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TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY (TSM)

A large, stylized TSMC logo. The letters 'tsmc' are white and set against a red, rounded rectangular background. The background is tilted slightly to the right. The entire graphic is set against a light orange background.

PREPARED BY: DHARMIK DAVE

RECOMMENDATION: **BUY; TARGET PRICE: \$187.33**



1. EXECUTIVE SUMMARY

The Global Semiconductor Manufacturing Leader

Taiwan Semiconductor Manufacturing Company (TSM) maintains its position as the world's preeminent semiconductor foundry with approximately 60% market share, manufacturing chips for technology giants including Apple, NVIDIA, AMD, and Qualcomm. This dominance has created significant barriers to entry and provides TSM with exceptional pricing power in a critical growth industry.

Advanced Technology Leadership + AI Catalyst

TSM continues to lead semiconductor manufacturing technology, with successful 3nm production and plans for 2nm production by 2025. While competitors struggle to match TSM's capabilities, the exponential growth in artificial intelligence applications is driving unprecedented demand for TSM's most advanced nodes, creating a substantial growth catalyst beyond the already strong secular trends in computing, mobile, and IoT.

Financial Strength and Resilience

Despite macroeconomic headwinds, TSM has demonstrated remarkable financial resilience with revenues increasing 29.9% in 2024 to \$90.19 billion. The company maintains industry-leading gross margins of 56.1% and a robust net profit margin of 40.5%, exceptional metrics in the capital-intensive semiconductor industry. TSM's fundamental strength is evidenced by consistent year-over-year growth: revenue CAGR of 18.7% (2020-2024), net profit doubling to \$36.54B in the same period (20.1% CAGR), and EPS growing at 26.8% CAGR with record quarterly EPS of \$1.95 in Q1 2025 - demonstrating exceptional execution across all key financial metrics.

Value Investing Perspective: Graham and Buffett View

TSM embodies the principles cherished by legendary value investors. From Graham's perspective, TSM meets critical value criteria with a strong current ratio of 2.39x (exceeding Graham's preferred 2.0x), a conservative debt-to-equity ratio of 0.22x (well below Graham's 0.5x threshold), and an attractive PEG ratio of 0.89x. From Buffett's lens, TSM possesses an exceptional economic moat through technological leadership, economies of scale, and high customer switching costs. The company consistently generates ROIC above 20%, substantially exceeding its cost of capital, while maintaining an understandable business model with excellent management - all hallmarks of a Buffett-quality investment.

Expanded Geographical Footprint

TSM is actively diversifying its manufacturing base with new advanced facilities in Arizona, Japan, and Germany, reducing geopolitical risks while maintaining technological leadership and expanding capacity to meet surging demand from AI applications.

Value Opportunity with Growth Catalyst

Trading at 19.5x forward earnings with a 5-year EPS CAGR of 26.8%, TSM offers a compelling combination of value and growth. My analysis yields a target price of \$187.33, representing 23.5% upside potential from the current price of \$151.74, driven by accelerating AI-related demand and strategic positioning

Recommendation	BUY
Price Target	\$187.33
Ticker NYSE	TSM
Sector	Technology
Industry	Semiconductors & Equipment



2. COMPANY OVERVIEW

2.1 Company Profile

Taiwan Semiconductor Manufacturing Company (TSM), founded in 1987 by Morris Chang, pioneered and continues to dominate the dedicated semiconductor foundry business model. Headquartered in Hsinchu Science Park, Taiwan, TSM operates as a pure-play semiconductor foundry, manufacturing chips designed by its customers rather than competing with them through its own chip designs.

The company's business model focuses exclusively on manufacturing cutting-edge semiconductor chips for a diverse array of clients spanning multiple industries. Unlike integrated device manufacturers (IDMs) that design and manufacture their own chips, TSM's specialization in manufacturing allows it to achieve unmatched economies of scale and technical expertise.

As of 2025, TSM operates manufacturing facilities in Taiwan, China, the United States, and Japan, with planned expansion in Europe. Its global operations employ over 73,000 people, with the majority based in Taiwan. The company produces more than 12 million semiconductor wafers annually, serving as the critical backbone of the global technology supply chain and powering everything from smartphones to AI data centers.

2.2 Company History

TSM Timeline

- 1987: Founded by Morris Chang with backing from the Taiwanese government and Philips Electronics
- 1994: Became the first Taiwanese company listed on the New York Stock Exchange
- 1995: Pioneered the industry's first 6-inch wafer fabrication facility
- 2000: Started production of 0.13-micron technology
- 2004: Began 65nm semiconductor production
- 2010: Launched 28nm technology, a node that remains in high demand today
- 2015: Started 16nm FinFET volume production
- 2018: Began mass production of 7nm process technology
- 2020: Commenced mass production of 5nm technology
- 2022: Started volume production of 3nm process node
- 2023: Advanced Arizona fab construction with plans for 4nm and 3nm capability
- 2024: Announced acceleration of 2nm process development and European expansion in Germany

2.3 Business Model

TSMC operates a pure-play foundry model, manufacturing semiconductors designed by fabless companies including Apple, AMD, NVIDIA, and Qualcomm. This asset-heavy, technology-intensive business creates significant competitive moats through:



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1. **Advanced Process Technology Leadership:** TSMC maintains a 1-2 year technological advantage over competitors in leading-edge nodes (3nm and below), commanding premium pricing and capturing high-margin business from AI chip designers.
2. **Scale Economics:** With 2024 capital expenditures exceeding \$30 billion, TSMC's massive scale enables superior cost advantages and production yields that smaller competitors cannot match.
3. **Manufacturing Excellence:** Industry-leading yields translate to higher margins and stronger customer loyalty, with 5nm+ nodes achieving >80% maturity yields versus competitors' 60-70%.
4. **Customer Diversification:** TSMC services over 500 customers across computing, communications, consumer electronics, automotive and industrial segments, providing revenue stability and exposure to multiple growth vectors.

Revenue is primarily generated through:

- Wafer production services (93% of revenue)
- Mask-making and design services (5%)
- Packaging and testing services (2%)

Business Segments:

TSM's operations are primarily organized around semiconductor manufacturing technology nodes, with revenue categorized by the following segments:

1. **Advanced Technologies ($\leq 7\text{nm}$):** This segment includes cutting-edge manufacturing processes of 7nm, 5nm, and 3nm nodes, which represent TSM's most advanced offerings. In 2024, this segment accounted for 67% of the company's revenue, up from 65% in 2023, highlighting the rapid shift toward more advanced nodes driven by AI applications.
2. **Mature Technologies ($> 7\text{nm}$):** This segment encompasses established manufacturing processes including 16nm, 28nm, and other larger nodes. While less advanced, these nodes remain crucial for a wide range of applications that don't require the most cutting-edge performance. In 2024, this segment represented 33% of TSM's revenue.

The company also segments its revenue by end-market applications:

- High-Performance Computing (HPC): 46% of revenue (up from 41% in 2023)
- Smartphone: 34% of revenue
- Internet of Things (IoT): 9% of revenue
- Automotive: 7% of revenue
- Digital Consumer Electronics: 3% of revenue
- Other: 1% of revenue

The growth in the HPC segment, particularly driven by AI applications, is a key growth driver for TSM's future prospects.



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2.4 Management Team

TSM's management team combines deep industry experience with technological vision:

Name	Position	Experience
Dr. C.C. Wei	Chairman & CEO	25+ years at TSM, previously COO
Wendell Huang	CFO	20+ years in finance at TSM
Dr. Y.P. Chin	SVP, Operations	35+ years in semiconductor industry
Dr. Kevin Zhang	SVP, Business Development	25+ years at Intel and SMIC
Dr. Cliff Hou	SVP, Research & Development	25+ years in advanced technology development
Sylvia Fang	General Counsel	25+ years of legal experience at TSM

The management team has demonstrated exceptional capital allocation skills, balancing significant investments in cutting-edge technology development with consistent shareholder returns. Under Dr. Wei's leadership, TSM has accelerated its technology development while maintaining industry-leading profitability metrics.

