Morgan Stanley

INVESTMENT MANAGEMENT

Counterpoint Global Insights

Culture Quant Framework

CONVERGENCE | SUSTAINABILITY RESEARCH | APRIL 2022

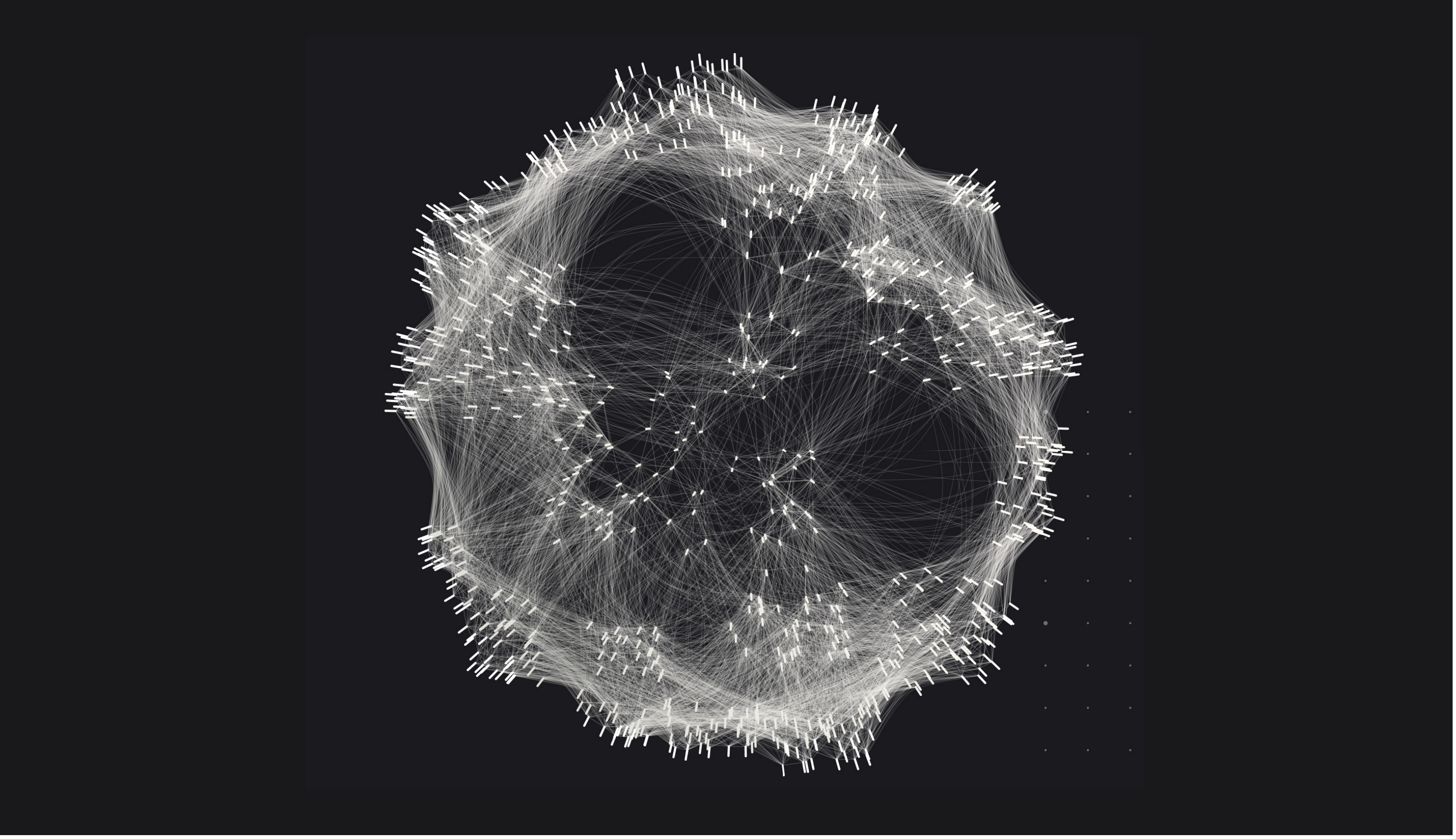
Company culture, the shared values and behaviors that define how employees collaborate to create value for the enterprise, remains an enigma in the field of investing. Analysts intuitively understand its influence on investment outcomes and nod knowingly when presented with examples of effective or bad cultures. But measuring culture is a subjective exercise that is open to wide interpretation, even among employees at the same company. Culture has defied quantification at a time when researchers are numerically modeling every factor that has an impact on investment performance.

