

Semiconductors

PCB/CCL sector – AI-driven upcycle: structural growth with diverging dynamics

The global PCB and CCL industries are in the early innings of a structural upcycle, predominantly fueled by the AI infrastructure investment wave. This cycle is characterized by a divergence between high-performance and standard segments, with the PCB market poised for a 12.8% rebound in 2025 and the CCL sector already demonstrated superior pricing power with 18% growth in 2024. **Our positive outlook is rooted in value-accretive product mix shifts driven by stringent requirements of AI, which support resilient pricing and margin expansion for technology leaders.**

Reiterate BUY on Shengyi Tech (600183 CH, BUY, TP: RMB90), an integrated AI infrastructure player. Shenyi's leadership in high-speed CCL materials and fast-growing high-value PCB business (via Shengyi Electronics) position itself to capture disproportionate share of AI-driven demand, supporting robust revenue growth and sustained margin improvement.

- **PCB recovery is driven by both volume and value.** The AI server rollout is creating a super-cycle for high-layer count (18L+), HDI, and advanced IC substrates. These high-performance boards have meaningfully higher ASPs and margins, driving a product mix uplift for capable suppliers. The market is also experiencing an atypical seasonal pattern, with a stronger-than-expected rebound in 1H25, signalling robust underlying demand ahead of the traditional 2H seasonal strength.
- **CCL market's outperformance is structural, backed by pricing power and mix.** The adoption of high-speed, specialty laminates (M7/M8 grades for 112Gbps transmission rate requirement, with M9 for 224G on the horizon) commands ASPs multiples of standard FR-4. This, combined with a consolidated supply structure, allows leaders to fully pass through cost inflation and expand margins, as evidenced by the specialty CCL segment's 52% YoY growth in 2024.
- **Competitive divergence: consolidated CCL oligopoly vs. fragmented PCB landscape.** The top 10 CCL suppliers hold a dominant market share of 77%, ensuring pricing discipline. In contrast, the fragmented PCB landscape (top 40 account for ~50% share) necessitates a strategic focus on high-value segments to maintain pricing power.
- **Copper-led cost inflation is a stress test that highlights this divergence.** With LME copper up ~24% YTD, CCL leaders are net beneficiaries through their pricing power. For PCB players, the impact is bifurcated: high-value AI suppliers are likely to be largely insulated, while commoditized producers face tangible margin pressure.

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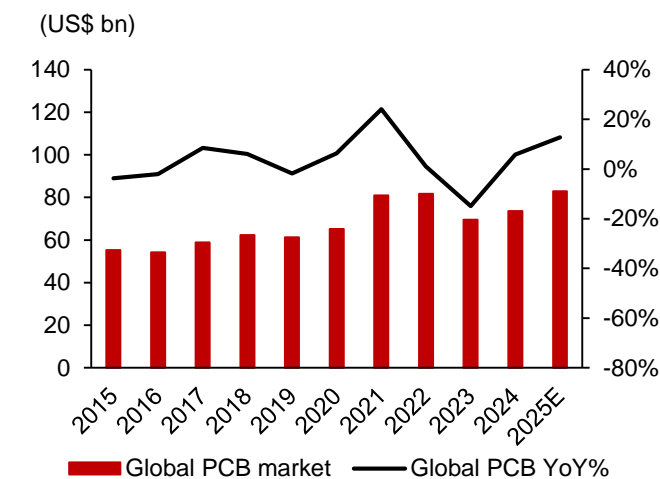
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Global PCB market to rebound with 12.8% YoY growth in 2025

The global PCB market returned to growth in 2024, with sales increasing 5.8% YoY to US\$74bn per Prismark, following a 15% YoY contraction in 2023 driven by broad-based inventory destocking and weak end-demand. The recovery was primarily fueled by inventory normalization and early-stage investments in AI-related infrastructure.