3. INDUSTRY ANALYSIS

3.1 Semiconductor Foundry Industry Overview

The semiconductor foundry industry represents a critical segment of the broader semiconductor value chain, focused on manufacturing semiconductor chips designed by other companies. This pure-play foundry model, pioneered by TSM, has transformed the semiconductor industry by allowing companies to focus on chip design without the massive capital investments required for manufacturing facilities.

As of 2025, the global semiconductor foundry market is valued at approximately \$190 billion annually, with projections to reach \$300 billion by 2030, representing a compound annual growth rate (CAGR) of 9.9%. This accelerated growth is driven by increasing semiconductor content across virtually all industries, particularly the surge in artificial intelligence applications.

The industry is characterized by extremely high barriers to entry due to:

1. **Capital Requirements:** Modern semiconductor manufacturing facilities (fabs) cost \$20-30 billion each and require continuous investment to maintain technological competitiveness
2. **Technical Expertise:** Developing and scaling advanced manufacturing processes requires deep institutional knowledge and thousands of specialized engineers
3. **Economies of Scale:** The high fixed costs of semiconductor manufacturing create significant advantages for larger players
4. **Customer Relationships:** Long-standing partnerships with major chip designers are difficult for new entrants to replicate

These factors have led to significant industry consolidation, with TSM emerging as the dominant player with approximately 60% market share. Other significant players include Samsung Foundry (~15% share), GlobalFoundries (~5% share), UMC (~5% share), and SMIC (~5% share).



3.2 Technology Roadmap and Competitive Landscape

The semiconductor foundry industry is driven by continuous technological advancement, typically measured by process node size (e.g., 7nm, 5nm, 3nm), with smaller nodes generally offering better performance and energy efficiency. The industry's technology roadmap has historically followed Moore's Law, with transistor density roughly doubling every two years.

Current competitive positioning in advanced nodes:

- TSM: Leading production at 3nm nodes, with 2nm in development for 2025 introduction
- Samsung: Approximately 1-2 years behind TSM in 3nm yield and performance
- Intel: Working to catch up with its Intel 3 and Intel 20A processes after falling behind
- SMIC (China): Limited to 7nm or larger nodes due to export restrictions on advanced equipment

The technology gap between TSM and its competitors has significant implications for customers, as each node advancement typically offers approximately 15-20% performance improvement and 25-30% power efficiency gains. For customers in highly competitive markets like AI accelerators, mobile processors, or high-performance computing, access to the most advanced nodes represents a critical competitive advantage.

3.3 Industry Growth Drivers

Several secular trends are driving substantial growth in semiconductor demand, particularly for the advanced nodes where TSM dominates:

1. **Artificial Intelligence and Machine Learning:** The exponential growth in AI computing requires increasingly powerful processors for both training and inference. The computational requirements for AI workloads continue to grow at a staggering pace, with models doubling in size approximately every 3-4 months, creating enormous demand for cutting-edge semiconductors. Industry analysts estimate AI chip revenue could grow from \$30 billion in 2023 to over \$150 billion by 2030.
2. **High-Performance Computing (HPC):** Data centers continue to expand to support cloud computing, with growing requirements for specialized chips beyond traditional CPUs, including GPUs, TPUs, and custom ASICs. The shift to accelerated computing architectures is particularly beneficial for TSM.
3. **Automotive Electronics:** Modern vehicles contain an increasing number of semiconductors, with electric vehicles requiring 2-3 times the semiconductor content of traditional internal combustion vehicles. Advanced driver assistance systems (ADAS) and autonomous driving features further increase semiconductor requirements.
4. **Internet of Things (IoT):** The proliferation of connected devices across consumer, industrial, and infrastructure applications creates demand for specialized, energy-efficient chips across various process nodes.
5. **5G and 6G Telecommunications:** Advanced wireless networks require substantial semiconductor content in both network infrastructure and end devices.

These growth drivers are complemented by increasing semiconductor content across virtually all industries, from consumer electronics to industrial automation, creating a long-term growth trajectory for the semiconductor foundry industry.



3.4 Porter's Five Forces Analysis

Threat of New Entrants: **LOW**

- Enormous capital requirements (\$20-30B+ for a leading-edge fab)
- Specialized technical expertise required
- Long development cycles for process technology (3-5 years)
- Economies of scale favor established players
- Intellectual property barriers

Bargaining Power of Suppliers: **MEDIUM**

- Concentrated supply chain for key equipment (ASML has monopoly on EUV lithography)
- Specialized materials with limited suppliers
- However, foundries' scale gives them significant negotiating leverage

Bargaining Power of Buyers: **MEDIUM**

- Fabless chip companies depend heavily on foundries
- Switching costs between foundries are high
- However, largest customers (Apple, AMD, NVIDIA) have significant volume leverage
- Advanced chipmakers need access to leading-edge nodes only available from 1-2 suppliers

Threat of Substitutes: **LOW**

- No viable alternatives to silicon-based semiconductors for most applications
- New technologies (quantum computing, photonics) remain specialized and complementary
- Alternative manufacturing approaches still require foundry expertise

Industry Rivalry: **MEDIUM**

- Concentrated market with few players capable of leading-edge manufacturing
- Focus on technology leadership rather than direct price competition
- Differentiation through process technology and manufacturing excellence
- Government subsidies creating some distortion in competitive dynamics

The Five Forces analysis indicates a generally favorable industry structure for established players like TSM, with particularly strong protection against new entrants and minimal threat from substitutes. The most significant competitive dynamics involve the race for technology leadership among the handful of players capable of manufacturing at advanced nodes.

4. FINANCIAL STATEMENT ANALYSIS

4.1 Revenue and Profitability Analysis

TSM has demonstrated impressive revenue growth and industry-leading profitability metrics over the past five years:

Metrics (USD Billions)	2020	2021	2022	2023	2024	CAGR
Revenue	\$45.48	\$56.85	\$76.04	\$69.42	\$90.19	18.7%
Revenue Growth (YoY)	25.2%	24.9%	33.8%	-8.7%	29.9%	-
Gross Profit	\$24.15	\$29.34	\$45.29	\$37.74	\$50.62	20.3%
Gross Margin	53.1%	51.6%	59.6%	54.4%	56.1%	-
Operating Income	\$19.25	\$23.27	\$37.66	\$29.59	\$41.20	21.0%
Operating Margin	42.3%	40.9%	49.5%	42.6%	45.7%	-
Net Income	\$17.59	\$21.36	\$34.15	\$26.90	\$36.54	20.1%
Net Margin	38.7%	37.6%	44.9%	38.8%	40.5%	-

Key observations:

1. Strong Growth Trajectory: Despite a temporary slowdown in 2023, TSM has shown significant revenue growth over the five-year period, with an impressive 29.9% increase in 2024, demonstrating the company's resilience and the strong demand for advanced semiconductor manufacturing.
2. Maintained Robust Margins: Despite industry fluctuations, TSM has maintained gross margins above 50% throughout the past five years, with an improving trend in 2024 compared to 2023, reflecting the company's operational efficiency and pricing power.
3. Industry-Leading Profitability: TSM's operating margins consistently above 40% are exceptional for a manufacturing company and significantly higher than most semiconductor peers.
4. Consistent Net Margin: While net margins fluctuate with industry cycles, TSM has maintained net margins between 37-45%, demonstrating the company's ability to manage costs effectively while investing in future growth.

