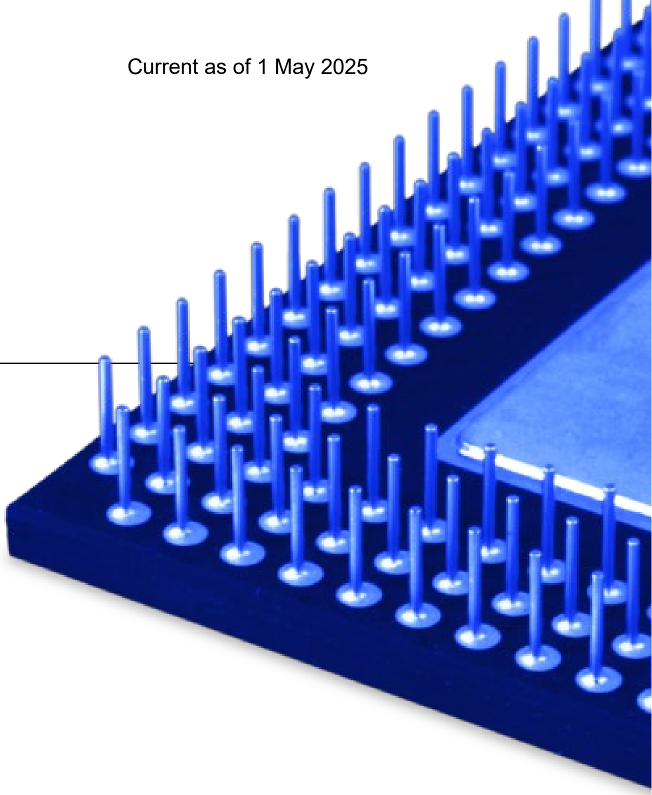
Uneven growth amid global shifts

Tech Summit – Industry trends and outlook

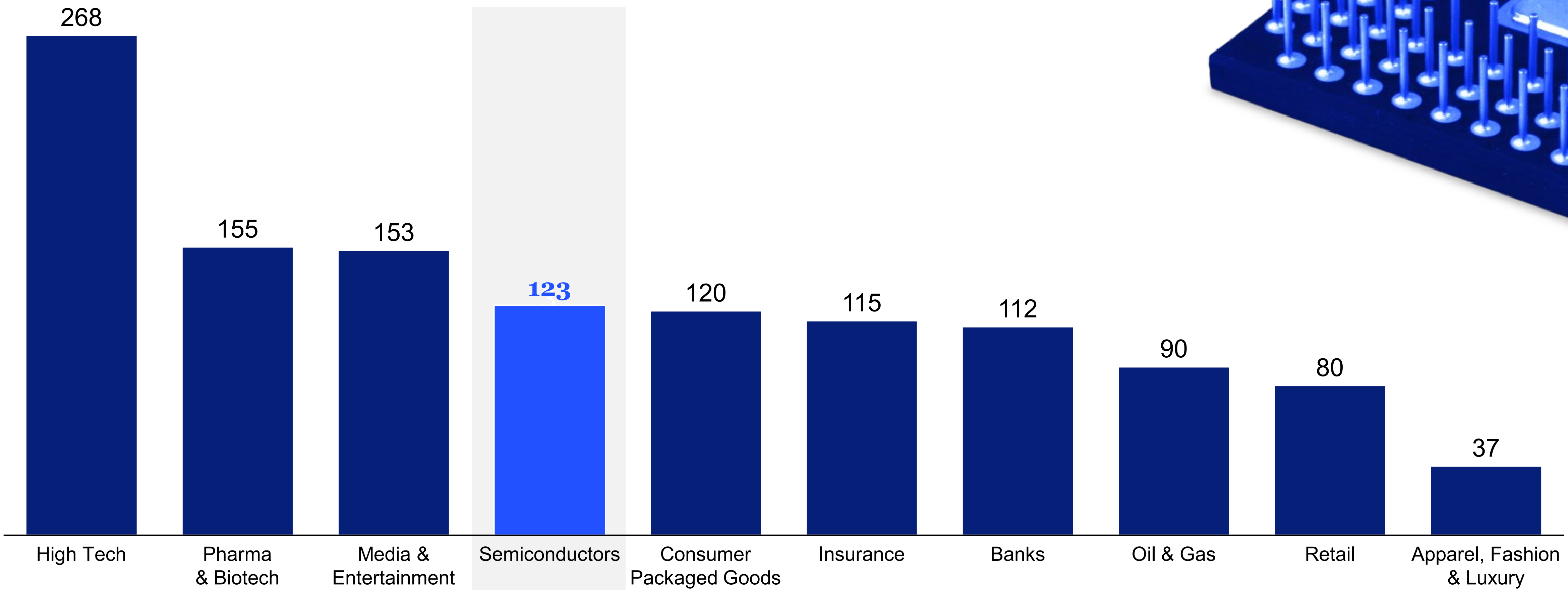
1st July 2025

In 2024, semiconductors ranked as the fourth-largest value-creating industry globally

Current as of 1 May 2025



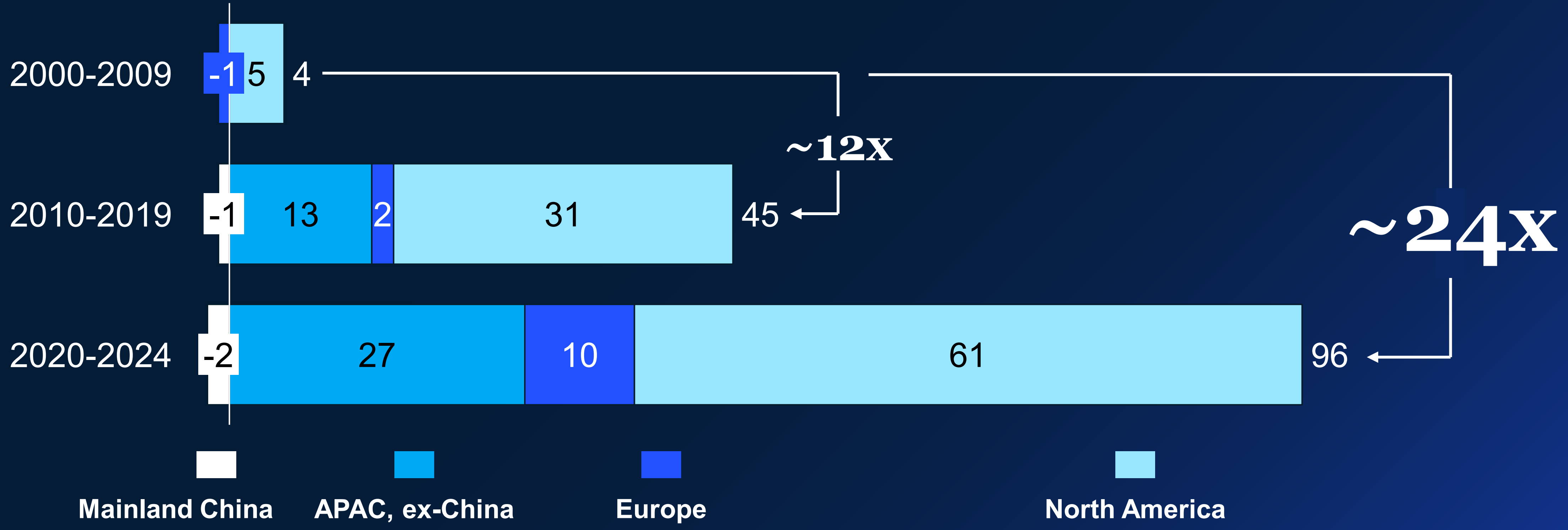
Value creation by global industry, 2024 market capitalization in $USD B