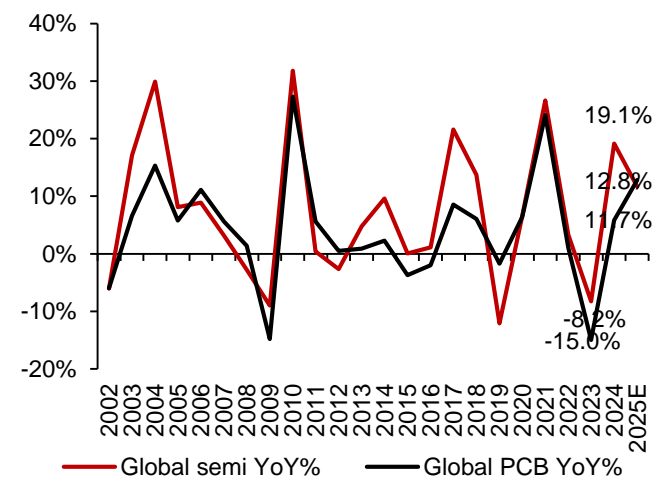
For 2025, Prismark has raised its growth forecast to 12.8% (from 7.6% previously), reflecting accelerating AI-driven demand. This uptick is structurally underpinned by rising requirements for higher-layer count, high-density, and high-performance PCBs used in AI servers, advanced networking, and high-end automotive applications. The PCB market's trajectory remains strongly correlated with the semiconductor cycle, and SIA projects global semiconductor sales to grow 11.7% in 2025, reinforcing the synchronous upcycle.

Figure 1: Global PCB market to rebound with 12.8% YoY growth in 2025



Source: Prismark, public filings, CMBIGM estimates

Figure 2: Historical data shows strong correlation between PCB and semiconductor industry sales

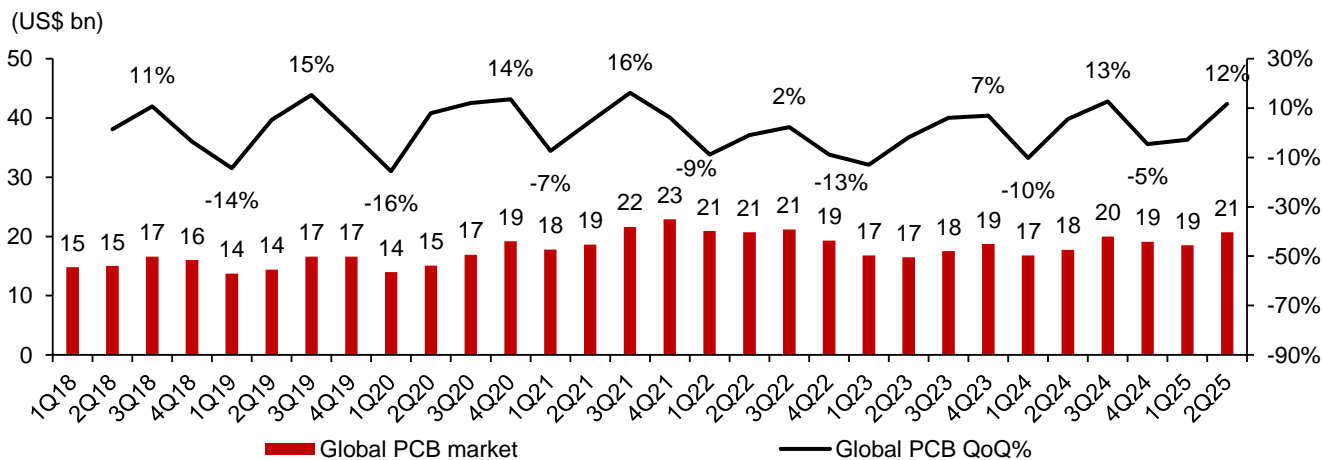


Source: SIA, Prismark, public filings, CMBIGM estimates

We expect the 2025 recovery to be driven by both volume expansion and ASP recovery. Prismark estimates PCB sales area to grow 10.3% in 2025 (vs. 12.8% in value terms), indicating positive pricing contribution from rising material costs and mix shift toward advanced materials.

