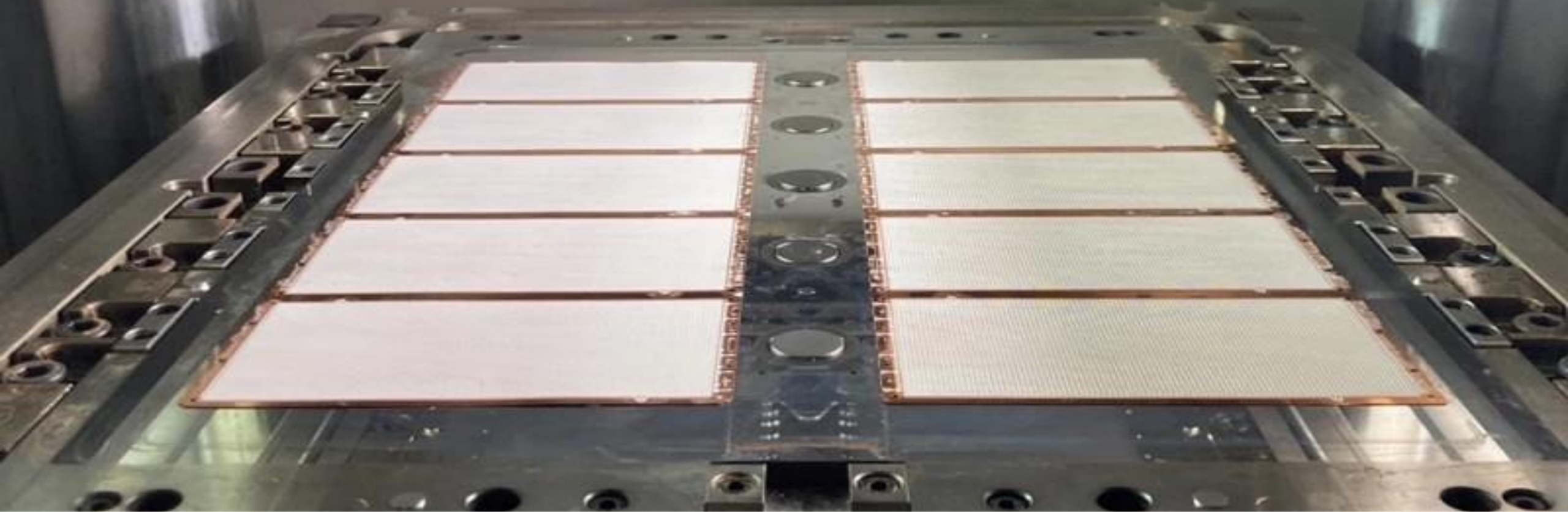


Chang Wah Technology



CWTC

March 23, 2023
CWTC*(6548)

Forward-looking Statement

Information included in this press release that are not historical in nature are "forward looking statements". CWTC cautions readers that forward looking statements are based on CWTC's reasonable knowledge and current expectations and are subject to various risks and uncertainties. Actual results may differ materially from those contained in such forward looking statements for a variety of reasons including without limitation, risks associated with demand and supply change, manufacturing and supply capacity, design win, time to market, market competition, industrial cyclicity, customer's financial condition, exchange rate fluctuation, legal actions, amendments of the laws and regulations, global economy change, natural disasters, and other unexpected events which may disrupt CWTC's business and operations. Accordingly, readers should not place reliance on any forward looking statements. Except as required by law, CWTC undertakes no obligation to update any forward looking statement, whether as a result of new information, future events, or otherwise.

Agenda

2022 Financial Results

**Peer Comparison
Mini LED Against OLED**

Statements of Comprehensive Income (Quarterly)

NT\$ mn	4Q22	3Q22	QoQ	4Q21	YoY
Revenue	3,338	3,684	-9%	3,672	-9%
Gross Profit	937	1,162	-19%	1,247	-25%
Operating Profit	620	828	-25%	769	-19%
Non-Operating Items	(65)	355	-118%	16	-506%
Pretax Income	555	1,183	-53%	785	-29%
Tax Expenses	158	238	-34%	184	-14%
Net Income to Shareholders of the Parent Company	390	939	-58%	594	-34%
Basic EPS(NT Dollar)*	0.42	1.01	-58%	0.66	-36%
Key Financial Ratios(%)					
Gross Margin	28.1%	31.5%		34.0%	
Operating Margin	18.6%	22.5%		20.9%	
Pretax Income Margin	16.6%	32.1%		21.4%	
Net Margin	11.9%	25.7%		16.4%	

* Basic EPS is calculated on the basis of NT\$ 0.4 par value per share.

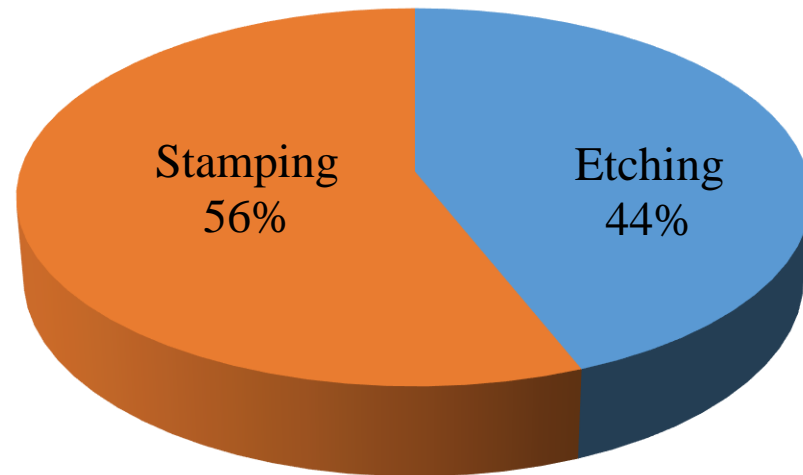
Statements of Comprehensive Income (Accumulate)

NT\$ mn	2022	2021	YoY
Revenue	14,431	12,792	13%
Gross Profit	4,386	3,406	29%
Operating Profit	3,122	2,210	41%
Non-Operating Items	512	39	1213%
Pretax Income	3,634	2,249	62%
Tax Expenses	789	511	54%
Net Income to Shareholders of the Parent Company	2,816	1,714	64%
Basic EPS(NT Dollar)*	3.01	1.92	57%
Key Financial Ratios(%)			
Gross Margin	30.4%	26.6%	
Operating Margin	21.6%	17.3%	
Pretax Income Margin	25.2%	17.6%	
Net Margin	19.7%	13.6%	

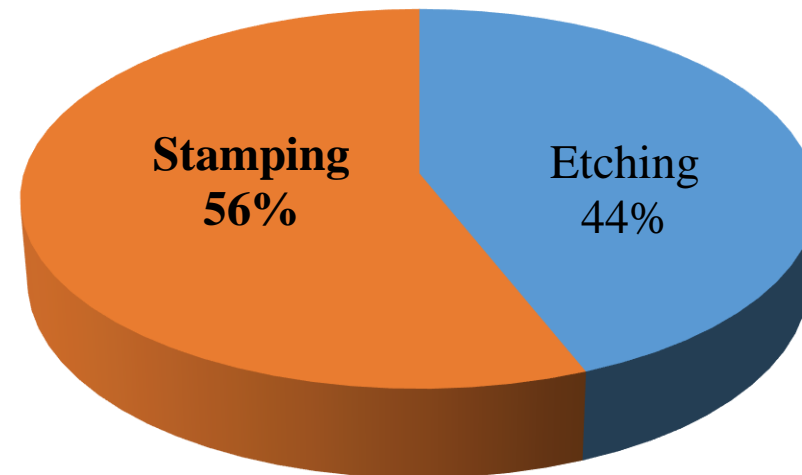
* Basic EPS is calculated on the basis of NT\$ 0.4 par value per share.

Revenue by Front-end process (Accumulate)

