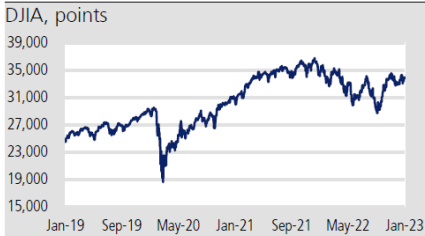




US technology sector

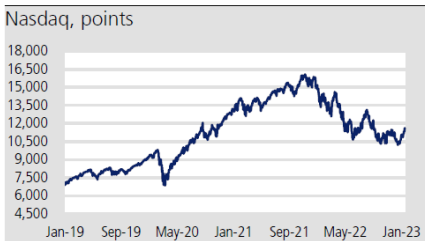
Texas Instruments & Intel results – Muted, but not worse

Dow Jones Industrial Average



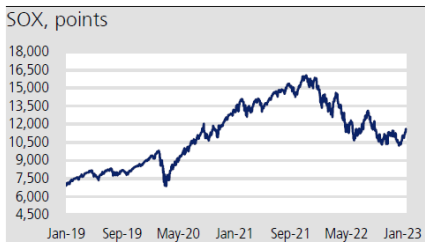
Source: Bloomberg

Nasdaq



Source: Bloomberg

SOX



Source: Bloomberg

ESG score card

Company	Overall	E	S	G
Intel	86	90	84	85
Texas Instruments	83	98	90	54

Source: Refinitiv; Company data

Event

1Q23 guidance was mostly below consensus (Figure 3), largely due to inventory burn across the board. Key highlights include: (1) PC and server TAM to drop YoY in 1H23, but overall TAM for 2023 should not be worse than expected; (2) more significant under-shipping of products in 1Q23; (3) automotive, industrial, and infrastructure will grow in 2023, but it's difficult to estimate the magnitude; (4) order visibility is too low to predict when business will turn around, so for the first time Intel (INTC US) did not provide annual guidance; (5) order cancellations have increased; (6) inventory value growth is decelerating for Intel, but accelerating for Texas Instruments (TXN US) and STMicroelectronics (CH), supporting our view that PC and smartphone will alleviate inventory issues earlier than others.

Impact

Below average 1Q23 seasonality, as expected. TI guides below-average seasonality in 1Q23, and expects weak demand to extend to almost all of its end-market clients, except for automotive, which is the only segment likely to deliver sequential revenue growth in 1Q23. Order cancellations have also risen, indicating worse-than-expected demand. On the PC and server side, Intel expects customers to burn inventory at a significantly faster pace than in the prior few quarters. As such, the sell-in rate in 1Q23 will be 20%+ below the consumption rate (vs. 10% in 2022), resulting in quarterly revenue guidance being almost halved from the 4Q19 peak.

Demand outlook by end application – Muted, but not worse. Intel guides 2023 PC TAM will be in the low end of its prior guidance of 270mn units, down 8% YoY, which is still above AMD's (US) prior guidance of a 10% YoY decline. Server consumption momentum is diminishing, with 1H23 TAM to decline YoY. However, 2H23 TAM should return to growth. Automotive, industrial, and infrastructure TAM should grow in 2023. STMicroelectronics (70% automotive and industrial) guides 2023 revenue will grow 4-10% YoY. Pricing remains firm for MCU in some B2B industrial applications and automotive. However, mainstream and ultra-low power MCU have returned to a more normal situation.

Mixed inventory status. Inventory digestion continues across the board, inclusive of automotive. In-house DOI (respective 151, 157, and 100 for Intel, TI, and STMicroelectronics) have increased sequentially in 4Q22 (Figures 5, 7, & 8). Inventory value has also increased sequentially, with that of Intel up less than others. Intel's inventory value growth slowed YoY in 4Q22, while it accelerated for TI and STMicroelectronics over the same period. As such, we believe that the smartphone and PC segments might see inventory issues end earlier than those of analog semiconductor IDMs, similar to the historical pattern. After consensus EPS normalizes, the SOX will rebound as the upward earnings revision cycle starts.

