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UBS Evidence Lab

US Semiconductors and Semi Equipment

UBS Evidence Lab Inside: Employee Sentiment Monitor – NVDA Leads, MU/KLAC Recover

Employee satisfaction and Business Outlook both continue to be higher

In our 2nd annual report on this data, we utilize UBS Evidence Lab's analysis of Glassdoor data to see trends in active employee sentiment among major US-based semis and SPE companies. In aggregate, the data shows consistent improvement in overall satisfaction across the semis industry with employee satisfaction now the highest in the past 5yrs. On an absolute basis, NVDA scores the highest (it is the highest even among broader technology peers (see [HERE](#))), while AVGO is the lowest. On a YY basis, MU and KLAC saw significant improvement in overall employee satisfaction (MU due largely to business outlook improvement and KLAC due to CEO/management improvement), while both AMD and INTC saw material deterioration in employee satisfaction (in both cases due largely to business outlook, but AMD has experienced a big recent decline in satisfaction with management throughout the organization).

Business outlook – NVDA leading, followed by AMD, KLAC and QCOM

Employees are most optimistic about overall business prospects at NVDA – and this was taken before the transformational (our view) Mellanox deal closed. Scores at AMD have remained high though employees' outlook for business prospects at both AMD and INTC were down versus last year. Employee outlook for QCOM continues to improve and while the outlook among employees at AVGO is still lagging peers (potentially due to internal uncertainty given its ongoing M&A strategy), it is improving off low levels. TXN's employee ratings remain solid and very consistent. Business outlook has improved for semicaps in general and outlook for AMAT/LRCX/KLAC are all similar, though AMAT and KLAC have improved significantly since last year.

CEO Approval – NVDA, KLAC, and AMD on top, INTC slightly declined

NVDA enjoys the highest CEO ratings w/100% approving. AVGO is lowest on an absolute basis (though again, likely M&A related) followed by INTC, while approval at KLAC is up considerably and now close to the top among peers, a good sign regarding the integration of the Orbotech acquisition.

Longer term observations

AI has transformed employee bullishness at NVDA, AMD appears to have considerable staying power, and AMAT has improved along all dimensions.

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Highlights from the Evidence Lab Employee Survey

Which companies in the US Semiconductor industry lead and lag based on Employee Satisfaction and CEO Approval? UBS Evidence Lab has collected more than 30K employee reviews across 161 leading companies to help answer this question. We interpret the results from the Evidence Lab survey.

NVDA ranks highest, AVGO lowest in aggregate

UBS Evidence Lab looked at several major evaluation criteria including career opportunities, compensation/benefits, work/life balance, senior management/CEO, culture/values, and overall business outlook. The project also looked at how likely employees were to recommend the employer to a friend. Taking the current snapshot of ratings from employees, we see NVDA continue to enjoy the highest score in overall employee satisfaction and to be the best across almost all metrics. On contrary, AVGO ranks last across most metrics, partly due to its vague business outlook during a transition period. MU has come to the middle of the group from the back in last Dec, with most metrics near/at 5 yr high, which is a positive sign in terms of the overall memory cycle.

Figure 1: Ranking of major semis and SPE companies

	Business Overall Rating	Business Outlook Index	Career Opportunities	CEO Approval	Compensation & Benefits	Culture Values	Recommend to a Friend	Senior Management	Work Life Balance
Nvidia	4.51	93%	4.29	1.00	4.32	4.48	95%	4.16	4.14
KLA Corp	4.24	86%	3.77	0.96	3.54	4.08	71%	3.54	3.69
Texas Instruments	4.19	84%	3.83	0.91	4.24	4.41	88%	3.79	3.50
Qualcomm	4.09	84%	3.94	0.87	3.95	3.84	85%	3.45	3.58
Intel	4.03	74%	3.83	0.77	3.82	3.84	81%	3.43	4.00
Micron Technology	3.97	81%	3.90	0.82	4.18	3.93	84%	3.44	3.54
Applied Materials	3.96	84%	3.85	0.82	3.55	3.95	91%	3.54	3.55
Lam Research	3.88	83%	3.62	0.83	3.81	3.95	84%	3.30	3.38
AMD	3.73	87%	3.44	0.94	3.56	3.88	100%	3.38	4.06
Broadcom	3.62	63%	3.22	0.58	3.97	3.28	62%	2.93	3.81
Highest	Nvidia	Nvidia	Nvidia	Nvidia	Nvidia	Nvidia	Nvidia	AMD	Nvidia
Lowest	Broadcom	Broadcom	Broadcom	Broadcom	KLA Corp	Broadcom	Broadcom	Broadcom	Lam Research

Source: UBS Evidence Lab, Glassdoor; Lack of 2020 Annual data for Marvell

Overall employee satisfaction in semis still at high levels although ratings of some companies have been slightly lower than the peak 6 months ago

We then looked at the numbers over time, focusing on the past 5yrs to see notable changes. Overall employee satisfaction scores in Semis have been steadily improving since 2014 (with 2018 being the only exception). Underneath the hood, almost all companies in Figure 2 has continued the improvements in 1H20 (average score of 4.02 in 2020 vs. 3.59 in 2015), despite the uncertainties caused by COVID-19, with NVDA leading the group on overall satisfaction (also in the upper quantile of the large cap technology peer group).