Source: S&P Capital IQ

Average annual Economic Profit of the semiconductor industry has increased >20x over the last decades

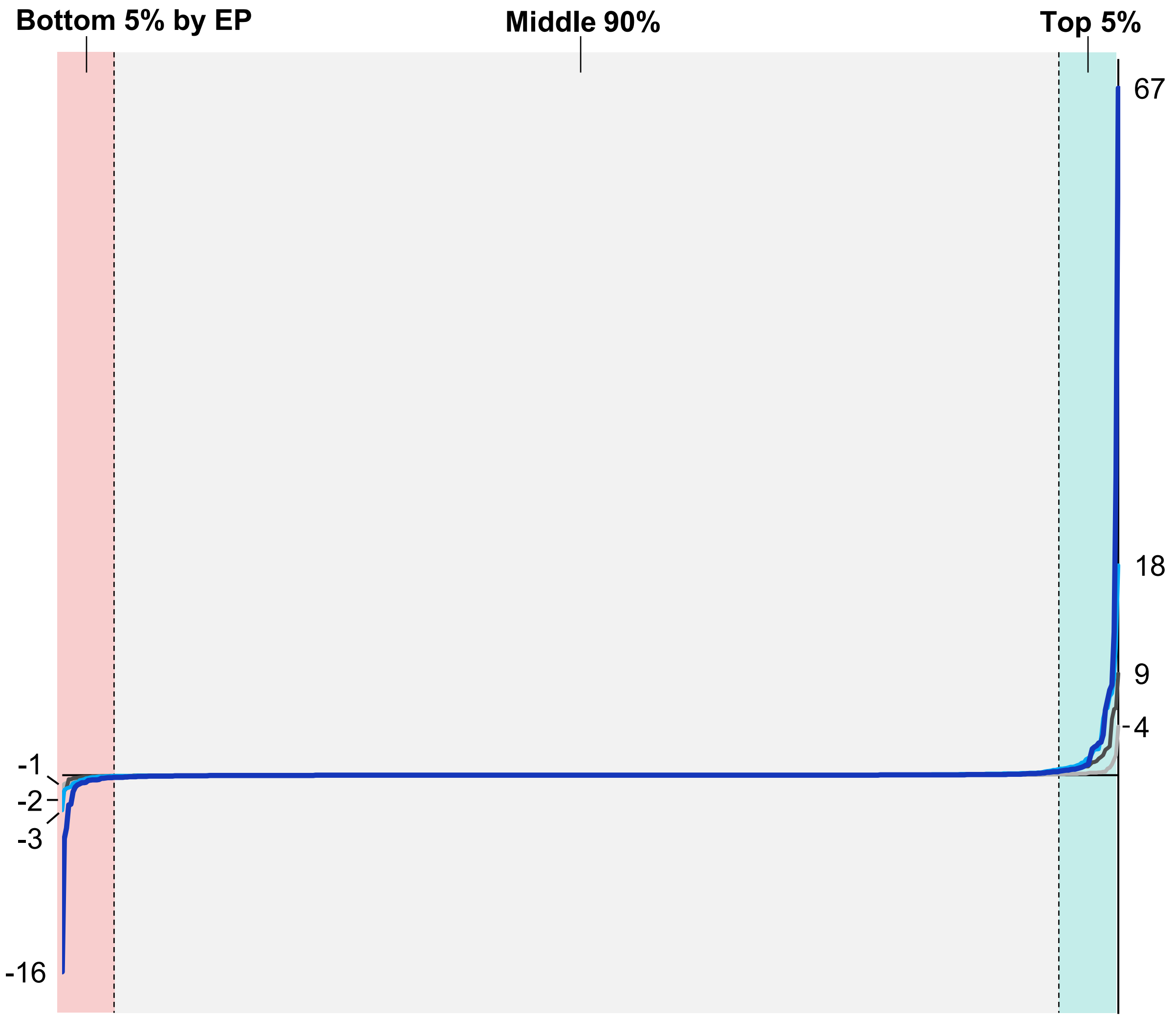
Value creation per market, Average annual Economic Profit, Bn USD



Source: McKinsey semiconductor CaaS, McKinsey Corporate Performance Analytics, S&P Global

Semiconductor industry power curve has become exceptionally steep…

Semiconductor industry performance distribution by Economic Profit (EP),[1] $ billion



In 2024, the **top 5%** of companies generated **$147 billion in EP** vs $5 billion generated by the middle 90% and the $37 billion lost by the bottom 5%

Average EP

- 2024
- 2020-23
- 2010-19
- 2000-09

	Cutoff, $ million	
	Top 5%	Bottom 5%
2024	958	–429
2020-23	1,346	–155
2010-19	541	–74
2000-09	111	–141

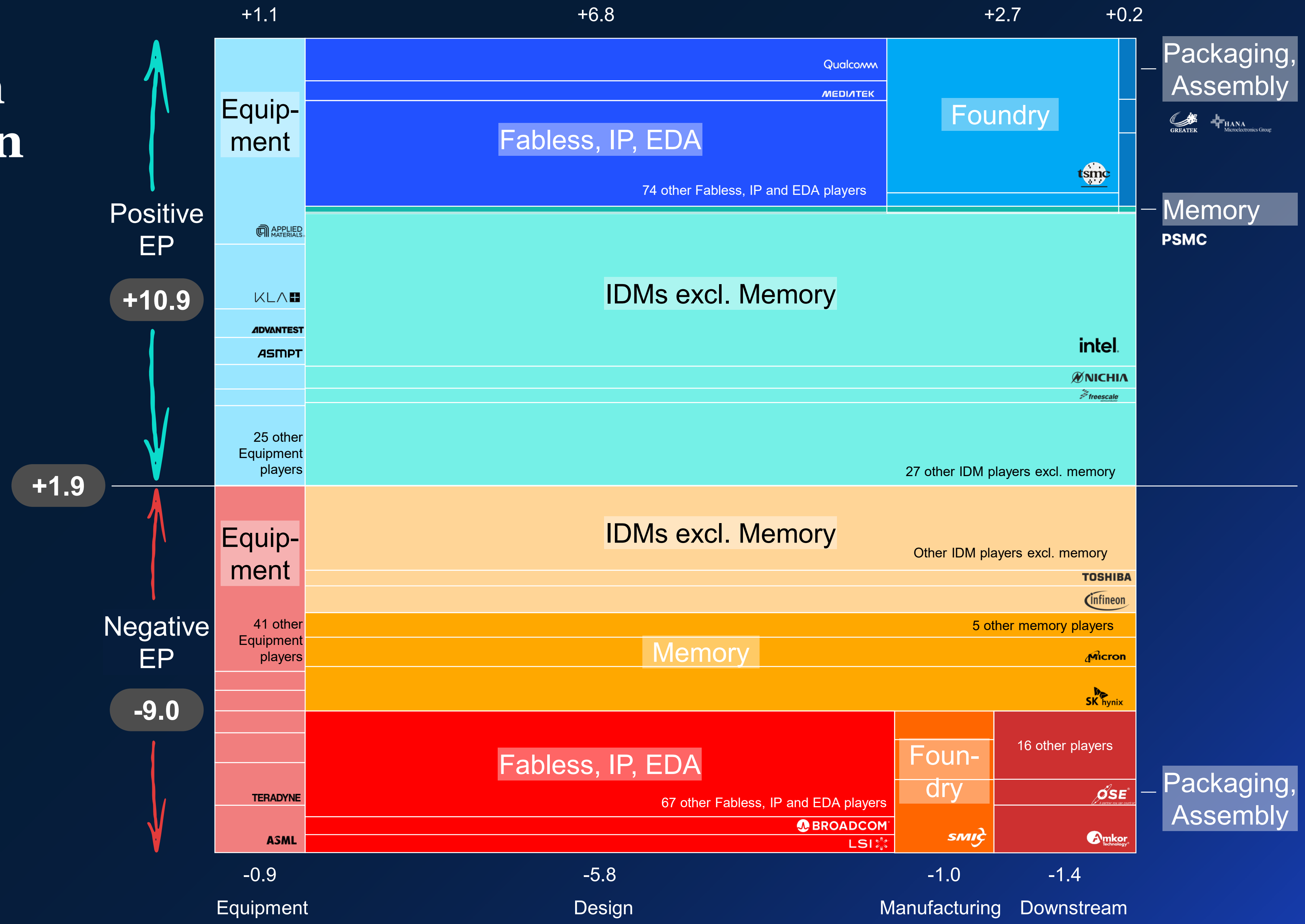
1. Sample of ~310 for 2020-21 and ~300 for 2022-24 (either 2024 reported or LTM Sep 24)

Source: Company reports, Corporate Performance Analytics by McKinsey

...mainly driven by the transition from the IDM business model ...