Figure 1: Performance of major stock indices

Index	Recent close (pts)	1W (change, %)	2W	1M	3M	6M	12M	YTD
Dow Jones	33,978	1.8	(0.9)	2.2	6.1	5.5	(0.5)	2.5
Nasdaq	11,622	4.3	4.9	12.3	7.7	(3.4)	(13.0)	11.0
SOX	2,945	5.4	5.2	18.3	25.8	1.2	(9.2)	16.3

Source: Bloomberg

Figure 3: Earnings & guidance versus consensus

Difference from consensus (%)	4Q22		1Q23F				2023F			
	Revenue	EPS	Revenue	Gross Profit	OP Profit	EPS	Revenue	Gross Profit	OP Profit	EPS
Intel	(3.1)	(50.3)	(21.9)	(33.1)		(159.3)				
Texas Instruments	1.2	5.7	(1.4)			(6.3)				
STMicro	0.6	20.1	10.2	16.8			7.8			

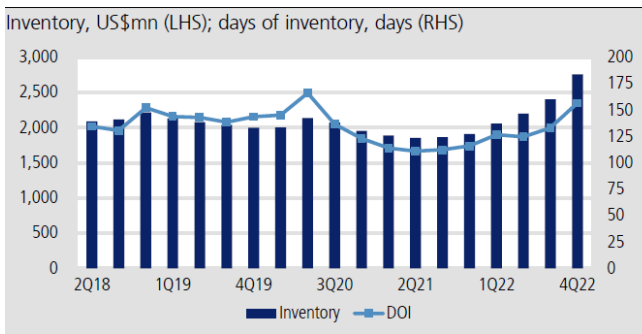
Source: Company data; Bloomberg

Figure 4: Texas Instruments' 1Q23 revenue guidance by segment

	4Q22 revenue QoQ (%)	Key notes from company	1Q23F revenue QoQ (%)	2022 weighting (%)
Industrial	Down about 10		Expected a weaker than seasonal decline	40
Auto	Up mid-single digits	Strength in most sectors		25
Personal electronics	Down mid-teens	Broad-based weakness	Expected a weaker than seasonal decline	20
Communications	Down about 20		Expected a weaker than seasonal decline	7
Enterprise	Down about 20		Expected a weaker than seasonal decline	6