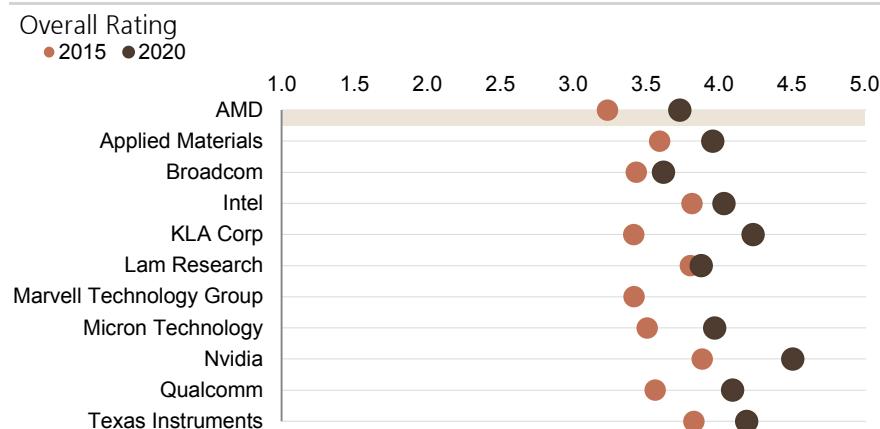
Figure 2: Overall Employee Satisfaction

Overall Rating	2015	2016	2017	2018	2019	2020	Trends
AMD	3.24	3.76	3.76	3.97	4.16	3.73	
Applied Materials	3.60	3.65	3.60	3.89	3.65	3.96	
Broadcom	3.43	3.55	3.69	3.70	3.77	3.62	
Intel	3.82	3.73	3.90	3.92	4.27	4.03	
KLA Corp	3.42	3.69	3.72	3.81	3.60	4.24	
Lam Research	3.80	3.83	4.03	3.56	3.94	3.88	
Marvell Technology Group	3.42	3.68	4.01	3.72	3.89		
Micron Technology	3.51	3.51	3.64	3.52	3.37	3.97	
Nvidia	3.89	4.12	4.41	4.49	4.39	4.51	
Qualcomm	3.56	3.63	3.83	3.75	3.91	4.09	
Texas Instruments	3.83	4.01	3.97	4.00	4.11	4.19	
Average	3.59	3.74	3.87	3.85	3.92	4.02	

Source: UBS Evidence Lab, Glassdoor

Notable positive movers over the past 5yrs are KLAC – benefit from strong demand of process control in leading-edge process, NVDA as its prospects continue to improve, AMD – expected and logical given Lisa Su's appointment and clearly better direction now for the company, and QCOM – long-term strength in 5G and potential in RFFE business.

Figure 3: Overall Employee Satisfaction



Source: UBS Evidence Lab, Glassdoor

Source: UBS Evidence Lab, Glassdoor

Business outlook

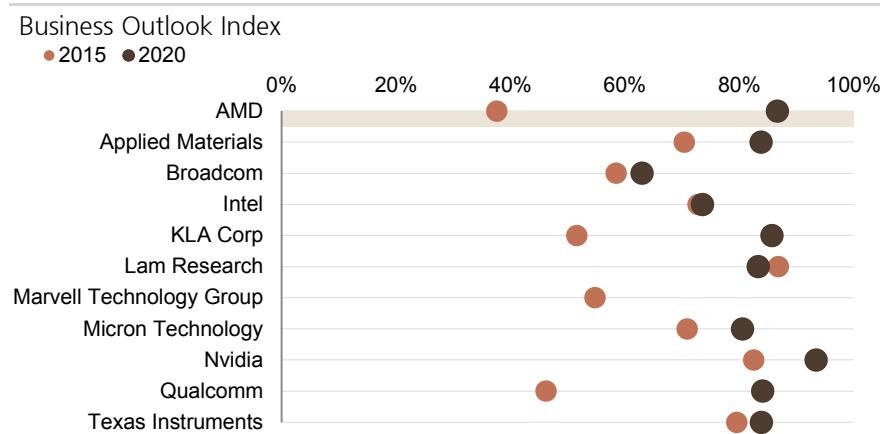
When we break this down a little further into each factor, we see that the perception around business outlook for semis in aggregate has reached another peak in 2020. Employees at NVDA (0.93) are the most bullish among all about the company's prospects given its strong position in data center. MU has recovered from the trough in 2019 as we work through the memory cycle. It's quite interesting that both employees at INTC and AMD turn more bearish in 2020. However, employees at AMD are still more positive than most of the peers (0.87 vs 0.82 on average), while employees at INTC (0.74) are at the lower range partly due to its continuous struggling with manufacturing. AVGO continues to get the lowest score (0.63), though back to its own high level, which could be due to the substantial changes it has undergone over the period, and therefore is expected to continue this trend.

Figure 4: Business Outlook Perception is rising again

Business Outlook	2015	2016	2017	2018	2019	2020	Trends
AMD	0.38	0.67	0.79	0.89	0.94	0.87	
Applied Materials	0.70	0.83	0.87	0.84	0.67	0.84	
Broadcom	0.59	0.64	0.62	0.54	0.55	0.63	
Intel	0.73	0.63	0.75	0.77	0.80	0.74	
KLA Corp	0.52	0.77	0.86	0.77	0.72	0.86	
Lam Research	0.87	0.89	0.89	0.72	0.75	0.83	
Marvell Technology Group	0.55	0.57	0.85	0.76	0.79		
Micron Technology	0.71	0.58	0.82	0.75	0.60	0.81	
Nvidia	0.83	0.91	0.93	0.93	0.91	0.93	
Qualcomm	0.46	0.66	0.69	0.56	0.78	0.84	
Texas Instruments	0.80	0.87	0.85	0.88	0.81	0.84	
Average	0.65	0.73	0.81	0.77	0.76	0.82	