2000-04 Average annual Economic Profit, Bn USD

Average EP over period, in Bn USD (for positive EP, negative EP and total)

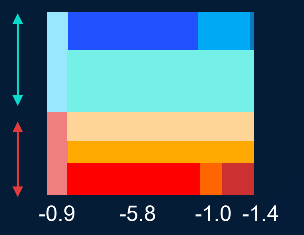


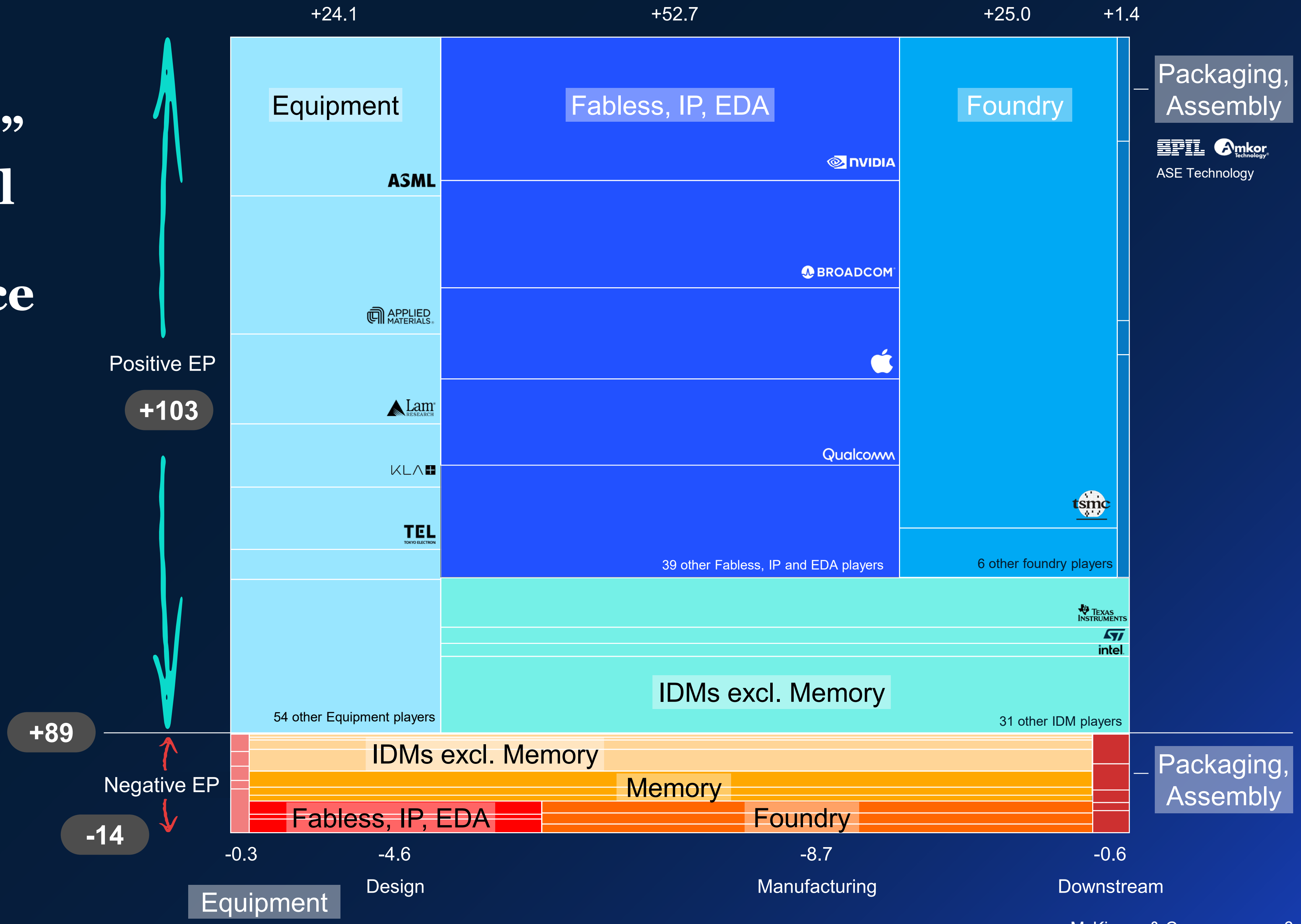
… to a "specialization" business model dominating in EP performance

2020-23 Average annual Economic Profit, Bn USD

Average EP over period, in Bn USD (for positive EP, negative EP and total)