Historically, the PCB market exhibits seasonal strength in the second half of year. While the market typically delivered double-digit sequential growth in 3Q during 2018-2021, the 2025 cycle has displayed an earlier and stronger rebound: after a resilient 1Q (down only 3% QoQ), the market expanded 17% YoY and 12% QoQ in 2Q25. Based on Prismark's full-year estimate, we project 2H25 PCB sales to reach ~US\$44bn (vs. US\$39bn in 1H25), implying continued momentum.

Figure 3: PCB market showed robust rebound with 17%/12% YoY/QoQ growth in 2Q25, following a strong 1Q with only a mild seasonal decline of 3% QoQ from 4Q24

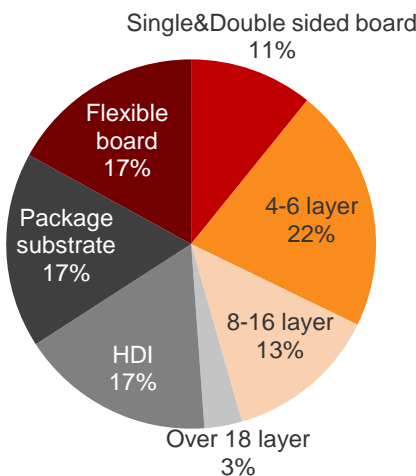


Source: Prismark, public filings, CMBIGM estimates

By product types, we believe multi-layer above 18L and HDI are projected to be the **standout performers**, primarily fueled by robust demand from AI servers and high-speed networking. **Substrates continue to recover**, driven by AI-related demand for advanced computing and memory chips. **Geographically, China maintains its dominant position**, accounting for approximately 50% of global PCB production value in 2024, supported by its mature electronics supply chain and rising domestic demand for AI hardware and electric vehicles.

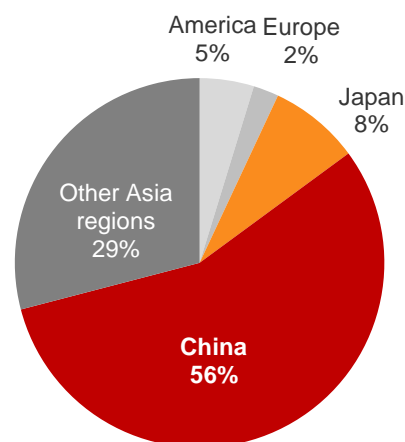
The AI revolution is fundamentally reshaping PCB specifications, driving demand for **extreme performance, signal integrity, and thermal management**. The industry is transitioning toward "system-level" PCBs that integrate multiple functionalities into single, highly complex solution: NVIDIA's GB200 reportedly adopted 22-layer 5-layer HDI, while the next-generation Rubin platform may require more advanced 24-layer 6-level boards. This raises technological barriers, favoring players with advanced R&D and manufacturing capabilities.

Figure 4: ML (18L+)/HDI/substrate (~accounted for 37%) are projected to be the standout performers



Source: Prismark, public filings, CMBIGM estimates

Figure 5: China's market accounted for 56% of total PCB market (2024)



Source: Prismark, public filings, CMBIGM estimates

Global CCL market: Structural outperformance continues

The global CCL market demonstrated a strong recovery in 2024, reaching an estimated US\$15bn, representing 18% YoY growth per Prismark. This rebound was driven by robust volume growth of 14% YoY, complemented by a modest ASP recovery of 4%. The CCL market notably outperformed the PCB market (18% vs. 6% growth), highlighting its superior pricing power and value capture from product mix shift.