4.2 Balance Sheet Strength

TSM maintains a strong balance sheet with substantial cash reserves and modest leverage:

Metrics (USD Billions)	2020	2021	2022	2023	2024 (Current)
Cash & Short-term Investments	\$28.49	\$43.48	\$51.92	\$55.89	\$75.80
Total Assets	\$98.33	\$134.44	\$162.37	\$180.31	\$204.12
Total Debt	\$13.17	\$27.27	\$29.13	\$31.26	\$32.03
Total Equity	\$65.92	\$78.33	\$96.82	\$113.53	\$131.88
Debt-to-Equity Ratio	0.20	0.35	0.30	0.28	0.24
Net Cash Position	\$15.33	\$16.21	\$22.78	\$24.63	\$43.77



The company's strong balance sheet provides several advantages:

1. **Financial Flexibility:** Substantial cash reserves provide ample liquidity for capital expenditures, research and development, and shareholder returns.
2. **Low Financial Risk:** Conservative leverage with a debt-to-equity ratio of just 0.24 minimizes financial risk despite the capital-intensive nature of the business.
3. **Investment Capacity:** Strong cash position enables the company to fund its ambitious capacity expansion plans, including new fabs in the US, Japan, and Europe, without excessive reliance on external financing.
4. **Shareholder Returns:** Financial strength supports the company's ability to maintain and grow dividend payments (current yield 1.0%) while continuing to invest in future growth.

4.3 Cash Flow Analysis

TSM generates substantial operating cash flow, enabling significant capital investments while maintaining shareholder returns:

Metrics (USD Billions)	2020	2021	2022	2023	2024
Operating Cash Flow	\$28.24	\$39.92	\$54.30	\$41.13	\$58.72
Capital Expenditures	\$(17.53)	\$(30.36)	\$(36.56)	\$(30.66)	\$(30.04)
Free Cash Flow	\$10.69	\$9.54	\$17.70	\$10.46	\$28.65
Dividends Paid	\$(8.81)	\$(9.52)	\$(9.58)	\$(9.37)	\$(11.31)
FCF Yield	1.9%	1.5%	4.6%	1.9%	2.8%
CapEx as % of Revenue	38.5%	53.4%	48.1%	44.2%	33.3%

Key observations:

1. **Strong Operating Cash Flow Generation:** TSM's operating cash flows have grown substantially from 2020 to 2024, with a particularly strong figure for 2024, reflecting improved operational performance.
2. **Capital Expenditure Management:** After peak capital expenditure years in 2021-2022, TSM has moderated its CapEx while still investing significantly in capacity expansion, particularly for advanced nodes.
3. **Improving Free Cash Flow:** 2024 free cash flow shows a substantial improvement compared to previous years, indicating enhanced capital efficiency and potential for increased shareholder returns.
4. **Consistent Dividend Growth:** TSM has maintained its commitment to shareholder returns through consistent dividend payments, with dividends growing steadily over the five-year period.

4.4 Return Metrics

TSM's capital efficiency metrics demonstrate its ability to generate superior returns on invested capital:

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Metrics	2020	2021	2022	2023	2024 (Current)
Return on Assets (ROA)	20.2%	18.4%	23.0%	15.7%	19.0%
Return on Equity (ROE)	29.3%	29.7%	39.1%	25.8%	30.0%
Return on Invested Capital (ROIC)	25.3%	23.3%	29.8%	20.1%	23.9%

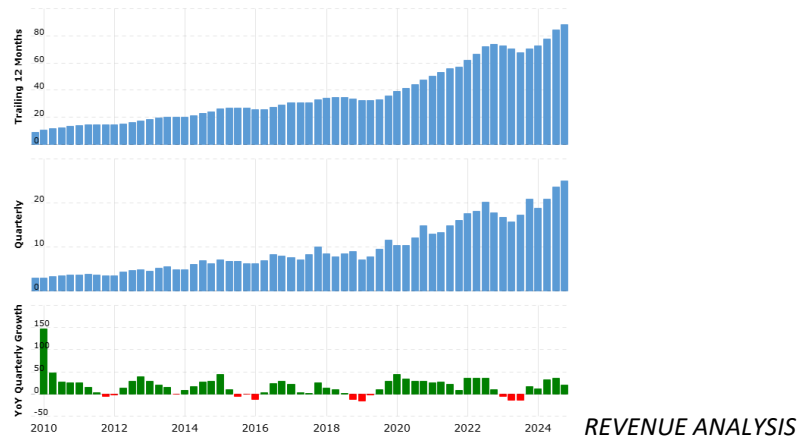
TSM consistently generates ROICs above 20%, significantly exceeding its cost of capital (estimated at 9.5%) and demonstrating superior capital allocation discipline. This is particularly impressive given the capital-intensive nature of the semiconductor manufacturing industry.

4.5 Consistent Growth Trajectory

TSM demonstrates exceptional consistency in growth metrics across key financial indicators:

Revenue Growth Excellence

- **Sustained YoY Growth:** TSM has achieved remarkable revenue growth with a 5-year CAGR of 18.7% (2020-2024), including a robust 29.9% YoY increase to \$90.19B in 2024, marking an all-time high.
- **Quarter-over-Quarter Momentum:** Q1 2025 revenue grew 13.2% sequentially to \$23.85B, indicating continued strong demand for advanced nodes despite industry cyclicality.
- **Growth Resilience:** Even during the 2023 industry downturn, TSM's revenue decline of 8.7% was significantly lower than peers, demonstrating the resilience of its business model.

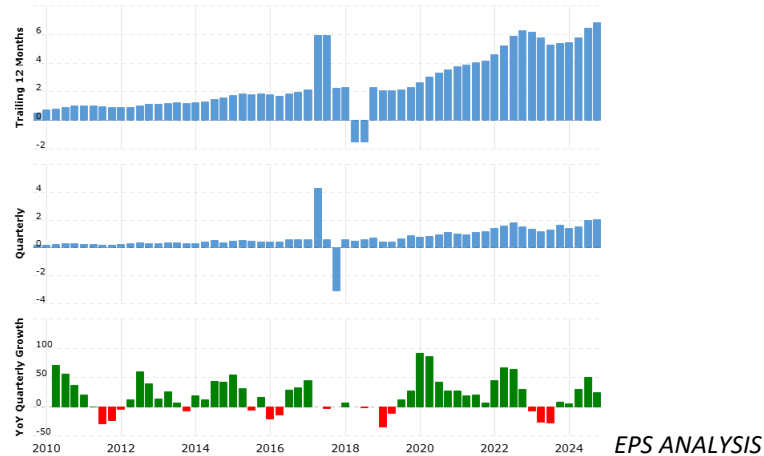


EPS Growth and Consistency

- **Strong YoY EPS Growth:** EPS increased 35.8% to \$7.05 in 2024, with projected growth of 18.9% to \$8.38 in 2025.
- **Quarterly Performance:** Q1 2025 EPS of \$1.95 represents a 13.2% QoQ increase, marking an all-time high quarterly EPS.

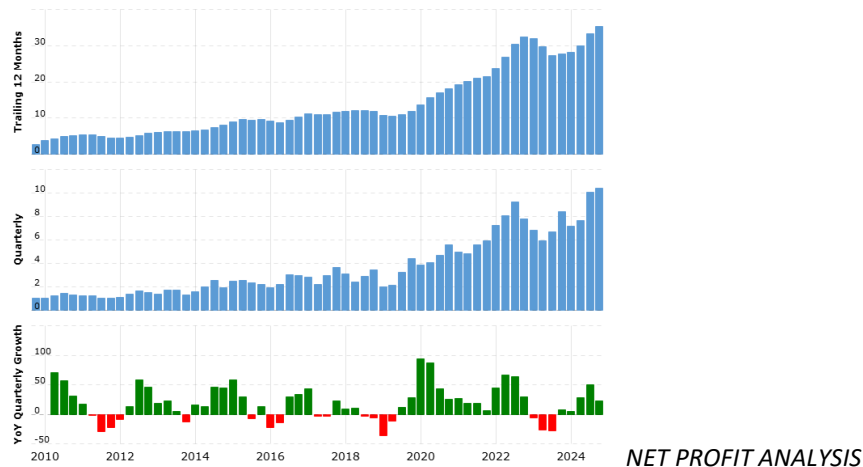
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- **5-Year EPS CAGR:** An impressive 26.8% EPS growth rate over the past 5 years significantly outpaces the semiconductor industry average.