Source: UBS Evidence Lab, Glassdoor

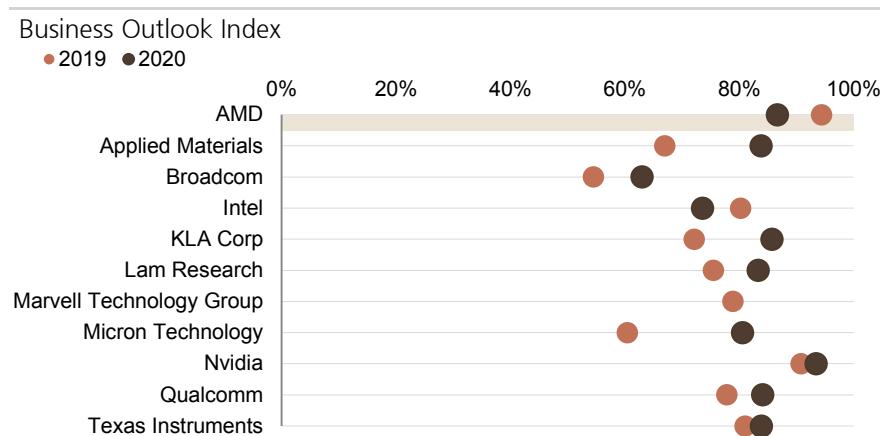
Figure 5: Business Outlook change 2015-2020



Source: UBS Evidence Lab, Glassdoor

Source: UBS Evidence Lab, Glassdoor

Figure 6: Business Outlook 2019 vs. 2020



Source: UBS Evidence Lab, Glassdoor

Source: UBS Evidence Lab, Glassdoor

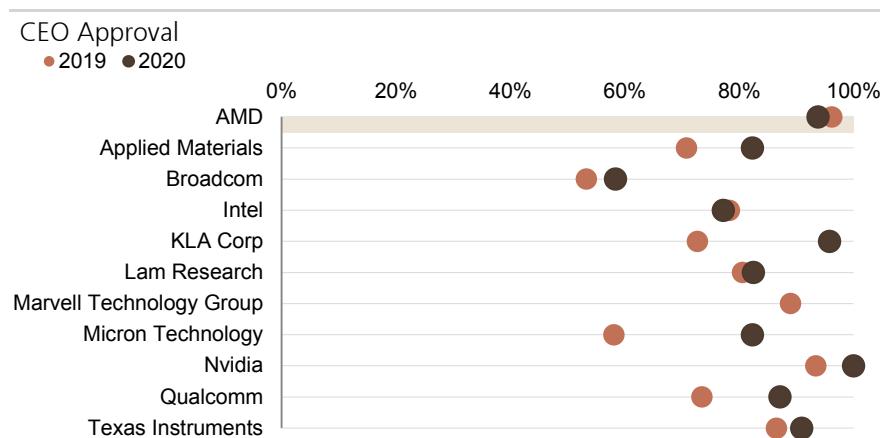
On a relative basis (2018 vs. 2019), MU and AMAT have achieved the greatest improvement in 2020 (from 60% to 81% and from 67% to 84% respectively), we think both increase make sense given the coming memory upcycle and AMAT's solid share in WFE. AMD is the only company with a negative change, though it still leaves all companies except NVDA behind.

CEO Approval

On an absolute basis, NVDA, KLAC and AMD's CEO enjoy the highest approval ratings (100% of NVDA employees approve Jenson Huang, and ~95% of the employees of the other two companies taking the survey approve), w/ MU showing the largest Y/Y improvement in score. This somewhat mirrors the favorable business outlook survey results.

Similarly, AVGO approvals are lagging since AVGO working through M&A integration.

Figure 7: CEO Approval



Source: UBS Evidence Lab, Glassdoor

Source: UBS Evidence Lab, Glassdoor

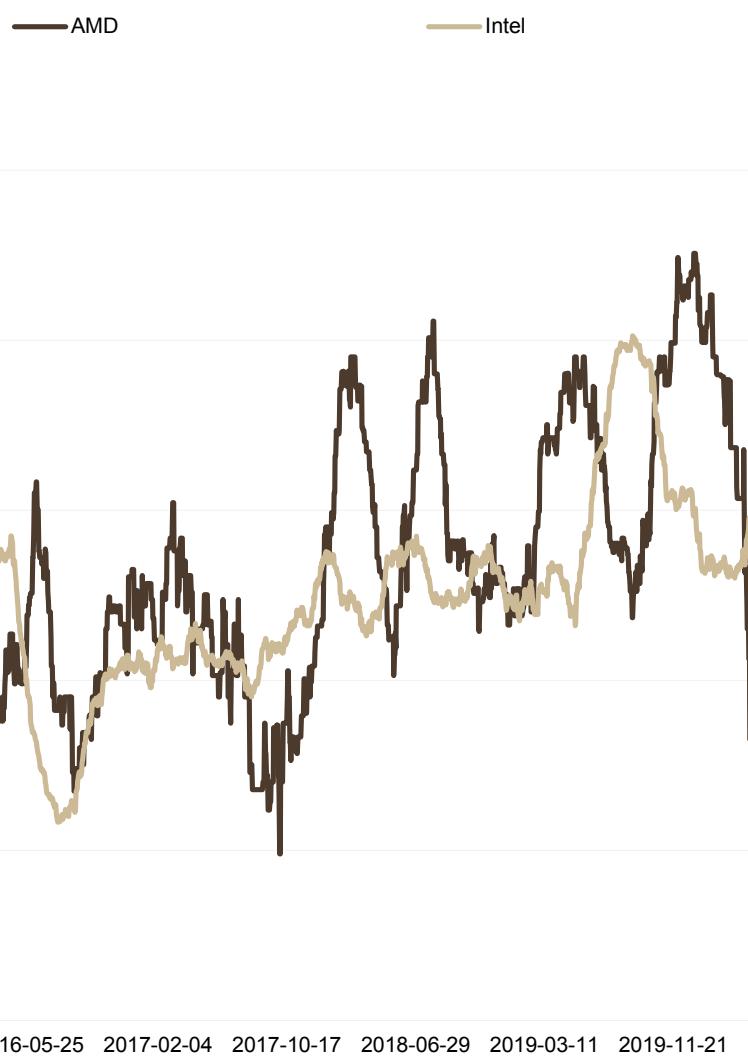
Some other interesting comparisons

AMD v INTC

With AMD gaining momentum/share in all segments (Server, Mobile, PC), INTC is way behind AMD in Business Outlook, CEO Approval and Recommend to a friend. Interestingly, while Lisa Su is well respected among all employees, the employees are not satisfied with the senior mgmt.