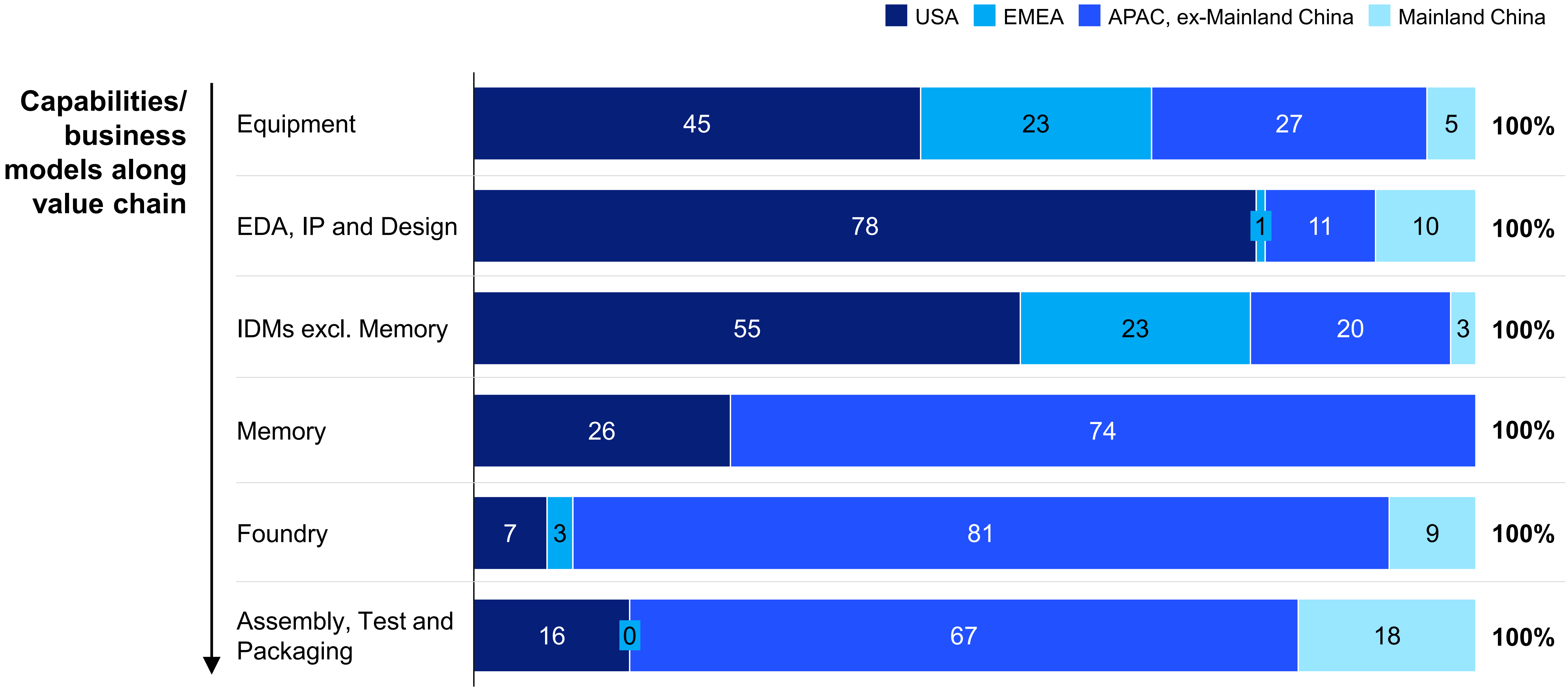
2000-04 Economic Profit, Bn USD





The industry has become increasingly globalized, with capabilities for end-to-end design and manufacturing distributed across regions

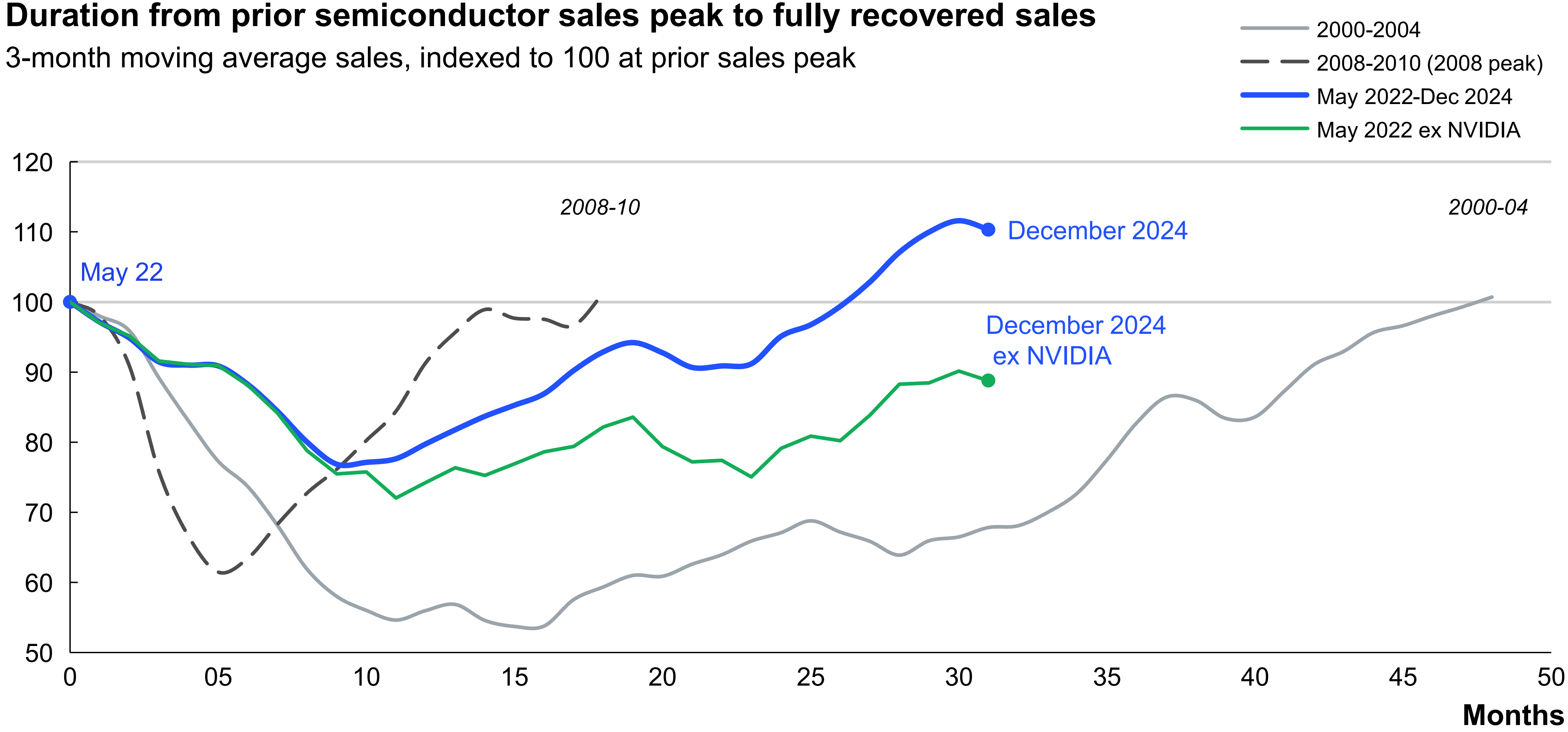
Percentage share of 2023 sales based on company headquarters



Recovery? Not quite 2000-04 or 2008-10…but trudging along…

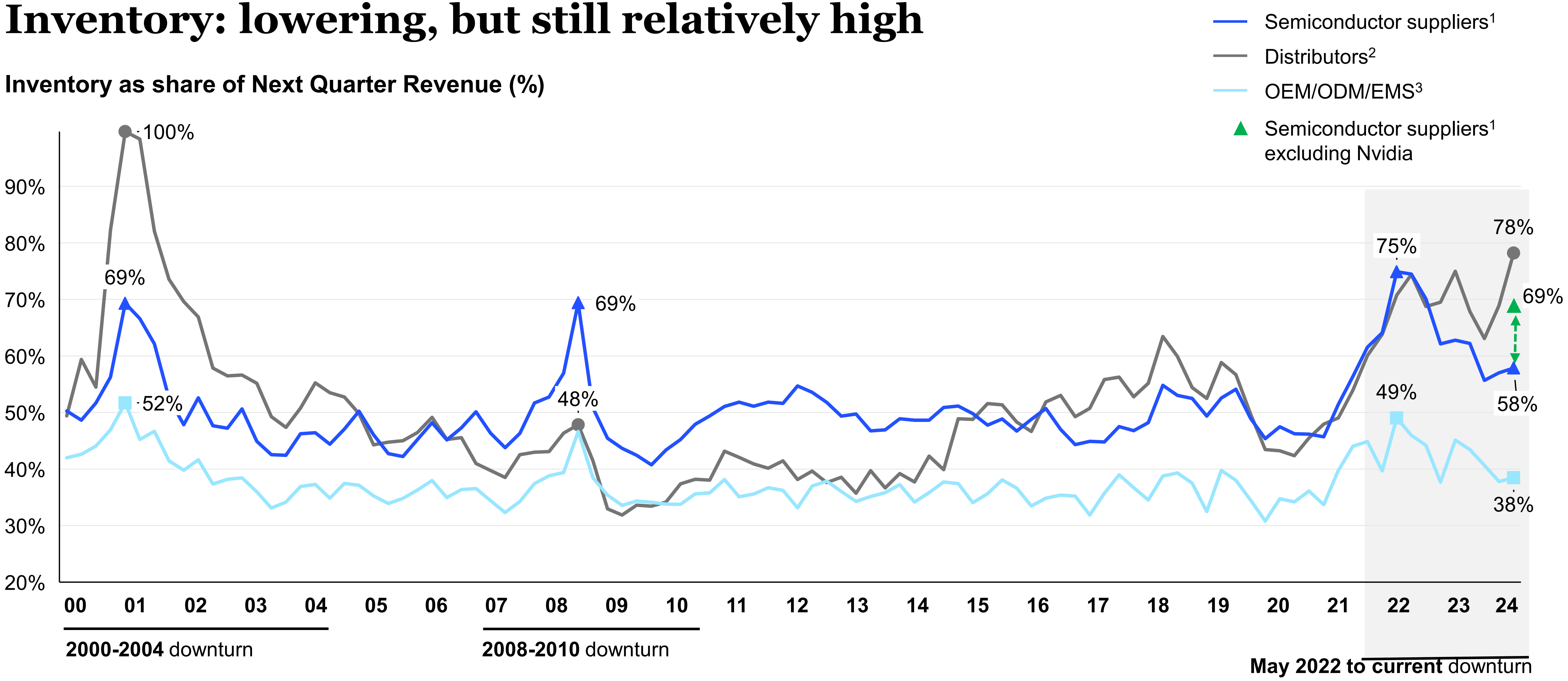
Duration from prior semiconductor sales peak to fully recovered sales