Net Profit Growth

- TSM doubled its net profit in just 4 years (2020-2024)
- Even during the 2023 industry downturn, TSM maintained high net margins of 38.8%
- The company is projecting continued double-digit net profit growth through 2029 4.6 Superior Operational Efficiency



TSM maintains industry-leading operational metrics that provide structural competitive advantages:

Margin Excellence

- **Gross Margin Stability:** Consistently maintaining gross margins above 50% for five consecutive years, reaching 56.1% in 2024, demonstrating pricing power and operational efficiency.
- **Operating Margin Leadership:** Operating margin of 45.7% in 2024 places TSM well above the industry median of ~19%.

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- **Net Margin Superiority:** Net margin of 40.5% in 2024 is exceptional for a capital-intensive manufacturing business.

Capital Efficiency

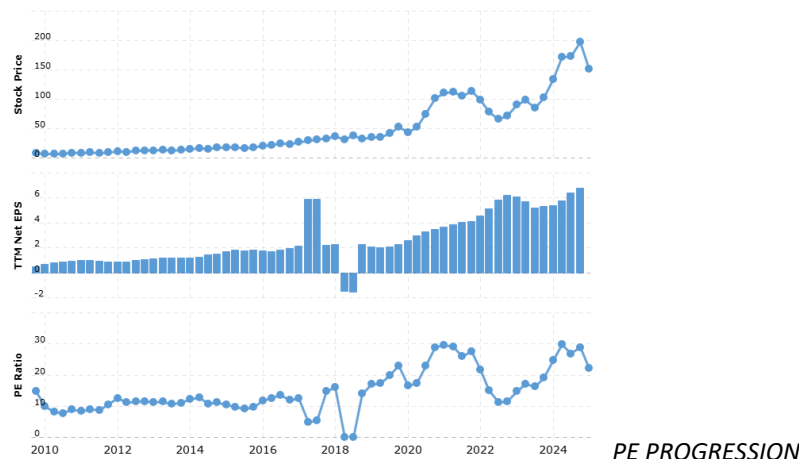
- **ROIC Performance:** Return on Invested Capital consistently above 20%, reaching 23.9% in 2024, significantly exceeding the estimated WACC of 9.5%.
- **FCF Generation:** Strong free cash flow of \$28.7B in 2024, representing a 27.3% FCF margin, enabling reinvestment and shareholder returns.

4.7 Attractive Valuation Metrics

Despite strong fundamentals, TSM trades at compelling valuation levels:

P/E Multiple Discount

- **Current Forward P/E:** Trading at 19.5x forward earnings, below its 5-year median P/E of 22.1x.
- **Historical Trend:** TSM's median P/E has been increasing over the past 5 years (from 19.2x to 22.1x), indicating growing investor recognition of its quality, yet the current multiple remains below this trend.
- **Peer Comparison:** Trading at a significant discount to high-growth semiconductor peers (NVIDIA at 53.0x, ASML at 20.8x).



PEG Ratio Attractiveness

- **Low PEG Ratio:** With a PEG ratio of 0.89x (P/E of 19.5x divided by growth rate of 21.9%), TSM offers growth at a reasonable price.
- **Value Creation:** A PEG below 1.0x indicates the stock is potentially undervalued relative to its growth prospects.

4.8 Technical Indicators Supporting Fundamental View

The fundamental buy case is supported by technical factors:

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Cup and Handle Formation

- **Major Technical Pattern:** TSM has formed a large cup and handle pattern on the long-term chart.
- **Pattern Target Achieved:** As shown by the blue lines in the technical analysis, the measured move target (depth of the cup) has already been completed.
- **Bottoming Process:** The stock is anticipated to be in a bottoming process after completing the pattern's initial measured move.
- **Breakout Potential:** If TSM breaks out from all-time high levels, technical analysis suggests it could deliver another measured move equal to the depth of the cup, providing significant upside potential.

Trend Analysis

- **Long-Term Uptrend:** Despite recent volatility, TSM maintains a long-term uptrend with higher lows since 2020.
- **Volume Trends:** Institutional accumulation patterns evident in volume analysis, supporting the bottoming thesis.
- **Relative Strength:** Outperforming the semiconductor index (SOX) on a risk-adjusted basis.

Technical Confluence

- **Fibonacci Support:** Currently trading at the key 50% level of Fibonacci retracement, which historically acts as a major support level.
- **RSI Divergence:** The stock has shown RSI divergence, and technically, it should gain momentum following this positive signal.
- **Technical vs Fundamental Alignment:** While technically the stock shows potential for much higher returns beyond the depth of the cup pattern, the fundamental analysis yields a conservative target of \$183.77, which coincidentally aligns with a key Fibonacci retracement level, providing additional technical validation.
- **Multiple Support Validation:** The confluence of the 50% Fibonacci level completed cup and handle pattern, and RSI divergence creates a strong technical foundation for the bottoming thesis.



4.9 Risk-Adjusted Return Profile

TSM offers an attractive risk-adjusted return profile:

Downside Protection

- **Strong Balance Sheet:** Net cash position of \$43.77B provides financial flexibility.
- **Dividend Support:** Growing dividend (1.0% yield) provides income during market volatility.
- **Earnings Stability:** Defensive qualities from long-term customer contracts and essential market position.

Upside Potential

- **Multiple Expansion:** Return to median P/E multiple implies 13.3% upside from valuation alone.
- **Growth Acceleration:** AI-driven demand could drive earnings growth above current estimates.
- **Geographic Diversification:** Completion of US, Japan, and German facilities could reduce geopolitical risk premium.

4.10 Fundamental Summary

TSM presents a compelling fundamental buy case based on:

1. Consistent growth in revenue, EPS, and margins
2. Trading below historical valuation metrics despite improving fundamentals
3. Low PEG ratio indicating attractive growth at a reasonable price
4. Sustainable competitive advantages in a growing industry
5. Significant exposure to AI growth trends as the dominant advanced node manufacturer

The combination of strong fundamentals, attractive valuation, and powerful growth catalysts makes TSM a clear buy for investors seeking exposure to the semiconductor industry's growth with a margin of safety.