Figure 8: INTC vs. AMD

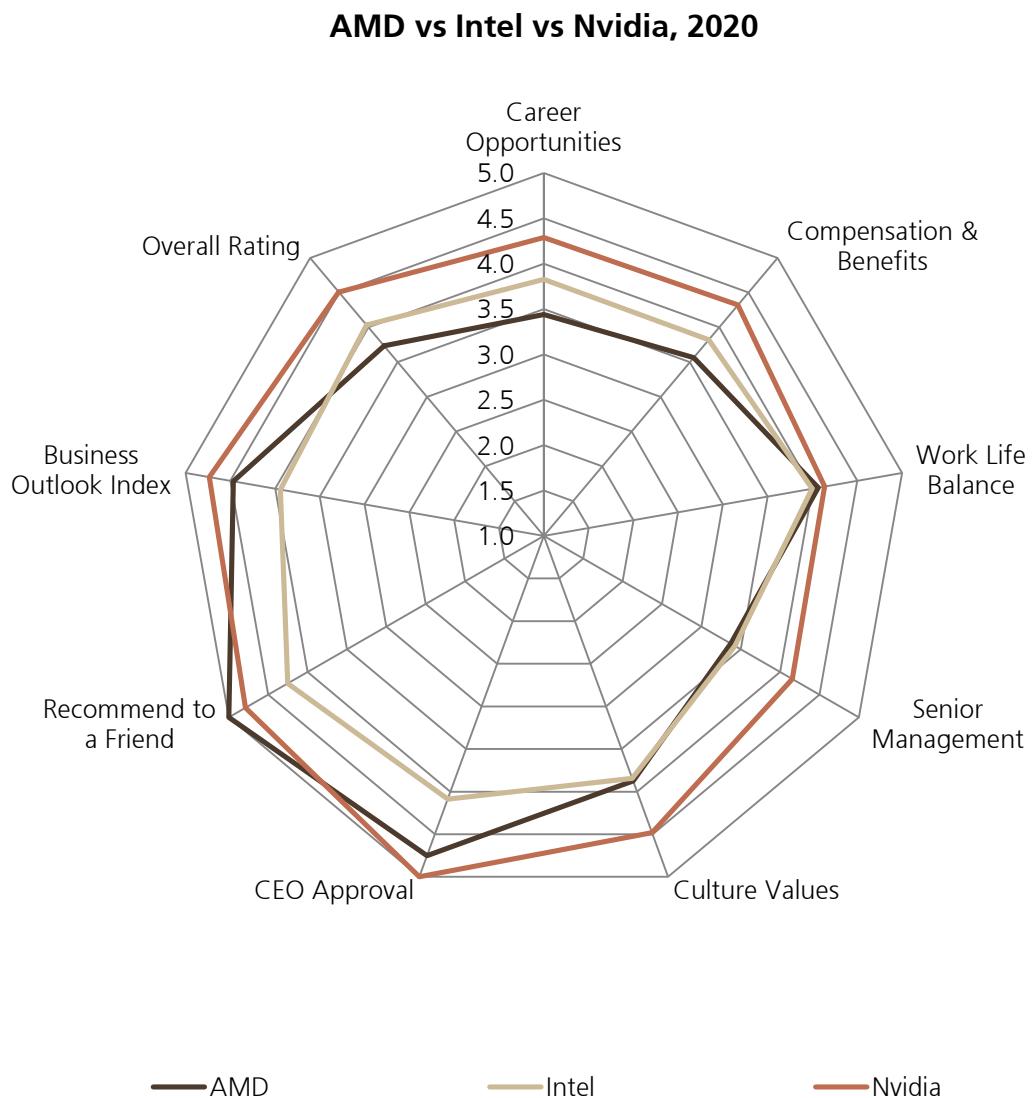
Senior Management



Source: UBS Evidence Lab, Glassdoor

Source: UBS Evidence Lab, Glassdoor

Figure 9: NVDA vs. INTC vs. AMD



Source: UBS Evidence Lab, Glassdoor

Source: UBS Evidence Lab, Glassdoor

Scores of SPE companies are close across most dimensions

KLAC scores slightly higher than AMAT/LRCX on most dimensions, including CEO approval and Business Outlook; all of the three have achieved higher scores on most dimensions, which shows that WFE spending might be better than expected this year. LRCX continues to lead in compensation & benefits.