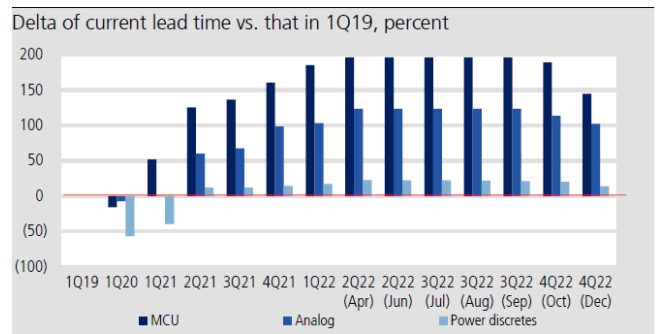
Source: Company data

Figure 5: Texas Instruments – Inventory & DOI



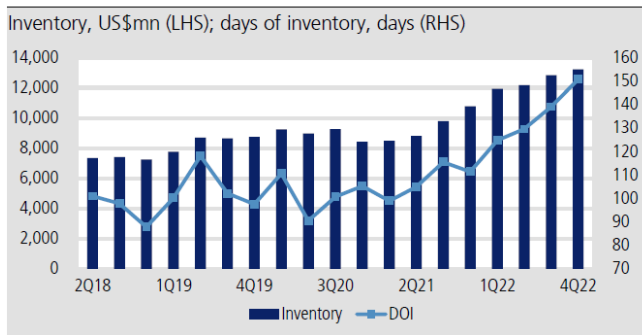
Source: Company data; KGI Research

Figure 6: China distribution lead times – MCU, analog & power discrete devices



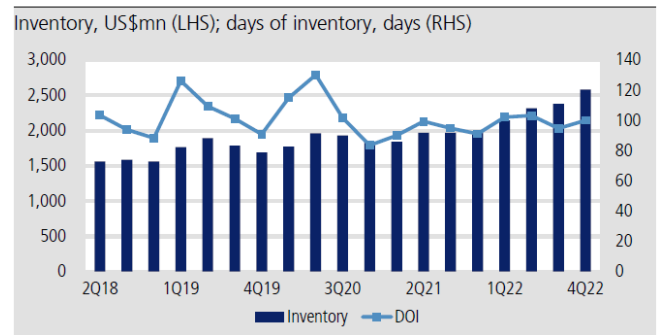
Source: Future electronics; KGI Research

Figure 7: Intel – Inventory & DOI



Source: Company data; KGI Research

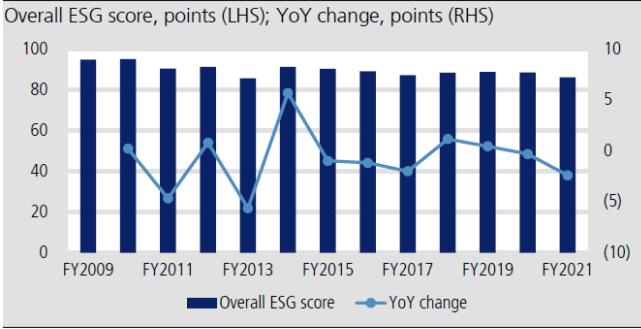
Figure 8: STMicroelectronics – Inventory & DOI



Source: Company data; KGI Research

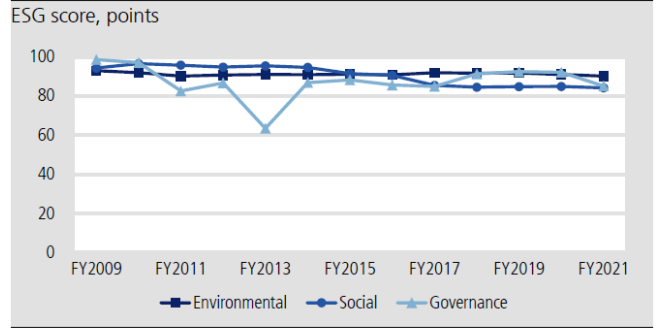
Intel (INTC US)