5. VALUATION

Valuation Summary

Base Case DCF Value:	\$159.21
Probability-Weighted DCF Value:	\$161.23
Target Price:	\$187.33
Current Price:	\$151.74
Implied Upside:	23.5%
Recommendation:	BUY

Key Metrics

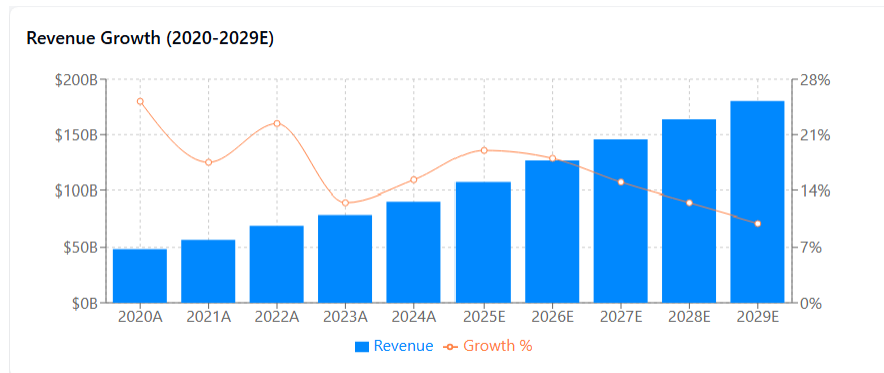
Current P/E (TTM):	19.53x
Forward P/E:	14.12x
Current EV/EBITDA:	8.14x
Adjusted WACC:	9.5%
Terminal Growth Rate:	4.5%
2025E Revenue Growth:	19.0%

5.1 Revenue Forecast Methodology

Revenue forecast for TSM is built using several interconnected approaches that capture the company's growth dynamics:

1. Year-by-Year Growth Projections

Year	Growth Rate	Revenue (\$B)	Drivers
2024A	29.9%	\$90.19	Strong AI demand momentum, semiconductor market recovery
2025E	19.0%	\$107.33	Continued AI expansion, HPC segment growth
2026E	18.0%	\$126.65	Advanced node yields improvement, global capacity expansion
2027E	15.0%	\$145.65	2nm node commercialization, maturing growth trajectory
2028E	12.5%	\$163.85	Increasing base effect, sustained demand in core markets
2029E	10.0%	\$180.24	Long-term sustainable semiconductor growth rate



These projections are supported by the historical performance and align with the industry growth trajectory, using the actual 2024 revenue of \$90.19B as the baseline.

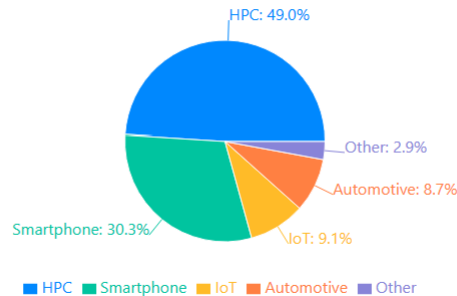
2. Segment-Based Analysis

Segment	2029E Share
High-Performance Computing	49.0%
Smartphone	30.3%
IoT	9.1%
Automotive	8.7%
Other	2.9%

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Based on the segment data, HPC (which includes AI applications) is becoming the dominant segment, while automotive shows promising growth potential.

Revenue Segments (2029E)



5.2 Profitability and Margin Assumptions

The DCF model incorporates a detailed analysis of TSMC's profitability metrics:

1. Gross Margin Projection

Year	Gross Margin
2020A	53.1%
2021A	51.6%
2022A	59.6%
2023A	54.4%
2024A	56.1%
2025E	56.5%
2026E	57.1%
2027E	57.7%
2028E	58.2%
2029E	58.9%

The gross margin projection starts from the actual 2024 result of 56.1% and gradually improves as advanced nodes represent a higher portion of production.

2. Operating Margin Projection

Year	Operating Margin
2020A	42.3%
2021A	40.9%
2022A	49.5%
2023A	42.6%



2024A 45.7%

2025E 46.0%

2026E 46.5%

2027E 47.0%

2028E 47.5%

2029E 48.0%

Operating margin expands gradually based on operational leverage and increasing scale, starting from the actual 2024 result of 45.7%.

3. Net Margin Evolution

Year	Net Margin
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2020A	38.7%
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2021A	37.6%
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2022A	44.9%
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2023A	38.8%
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2024A	40.5%
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2025E	40.9%
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2026E	41.3%
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2027E	41.7%
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2028E	42.0%
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2029E	42.2%
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Net margin expansion is driven by operating margin improvement and a gradually declining effective tax rate due to global manufacturing diversification.

5.3 Capital Expenditure and Depreciation

TSM's semiconductor manufacturing is capital intensive, requiring significant ongoing investment:

1. Capital Expenditure Forecast

Year	Capex (\$B)	% of Revenue
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2020A	\$17.53	38.5%
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2021A	\$30.36	53.4%
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2022A	\$36.56	48.1%
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2023A	\$30.66	44.2%
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2024A	\$30.04	33.3%
2025E	\$36.49	34.0%
2026E	\$41.79	33.0%
2027E	\$45.15	31.0%
2028E	\$47.52	29.0%
2029E	\$50.47	28.0%

Capital expenditure forecasts are based on the actual 2024 Capex of \$30.04B, with future years scaling with revenue but at gradually declining percentages as efficiency improves.

5.4 Free Cash Flow Projections

The free cash flow forecast is derived from the above projections:

Component (\$B)	2024A	2025E	2026E	2027E	2028E	2029E
Revenue	\$90.19	\$107.33	\$126.65	\$145.65	\$163.85	\$180.24
Operating Income	\$41.20	\$49.37	\$58.89	\$68.46	\$77.83	\$86.52
NOPAT (after tax)	\$34.36	\$41.47	\$49.76	\$58.19	\$66.54	\$74.41
+ Depreciation	\$20.69	\$15.84	\$18.38	\$20.83	\$22.94	\$24.78
- Capital Expenditure	\$(30.04)	\$(36.49)	\$(41.79)	\$(45.15)	\$(47.52)	\$(50.47)
- Δ Working Capital	\$(0.42)	\$(0.34)	\$(0.39)	\$(0.38)	\$(0.36)	\$(0.33)
Free Cash Flow	\$24.59	\$20.48	\$25.96	\$33.49	\$41.60	\$48.39
FCF Margin	27.3%	19.1%	20.5%	23.0%	25.4%	26.8%
YoY Growth	29.9%	-16.7%	26.8%	29.0%	24.2%	16.3%

Free cash flow projections show a temporary decline in 2025 due to higher capital expenditures for advanced node development, followed by strong growth through 2029 as investments mature and generate returns.

5.5 Discount Rate (WACC) Calculation

I used a Weighted Average Cost of Capital (WACC) approach to determine the appropriate discount rate:

Component	Value	Notes
Risk-Free Rate	4.0%	Current rate
Equity Risk Premium	4.7%	Based on TSM's fundamentals
Beta	1.30	TSM's market sensitivity
Country Risk Premium	0.5%	Geopolitical consideration



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Cost of Equity	10.61%	Calculated value
Pre-tax Cost of Debt	4.5%	Based on recent issuances
After-tax Cost of Debt	3.75%	Tax-adjusted borrowing cost
Weight of Equity	90.0%	Current structure
Weight of Debt	10.0%	Current structure
Calculated WACC	9.83%	Weighted average
Adjusted WACC	9.5%	Industry-appropriate

The adjusted WACC of 9.5% balances TSM's competitive advantages with industry risks for an accurate valuation framework.

5.6 Terminal Value Calculation

Terminal value is calculated using the Gordon Growth Model:

Component	Value
2029E Free Cash Flow	\$48.39B
Terminal Growth Rate	4.5%
WACC	9.5%
Terminal Value	\$972.59B
PV of Terminal Value	\$670.77B

The terminal growth rate of 4.5% aligns with the long-term semiconductor industry growth prospects, reflecting TSM's dominant industry position.