Figure 10: AMAT vs. KLAC vs. LRCX

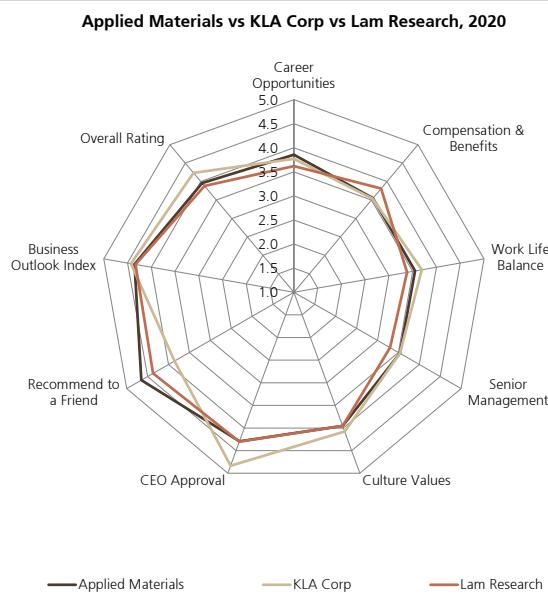


Figure 11: AMAT 2019 vs. 2020

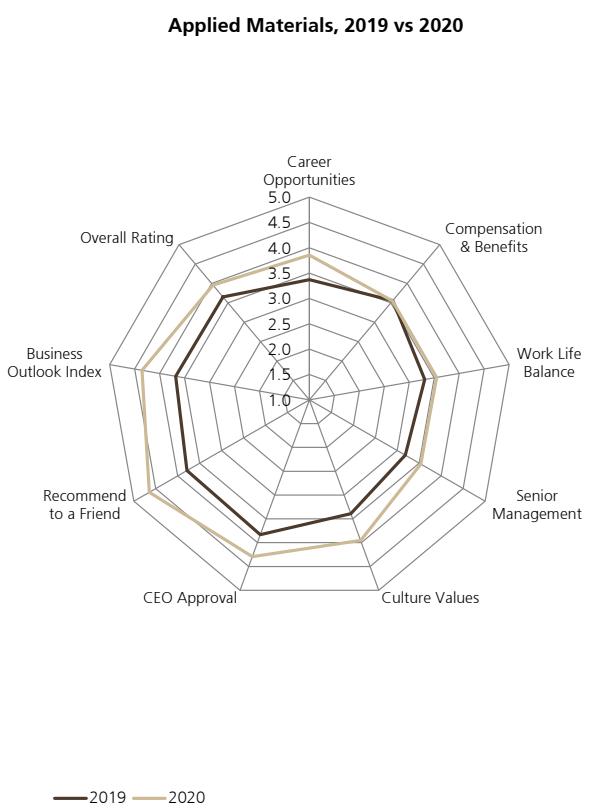
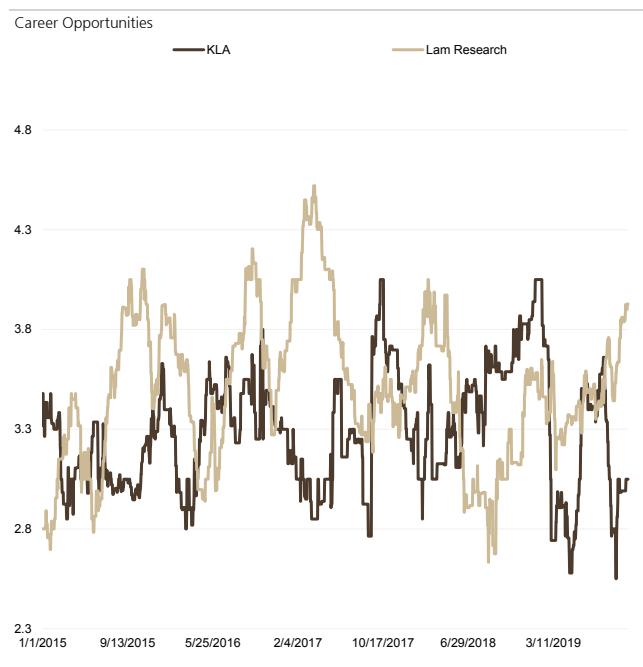
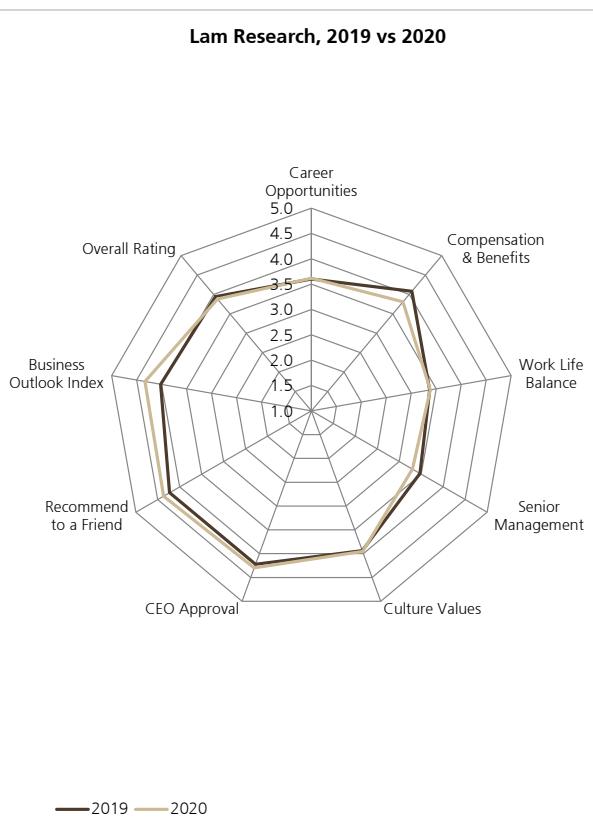