2022

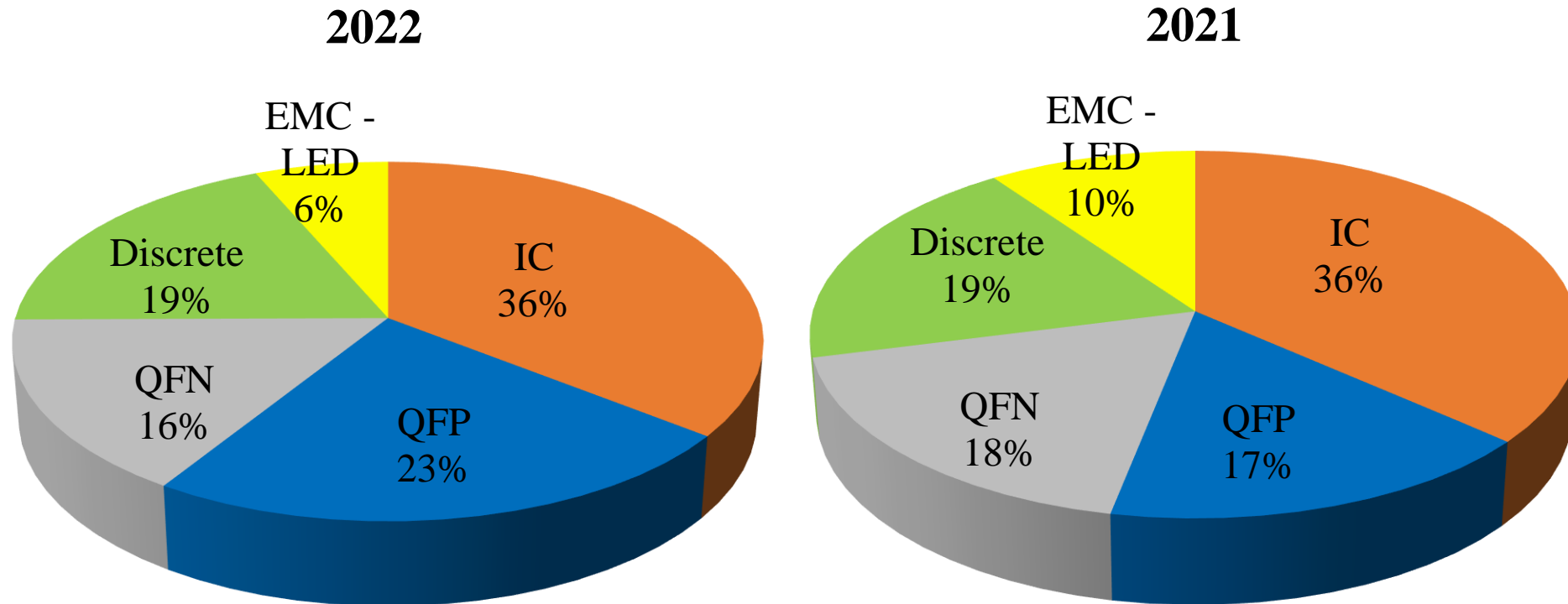


2021



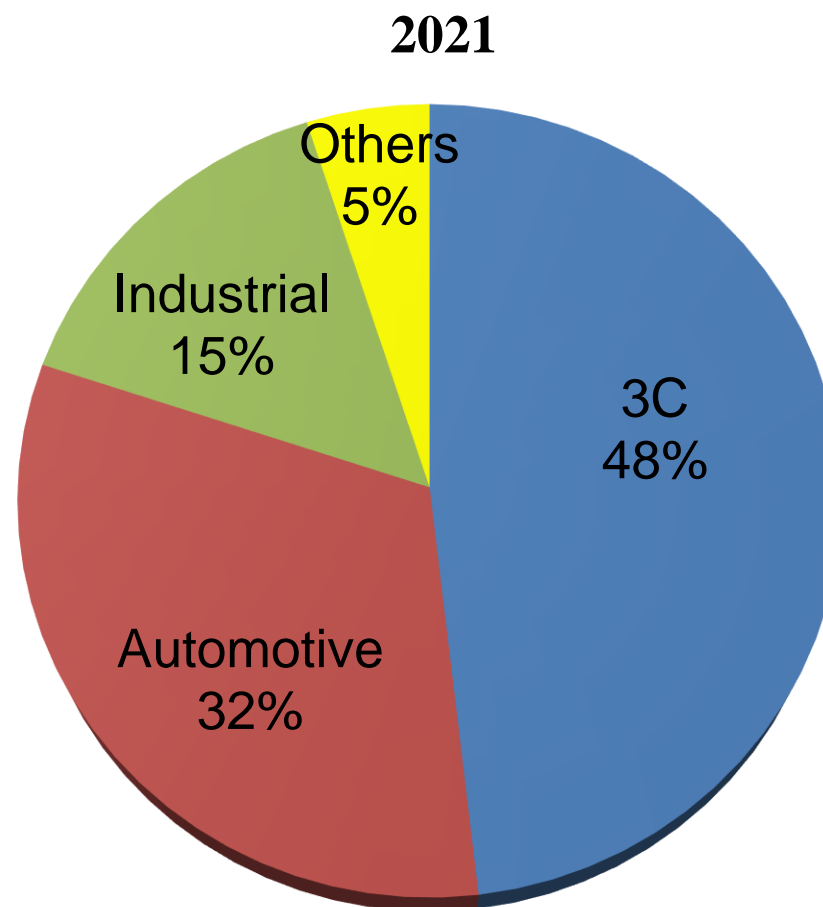
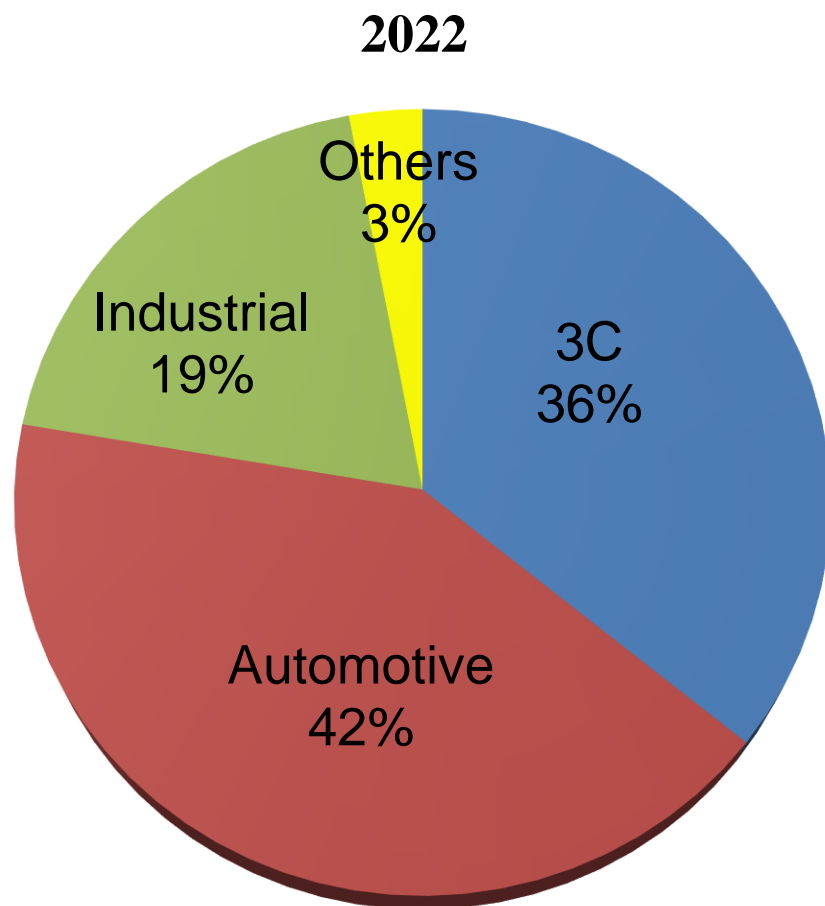
* Classified by sales amount (US\$)

Revenue by Product (Accumulate)



Discrete : small outline transistor, SOT
* Classified by sales amount (US\$)

Revenue by Application (Accumulate)



* Classified by sales amount (US\$)

Balance Sheet

NT\$ mn	2022	2021	2020
Cash & Marketable Securities	5,626	3,685	2,502
Accounts Receivable	2,001	2,100	1,525
Inventories	12,256	10,080	7,414
Net PP&E	3,586	2,475	2,252
Total Assets	18,829	14,842	12,164
Current Liabilities	5,673	4,336	3,216
Total Liabilities	8,655	6,430	6,738
Total Shareholders' Equity	10,174	8,412	5,426

Cash Flow Statement

NT\$ mn	2022	2021	2020
Beginning Balance	3,685	2,502	3,076
Cash from operating activities	4,057	1,654	987
Capital expenditures	(1,363)	(758)	(442)
Cash dividends	(888)	(468)	(438)
Short-term loans	796	122	140
Bonds payable	0	1,803	0
Investments and others	(661)	(1,170)	(821)
Ending Balance	5,626	3,685	2,502
Free Cash Flow*	2,694	896	545

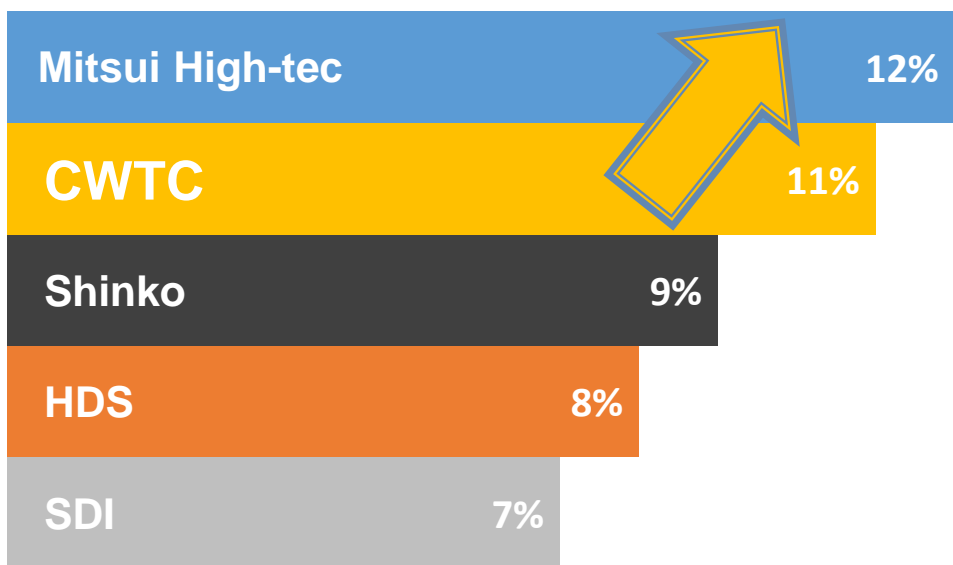
* Free cash flow = Cash from operating activities – Capital expenditures