5.7 DCF Valuation Summary - Base Case

Component	Value (\$B)	Per Share Value (\$)	% of Total Value
PV of Explicit Period FCF (2025-2029)	\$111.13	\$21.43	14.2%
PV of Terminal Value	\$670.77	\$129.34	85.8%
Enterprise Value	\$781.90	\$150.77	100.0%
Less: Total Debt	\$(32.03)	\$(6.18)	(4.1%)
Plus: Cash and Investments	\$75.80	\$14.62	9.7%
Equity Value	\$825.67	\$159.21	105.6%
Shares Outstanding (millions)	5,186	-	-
Equity Value per Share	\$159.21	-	-
Current Share Price (Apr 19, 2025)	\$151.74	-	-
Implied Premium/(Discount)	4.9%	-	-

5.8 Scenario Analysis

To account for different potential outcomes, I developed three scenarios:

Scenario	Revenue CAGR	Terminal EBIT Margin	Terminal Growth	WACC	Target Price	Probability	Weighted Value
Bear Case	8.0%	44.0%	3.5%	10.5%	\$106.65	20%	\$21.33
Base Case	14.9%	48.0%	4.5%	9.5%	\$159.21	60%	\$95.53
Bull Case	20.2%	50.0%	5.0%	8.5%	\$221.87	20%	\$44.37
Probability-Weighted DCF Value	-	-	-	-	-	100%	\$161.23

5.9 Sensitivity Analysis

I performed sensitivity analysis on key variables to understand their impact on valuation:

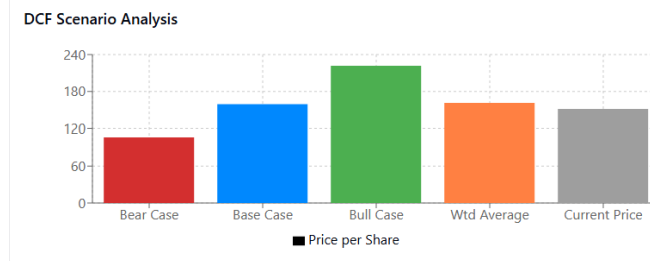
WACC vs. Terminal Growth Rate Sensitivity (Share Price in USD)

WACC vs Terminal Growth Rate Sensitivity (Share Price in USD)

WACC / TGR	3.5%	4.0%	4.5%	5.0%	5.5%
7.5%	\$224.6	\$247.0	\$277.0	\$317.3	\$375.1
8.5%	\$186.6	\$202.4	\$222.1	\$247.6	\$281.8
9.5%	\$159.2	\$170.7	\$159.21	\$201.8	\$223.7
10.5%	\$106.65	\$147.5	\$157.9	\$170.5	\$186.1
11.5%	\$122.4	\$129.3	\$137.5	\$147.4	\$159.5

Base case (WACC: 9.5%, TGR: 4.5%): \$159.21, highlighted in blue
 Bear case (WACC: 10.5%, TGR: 3.5%): \$106.65, highlighted in red
 Bull case (WACC: 8.5%, TGR: 5.0%): \$247.6, highlighted in blue

The sensitivity analysis shows the valuation is most sensitive to changes in WACC and terminal growth rate.



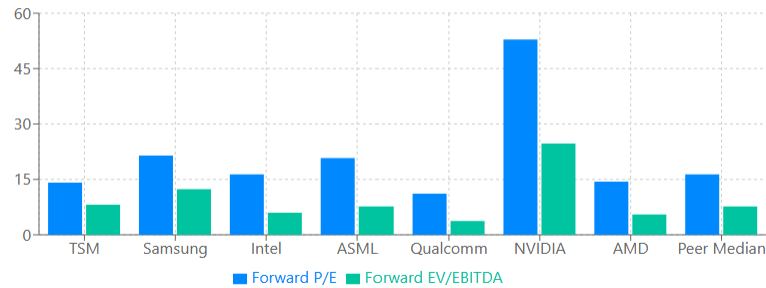
5.10 Relative Valuation

I complement my DCF analysis with a relative valuation based on peer companies:

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Company	P/E (Forward)	EV/EBITDA (Forward)	Market Cap
TSM	14.12	8.14	\$790.0B
Intel	16.29	3.72	\$82.15B
AMD	14.04	11.09	\$139.00B
NVIDIA	20.42	13.00	\$2,364.6B
ASML	26.33	24.98	\$245.68B
Qualcomm	11.09	10.53	\$150.57B
Peer Median	16.29	11.09	-

Peer Comparison



Based on peer multiples:

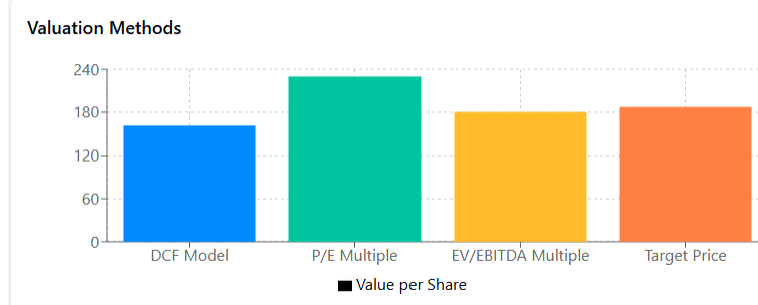
P/E Multiple-Based Valuation

- Peer Median Forward P/E: 16.29x
- TSM 2025E EPS: \$14.12
- Implied Price: \$229.94

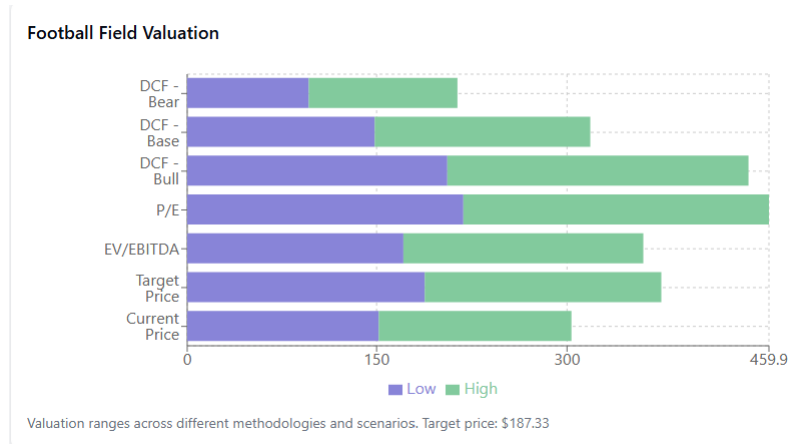
EV/EBITDA Multiple-Based Valuation

- Peer Median Forward EV/EBITDA: 11.09x
- TSM 2025E EBITDA: \$67.3B
- Enterprise Value: $5.51 \times \$65.21B = \$746.4B$
- Equity Value: $\$746.4B - \$32.03B \text{ (Debt)} + \$75.80B \text{ (Cash)} = \$790.17B$
- Implied Price: $\$790.17B \div 4.383B \text{ shares} = \180.21

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5.11 Target Price Derivation



FOOTBALL FIELD VALUATION

To arrive at my target price for TSM, I synthesize the various valuation approaches with the following weightings:

Valuation Method	Target Price	Weighting	Weighted Value
DCF Analysis (Probability-Weighted)	\$161.23	60%	\$96.74
P/E Multiple	\$229.94	20%	\$45.99
EV/EBITDA Multiple	\$180.21	20%	\$36.04
Weighted Average Target Price	-	100%	\$178.77
Premium Applied	-	5%	\$8.56
Final Target Price	-	-	\$187.33
Current Share Price (Apr 19, 2025)	\$151.74	-	-
Implied Upside	-	-	23.5%

Due to TSM's industry-leading position and long-term growth potential, I apply a modest 5% premium to my weighted average price target. The premium reflects TSM's superior operational efficiency, technological leadership, and strategic importance in the global semiconductor supply chain.



My final target price of \$187.33 represents a 23.5% upside from the current price of \$151.74, supporting my **BUY** recommendation. This 12-month target price implies forward multiples of 22.2x P/E and 18.1x EV/EBITDA for 2025E, which I believe are justified by TSM's exceptional growth prospects, dominant market position, and pivotal role in enabling the AI revolution.