Figure 12: KLAC 2019 vs. 2020



Source: UBS Evidence Lab, Glassdoor

Figure 13: LRCX 2019 vs. 2020



Source: UBS Evidence Lab, Glassdoor

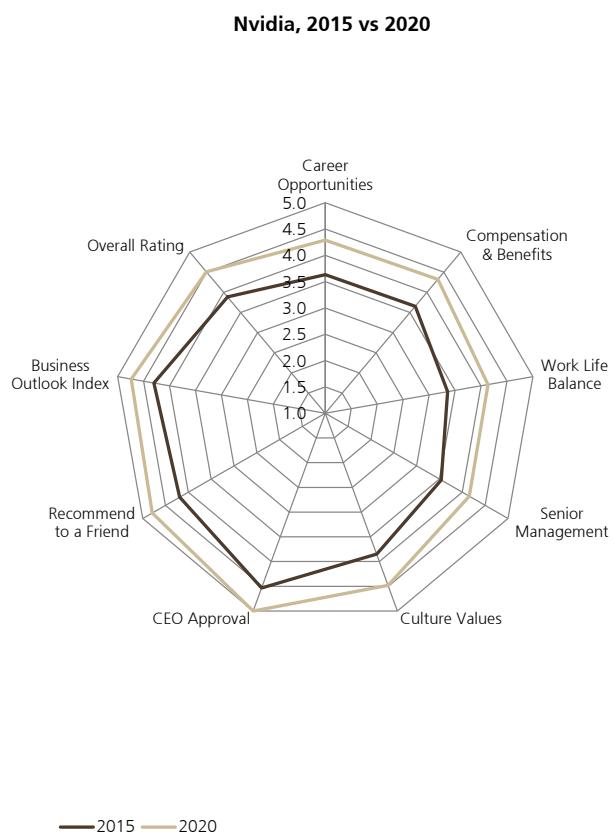
Source: UBS Evidence Lab, Glassdoor

Longer Term View

NVDA and AMAT showing improvement across multitude of vectors

Taking a longer term view, our survey results demonstrate that NVDA has shown improvement across all vectors (on an absolute basis). With the AI wave transforming NVDA over the last 5 years, survey shows business outlook scores are much higher now (4.74 in 2020 vs. 4.3 in 2015) w/ NVDA scores 4.51 overall (vs. 3.89 in 2015) . Survey results also show that NVDA's improved Business outlook is being reflected in Employee's Compensation/Benefits score expanding from 3.65 to 4.32 over the 5 year period, and Work Life Balance from 3.36 to 4.14. On a relative basis (see comparison w/ INTC, AMD) NVDA still has the highest overall scores.

Figure 14: NVDA has shown improvement across all vectors

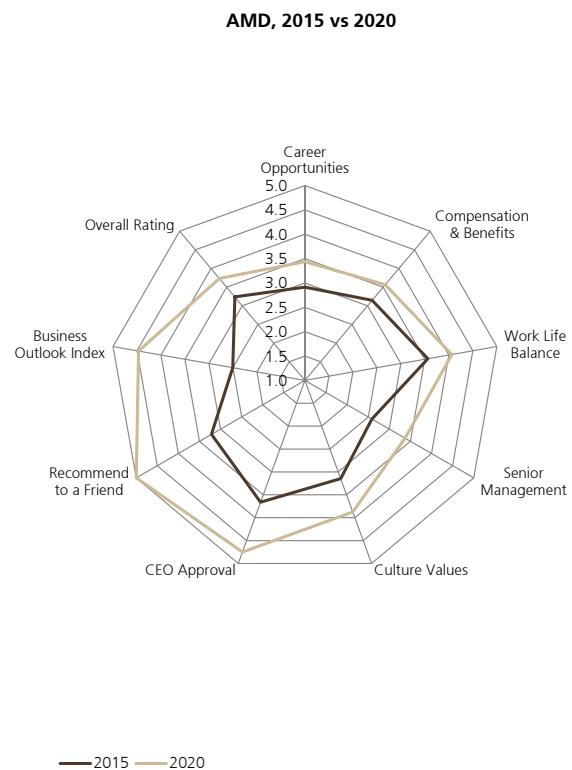


Source: UBS Evidence Lab, Glassdoor

Source: UBS Evidence Lab, Glassdoor

AMD has no doubt achieved huge success in the past 5 years under Lisa Su's leadership.

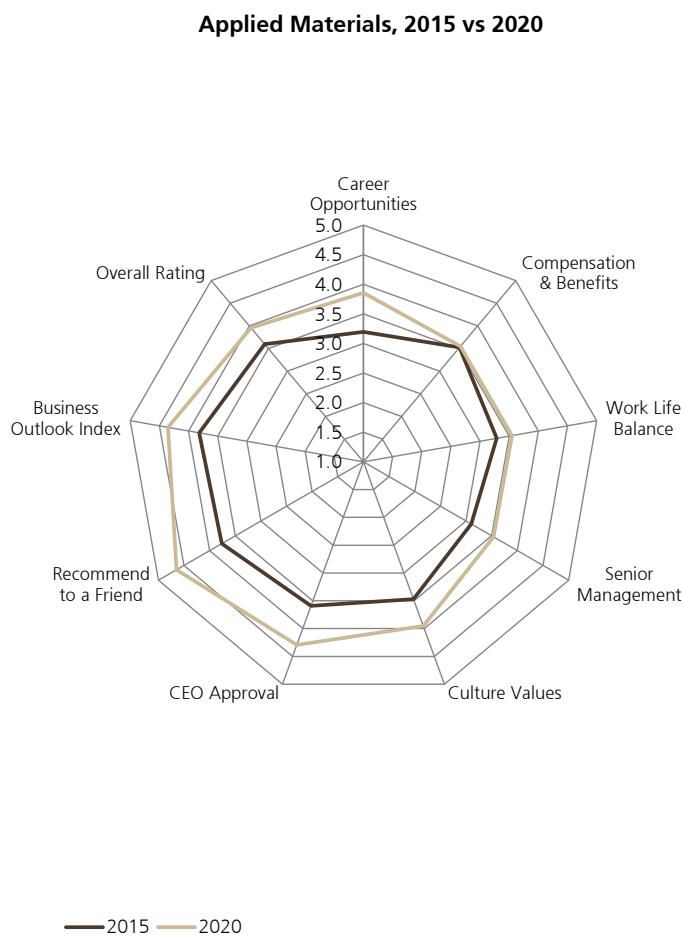
Figure 15: AMD has shown improvement across all vectors



Source: UBS Evidence Lab, Glassdoor

Source: UBS Evidence Lab, Glassdoor

Figure 16: AMAT shows improvement along a multitude of vectors



Source: UBS Evidence Lab, Glassdoor

Source: UBS Evidence Lab, Glassdoor

We show below the historical numbers for each of the metrics not shown above.