In the late 1970s, tangible investments were nearly twice those of intangible investments. Today, intangible investments are roughly one and a half times those of tangible investments. This shift has transformed the nature of business. Tangible assets such as factories perform repetitive tasks and have key performance indicators (KPIs) such as capacity utilization and efficiency. Intangible investments including brand building or drug discovery rely on human creativity to create value. A company's culture is essential to unleashing ingenuity.

We believe our economy's transformation from tangible to intangible assets is secular and early in its course. As a result, investors will increasingly recognize culture as a critical determinant of value creation. That means it will be the subject of critical analysis and measurement in years to come.

January 2021 is the original date of publication. Updated findings and further investigations as of April 2022.

COUNTERPOINT GLOBAL | CONVERGENCE PURSUING PROFITS & PURPOSE



Given this reality, we reviewed legacy frameworks to quantify culture and found them to be well intentioned but generally inconsistent. They were also far too broad in their scope. We believe a new approach can add value. We studied how KPIs have evolved, how they are used, and what impact they have had. Our goal is to simplify the complex topic and to create a standard set of tools that investors can use to evaluate a company's intangible assets.

For example, Barry McCarthy, the former chief financial officer of Netflix and Spotify, has highlighted the importance of customer retention as a source of competitive advantage. A company with a loyal customer base can afford to spend more to acquire new customers than can a company with less loyalty. Simply looking at the number of customers a company has can be misleading because a competitor with high customer churn will have to spend more money acquiring new customers than will a company with low churn. In this case, low customer churn will lead to a higher return on capital than will high churn.

Stable shareholders provide capital and committed customers generate revenue, but loyal employees are at the core of a thriving corporate culture. Companies derive a significant amount of their value from their intangible assets, which people create. Accordingly, we have identified employee retention as a significant indicator of culture.

Employee retention provides a signal similar to Net Promoter Score (NPS), a survey-based measure of customer satisfaction that has a positive correlation with stock performance. But employee loyalty is a much more meaningful signal of culture than NPS because a survey is anonymous while employees vote with their feet by coming to work each day. Employee retention that is above industry peer averages can indicate the presence of competitive advantage. This advantage may lead to higher levels of future profitability than past financial performance would indicate.

Sustainability Research (SR) at Counterpoint Global focuses on identifying companies that have cultivated adaptive cultures. We expect those companies to be well positioned to benefit from the long-term environmental and societal trends that are becoming increasingly important. Quantitative analysis of employee retention gives us a unique view into company culture.

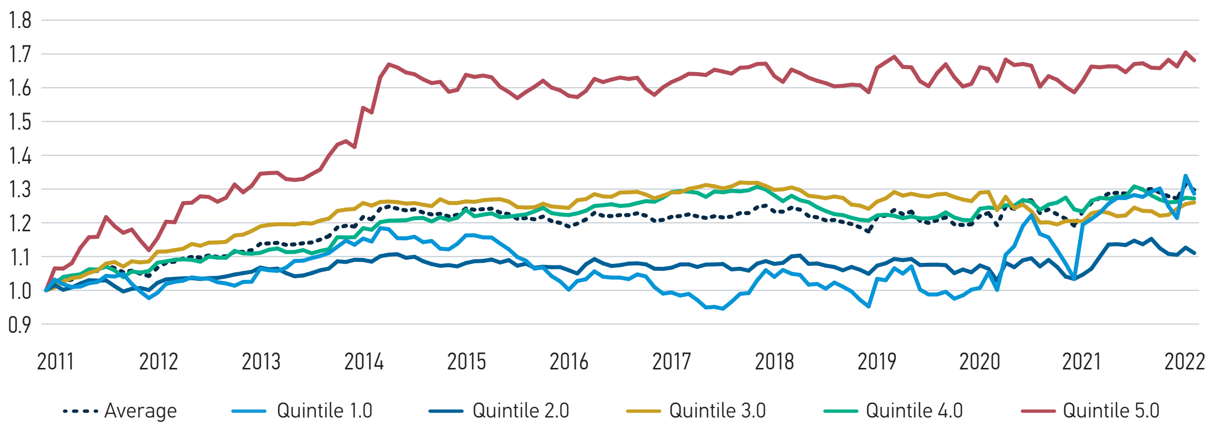
A Quantitative Approach to Measuring Culture

To systematically measure company culture, we want to develop a single KPI that reflects the secular shift toward intangible investments and recognizes that employees are key stakeholders.