Figure 9: Intel – Overall ESG score



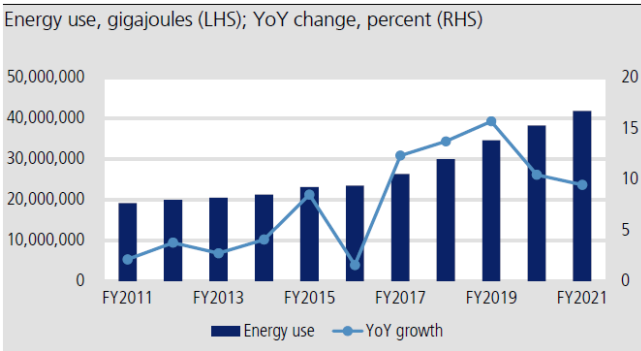
Source: Refinitiv; Company data

Figure 10: Intel – ESG score by category



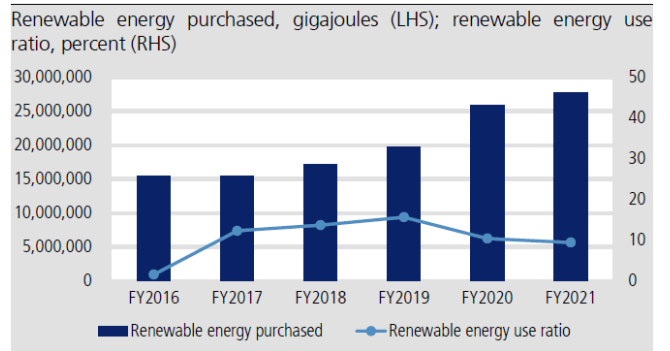
Source: Refinitiv; Company data

Figure 11: Intel – Energy use



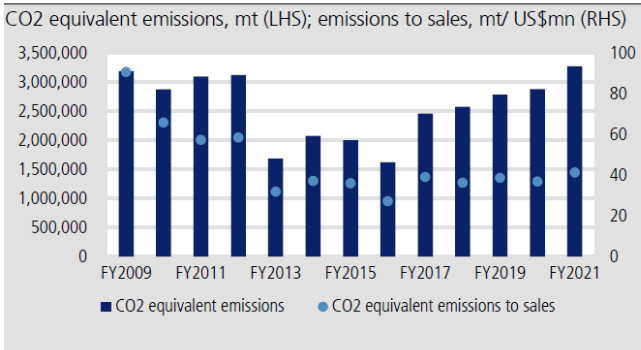
Source: Refinitiv; Company data

Figure 12: Intel – Renewable energy



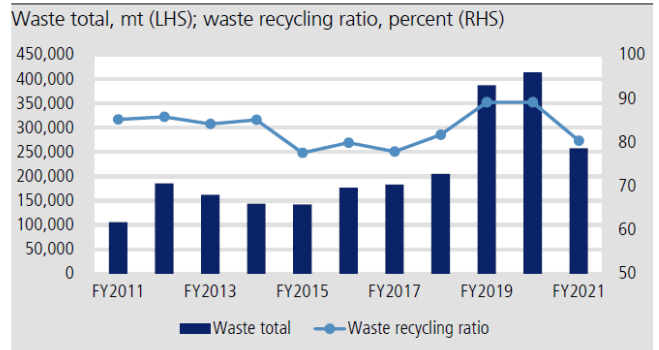
Source: Refinitiv; Company data

Figure 13: Intel – CO2 equivalent emissions



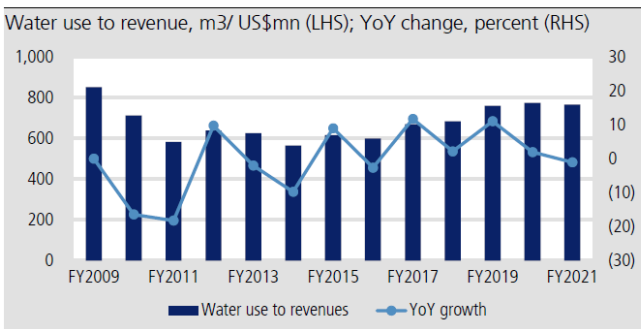
Source: Refinitiv; Company data

Figure 14: Intel – Waste total



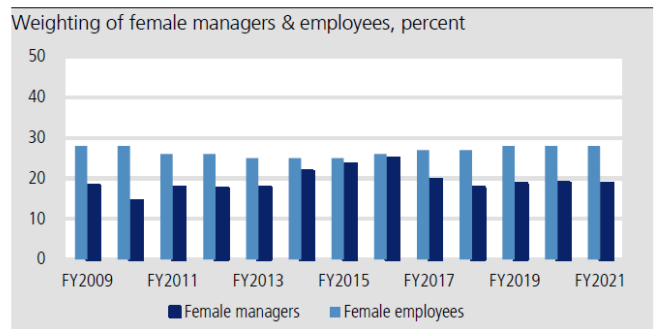
Source: Refinitiv; Company data

Figure 15: Intel – Water use to revenue



Source: Refinitiv; Company data

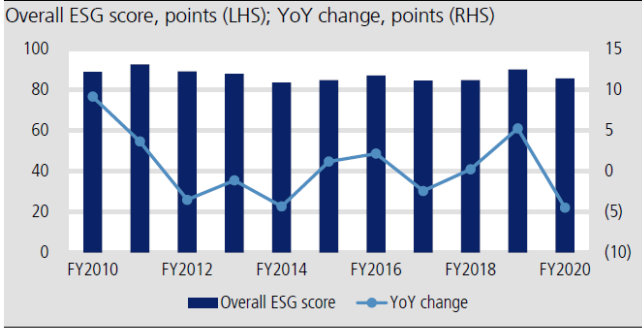
Figure 16: Intel – Gender diversification