Figure 17: Career opportunities

Career Opportunities	2015	2016	2017	2018	2019	2020	Trends
AMD	2.91	3.52	3.50	3.74	4.04	3.44	
Applied Materials	3.20	3.29	3.38	3.62	3.37	3.85	
Broadcom	3.08	3.19	3.28	3.32	3.35	3.22	
Intel	3.49	3.49	3.64	3.65	4.07	3.83	
KLA Corp	3.09	3.25	3.24	3.44	3.13	3.77	
Lam Research	3.55	3.50	3.67	3.30	3.60	3.62	
Marvell Technology Group	3.20	3.54	3.78	3.66	3.47		
Micron Technology	3.20	3.35	3.39	3.34	3.35	3.90	
Nvidia	3.63	3.87	4.21	4.34	4.18	4.29	
Qualcomm	3.27	3.38	3.65	3.49	3.72	3.94	
Texas Instruments	3.62	3.72	3.74	3.92	3.85	3.83	
Average	3.29	3.46	3.59	3.62	3.65	3.77	

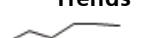
Source: UBS Evidence Lab, Glassdoor

Figure 18: Compensation and benefits

Compensation & Benefits	2015	2016	2017	2018	2019	2020	Trends
AMD	3.15	3.36	3.27	3.39	3.43	3.56	
Applied Materials	3.52	3.47	3.50	3.89	3.56	3.55	
Broadcom	3.58	3.72	3.88	3.91	4.00	3.97	
Intel	3.76	3.87	3.85	3.82	4.16	3.82	
KLA Corp	3.31	3.46	3.33	3.62	3.33	3.54	
Lam Research	3.68	3.86	3.82	3.66	4.08	3.81	
Marvell Technology Group	3.15	3.39	3.44	3.68	3.67	3.67	
Micron Technology	3.47	3.56	3.66	3.80	3.73	4.18	
Nvidia	3.65	3.84	4.27	4.26	4.26	4.32	
Qualcomm	3.70	3.51	3.67	3.80	3.81	3.95	
Texas Instruments	3.88	4.05	3.85	3.89	3.98	4.24	
Average	3.53	3.64	3.69	3.79	3.82	3.89	

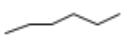
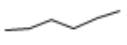
Source: UBS Evidence Lab, Glassdoor

Figure 19: Work/life balance

Work Life Balance	2015	2016	2017	2018	2019	2020	Trends
AMD	3.56	3.93	3.73	4.13	4.10	4.06	
Applied Materials	3.28	3.34	3.41	3.37	3.31	3.55	
Broadcom	3.58	3.69	3.81	3.92	3.93	3.81	
Intel	3.65	3.65	3.79	3.88	4.13	4.00	
KLA Corp	3.00	3.25	3.52	3.50	3.24	3.69	
Lam Research	3.09	3.19	3.21	3.27	3.37	3.38	
Marvell Technology Group	3.18	3.76	3.83	3.97	3.88	3.88	
Micron Technology	3.36	3.32	3.24	3.10	2.90	3.54	
Nvidia	3.36	3.57	3.87	3.94	3.94	4.14	
Qualcomm	3.14	3.20	3.50	3.42	3.45	3.58	
Texas Instruments	3.56	3.65	3.72	3.53	3.76	3.50	
Average	3.34	3.51	3.60	3.64	3.64	3.73	

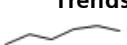
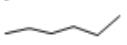
Source: UBS Evidence Lab, Glassdoor

Figure 20: Senior management

Senior Management	2015	2016	2017	2018	2019	2020	Trends
AMD	2.59	3.14	3.17	3.50	3.79	3.38	
Applied Materials	3.10	3.16	3.21	3.33	3.18	3.54	
Broadcom	2.83	2.99	3.11	3.02	3.08	2.93	
Intel	3.24	2.99	3.19	3.30	3.73	3.43	
KLA Corp	3.01	3.23	3.24	3.53	3.25	3.54	
Lam Research	3.22	3.34	3.44	2.98	3.47	3.30	
Marvell Technology Group	2.91	2.94	3.73	3.48	3.71		
Micron Technology	3.14	2.97	3.15	2.88	2.86	3.44	
Nvidia	3.54	3.78	4.13	4.15	4.09	4.16	
Qualcomm	2.86	2.95	3.20	2.94	3.23	3.45	
Texas Instruments	3.41	3.58	3.52	3.60	3.65	3.79	
Average	3.08	3.19	3.37	3.34	3.46	3.49	