2022 Financial Results
Peer Comparison
Mini LED Against OLED

Increase Market Share and Generate Superior ROE

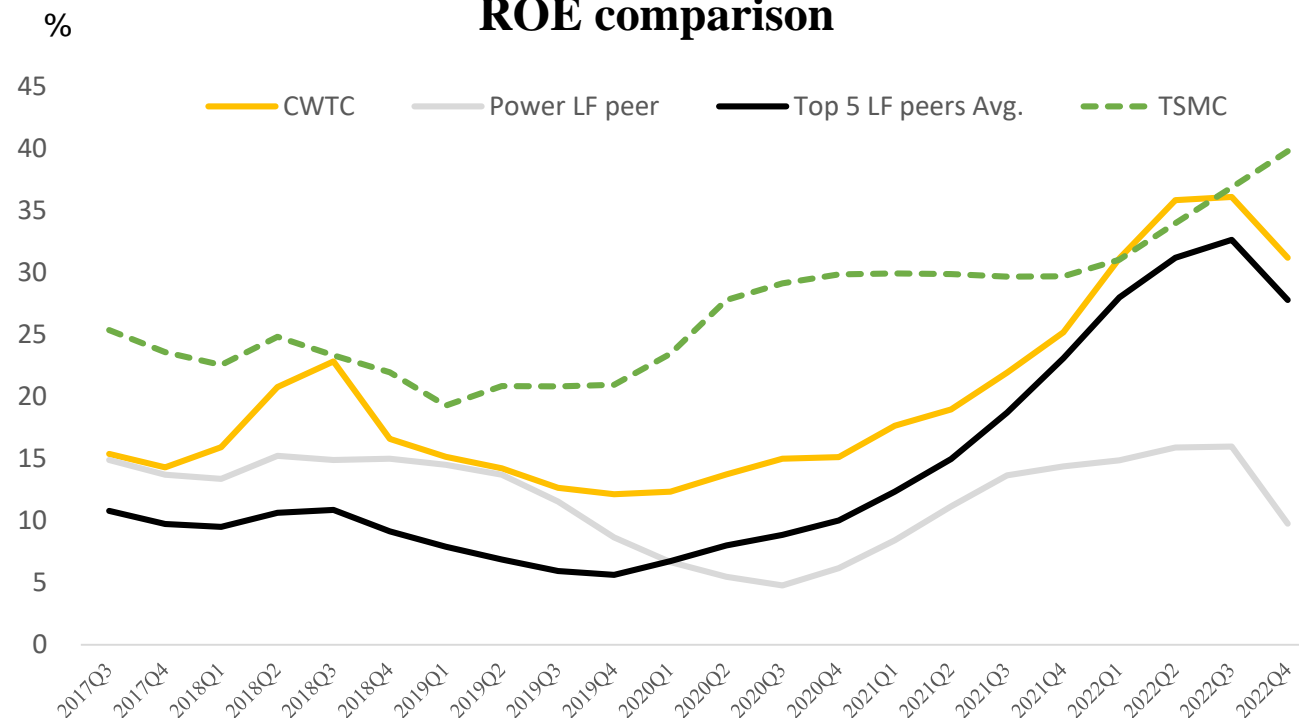
- CWTC targets to increase market share and become the IC LF **Spec. definer.**
- CWTC generated ROE above LF industry average

2020E Global Top 5 LF makers market shares



Source: Company estimates. Stock tickers: Mitsui High-tec: 6966 JP, Shinko: 6967 JP, HDS: 195870 KS, SDI: 2351 TT

ROE comparison



Source: Bloomberg

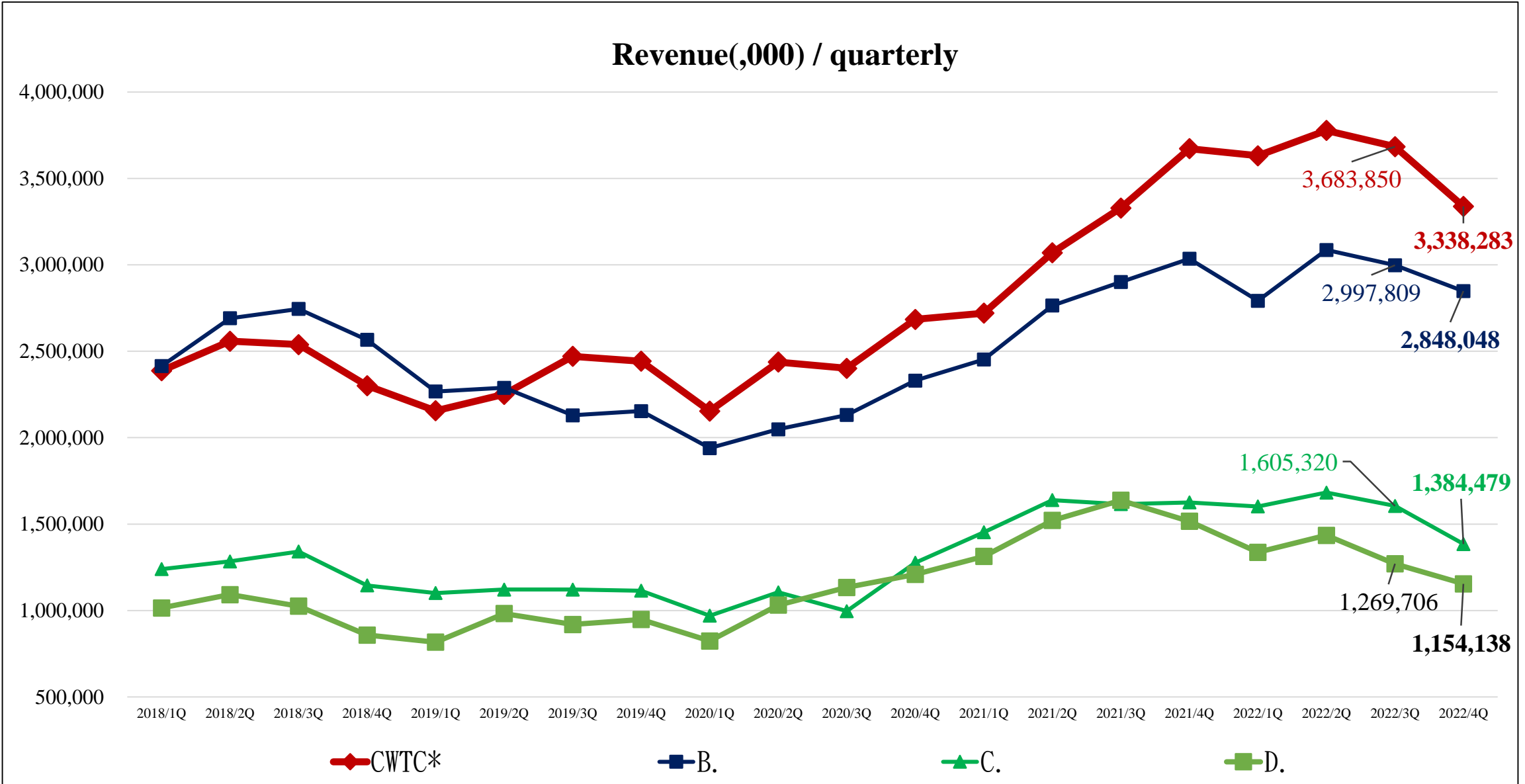
Comparison between CWTC and domestic peers

Company	Year	Revenue (100 million)	Revenue YoY	Gross Margin	Operating Margin	Net Profit Margin	After Tax EPS(NTD)	Price(NTD) (Date)
CWTC* (6548) number of shares : 966,421,700 (2022/9/5~)	2020	96.78	4%	19%	10%	8%	2.19 (NT\$1.0 par value per share)	59.8 (2020/12/31)
	2021	127.92	33%	27%	17%	14%	4.81 (NT\$1.0 par value per share)	104.5 (2021/12/30)
	2022	144.31	13%	30.4%	21.6%	19.7%	3.01 (NT\$0.4 par value per share)	39.30 (2023/3/22)
B. number of shares : 182,140,249	2020	84.51	-4%	16%	7%	5%	1.92	98.2 (2020/12/31)
	2021	111.53	32%	19%	11%	8%	4.68	175.5 (2021/12/30)
	2022	117.24	5%	18%	10%	9%	5.16	126.0 (2023/3/22)
C. number of shares : 102,040,926	2020	43.47	-3%	14%	5%	3%	1.37	75.8 (2020/12/31)
	2021	63.32	46%	18%	10%	8%	4.82	108.0 (2021/12/30)
	2022	62.74	-1%	15%	7%	7%	4.08	88.8 (2023/3/22)
D. number of shares : 221,958,579	2020	41.97	15%	12%	-1%	-4%	-0.75	19.4 (2020/12/31)
	2021	59.88	43%	20%	9%	7%	1.79	51.5 (2021/12/30)
	2022	51.96	-13%	11%	0%	2%	0.47	28.75 (2023/3/22)