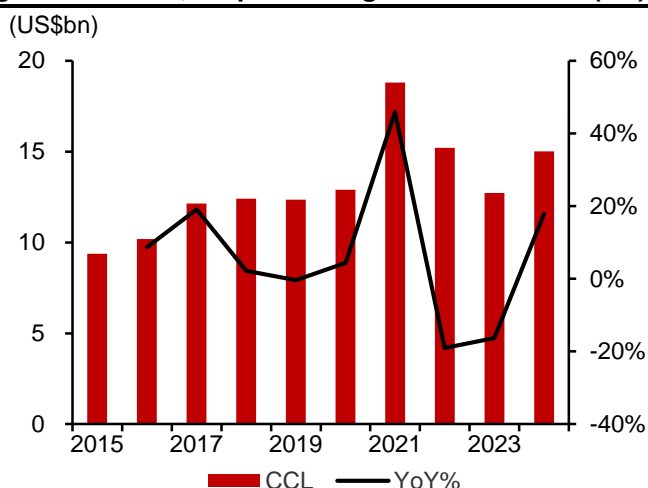
Looking forward, we anticipate CCL prices will maintain their upward trajectory into 2H25, driven by sustained AI-related infrastructure investments and rising raw material costs. Within the segment, high-speed specialty CCL is poised to continue outperforming, following remarkable 50% YoY growth in 2024, fueled by persistent demand from AI infrastructure needs.

The material upgrade cycle is accelerating in lockstep with AI processing speeds.

While M7/M8 grades are becoming the baseline for 112G applications, the focus is rapidly shifting to M9-grade supporting 224G data rates. This requires not just ultra-low dielectric loss (Df), but also exceptional thermal and mechanical stability to ensure reliability in high-power AI systems. The adoption of advanced raw materials including PPO, HVLP4, and Q glass further underscores the industry's technological barriers. CCL suppliers capable of qualifying and volume-producing these next-generation laminates will capture disproportionate value from the Rubin and post-Rubin generations.

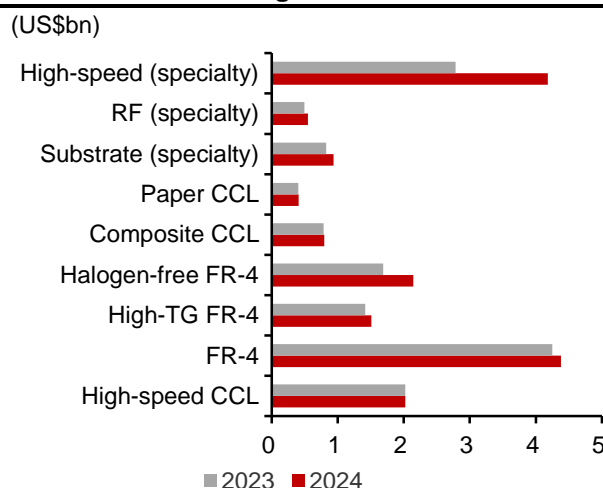
The top-tier competitive landscape remains consolidated and stable. The hierarchy of the top four players, Kingboard (1888 HK, NR), Shengyi Tech (600183 CH, BUY), EMC (2383 TT, NR), and Nanya Plastics (1303 TT, NR), is unchanged, collectively holding approximately 50% market share. However, growth divergence is evident, with specialty CCL leaders significantly outpacing the market. EMC, the sub-sector leader with 22% share, experienced over 50% revenue growth last year, solidifying its position as a critical CCL supplier within NVIDIA's AI infrastructure supply chain.

Figure 6: Global CCL market recovered with 18% YoY growth in 2024, outperforming the PCB market (6%)