3-month moving average sales, indexed to 100 at prior sales peak



Source: SIA; WSTS; McKinsey Semiconductor Practice

Inventory: lowering, but still relatively high

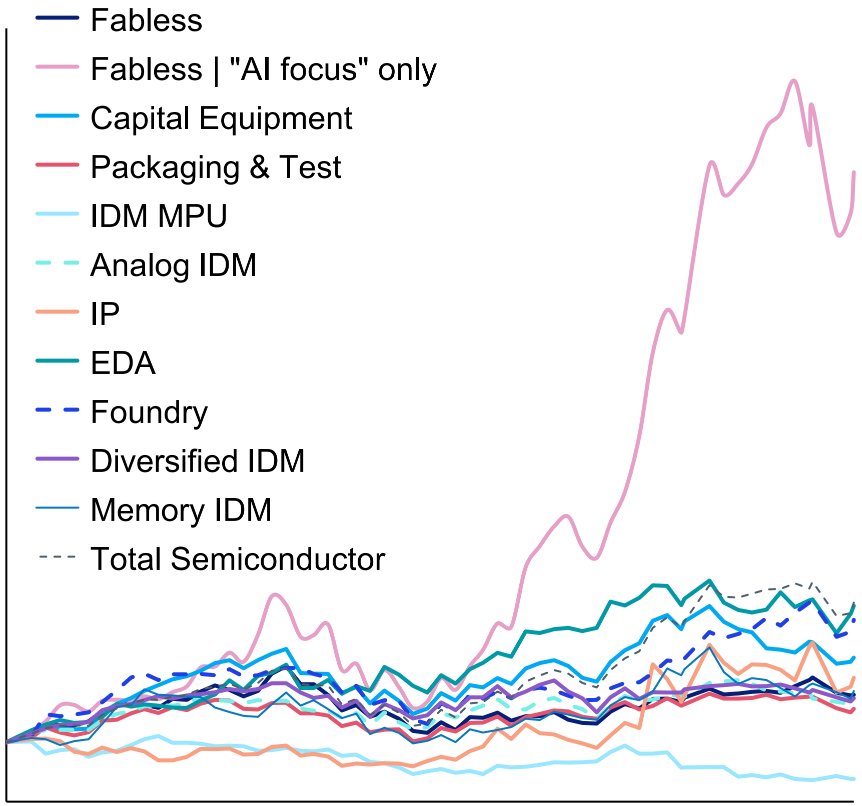


1. Includes 329 public semiconductor companies comprising of Independent Design Manufacturer (IDM), Fabless, Foundry, MPU and Packaging and Assembly, while excluding EDA, Capital equipment, Memory IDM and IP companies.
2. Distributors includes 5 of largest public distributor companies
3. Includes top 121 public OEM/ODM/EMS companies

Source: S&P Capital IQ, Corporate Performance Analytics by McKinsey

Despite last three months negative returns across sectors, Fabless with AI focus continue to dominate over the last 5-years period

Indexed TSR, by segment and indices[1]
May 7, 2020 = 100



<table>
<tr><th></th><th></th><th>Last 5 years
May 20 – May 25[2]</th><th>Last 1 year
May 24 – May 25[2]</th><th>Last 3 months
Feb 25 – May 25[2]</th></tr>
<tr><td>Fabless</td><td></td><td>12</td><td>3</td><td>-14</td></tr>
<tr><td>Fabless | "AI focus" only[4]</td><td></td><td>60</td><td>30</td><td>-9</td></tr>
<tr><td>Capital Equipment</td><td></td><td>19</td><td>-20</td><td>-10</td></tr>
<tr><td>Foundry</td><td></td><td>25</td><td>27</td><td>-9</td></tr>
<tr><td>IDMs</td><td>IDM MPU[3]</td><td>-17</td><td>-33</td><td>6</td></tr>
<tr><td></td><td>Memory</td><td>13</td><td>-16</td><td>-6</td></tr>
<tr><td></td><td>Analog IDM</td><td>11</td><td>-4</td><td>-3</td></tr>
<tr><td></td><td>Diversified IDM</td><td>12</td><td>-8</td><td>-7</td></tr>
<tr><td></td><td>IDM others</td><td>-1</td><td>-22</td><td>-12</td></tr>
<tr><td>Packaging & Test</td><td></td><td>9</td><td>-5</td><td>-12</td></tr>
<tr><td>EDA</td><td></td><td>27</td><td>-3</td><td>-3</td></tr>
<tr><td>IP</td><td></td><td>16</td><td>17</td><td>-22</td></tr>
<tr><td>Total Semiconductor1</td><td></td><td>27</td><td>10</td><td>-9</td></tr>
<tr><td>PHLX Semiconductor</td><td></td><td>22</td><td>-8</td><td>-12</td></tr>
<tr><td>S&P 500</td><td></td><td>16</td><td>10</td><td>-6</td></tr>
</table>

1. 318 companies (Capital equipment 85, EDA 6, IP 4, Fabless Semiconductor 104,Fabless AI focus 3 (NVIDIA, Broadcom, AMD) MPU 1, Memory IDM 8, Analog IDM 6, Diversified IDM 19, IDM others 39, Foundry 13 and Packaging and Assembly 30) 2. As of May 7, 2025, 3. Contains Intel only (AMD included within Fabless AI focus). 4. Fabless | AI focus only (NVIDIA, Broadcom, AMD)

Source: McKinsey semiconductor CaaS, McKinsey Value Intelligence, S&P Global

Over the last few months global TSR has been volatile and trending down amid significant changes to trade policies