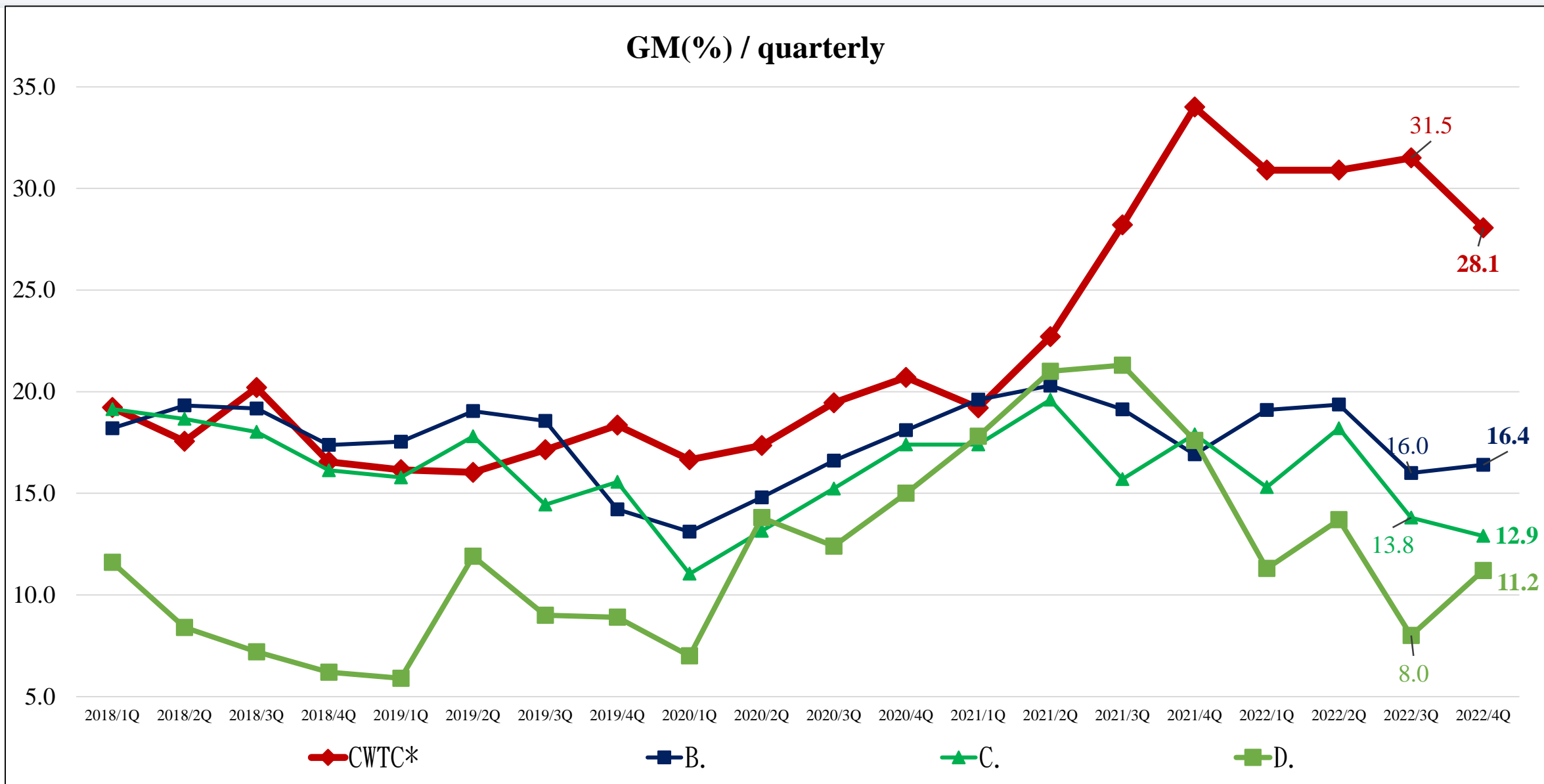
Source: Public Information Observatory

Revenue Trend

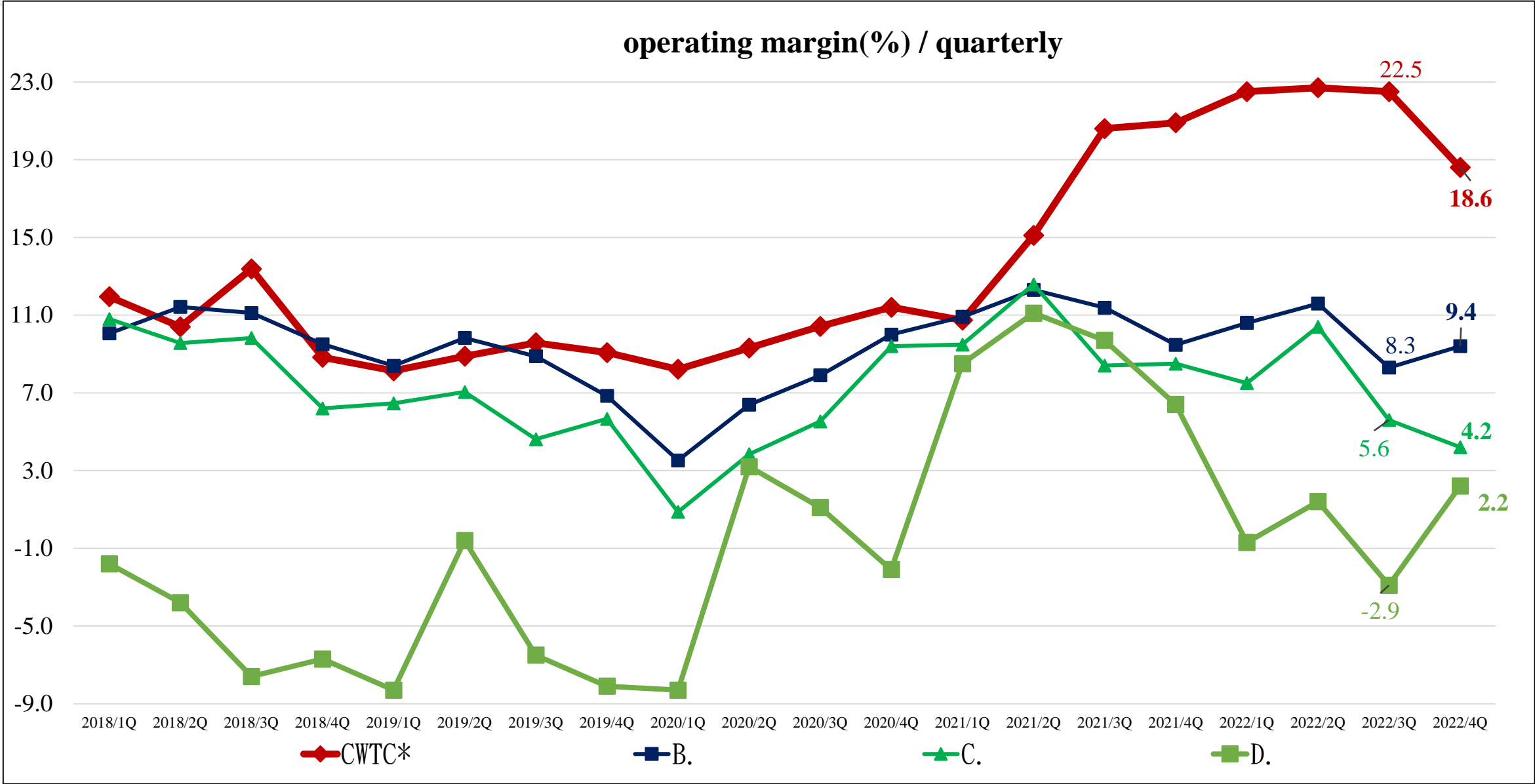
Revenue(,000) / quarterly



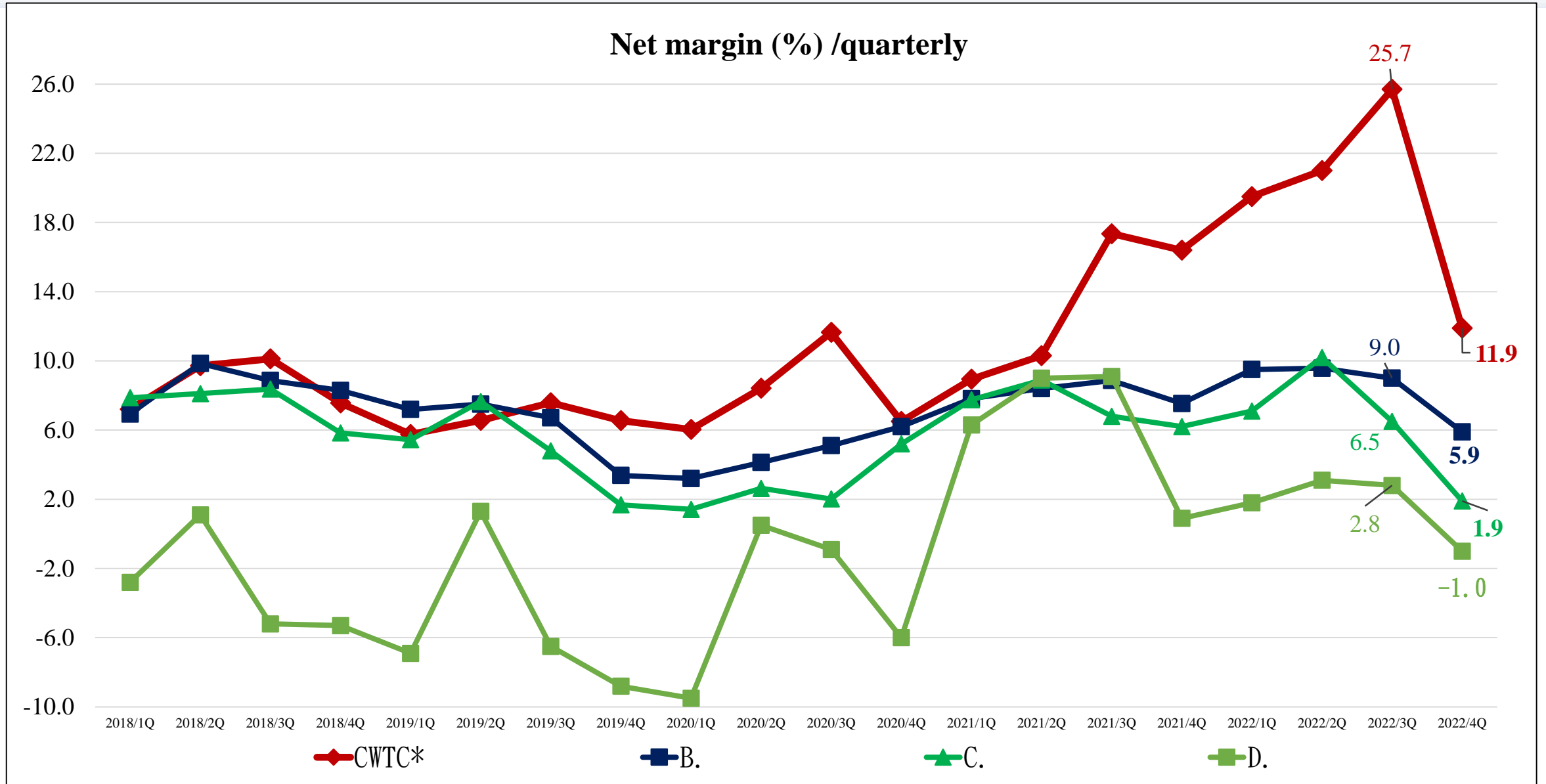
Gross Margin Trend



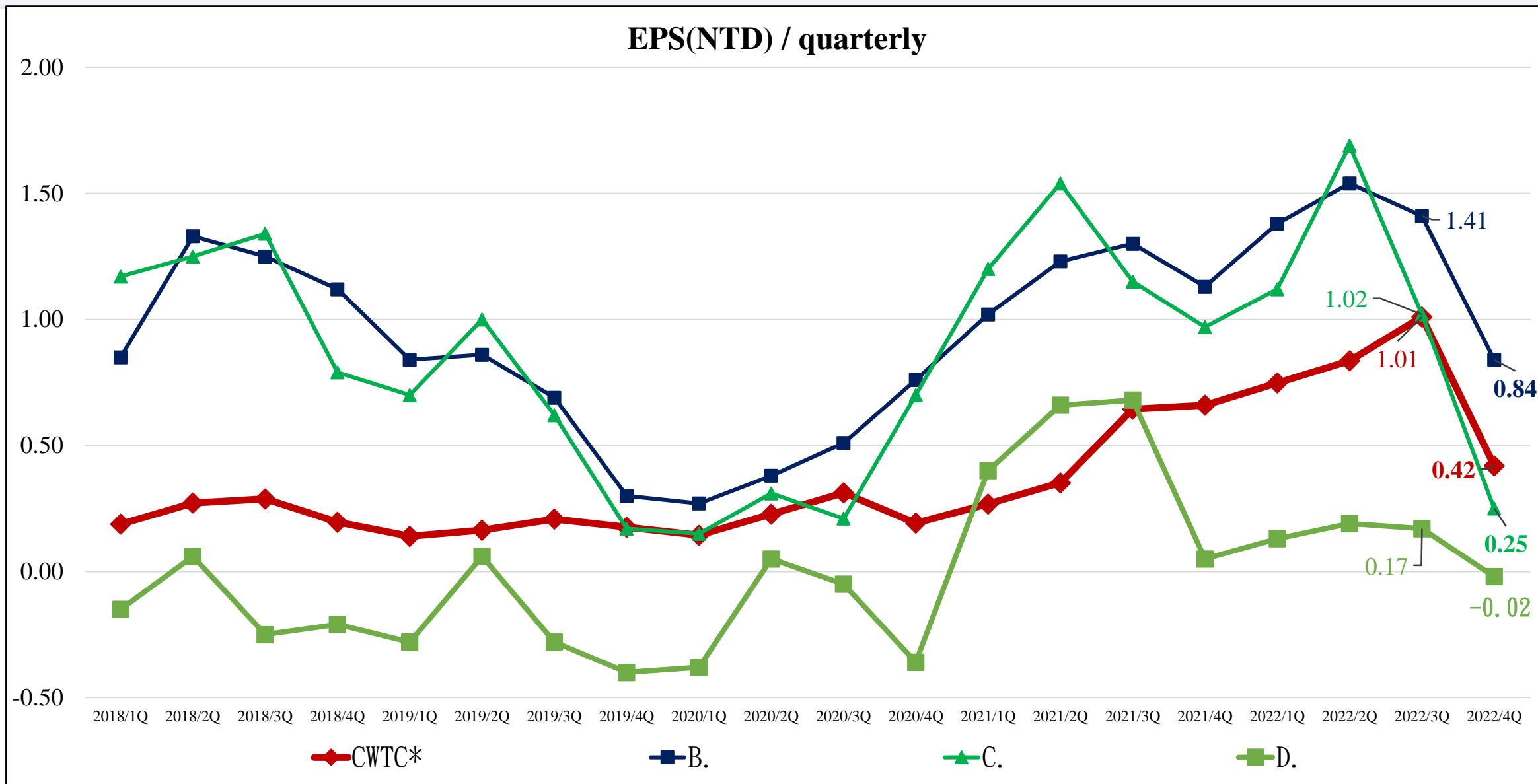