Source: Prismark, public info, ChinaCCL, CMBIGM estimates

Figure 7: High-speed specialty CCL delivered remarkable 50% YoY growth in 2024



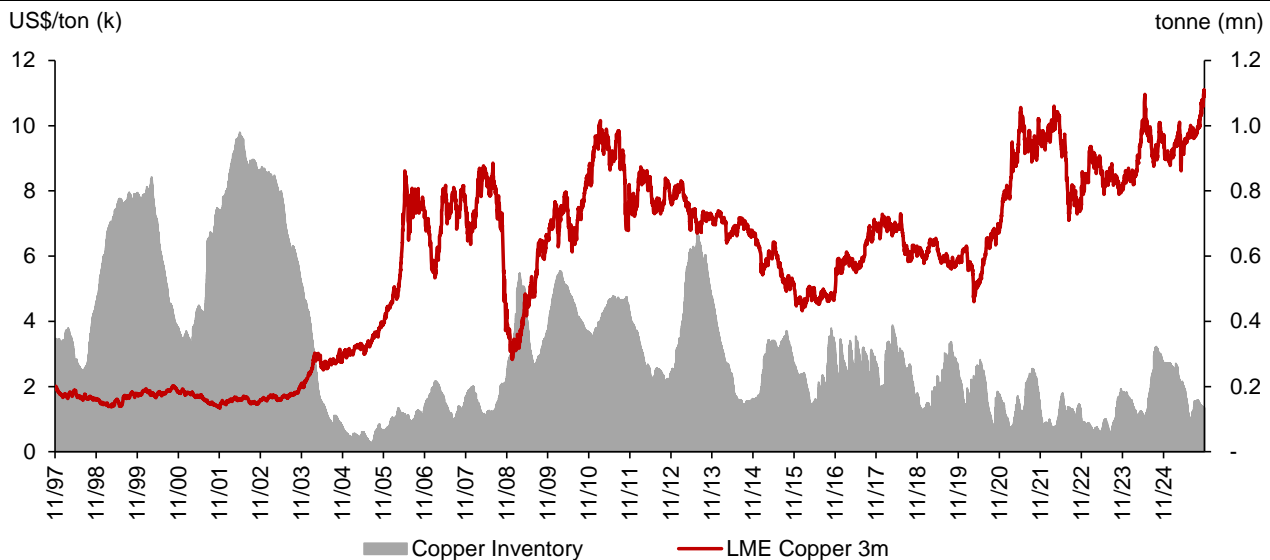
Source: Prismark, public info, ChinaCCL, CMBIGM estimates

Rising material costs and impacts on PCB/CCL sector

Copper constitutes 60%-70% of PCB's raw material cost. **The structural uplift in copper prices**, driven by supply constraints and burgeoning demand from AI and clean energy sectors, **is reshaping cost dynamics across the PCB and CCL supply chain.**

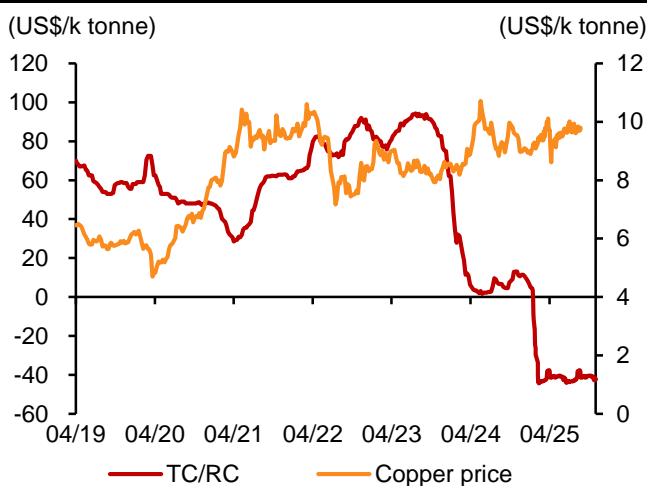
LME copper (3M) has sustained a steady upward trajectory since early 2024, rising ~24% YTD to over US\$10,000/ton. This rally has been primarily driven by an intensifying global concentrate shortage, reflecting in record lows of TC/RCs and recently turning negative.