Source: Refinitiv; Company data

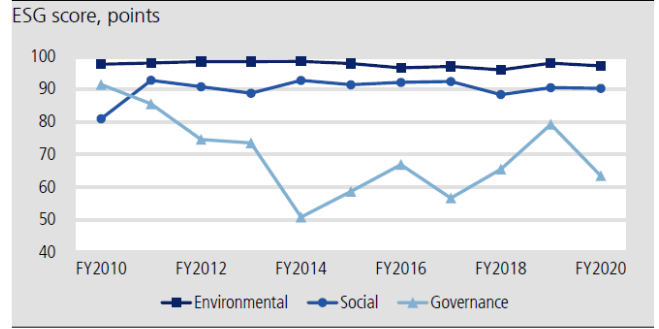
Texas Instruments (TXN US)

Figure 17: Texas Instruments – Overall ESG score



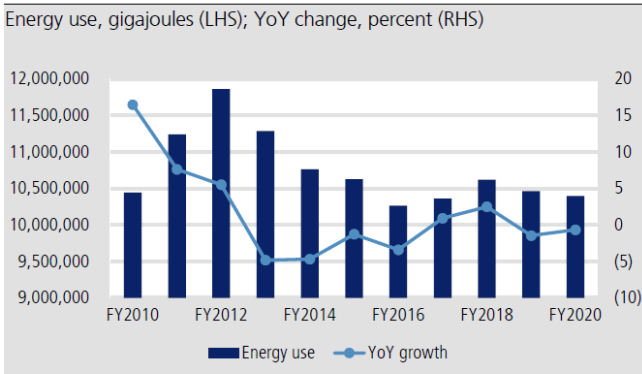
Source: Refinitiv; Company data

Figure 18: Texas Instruments – ESG score by category



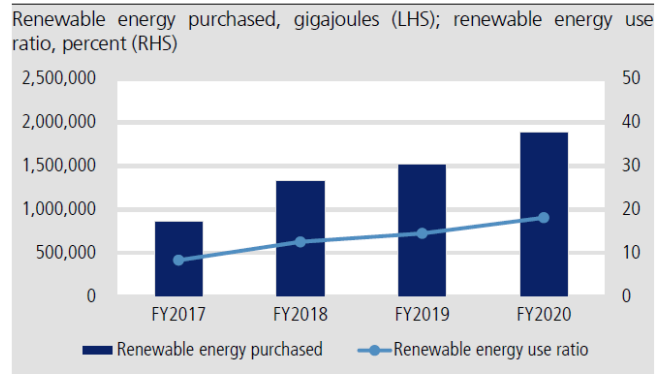
Source: Refinitiv; Company data

Figure 19: Texas Instruments – Energy use



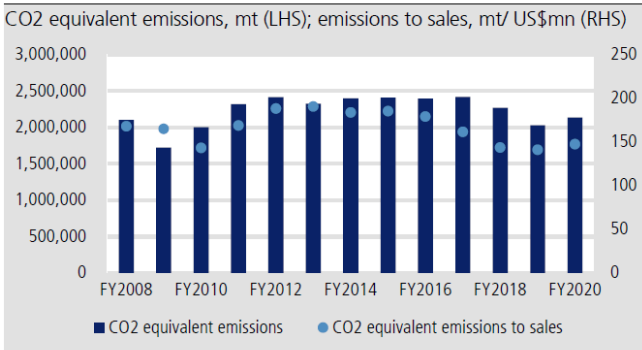
Source: Refinitiv; Company data

Figure 20: Texas Instruments – Renewable energy



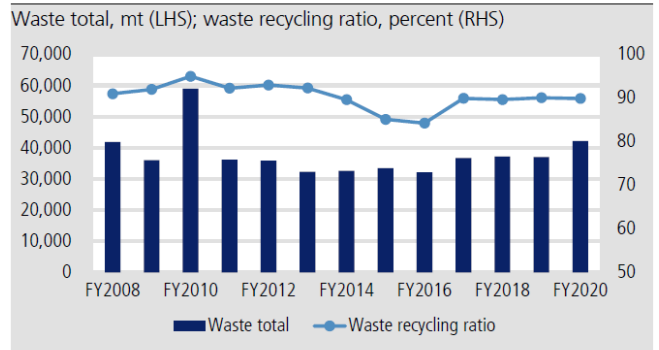
Source: Refinitiv; Company data

Figure 21: Texas Instruments – CO2 equivalent emissions



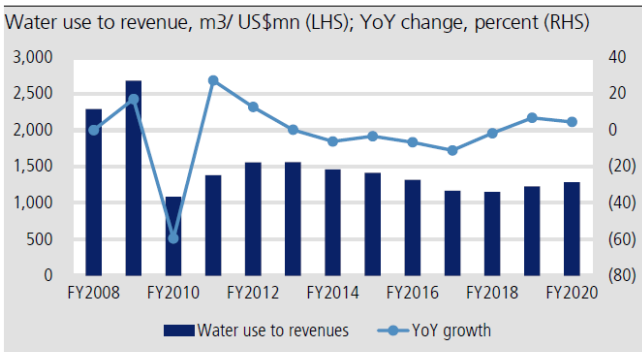
Source: Refinitiv; Company data

Figure 22: Texas Instruments – Waste total



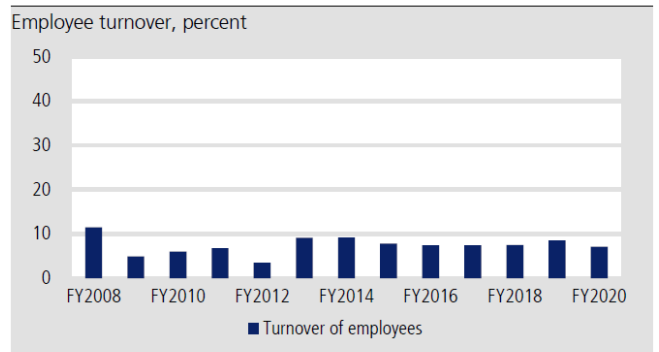
Source: Refinitiv; Company data

Figure 23: Texas Instruments – Water use to revenue



Source: Refinitiv; Company data

Figure 24: Texas Instruments – Employee turnover



Source: Refinitiv; Company data

Item	Definition
Energy use	Total direct and indirect energy consumption in gigajoules. - the total amount of energy that has been consumed within the boundaries of the company's operations - total energy use = total direct energy consumption + indirect energy consumption - purchased energy and produced energy are included in total energy use - for utilities, transmission/ grid loss as part of its business activities is considered as total energy consumed and data does not consider electricity produced to answer energy use (utility company produces to sell) - for utilities, raw materials such as coal, gas or nuclear used in the production of energy are not considered under 'total energy use'
Renewable energy purchased	Total primary renewable energy purchased in gigajoules. - energy consumed by the company from various sources and among the purchased energy, how much energy is renewable in nature (solar, wind, hydro, biomass, geothermal) are in scope - if there is no evidence that renewable energy is produced by the company, then we consider the reported energy figure as renewable energy purchased
Renewable energy use ratio	Renewable energy to total energy used
CO2 equivalent emissions	Direct CO2 and CO2 equivalent emissions in metric tons. - direct emissions from sources that are owned or controlled by the company (scope 1 emissions) - following gases are relevant: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorinated compound (PFCS), sulfur hexafluoride (SF6), nitrogen trifluoride (NF3)