We collaborated with scholars at Harvard Business School to study whether companies with high employee retention have enjoyed higher stock returns than do companies with low employee retention. Our premise is that high employee retention is associated with a strong culture.

To test this hypothesis, we use an alternative dataset that captures monthly employer data for more than 300 million employees over the last decade. We partnered with MSIM Data & Analytics and Morgan Stanley Artificial Intelligence Center of Excellence Teams to conduct systematic analysis of nearly 2,000 publicly traded companies. We ranked and sorted the companies by quintiles based on employee retention rates. Then we created equally weighted portfolios for each quintile. The observations start in 2011 and the companies are reranked annually (see *Display 1*).

Display 1: Quintile Portfolios Stock-Specific Returns Based on Retention Factor



Source: MSIM Counterpoint Global, Revelio Labs, as of January 2022.

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The results are striking. We identified a correlation between retention and stock returns: the portfolio comprised of the top quintile of employee retention had cumulative gains that were 37 percent higher, or 2.9 percent annualized, than those of the bottom quintile. Most of the excess returns reflected stock-specific factors rather than exposure to particular sectors or other market factors (e.g., Fama-French factors).

We then sought to go beyond correlation to see if high retention caused the cumulative gains. For example, employees have a unique view into the company's near-term prospects and are more probable to stay if they look good. Those prospects, in turn, are likely to translate into good stock price performance.

The statistical causality test that we designed seeks to determine whether one time series, employee retention in this case, is useful in forecasting another, stock price gains. This statistical test revealed that for the top quintile a year-over-year improvement in a company's employee retention implied positive alpha for the company's stock in the subsequent year 56 percent of the time. The statistical test also revealed that for the bottom quintile a year-over-year deterioration in a company's employee retention implied negative alpha for the company's stock in the subsequent year 76.5 percent of the time.

We hypothesize that the relationship of the attributes reinforce company culture. Companies with strong company cultures benefit from positive feedback: employee retention drives talent continuity, internal development, and cost efficiencies. These positives correlate with attractive stock returns which incentivizes retention further.

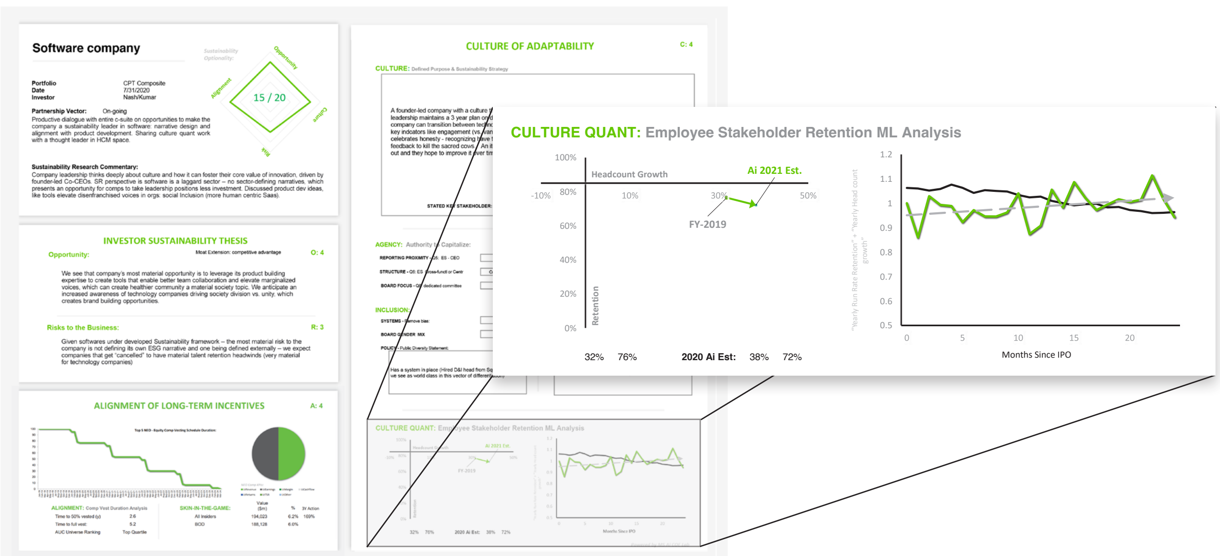
Synergy With Our Sustainability Research Process