Figure 8: 3M LME copper price



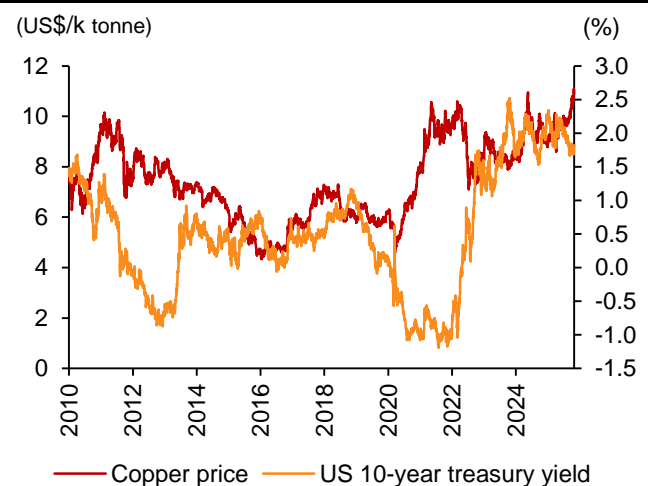
Source: Wind, CMBIGM estimates

Figure 9: TC/RC vs. copper price



Source: Wind, Bloomberg, CMBIGM estimates

Figure 10: Copper price vs. 10-year treasury yield



Source: Wind, Bloomberg, CMBIGM estimates

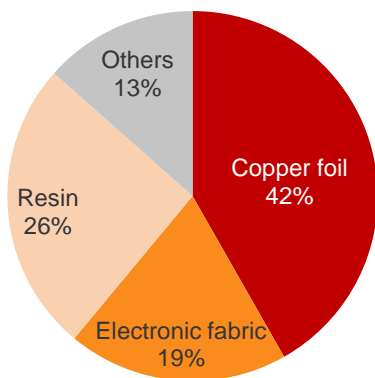
Looking ahead, we expect copper prices to remain elevated in 2026, driven by structural demand transformation and supply deficits. Demand transformation: Beyond traditional sectors like power and construction, demand is experiencing structural growth from new engines: AI computing infrastructure and new energy applications, creating a more resilient demand floor. **Supply disruptions:** production has been impacted by a series of mine disruptions in key resource countries like Indonesia, Chile, and Congo.

The International Copper Study Group (ICSG) predicts a sustained deficit for the global refined copper market, forecasting a shortfall of 150k metric tons in 2026, which attributed to slower production growth.

The surge in material price directly impacts production costs.

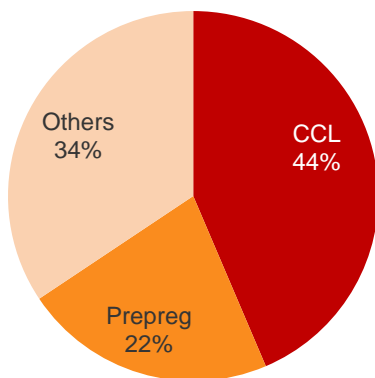
- In this industry upcycle, **CCL suppliers are successfully passing through cost increases to downstream PCB manufacturers.** Given the favorable competitive landscape, we believe CCL leaders will not only pass through costs but also deliver margin improvement due to stronger pricing power.
- **For PCB producers, the impact is bifurcated.** Manufacturers focused on traditional, standard products face margin compression in a highly competitive environment. Conversely, **suppliers with significant AI exposure are better positioned.** Advanced HDI products for AI servers command substantially better margins (~39% in 1Q25 for Victory Giant's HDI products vs. 20%+ for multi-layer or less PCBs and FPC), providing a crucial buffer against cost inflation. The ongoing mix shift toward these high-value applications may even support margin expansion for leading AI-focused PCB suppliers.