CO2 equivalent emissions to sales	Direct CO2 and CO2 equivalent emissions (metric tons) to sales (NT\$m) - direct emissions from sources that are owned or controlled by the company (scope 1 emissions) - following gases are relevant: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorinated compound (PFCS), sulfur hexafluoride (SF6), nitrogen trifluoride (NF3)
Waste total	Total amount of waste produced in metric tons. - total waste = non-hazardous waste + hazardous waste - only solid waste is taken into consideration, exceptionally if liquid waste is reported in metric tons, then we do the summation to derive total including liquid waste - for sectors like mining, oil & gas, waste generation like tailings, waste rock, coal and fly ash are also considered
Waste recycling ratio	The waste recycling ratio as reported by the company. - waste recycling ratio = waste recycled/total waste * 100 - waste to energy or waste incinerated with energy recovery are considered as waste recycled - waste recovered via composting is considered as recycled waste
Water withdrawal total	Total water withdrawal in cubic meters. - the total volume of water withdrawn from any water source that was either withdrawn directly by the reporting organization or through intermediaries such as water utilities - different sources of water like wells, town/utility/municipal water, river water, and surface water are considered
Environmental expenditures	Total amount of environmental expenditures. - all environmental investment & expenditures for environmental protection or to prevent, reduce, control environmental aspects, impacts, and hazards. It also includes disposal, treatment, sanitation, and clean-up expenditures
Turnover of employees	Percentage of employee turnover. - includes employees who left the company for any reason (voluntary or involuntary), such as resignations, retirement, natural departure/death, medical incapacitation, redundancy, layoffs, restructuring, dismissal, retrenchment or end of a fixed-term contract - employees turnover rate = (employees leaving/average number of employees)* 100 - where the average number of employees = (employees at the end of the current year + employees at the end of the previous year)/2 - employees at the end of the current fiscal year = employees at the end of the previous fiscal year + new employees - employees leaving