Operating Margin Trend



Net Margin Trend

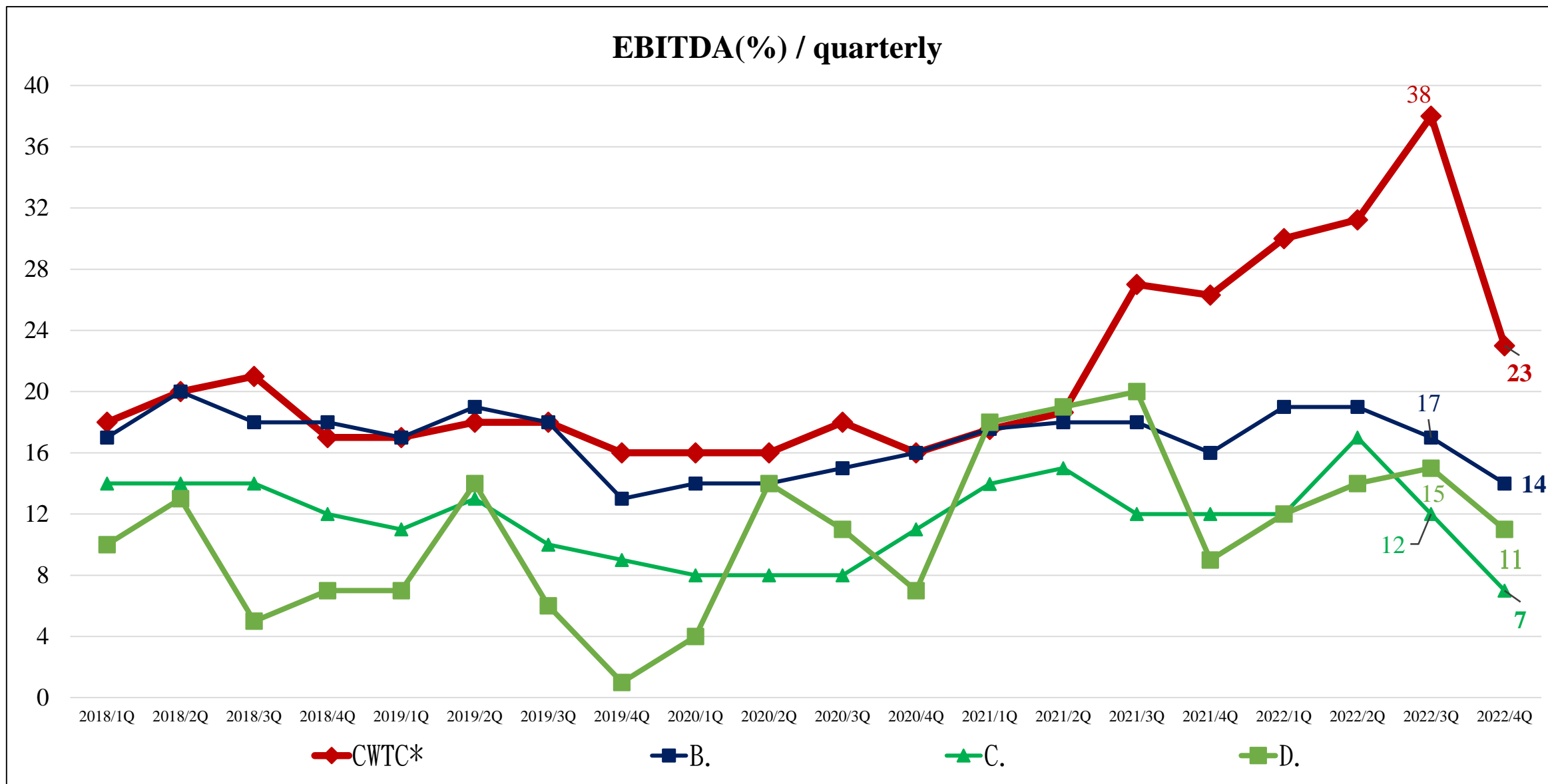


After-tax EPS Trend



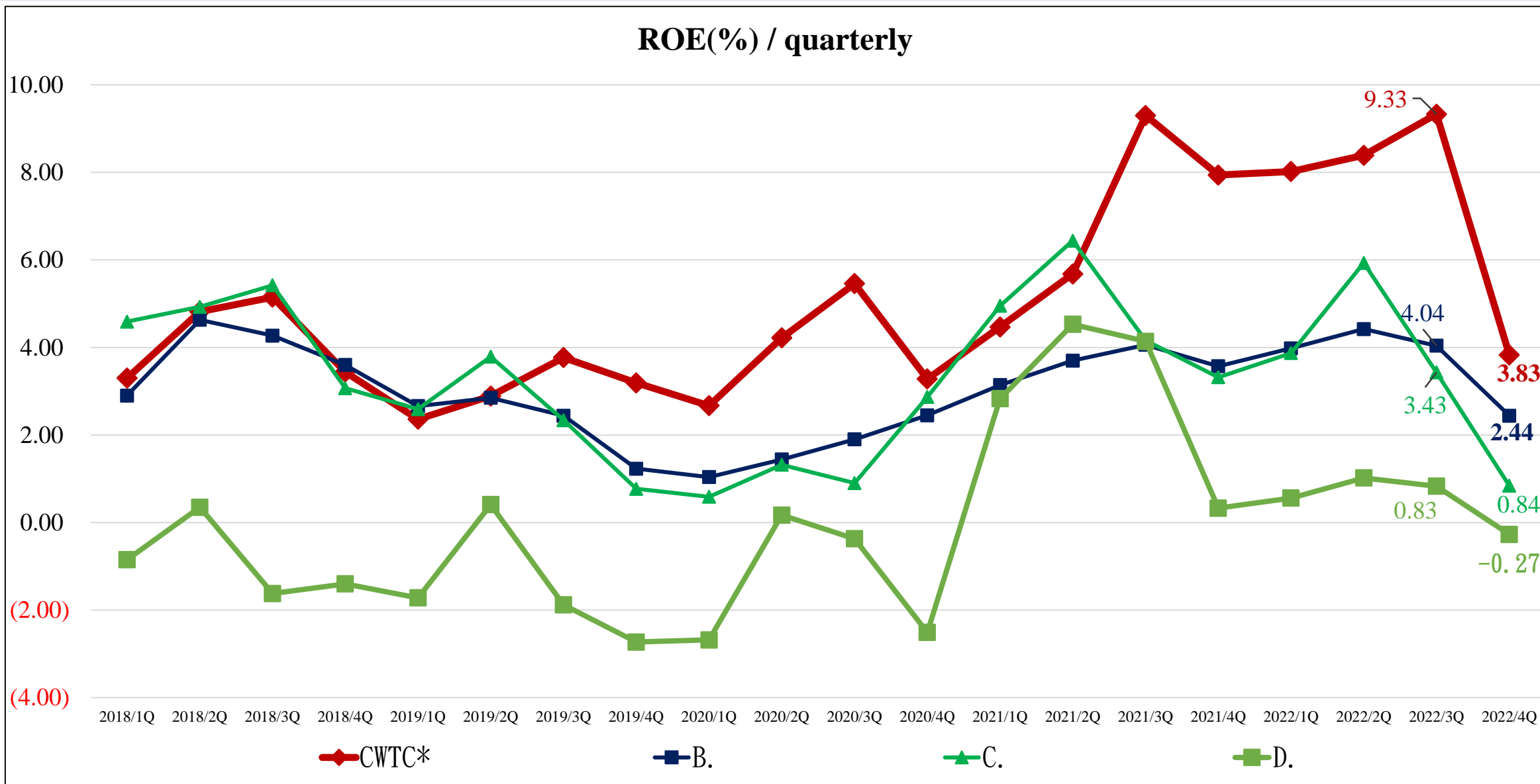
Note: The total after-tax EPS of CWTC* in a single quarter is calculated based on the number of issued shares of 960 million shares.