Figure 11: CCL cost breakdown: copper foil accounted for 42%



Source: Public filings, CMBIGM estimates

Figure 12: PCB cost breakdown: CCL accounted for 44%



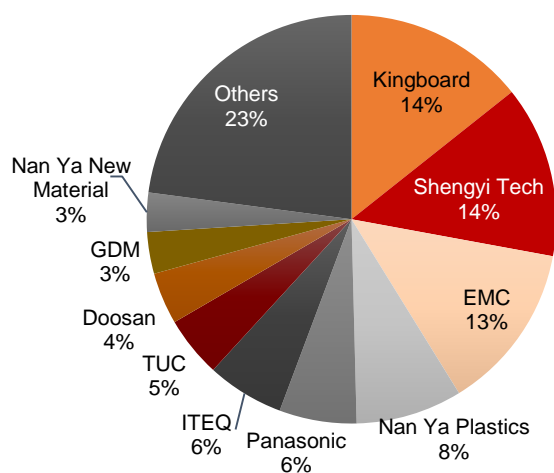
Source: Public filings, CMBIGM estimates

Competitive landscape: consolidated CCL market vs. fragmented PCB market

The global CCL market maintains a highly consolidated and oligopolistic structure. According to Prismark, the top 10 suppliers commanded a dominant 77% of total market sales in 2024. The stability among the top four players underscores the high barriers to entry and sustainable pricing power in this segment.

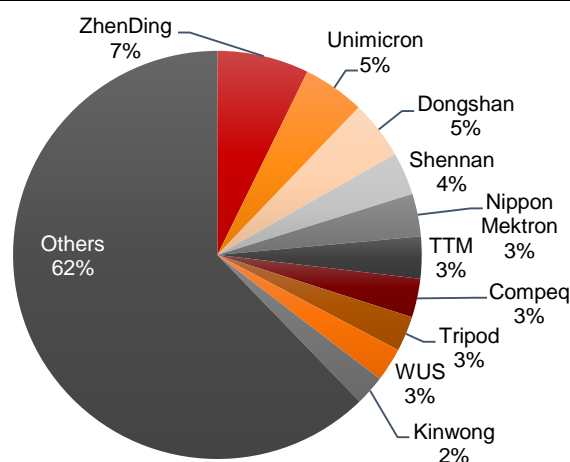
In contrast, the PCB market exhibits a more fragmented competitive landscape relative to its upstream CCL sector. The top 40 PCB manufacturers collectively account for just over half of total industry sales, highlighting a "long tail" of smaller participants. This market is progressively undergoing consolidation, with numerous smaller manufacturers exiting following the recent sector downturn.

Figure 13: The global CCL market maintains a highly consolidated and oligopolistic structure



Source: Prismark, ChinaCCL, public filings, CMBIGM estimates

Figure 14: The PCB market exhibits a more fragmented competitive landscape



Source: Prismark, SPCA, public filings, CMBIGM estimates

The current copper-led cost inflation acts as a stress test, highlighting the strategic positioning of companies within the PCB/CCL supply chain. CCL leaders are well-positioned with strong pricing power, and are likely to see expanding margins. Looking ahead, we expect consolidation to persist as PCB players strive to achieve scale and technology critical mass. Nevertheless, the PCB sector will remain competitive, particularly in the lower tiers. In this environment, operational efficiency and strategic focus on high-growth end markets will be crucial for sustainable growth.