Counterpoint Global has a culture that fosters creativity, independence, a willingness to be different, and a long-term mindset. Our SR is designed to reflect those values and to integrate into our investment process seamlessly.

We are constantly iterating, experimenting, and searching for new ways to meld SR into our investment process. The current version seeks to identify companies where sustainability creates positive option value, an intangible asset that the consensus often overlooks. Our Sustainability Optionality framework synthesizes research that includes a business's most material Environmental and Societal (E&S) opportunities and risks, an analysis of whether incentives align with long-term value creation, and an evaluation of cultural adaptability.

We believe that a highly adaptive culture contributes to fostering talent and retaining employees. Adaptive organizations foster a common sense of purpose, empower employees to make the right decisions, and drive accountability by measuring and disclosing inclusion.

Sustainability Research Dashboard: Culture Quant Module



Source: Counterpoint Global, Dashboard. This is provided for illustrative purposes only.

Our Culture Quant framework does not rely solely on a company's public disclosures on changes to total headcount. It provides insight by decoupling a company's headcount growth into retention and inflow. Our Sustainability Research Dashboard Culture Quant module depicts last year's headcount inflow and employee retention visually, and then uses Artificial Intelligence to predict these statistics for this year. We complement this view with a snapshot of a company at the time of its initial public offering (IPO). This presents interesting insight into a company's culture because headcount inflow often accelerates prior to an IPO in order to meet growth targets, and retention commonly falls as employees reap the benefits of their equity-based compensation.

Implications of Findings

Businesses are increasingly investing in intangible assets such as goodwill, brands, and employees in order to differentiate themselves. We believe that investing in employee development is the foundation of a culture of adaptability. That adaptability is essential for building and strengthening durable competitive advantage over time.

We anticipate that employee retention will become an area of increased focus given the underlying trends in the economy. For example, millennials are now the largest group in the U.S. workforce and show a propensity to change jobs with higher frequency than previous demographic groups did. The rise in talent liquidity is enabled by the internet and evolving cultural norms.

Corporate executives historically relied on anecdotal evidence of their success at talent retention relative to their peers. We can partner with our portfolio companies to show them precisely how they stack up versus other businesses in their sector and how they can create targets to improve. We can also look for cultural outliers across industries and add those insights to our research. These findings potentially have significant societal implications because they quantitatively align the interests of shareholders and employees. Executives focused on long-term value creation can rely on sound financial analysis in order to justify investing in employee empowerment rather than seeing it as desirable, but unquantifiable, spending.

HARVARD | BUSINESS | SCHOOL

For at least 20 years, economists have been warning that the shift to a human-capital-intensive economy will wreak havoc on current valuation practices. Despite these warnings, academics and practitioners have failed to prepare. This lack of preparation comes both from comfort in the "old ways of doing things" and from a paucity of data to truly understand how the value and risk embedded in human capital impact firm performance.

In its analysis of employee turnover, Counterpoint Global has not only shown that labor flows are vital to understanding the future of companies, but has also provided a roadmap for how investors and researchers can advance the understanding of human capital.

The analysis conducted by Counterpoint Global provides concrete evidence of the value created through strong employee culture, and the statistical rigor of that analysis offers confidence in the economically meaningful abnormal returns uncovered by the collaboration.

ETHAN ROUEN
Assistant Professor of Business Administration

Further Investigations

April 2022

We at Counterpoint Global continue to evolve our process for qualitatively analyzing the connection between capital allocation, the strengthening of durable competitive advantage, and adaptive culture. Our first Culture Quant study examined the relationship between employee retention, company culture, and stock price. Following its publication, we had fascinating conversations with companies of various sizes, geographies, and industries. A consistent theme in those conversations prompted a second research project on employee churn rate, which measures the percentage of employees who leave a company during a period. More specifically, we want to know whether employee churn is good or bad. If churn is good, is it better for it to happen early or late in an employee's tenure?