EBITDA(%) Trend

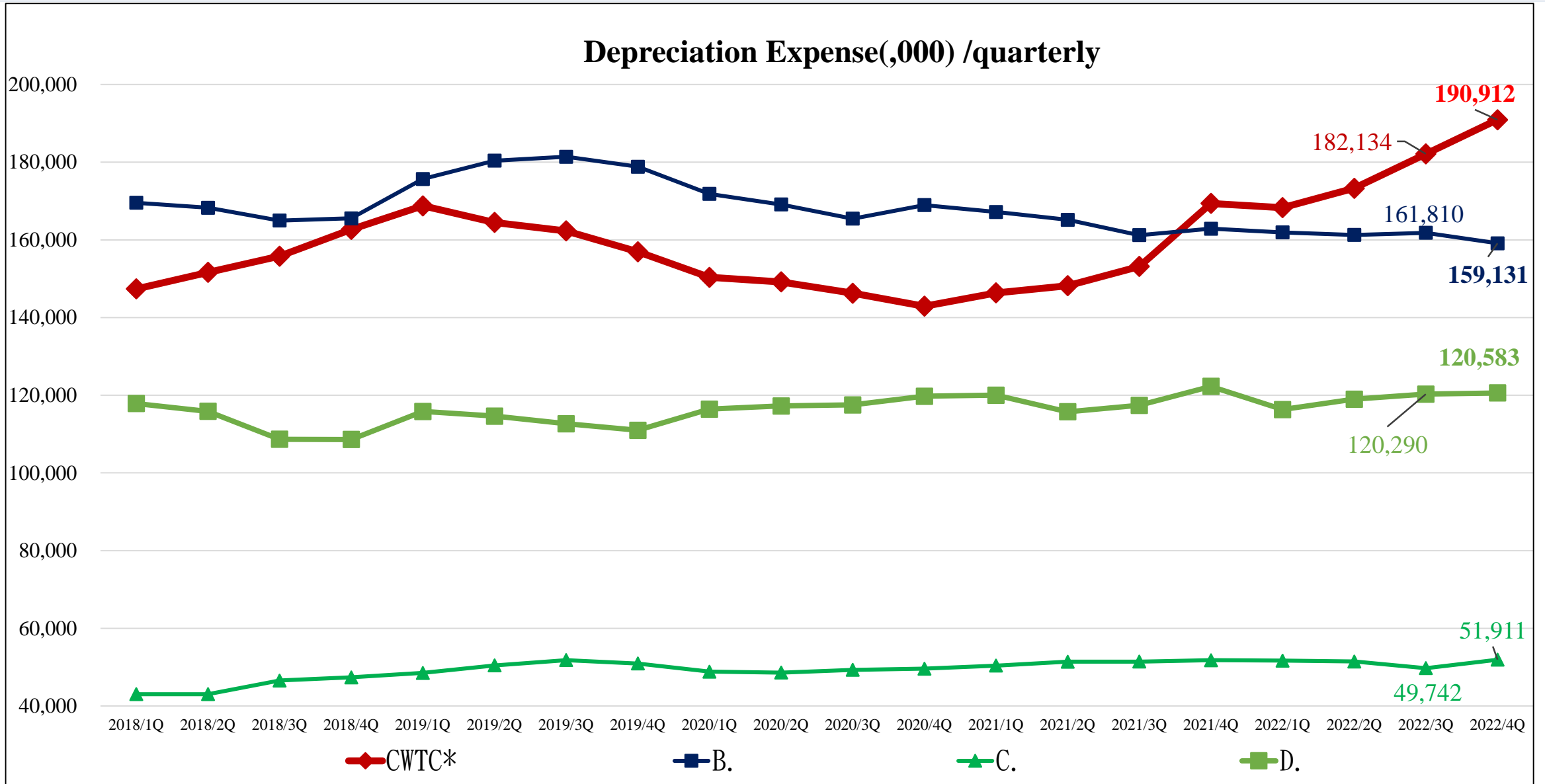


ROE Trend

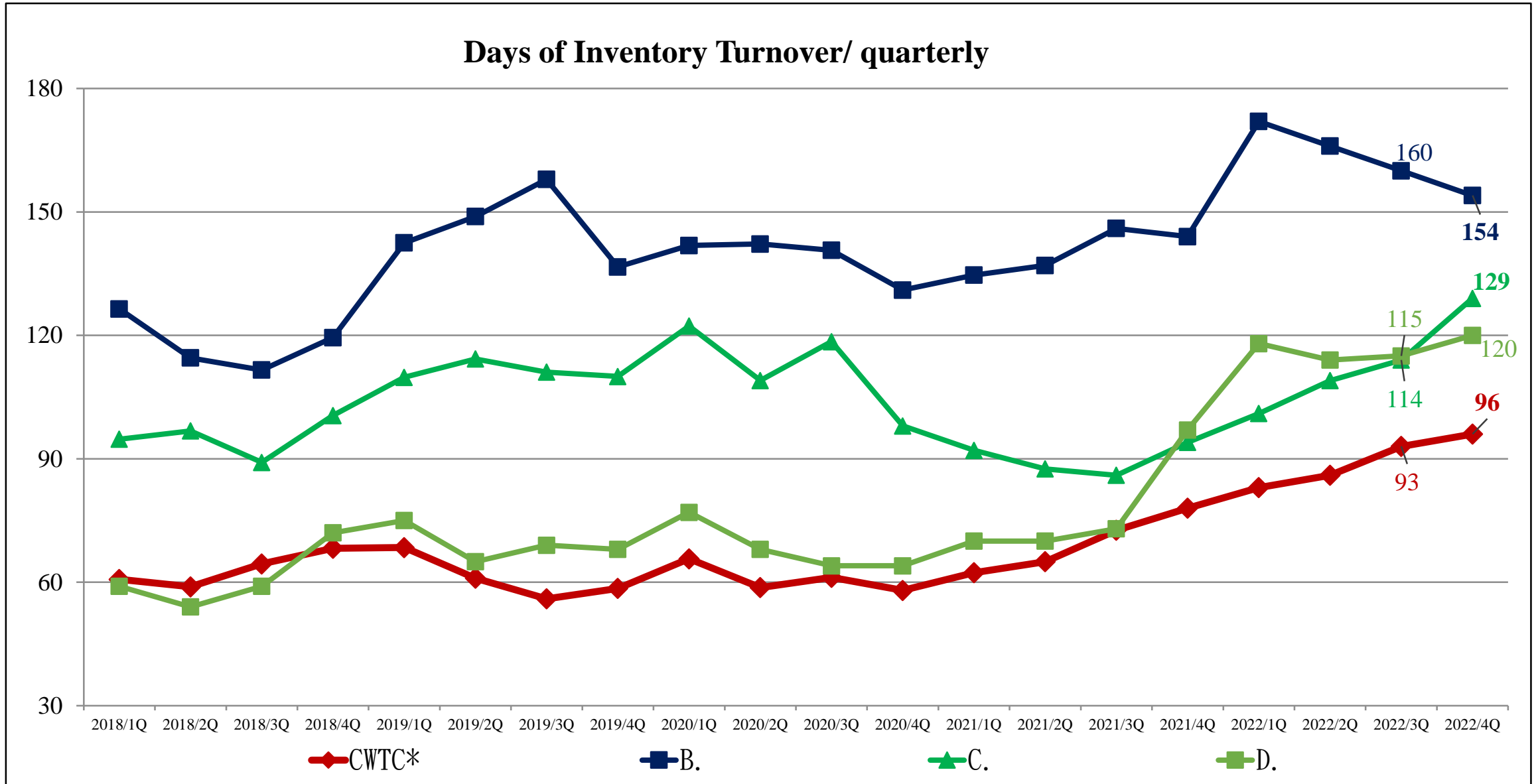
ROE(%) / quarterly



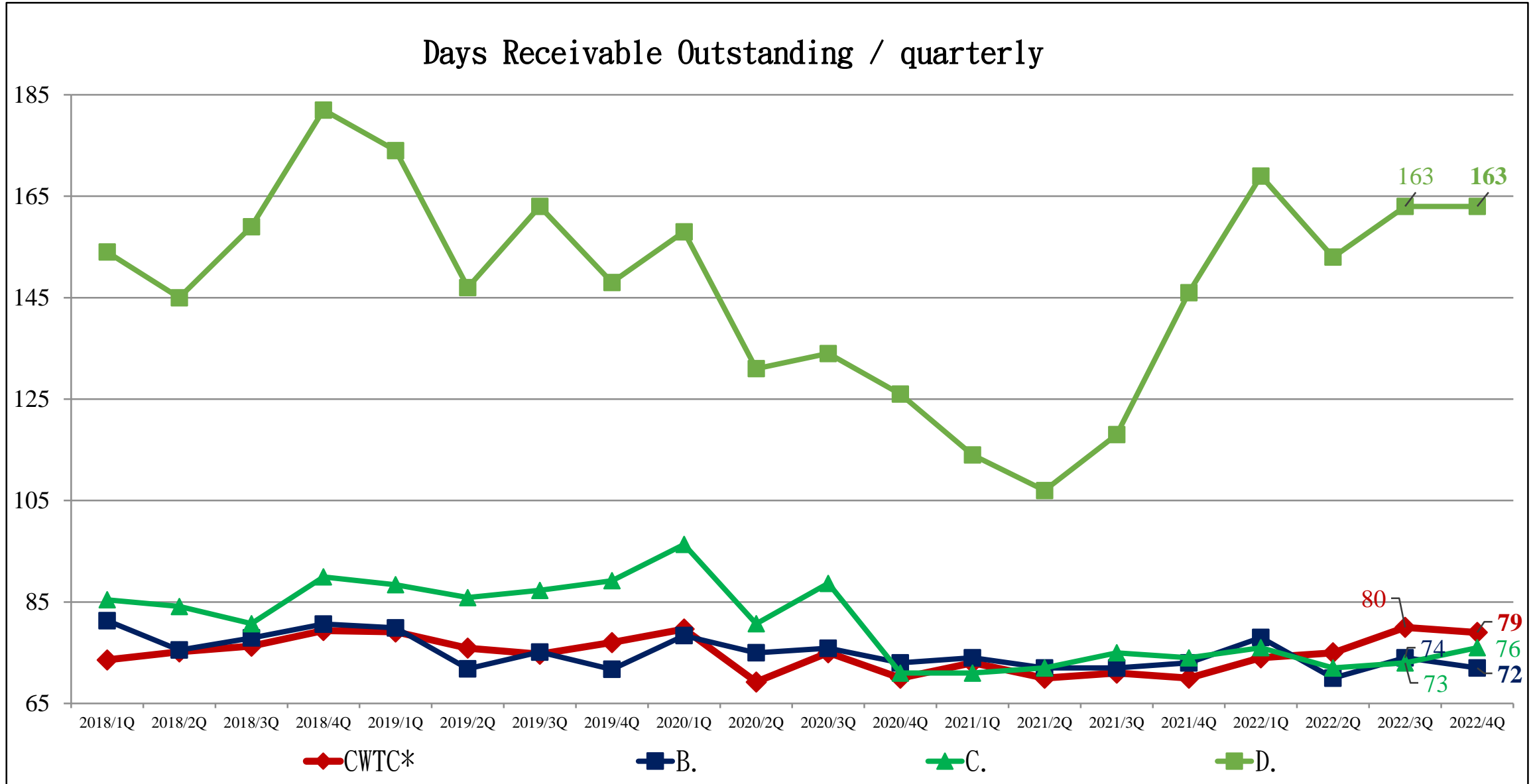
Depreciation Expense Trend



Days of Inventory Turnover Trend



Days Receivable Outstanding Trend



**2022 Financial Results
Peer Comparison**

Mini LED Against OLED

Why in the past three years, there has been a lot of thunder and little rain in Mini LED

- High production cost : The manufacturing process is complicated, requiring high-precision processing technology and equipment, and the manufacturing cost rises.
- High technical difficulty : It requires highly precise manufacturing technology and sophisticated optical technology.
- High product price : The use of a large number of Mini LEDs makes it very expensive to use a large number of Mini LEDs in one backlight.
- Low cost performance : Because Mini LED POB (Package On Board) uses a plastic substrate, considering the high cost of the substrate, the market turned to COB (Chip On Board) packaging. As a result, more Mini LED Chips were used, resulting in higher costs.

Result: no success!

Case

1. Mercedes-Benz uses OLED for high-end car panels
