT WITH US
rady.ucsd.edu/brandes
brandes@rady.ucsd.edu

To receive new research and information about upcoming events, contact us or use the QR code below:

UC San Diego
RADY SCHOOL OF MANAGEMENT
The Brandes Center