Figure 15: Peers table - China PCB/CCL players

Company		Revenue		GPM%		NP		Revenue YoY%		NP YoY%	
US\$(mn)	Ticker	FY25E	FY26E	FY25E	FY26E	FY25E	FY26E	FY25E	FY26E	FY25E	FY26E
China PCB peers											
Dongshan	002384 CH	5,935	7,541	15.8	18.1	346	622	16.2	27.1	129.7	8.2
Avary	002938 CH	5,673	6,684	21.8	22.9	606	786	16.2	17.8	20.5	11.8
Victory Giant	300476 CH	2,839	4,318	37.9	40.2	725	1,225	90.5	52.1	352.4	28.4
WUS	002463 CH	2,547	3,348	35.8	36.5	526	723	37.5	31.4	46.3	21.6
Kinwong	603228 CH	2,115	2,546	23.8	24.6	212	285	20.3	20.4	30.5	11.2
SYE	688183 CH	1,291	1,978	32.1	33.5	210	330	98.3	53.2	355.3	16.7
Hongxin	300657 CH	1,190	1,560	12.9	15.0	45	72	45.8	31.2	473.8	4.6
Suntak	002815 CH	1,007	1,129	24.0	23.5	81	94	15.5	12.1	125.3	8.3
Fastprint	002436 CH	990	1,176	22.2	24.1	26	50	22.5	18.8	-193.7	4.3
Olympic	603920 CH	882	1,135	24.3	24.4	125	165	26.4	28.7	33.6	14.6
Aoshikang	002913 CH	778	934	23.1	24.1	64	88	22.6	20.1	30.2	9.5
Founder	600601 CH	636	814	25.0	28.0	66	107	31.4	28.0	85.0	13.2
Avg.				24.9	26.2			36.9	28.4	124.1	12.7
Top 12 total		25,882									
Global PCB TAM		77,888									
% of global PCB sales		33.2%									
China CCL peers											
Kingboard	1888 HK	2,753	3,168	20.7	23.3	297	405	15.8	15.1	74.8	12.8
Shengyi Tech	600183 CH	3,870	4,991	26.9	28.6	474	688	36.6	29.0	96.2	13.8
Nanya	688519 CH	665	860	13.0	15.9	35	71	42.3	29.5	403.9	8.3
Wazam	603186 CH	602	650	16.2	15.3	46	28	12.1	8.1	-437.8	4.3
Avg.				19.2	20.8			26.7	20.4	34.3	9.8

Source: Company data, Bloomberg consensus, CMBIGM

Figure 16: Peers table - China PCB/CCL players

Company	Ticker	Mkt Cap US\$m	Price (LC)	P/E		Performance (%)			ROE%	
				FY25E	FY26E	5-day	1M	YTD	FY25E	FY26E
China PCB peers										
Victory Giant	300476 CH	38,128	312.1	52.2	31.2	6.1	9.3	654.4	38.7	40.0
Dongshan	002384 CH	18,781	73.0	52.8	29.1	6.6	2.2	159.1	11.7	18.5
WUS	002463 CH	18,753	69.4	35.7	26.0	-2.1	-5.5	85.8	26.3	28.5
Avary	002938 CH	16,336	50.2	26.9	20.8	-4.5	-10.5	47.3	12.7	15.1
SYE	688183 CH	12,125	103.8	60.5	36.5	-4.6	32.3	182.6	28.5	34.8
Kinwong	603228 CH	10,164	73.5	45.5	34.9	1.3	16.8	181.7	11.8	14.8
Founder	600601 CH	7,116	11.9	124.8	81.8	-3.8	4.4	175.4	10.3	14.3
Fastprint	002436 CH	5,388	22.6	256.6	109.6	5.7	2.1	98.4	3.6	6.4
Olympic	603920 CH	4,502	44.5	36.1	27.3	6.7	-2.4	50.1	12.5	15.6
Suntak	002815 CH	2,330	13.6	25.7	22.0	-4.3	-9.7	36.8	NA	NA
Hongxin	300657 CH	2,018	29.8	44.5	28.1	-4.8	-10.2	33.6	21.9	25.8
Aoshikang	002913 CH	1,670	37.5	25.9	18.7	-3.1	-7.4	61.0	9.9	12.4
			Avg.	65.6	38.8	-0.1	1.8	147.2	17.1	20.6
China CCL peers										
Shengyi Tech	600183 CH	21,331	63	45.7	31.8	-2.7	15.8	175.9	20.2	25.2
Kingboard	1888 HK	4,774	12	16.1	11.7	-8.6	-0.8	81.9	13.9	16.7
Nanya	688519 CH	2,293	70	64.4	31.9	3.2	-6.6	241.9	9.5	16.2
Wazam	603186 CH	875	44	19.2	31.1	-8.0	3.8	87.8	18.4	10.1
			Avg.	36.3	26.6	-4.0	3.0	146.9	15.5	17.1

Source: Company data, Bloomberg, CMBIGM

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