➡ The price is quite expensive.
2. It is widely rumored in the market that Apple MacBook Pro & iPad Pro will abandon the use of Mini LED and switch to OLED panels?
➡ MacBook Pro uses Mini LED COB backlight, which requires high process, maintenance and production costs.
3. Samsung/LGD high-end Mini LED TV uses COB as backlight
➡ Consumers are sensitive to TV prices, and Mini LED can only be used in high-end models.

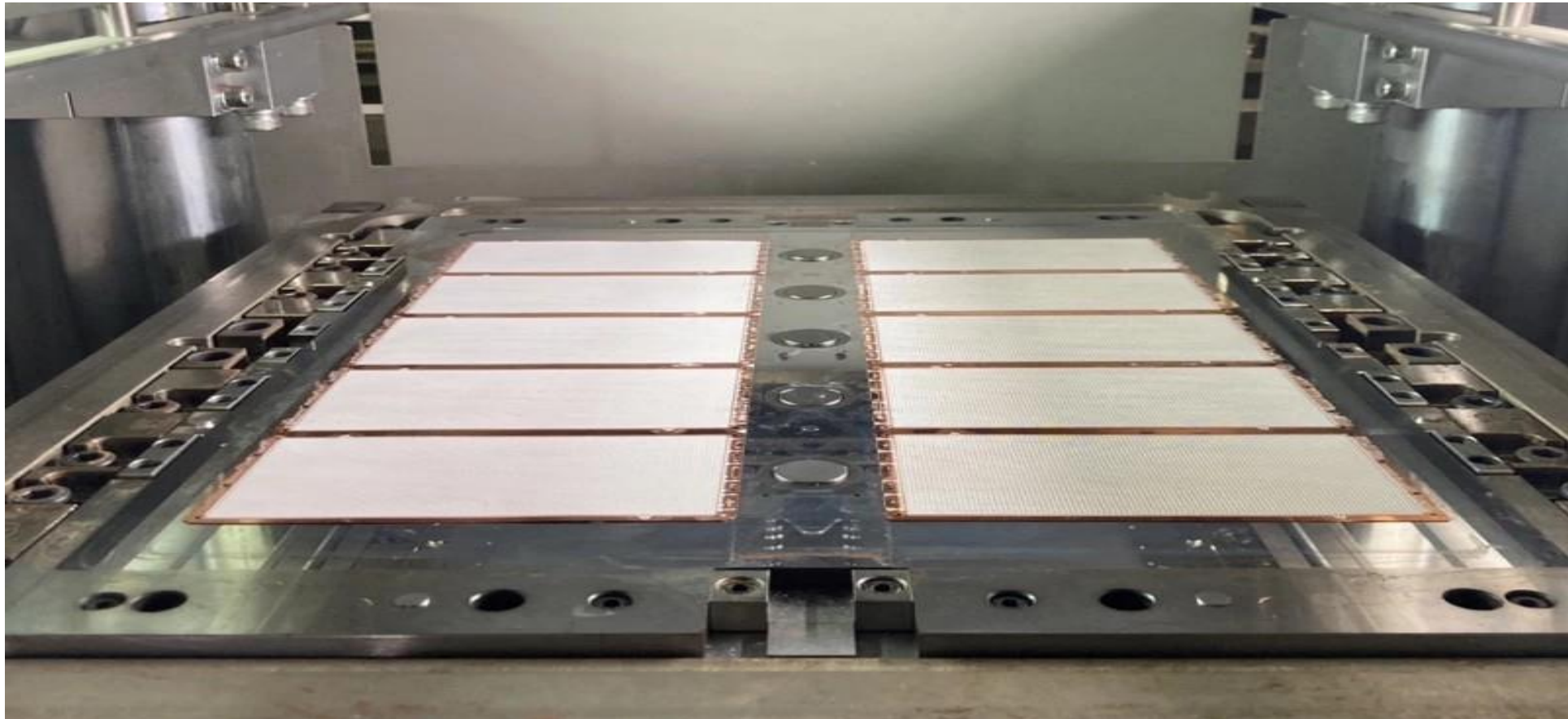
CWTC Provides Solutions

- CWTC innovatively develops Mini LED components on PMMS (Pre Mold Metal Substrate) substrates, providing a new option for POB solutions.
- Advantages: Compared with COB, POB has lower process difficulty, lower cost input, higher module yield, and higher mass production. It is mainly used in automotive, display, and mid-to-low-end TV markets.
- Application: CWTC adopts POB process for PMMS substrate Mini LED components, with performance, price, miniaturized packaging and good optical design. In 2015, it cooperated with European LED manufacturers for mass production, and applied it to high-end vehicle panels of European car manufacturers, and let other car manufacturers start to follow suit.