Women managers	Percentage of women managers. - percentage of women managers among total managers of the company - if there is a breakdown by category in percentage, such as top, senior, middle, and junior management, then we consider the percentage of middle women managers - percentage of women managers = number of women managers/total number of managers* 100
Women employees	Percentage of women employees. - percentage of women employees to the total number of employees of the company - percentage of women employees = number of women/total number of employees* 100
Training hours total	Total training hours performed by all employees. - consider only employee training hours - includes all types of training given to general employees (such as health & safety, environmental, emergency response, skills & career development training) - if the value is given in days, multiply by 8, assuming that 1 day = 8 hours worked
Training hours per employee	Training hours per employee per year

All the above named KGI analyst(s) is SFC licensed person accredited to KGI Asia Ltd to carry on the relevant regulated activities. Each of them and/or his/her associate(s) does not have any financial interest in the respectively covered stock, issuer and/or new listing applicant.

Disclaimer Some of KGI Asia Ltd. equity research and earnings estimates are available electronically on www.kgi.com.hk. Please contact your KGI representative for information. The information and opinions in this report are those of KGI Asia Ltd. internal research activity. KGI Asia Ltd. does not make any representation or warranty, express or implied, as to the fairness, accuracy, completeness or correctness of the information and opinions contained in this report. The information and opinions contained in this report are subject to change without any notice. No person accepts any liability whatsoever for any loss however arising from any use of this report or its contents. This report is not to be construed as an invitation or offer to buy or sell securities and/or to participate in any investment activity. This report is being supplied solely for informational purposes and may not be reproduced or published (in whole or in part) for any purpose without the prior written consent of KGI Asia Ltd.. Members of the KGI group and their affiliates may provide services to any companies and affiliates of such companies mentioned herein. Members of the KGI group, their affiliates and their directors, officers and employees may from time to time have a position in any securities mentioned herein.