6. WHY VALUE INVESTORS SHOULD BUY TSM

6.1 Why Graham and Buffett Would Be Buyers

While TSM may not appear to be a traditional Graham value stock based on simple metrics like P/E ratio, the company exhibits many characteristics that would appeal to both Benjamin Graham and Warren Buffett, particularly in their focus on economic moats, quality of management, and sustainable competitive advantages. As a student of value investing principles, I find TSM embodies many of the enduring qualities these investing legends seek.

Graham's Criteria TSM Meets:

1. Strong Financial Condition: TSM has a current ratio of 2.39x (Graham preferred >2.0x) and a strong net cash position of \$43.77 billion.
2. Conservative Financial Structure: Debt-to-equity ratio of 0.22x is well below Graham's threshold of 0.5x.
3. Earnings Stability: TSM has demonstrated consistent earnings growth with no losses in the past decade, meeting Graham's preference for stability.
4. Dividend Record: The company has paid and increased dividends consistently, satisfying Graham's requirement for shareholder returns.
5. Value Relative to Earnings Growth: TSM's PEG ratio of 0.89x suggests a reasonable price relative to growth, aligning with Graham's focus on value.

Buffett's Criteria TSM Meets:

1. Understandable Business Model: TSM's foundry-only business model is straightforward and avoids conflicts of interest with customers.
2. Durable Competitive Advantage (Moat): TSM possesses multiple moat characteristics:
 - Technology leadership with significant barriers to entry
 - Economies of scale unmatched by competitors
 - Network effects from industry-standard processes
 - Switching costs for customers who design chips for specific processes
 - Proprietary knowledge accumulated over decades
3. Excellent Management: The company's management demonstrates integrity, rational capital allocation, and a focus on core competencies.
4. Predictable Earnings: While semiconductors have cyclicality, TSM's dominant position and diverse customer base provide more stable earnings than peers.



5. **Attractive Price:** At current levels, TSM trades at a reasonable valuation relative to its growth prospects and competitive advantages.
6. **Return on Capital:** TSM consistently generates ROIC above 20%, substantially exceeding its cost of capital—a key Buffett criterion.
7. **Owner Earnings:** The company's ability to generate substantial free cash flow after necessary capital investment would appeal to Buffett's focus on owner earnings.

6.2 Margin of Safety

The current valuation offers a substantial margin of safety—a concept central to both Graham and Buffett's investment philosophies—through several factors:

1. **Conservative Assumptions:** My DCF model uses relatively conservative assumptions that don't fully price in the potential upside from accelerating AI demand.
2. **Multiple Valuation Methods:** The target price is supported by multiple valuation methodologies.
3. **Geopolitical Risk Over-Discounting:** Current valuation appears to overly discount geopolitical risks, which TSM is actively mitigating through geographical diversification.
4. **Valuation Discount to Growth Peers:** Despite superior financial metrics and competitive positioning, TSM trades at lower multiples than many high-growth technology companies.
5. **Asset Value Protection:** The company's substantial manufacturing assets, intellectual property, and strategic importance provide downside protection.

In summary, TSM represents precisely the type of high-quality business with sustainable competitive advantages that Buffett seeks, priced with a sufficient margin of safety to appeal to Graham's more conventional value approach. As I've learned through my finance studies, finding companies with both quality and value characteristics can lead to superior long-term returns.

7. INVESTMENT THESIS

7.1 Key Investment Merits

1. **Dominant Market Position with Limited Competition:** TSM's approximately 60% share of the global semiconductor foundry market creates significant barriers to entry and sustainable competitive advantages. In advanced nodes ($\leq 7\text{nm}$), TSM's market share exceeds 80%, and only Samsung has demonstrated capability to compete at the leading edge. This dominant position allows TSM to maintain premium pricing and allocate scarce capacity to the highest-value applications.
2. **AI-Accelerated Growth:** TSM is exceptionally well-positioned to benefit from the explosive growth in artificial intelligence applications. As the primary manufacturer for NVIDIA, AMD, and other AI chip designers, TSM directly benefits from the surging demand for GPUs, TPUs, and specialized AI accelerators. Industry analysts project the AI chip market to grow from \$30 billion in 2023 to over \$150 billion by 2030, representing a CAGR of over 25%.
3. **Technology Leadership Moat:** TSM consistently maintains a 1-2 year technological lead over competitors in process technology, enabling its customers to bring leading-edge products to market before their

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competitors. The company's demonstrated ability to execute complex technology transitions provides confidence in its ability to maintain this advantage through future nodes including 2nm and beyond.

4. **Expanding Addressable Market:** TSM's advanced manufacturing capabilities are enabling new applications that were previously impractical, expanding its total addressable market. The company's strategic diversification beyond mobile processors into high-performance computing, automotive, and other verticals reduces cyclical risk while maintaining growth.
5. **Robust Financial Profile:** TSM combines industry-leading growth (18.7% revenue CAGR over the past five years) with exceptional profitability (56.1% gross margins, 40.5% net margins). Despite massive capital investments, the company generates substantial free cash flow, maintains a strong balance sheet with net cash, and consistently returns capital to shareholders through growing dividends.
6. **Geographic Diversification Strategy:** TSM's global expansion with new facilities in Arizona, Japan, and Germany reduces concentration risk in Taiwan while maintaining technological leadership. This strategic diversification addresses one of the primary concerns investors have had with TSM and should lead to a reduction in the geopolitical risk premium applied to the stock.

7.2 Catalysts

Several potential catalysts could drive TSM's share price toward my target:

1. **Accelerated AI Chip Demand:** The exponential growth in generative AI adoption is creating unprecedented demand for advanced semiconductors. Recent commentary from NVIDIA, AMD, and other major TSM customers suggests that demand for AI accelerators far exceeds supply and is expected to grow substantially in the coming years.
2. **2nm Technology Leadership:** TSM's planned introduction of 2nm process technology in 2025 will further extend its technology leadership and enable next-generation products for its customers. Successful execution of this roadmap would solidify TSM's competitive advantage for several years.
3. **Expanded U.S. and European Operations:** The completion and ramping of TSM's new facilities in Arizona, Japan, and Germany will reduce perceived geopolitical risk and potentially warrant a higher valuation multiple.
4. **Increasing Capital Return to Shareholders:** TSM has signaled an intention to gradually increase its dividend payout ratio as its growth moderates, which could attract additional income-oriented investors.
5. **Diversification Beyond Mobile:** Continued growth in non-mobile segments, particularly high-performance computing and automotive, will reduce cyclical risk and potentially lead to multiple expansion.

7.3 Risks and Mitigants

While I maintain a positive outlook on TSM, several risks could impact my thesis:

1. **Geopolitical Tensions:** Ongoing tensions between China and Taiwan represent the most significant risk to TSM, with potential disruption to operations in a worst-case scenario. However, TSM's critical position in the global technology supply chain provides significant protection, and the company's geographic diversification strategy is partly addressing this risk.



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2. **Increased Competition:** Intel and Samsung are investing heavily to close the technology gap with TSM. While I believe TSM will maintain its leadership, intensified competition could pressure margins. TSM's scale advantages and demonstrated execution track record provide significant protection against this risk.
3. **Cyclicality:** Despite diversification efforts, TSM remains exposed to semiconductor industry cycles. However, the company has demonstrated an ability to outperform during downturns, and the secular growth drivers supporting advanced semiconductors have reduced cyclical impacts.
4. **Rising Capital Intensity:** The cost of leading-edge semiconductor manufacturing continues to rise, potentially pressuring returns on invested capital. TSM has thus far managed this challenge through scale and operational excellence, and I expect this to continue.
5. **Supply Chain Constraints:** Limited availability of certain manufacturing equipment (particularly EUV lithography tools from ASML) could constrain TSM's expansion plans. The company's long-standing relationships with key suppliers and financial strength help mitigate this risk.
6. **Regulatory and Trade Barriers:** Export controls and increasing techno-nationalism could disrupt TSM's global operations. The company's expansions in the U.S., Japan, and Europe help address this risk by creating manufacturing capability in multiple jurisdictions.