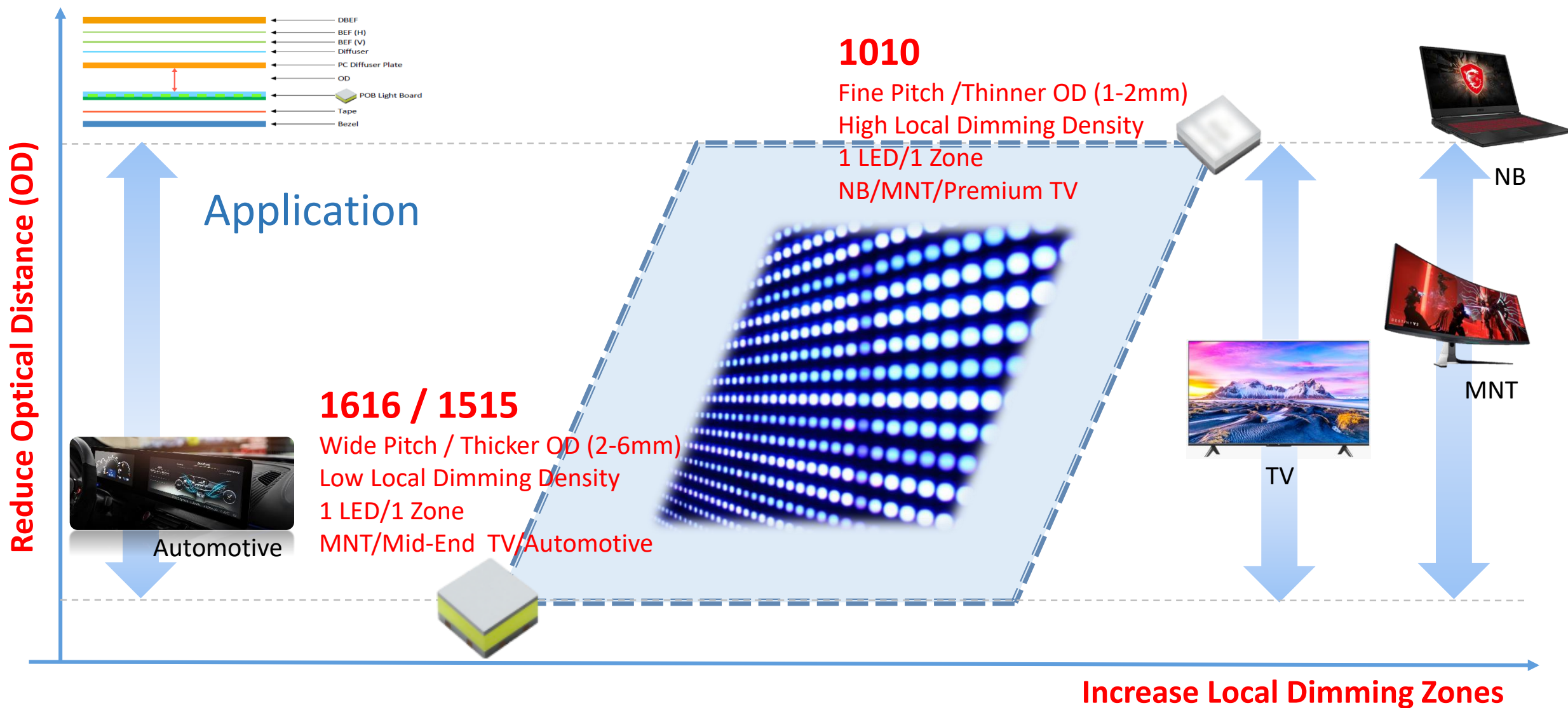
Innovative Technology

- Through the flat metal lead frame, the light emitting angle of the LED chip (referred to as the light angle) is opened to 170 degrees, which is better than the 130 degrees of the traditional package structure, so that the Mini LED backlight, which is originally limited in the arrangement of chips, can be greatly improved. Reduce cost and increase contrast brightness.
- Higher brightness and contrast, quickly imported into the car cockpit display (dashboard, center console, rear seat entertainment display system), breaking the reading limit in daylight or at night.
- In addition, compared with traditional backlights, Mini LED backlights can better control the scattering of light and use energy more efficiently. Used in TVs, it has a wider color gamut than OLEDs, especially for large-size TVs above 75 inches, and the cost is lower than OLEDs.

CWTC plans to apply for PMMS air tightness inspection specifications to be included in JEDEC standards, and has the ability to lead global standard specifications.



Mini LED Approach

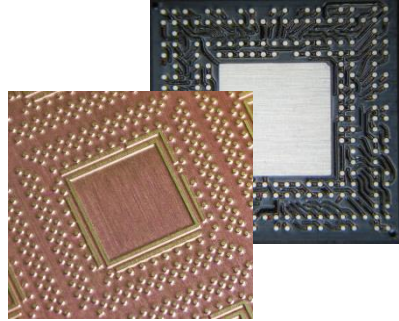


Our Leading Technology Portfolio



Pre-mold QFN

- World's leading EME-filled QFN technology
- Excellent **thermal efficiency & rigidity**
- **Higher throughput** for IC, Mini LED back-light unit, sensor and MEMS
- Replacing entry-level organic substrate



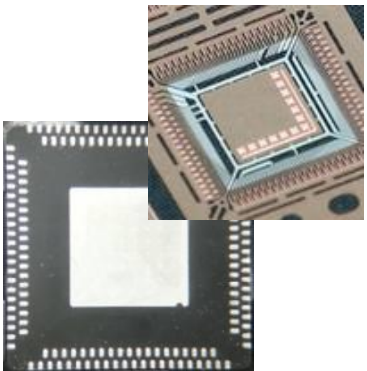
aQFN

- No. of I/O: **100-400**
- World's leading exclusive QFN LF
- Replacing BGA
- TW Fab started production since 4Q21



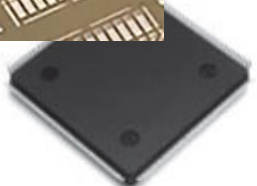
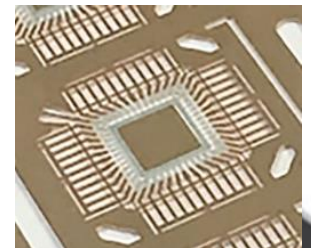
QFN

- No. of I/O: **32-180**
- Replacing SOP, co-exist with QFP and low-end BGA



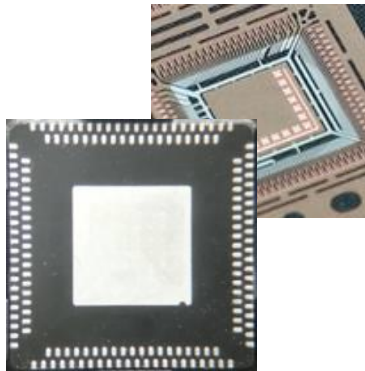
QFP

- No. of I/O: **32-256**
- Flexible capacity switch between stamping and etching
- Increasing demand from OSAT & IDM customers



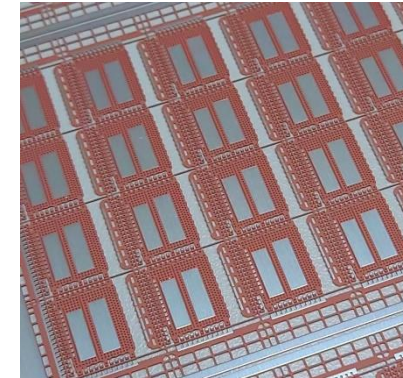
Advanced LF Technology

QFN

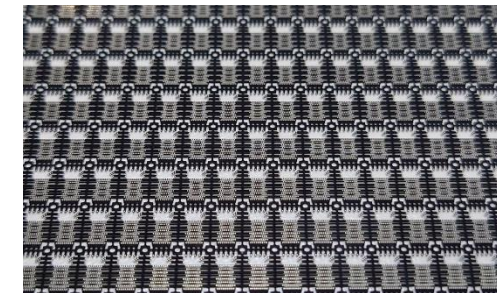
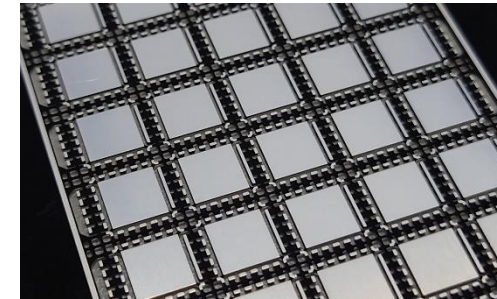


- No. of I/O: **32-180**
- Replacing SOP, co-exist with QFP and low-end BGA

CWTC Advanced LF Technology



High Reliability LF
for next gen.
GaN/SiC
Application



Q&A

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CWE-IR@cwei.com.tw