Analysis of the data led to three key observations:

1. The churn rate is highest in the first year for the employee of most companies;
2. Certain companies have cultures with high "intensity," where the churn rate in year one is particularly high;
3. A high churn rate in the short term does not predict the retention rate in the long term.

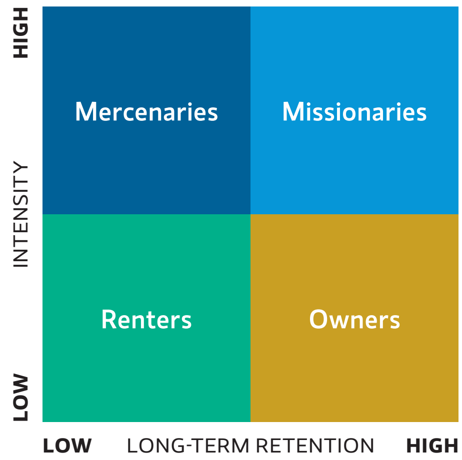
These insights led us to a hypothesis: Some cultures have high "intensity," which means that many employees leave shortly after they are hired. Other cultures are unique, such that once employees join they never leave, perhaps because they cannot imagine working anywhere else.

Our first Culture Quant analysis enabled us to decompose headcount growth into the number of employees who left versus those who stayed. For example, consider two companies that go from 100 to 105 employees over the span of one year. The first hires 20 new employees and sees 15 depart during the year. The second brings on six new workers and one leaves. While the net change in headcount is the same, the hiring and churn rates are very different.

Our second study enables us to decompose retained employees into long-term retention (e.g., five years) versus churn of employees during their first year. We categorized 2,095 companies based on long-term retention and intensity, or year one churn rate. This creates four segments (see *Display 2*):

- **MISSIONARIES** are companies that are above the median in both long-term retention and short-term churn rate. Many employees at these firms leave early in their tenure but those who stay tend to stick around for a long time.
- **OWNERS** are above the median in long-term retention and below the median in short-term churn rate. Employees tend to join these companies and stay with them.
- **MERCENARIES** are below the median in long-term retention and above-average in intensity. These companies have high turnover in the short and long term.
- **RENTERS** are below the median in both long-term retention and intensity. Employees stay in the short term but do not have long tenures at the company.

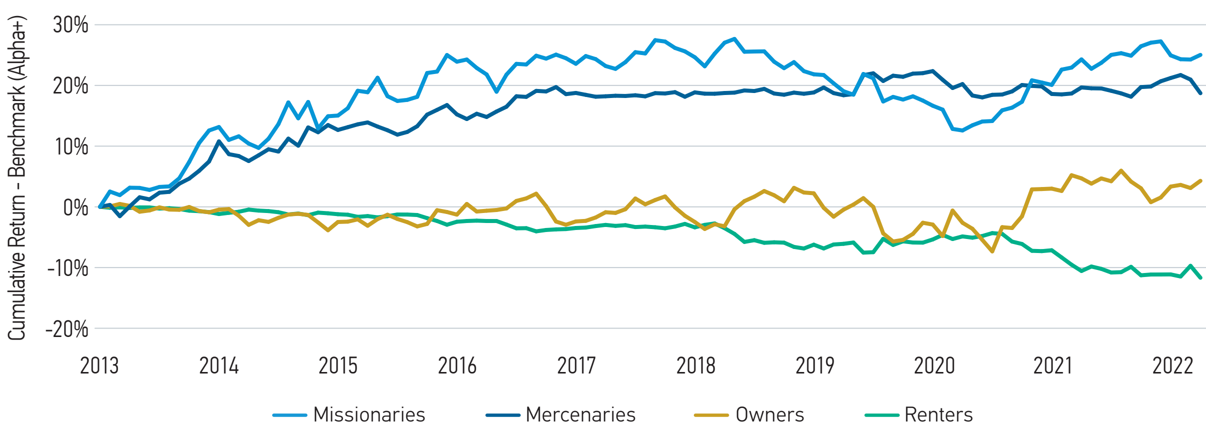
Display 2: Cultural Cohorts: Intensity and Long-term Retention Matrix



Source: Morgan Stanley Investment Management

After placing companies into one of these segments, we back tested each as a portfolio. The results supported our hypothesis and presented a surprise:

Display 3: Cohort Portfolios Stock-Specific Returns Based on Intensity and Long-term Retention Factor



Source: Morgan Stanley Investment Management. Data as of April 28, 2022.