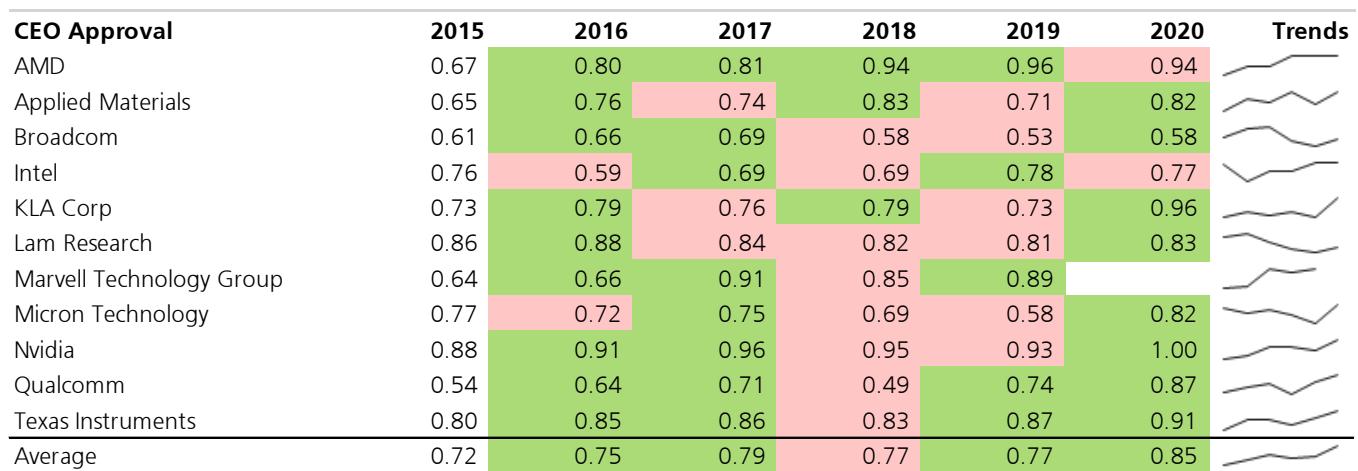
Source: UBS Evidence Lab, Glassdoor

Figure 21: Culture/values

Culture Values	2015	2016	2017	2018	2019	2020	Trends
AMD	3.15	3.66	3.44	3.94	4.18	3.88	
Applied Materials	3.47	3.58	3.47	3.64	3.39	3.95	
Broadcom	3.37	3.42	3.53	3.63	3.58	3.28	
Intel	3.75	3.64	3.82	3.86	4.21	3.84	
KLA Corp	3.30	3.54	3.53	3.92	3.54	4.08	
Lam Research	3.65	3.88	3.86	3.37	3.94	3.95	
Marvell Technology Group	3.08	3.44	3.72	3.80	4.02		
Micron Technology	3.49	3.35	3.47	3.28	3.17	3.93	
Nvidia	3.85	4.01	4.31	4.40	4.26	4.48	
Qualcomm	3.38	3.42	3.54	3.50	3.72	3.84	
Texas Instruments	3.84	4.12	4.09	3.95	4.14	4.41	
Average	3.49	3.64	3.71	3.75	3.83	3.96	

Source: UBS Evidence Lab, Glassdoor

Figure 22: CEO approval



Source: UBS Evidence Lab, Glassdoor

Methodology

Overview

Glassdoor is a leading careers website that allows employees to review their employers. Employers are rated on nine dimensions including overall satisfaction, compensation and benefits, views of senior management, and business outlook. We track employee satisfaction scores to provide insights into the ability of these companies to attract and retain employees. CEO Approval and satisfaction with senior management scores are also important as they provide a view into how employees perceive their management and the direction of their company.

More Details

For our Glassdoor analyses, we focus on the reviews of current employees only. Filtering out the reviews of former employees is a proprietary approach that allows for a more robust analysis. It is not possible to map the review of a former employee to a distinct date – the employee could have left the company six months ago or six years ago. By removing the reviews of former employees, we resolve this date issue and are able to show rating trends over time.

To analyze these trends in ratings, UBS Evidence Lab aggregates review scores by year. For select companies and the competitive set, we can also create 90-day rolling averages of current employee ratings.

For many of the metrics such as **Overall Satisfaction, Compensation & Benefits**, and **Senior Management**, employees are asked to rate satisfaction scores on a 5-point scale. The score is an average of the responses.

For **Business Outlook**, employees who posted a review on Glassdoor were asked if Business Outlook over the next six months was getting better, getting worse, or staying the same. The business outlook metric is a diffusion index that is

calculated based on the responses to that question and is the percentage of positive responses plus one half of the percentage of neutral responses. Values above 50 indicate that business outlook for the next six months is improving and values below 50 indicate that business outlook is getting worse.

For **CEO Approval**, employees were asked if they approve of the CEO, have no opinion of the CEO, or disapprove of the CEO. The CEO approval rating, as is the case for the Business Outlook rating, is also a diffusion index, which means it is reflective of the number of reviewers who approve of the CEO plus one half of the number of reviewers who have no opinion of the CEO, divided by the number of people who responded to the CEO approval question.

UBS Evidence Lab is a sell-side team of experts, independent of UBS Research, that work across 12 practice areas and 45 specialized labs creating insight-ready datasets. The experts turn data into evidence by applying a combination of tools and techniques to harvest, cleanse, and connect billions of data items each month. Since 2014, UBS Research Analysts have utilized the expertise of UBS Evidence Lab for insight-ready datasets on companies, sectors, and themes, resulting in the production of over 3,000 differentiated UBS Research reports. UBS Evidence Lab does not provide research, investment recommendations, or advice, but provides insight-ready datasets for further analysis by UBS Research and by clients.

For this report, UBS analyzed current employee reviews from Glassdoor, a leading careers website, to measure trends in employee satisfaction metrics and CEO approval across 161 leading companies in US Semiconductor sector. UBS Evidence Lab used advanced web scraping techniques to collect over 37,000 current employee reviews. This report leverages the following UBS Evidence Lab asset: US Semiconductor Employee Reviews Monitor [Glassdoor]. The reviews are current through 04 May 2020.

Valuation Method and Risk Statement

Valuations were not performed as part of this report. We use various methodologies such as EV/FCF, P/TBV, P/E for valuing companies in our coverage universe. Risk factors include but are not limited to macroeconomic factors such as a downturn in the economy, a disruption of international trade, technological disruption due to new inventions or business model innovation whereby structural changes in the industry alter the future course of unit sales, ASPs, and revenues.

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12-Month Rating	Definition	Coverage ¹	IB Services ²
Buy	FSR is > 6% above the MRA.	48%	32%
Neutral	FSR is between -6% and 6% of the MRA.	40%	28%
Sell	FSR is > 6% below the MRA.	13%	20%
Short-Term Rating	Definition	Coverage ³	IB Services ⁴
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%

Source: UBS. Rating allocations are as of 31 March 2020.

1:Percentage of companies under coverage globally within the 12-month rating category.

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