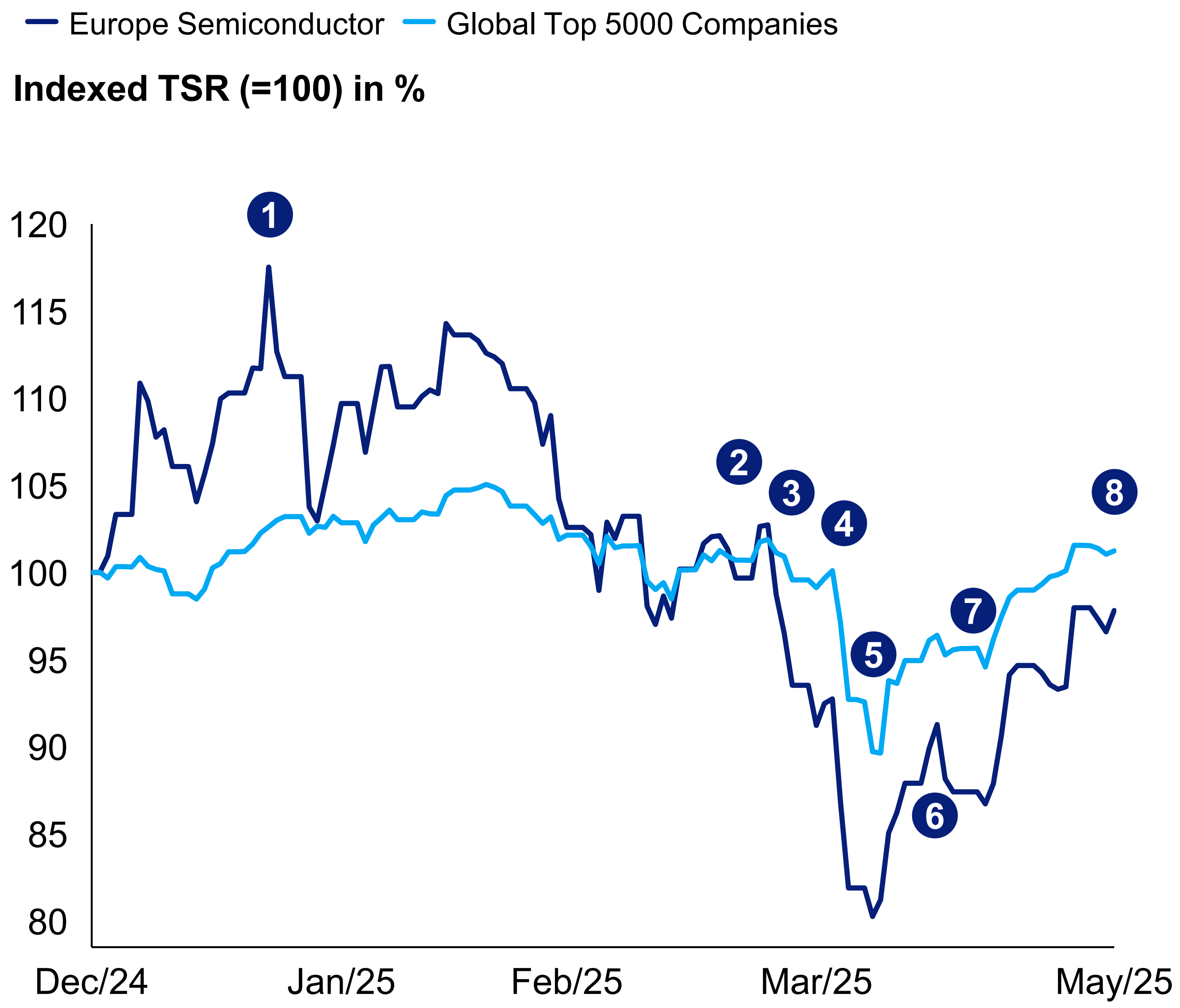
Total global shareholder returns and key events in 2025

As of May 12, 2025

Select key events in 2025

1. **Jan-20:** Trump inaugurated as U.S. president; markets surged due to optimism surrounding pro-business policies
2. **Mar-4:** U.S. imposed 25% tariffs on Mexican & Canadian imports, raised Chinese tariffs to 20%
3. **Mar-27:** U.S. imposes 25% tariff on car imports, significant impact on GER, leading to price increases in automotive
4. **Apr-2:** U.S. imposes 20% tariffs on EU goods based on
5. **Apr-3/4:** Major indices with significant losses (U.S. stocks with $6.6tn loss, DAX dropping ~10% in value)
6. **Apr-11:** China suspends exports of critical materials, essential to semiconductor industry
7. **Apr-15:** Tense exchange between Trump and Merz over "unfair trade practices" further pressuring EU markets
8. **May-8:** Merz and Trump seek trade resolution, with Merz urging tariff removal to ease U.S.-EU market strains

Indexed TSR (=100) in %



Source: McKinsey Value Intelligence Platform, S&P Global Market Intelligence

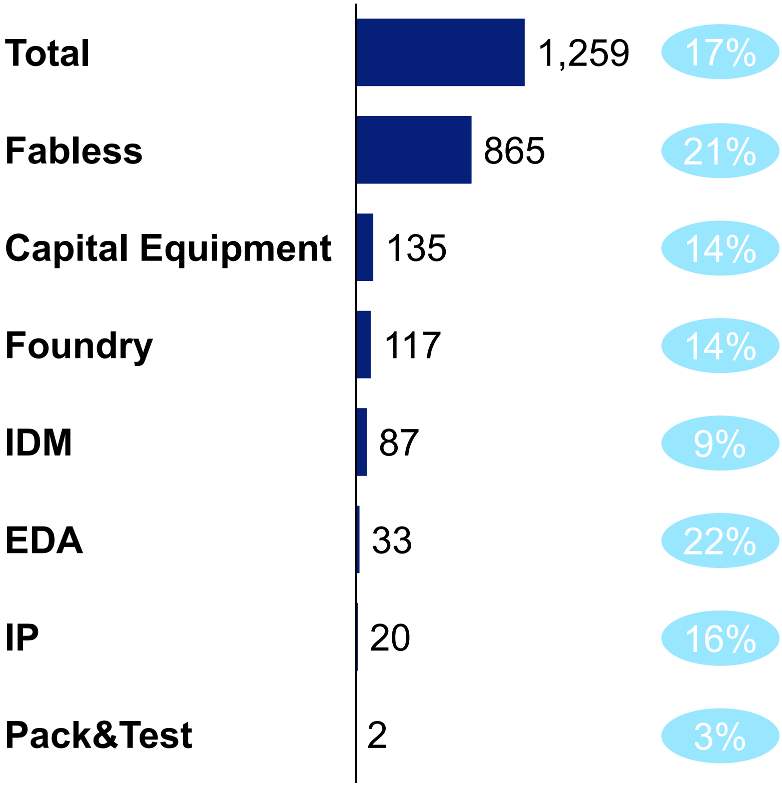
Semiconductor stock market reactions in April-May 2025