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What was anticipated given our hypothesis was that the cumulative return of a portfolio comprised of missionaries, which we expect to foster cultures that are the most unique, outperformed the renters by 35 percentage points over the 9 years of the study. The excess return, calculated using the Fama-French framework to remove all factor exposures, was 3.4 percentage points annualized.

What was surprising was that the mercenaries outperformed the owners. This implies that the churn rate in year one actually has a higher correlation with total shareholder returns than does long-term employee retention.

We at Counterpoint Global continue to study and iterate on its Culture Quant framework as part of our Sustainability Research process. We evaluate new alternative datasets and frameworks in order to gain understanding into how the alignment of workers and investors affects corporate results.

Counterpoint Global

New York

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DENNIS LYNCH	Lead Investor, Head of Counterpoint Global	29	25	25
SAM CHAINANI	Head of Counterpoint Global ~ New York, Technology	27	27	23
JASON YEUNG	Health Care	26	21	19
ARMISTEAD NASH	Business Services, Software	23	21	19
DAVID COHEN	Consumer	35	30	24
ALEX NORTON	Consumer, Industrials, Technology (ex Software)	28	23	23
MANAS GAUTAM	Head of Global Endurance, Generalist	11	8	8
ANNE EDELSTEIN	Health Care	12	5	5
ABHIK KUMAR	Software, Media	14	4	4
JENNY LEEDS	Healthcare	7	4	4
JOSHUA JARRETT	Director of Research, Generalist	18	3	3
RUOBING CHANG	Internet	11	7	3
ALEKS SAMETS	Payments	3	3	3
BETH FIFER	Health Care	11	2	2
MUHAMMADRAZA PANJU	Internet	4	2	2
PETE STOVELL	Generalist	29	2	2
LIZ HALL	Blockchain, Cryptocurrency, Gaming	16	1	1
MICHAEL MORITZ	Generalist	5	1	1
CONSILIENT RESEARCH				
MICHAEL MAUBOUSSIN	Head of Consilient Research	36	3	3
DAN CALLAHAN	Consilient Research	18	3	3
DISRUPTIVE CHANGE RESEARCH				
STAN DELANEY	Big Ideas, Emerging Themes	22	22	19
SASHA COHEN	Big Ideas, Emerging Themes	6	6	6
JUSTIN AMEZQUITA	Big Ideas, Emerging Themes	3	3	3
VASILEIOS PRASSAS	Big Ideas, Emerging Themes	9	2	2
SUSTAINABILITY RESEARCH				
THOMAS KAMEI	Head of Sustainability Research, Internet	11	11	11
DERRICK MAYO	Sustainability Research	18	9	2
CLIENT RELATIONSHIP AND BUSINESS MANAGEMENT				
MARK TODTFELD	Chief Operating Officer	28	18	4
KERRY ANN JAMES	Head of Client Relations, Portfolio Specialist	26	6	2
PRAJAKTA NADKARNI	Portfolio Specialist	19	16	12
MICK MORAN	Portfolio Specialist	9	9	1
MCKENZIE BURKHARDT	Portfolio Specialist	20	20	20
XAVIER SALAZAR	Portfolio Analyst	5	5	1
KATHRYNE DOWNS	Portfolio Specialist ~ Global Endurance	11	11	1
EARL PRYCE	Portfolio Administrator	23	23	16
CHAYSE MORGAN	Portfolio Administrator	3	3	3
ERICA CASARENO	Portfolio Administrator	1	1	1
AMBER YOUNG	Business Management	13	5	2

Asia

Global, International, Asia

KRISTIAN HEUGH	Lead Investor, Head of Global Opportunity

- 13 Investors, 5 Portfolio Specialists, 1 Portfolio Operation Analyst

"Investor" refers to an analyst or portfolio manager of Counterpoint Global.
Team members may change without notice from time to time. Years of Experience listed above refers to Industry Experience.
Years of Experience, Years with Firm and Years with Team are as of March 2023.

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