Change in Market Cap 03/31/2025 vs. 05/13/2025

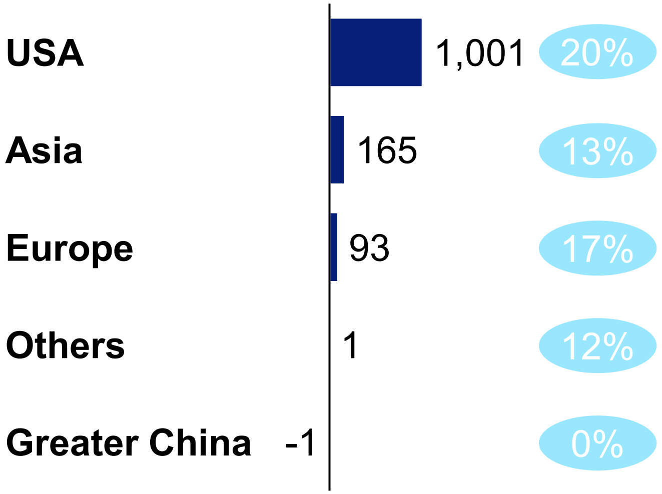
xx Change in %

Change in Market Cap, USD Bn

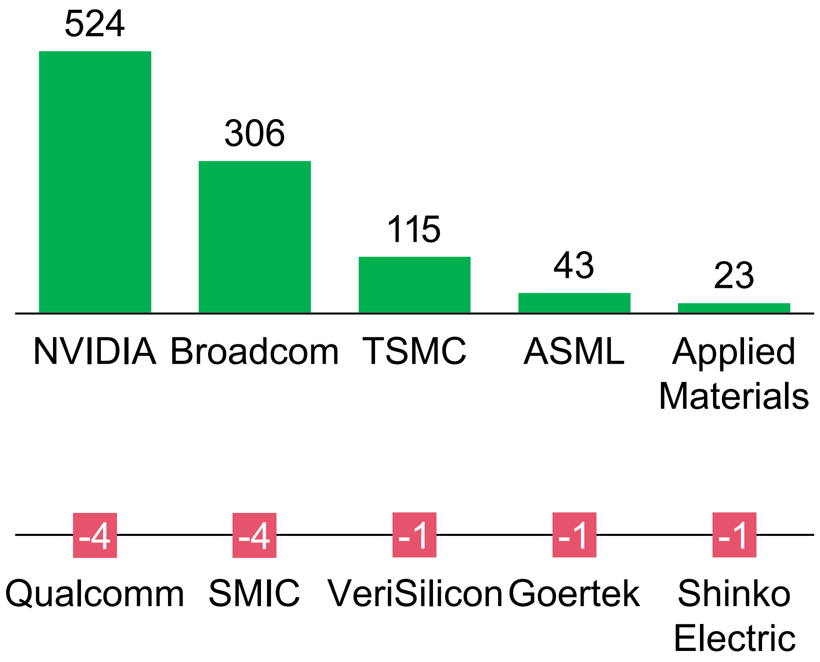
By Segment[1]



By Region[2]



Biggest Movers

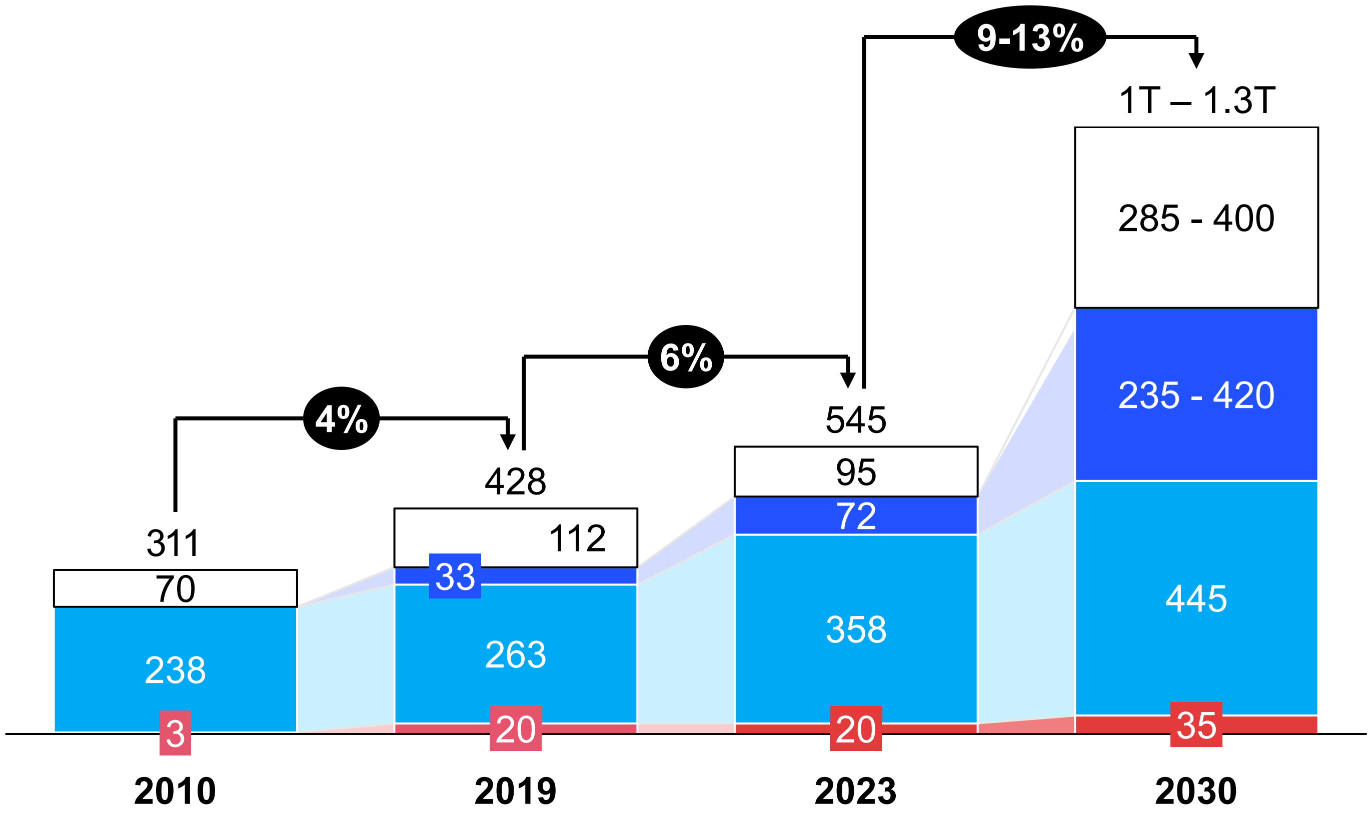


1. 318 companies (Capital equipment 85, EDA 6, IP 4, Fabless Semiconductor 107, MPU 1, Memory IDM 8, Analog IDM 6, Diversified IDM 19, IDM others 39, Foundry 13 and Packaging and Assembly 30)
2. 318 companies (Europe 26, USA 79, APAC 152, Mainland China 58 and Others 3)

Source: S&P Capital IQ

Looking ahead, companies not aligned with AI or China trends could experience growth pressure through 2030

Semiconductor market, $B



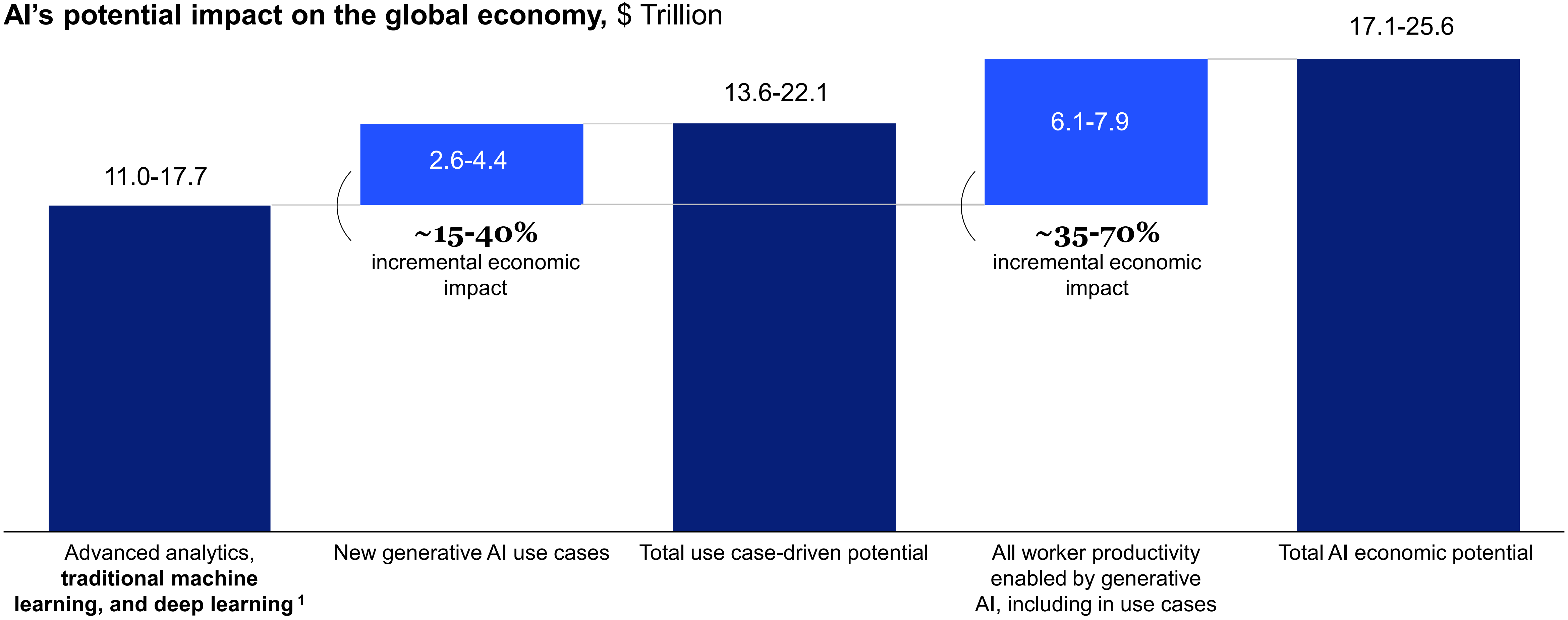
	CAGR, %		
	2010-19	2019-23	2024-30
Global, Memory	5%	-4%	17-23%
Global, AI[1]	-	21%	18-29%
Other, Rest of World	1%	8%	3%
Other, Mainland China[2]	21%	< 1%	9%

1. Includes logic (GPUs, DPUs, ASICs, AI accelerators etc.), microcomponents (MPUs, MCUs) and HMB deployed to support AI workloads. Includes Edge and Datacenter
2. Includes revenues of 56 companies (IDMs and fabless) headquartered in China. YMTC and CXMT excluded in this segment and accounted for in Memory

Source: McKinsey Semiconductor Demand model, Omdia AMFT, Gartner, China CLT

AI: Tremendous impact on global economy…

AI's potential impact on the global economy, $ Trillion



1. Updated use case estimates from "Notes from the AI frontier: Applications and value of deep learning," McKinsey Global Institute, April 17, 2018.

Source: "The economic potential of generative AI: The next productivity frontier", McKinsey Global Institute

… with new use cases proliferating on the edge

Healthcare

6.7 Million

deaths due to improper insulin intake worldwide

MetaSense AI enabled CGM

Manufacturing

AI analytic- based predictive maintenance platform

Up to 20%

of annual productivity[1] lost to downtime

Surveillance

Shield AI's "Hivemind" autonomous fighter pilot tested on Kratos drones

Up to 80%

drone strikes miss their intended target

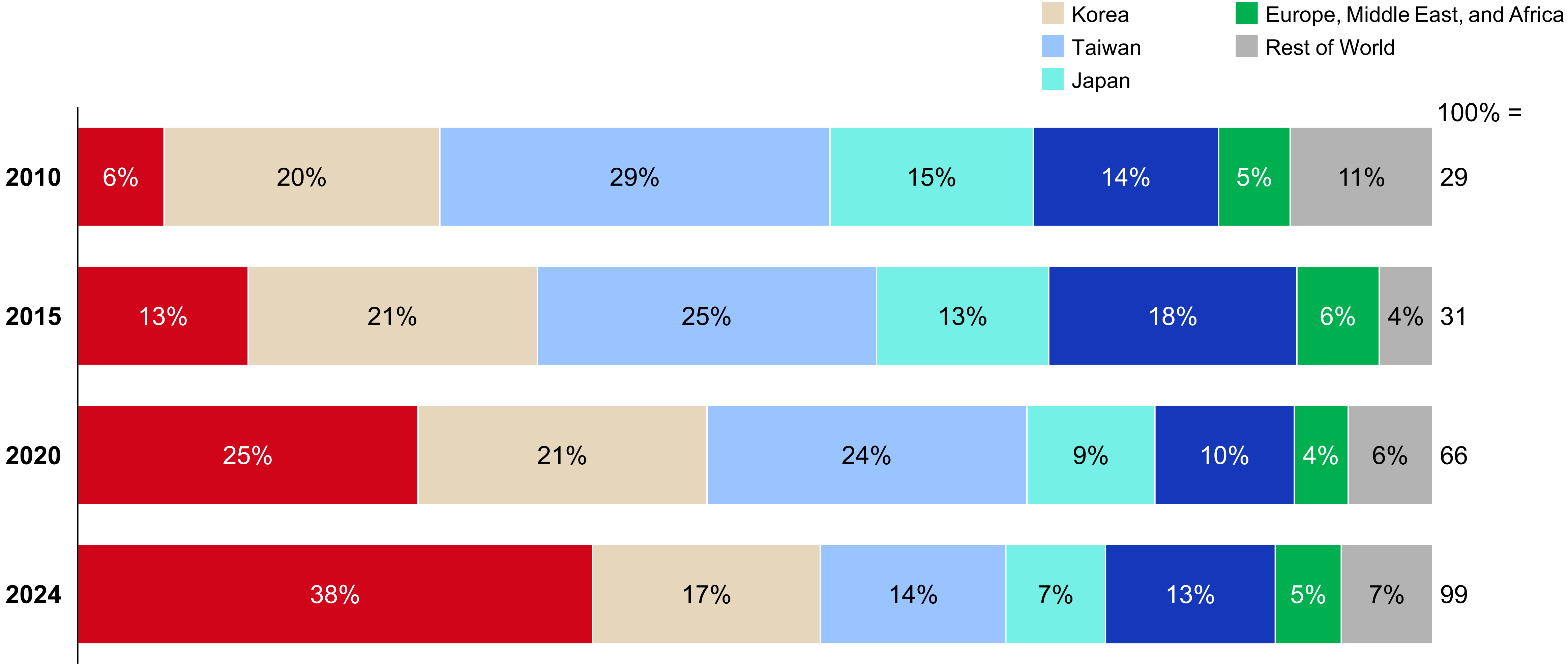
Healthcare	Manufacturing	Surveillance
Automated dosage adjustment based on CGM readings and patient historical data	Guidance on machine health based on operational, environmental, historical data	Target identification and strike accuracy improvement with AI-based object recognition, hyperspectral imaging etc.

1. Manufacturing productivity in an equipment manufacturing facility

Source: Company website; FD Wire; PNAS, Philips, Siemens, International Society of Automation, Dronewars.net – Danger of Drones

China: Mainland China accounts for an increasing share of semiconductor equipment sales

Share of semiconductor equipment sales by region, $ billion and %



1. Analysis for top 6 semiconductor equipment companies i.e. ASML, LAM Research, Applied Materials, KLA Corporation, Tokyo Electron, and Advantest Corporation

Source: S&P Capital IQ, Annual reports

Semiconductor leaders must watch the evolution of six main drivers of future value creation are shaping semiconductor industry

As of April 13, 2025

Geopolitical dynamics and tariffs

Rising tensions and tariffs drive local-for-local strategies, with diversified manufacturing and resilient supply chains critical to manage fragmentation

China's ascent

Accounts for a growing share of semiconductor equipment sales, increasing the region's strategic relevance for industry value creation

Artificial Intelligence

Continues to be a demand driver, with focus on training large-scale models but a growing shift toward inference workloads in the cloud and at the edge, which opens new opportunities

Demand shifts

Differentiating structural demand drivers from temporary shifts is crucial. Align capacity and R&D investments with long-term demand drivers to maximize value creation

Operating efficiency and leverage

Increase agility and resilience in preparation of the next wave of growth, e.g., by increasing R&D efficiency (through AI) and through-cycle cashflow and CAPEX management

M&A and Partnerships

Mega-deals faced regulatory pushback and high valuations. Successful partnerships and consolidation helps achieve scale and fill technology gaps, but regulatory approval remains a hurdle