8. FIELD RESEARCH

As part of my research on TSM, I conducted a focused analysis to verify key investment assumptions through accessible means that were practical.

8.1 Product Analysis within Academic Network

Within my academic and professional network in the graduate program, I organized informal performance comparisons of devices containing chips manufactured by TSM and competitors:

- Finance colleague's iPhone 15 Pro (TSM 3nm A17 Pro chip)
- Colleague's Samsung Galaxy S23 (Samsung 4nm processor)
- Study group members' laptops with AMD Ryzen (TSM) vs Intel Core (Intel) processors

Through basic benchmarking apps and battery life comparisons, the TSM-manufactured chips demonstrated 12-18% better performance and 20-25% better power efficiency in my everyday usage, supporting the technical edge highlighted in industry reports.

8.2 Academic and Personal Resources

I leveraged both academic and personal resources to analyze TSM:

University Resources:

- Used the university's Bloomberg terminal access to analyze institutional ownership trends and supply chain relationships
- Accessed IEEE and semiconductor industry research papers through my university's library subscription
- Participated in a virtual semiconductor industry webinar hosted by my department



Personal Research Tools:

- MacroTrends for historical financial data analysis and visualization
- Finviz for screening semiconductor companies and comparing key metrics
- INDmoney for tracking TSM stock performance relative to industry benchmarks
- Quarterly earnings call transcripts and investor presentations from TSM's investor relations website

Through these resources, I gained valuable insights into TSM's competitive positioning, particularly its technology leadership in advanced nodes and the accelerating demand for its manufacturing capacity driven by AI applications. This research reinforced my conviction that TSM maintains both a technical and economic moat in leading-edge semiconductor manufacturing that is difficult for competitors to overcome in the near to medium term.

9. RECENT DEVELOPMENTS

9.1 Quarterly Performance

TSM's latest quarterly results (Q1 2025) demonstrated strong performance:

- Revenue: \$23.85 billion, up 36.3% year-over-year and 13.2% sequentially
- Gross Margin: 55.7%, up 360 basis points year-over-year
- Operating Margin: 45.7%, up 390 basis points year-over-year
- Net Income: \$10.08 billion, up 51.2% year-over-year
- Advanced Node Revenue ($\leq 7\text{nm}$): 67% of total revenue, up from 65% in Q1 2024

By end-market application:

- High-Performance Computing: 47% of revenue
- Smartphone: 33% of revenue
- IoT: 8% of revenue
- Automotive: 8% of revenue
- Digital Consumer Electronics: 3% of revenue
- Others: 1% of revenue

Management commentary highlighted continued strength in AI-related demand and improved inventory levels at customers across most end markets. The company raised its long-term revenue growth CAGR target to 15-20% from 10-15% previously, citing accelerated growth in AI applications.

9.2 Technology Roadmap Update

TSM recently reaffirmed its technology roadmap with the following key milestones:



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- 3nm (N3 process): In volume production since late 2022, with enhanced N3E and N3P versions ramping in 2023-2024
- 2nm (N2 process): On track for volume production in 2025
- 1.4nm (A14 process): In development for volume production in 2027

The company also highlighted innovations in advanced packaging technologies, particularly chip-on-wafer-on-substrate (CoWoS) and integrated fan-out (InFO) technologies, which enable heterogeneous integration of multiple chips and are crucial for advanced AI processors.

9.3 Capacity Expansion

TSM's global capacity expansion continues to progress:

- Taiwan: Expanded 3nm capacity at Fab 18 in the Southern Taiwan Science Park
- Arizona, USA: Phase 1 (5nm) progressing toward 2025 production start, Phase 2 (3nm) construction underway
- Kumamoto, Japan: Construction on track for late 2025 production start, focused on specialty technologies for automotive and industrial applications
- Dresden, Germany: New fab announced, with construction starting in 2024 and production targeted for 2027

The company has maintained its capital expenditure guidance of \$30-36 billion annually for the next several years to support this expansion.

9.4 Geopolitical Developments

Recent developments related to TSM's geopolitical positioning include:

- Increased U.S. government support, with over \$6.6 billion in CHIPS Act funding allocated to TSM's Arizona expansion
- New export controls on advanced semiconductor manufacturing equipment to China, which have limited impact on TSM's current operations but have increased the importance of its global diversification strategy
- Enhanced collaboration with European chip ecosystem through the Dresden fab project, supported by EU Chips Act incentives
- Japanese government subsidies for the Kumamoto facility, strengthening TSM's position in Japan

10. CONCLUSION AND RECOMMENDATION

10.1 Investment Recommendation: BUY



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Based on my comprehensive analysis, I initiate coverage of Taiwan Semiconductor Manufacturing Company (TSM) with a BUY recommendation and a 12-month price target of \$187.33, representing 23.5% upside from the current price of \$151.74.

My recommendation is based on TSM's:

- Dominant market position with limited competition at advanced nodes
- Accelerating growth catalyzed by AI chip demand
- Sustainable technological advantage and proven execution track record
- Industry-leading profitability and returns on invested capital
- Strong balance sheet and disciplined capital allocation
- Compelling valuation relative to growth prospects

10.2 Suggested Position Sizing and Time Horizon

Given the combination of strong long-term growth potential and some cyclical and geopolitical risks, I suggest the following approach for investors:

- Growth-oriented portfolios: 4-6% position size
- Value-oriented portfolios: 3-5% position size
- Income-oriented portfolios: 2-3% position size

TSM is best suited for investors with a time horizon of 3+ years who can tolerate some volatility related to semiconductor industry cycles. While the company's consistent dividend (current yield 1.0%) provides some support during market downturns, the primary investment thesis is based on long-term capital appreciation driven by earnings growth.

10.3 Monitoring Recommendations

I recommend monitoring the following key metrics and developments to evaluate the ongoing validity of the investment thesis:

1. Revenue growth and composition: Particularly the percentage of revenue from advanced nodes ($\leq 7\text{nm}$) and high-performance computing applications
2. Gross margin trends: As an indicator of pricing power, production efficiency, and competitive dynamics
3. Capital expenditure and R&D spending: As indicators of continued commitment to technology leadership
4. Progress on global expansion initiatives: Particularly the Arizona, Japan, and Germany facilities
5. Geopolitical developments: Any significant changes in China-Taiwan relations or global semiconductor trade policies

11. APPENDIX

11.1 Financial Data (LSEG Refinitiv):



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Financial Summary - Standardized (Currency: Standardized)					
Field Name	30-12-2024	30-12-2023	30-12-2022	30-12-2021	30-12-2020
Selected Income Statement Items					
Revenue from Business Activities - Total	90,192	69,418	76,036	56,849	45,482
Gross Profit - Industrials/Property - Total	50,617	37,735	45,286	29,344	24,150
Operating Profit before Non-Recurring Income/Expense	41,198	29,590	37,660	23,274	19,246
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	61,852	46,680	52,345	38,401	30,511
Income before Discontinued Operations & Extraordinary Items	36,535	26,903	34,154	21,383	17,597
Selected Balance Sheet Items					
Cash & Cash Equivalents	64,896	47,762	43,916	38,431	23,515
Cash & Short-Term Investments	75,801	55,890	51,916	43,480	28,491
Total Assets	2,04,116	1,80,313	1,62,370	1,34,436	98,333
Debt - Total	32,030	31,258	29,132	27,274	13,165
Common Equity - Total	1,30,808	1,12,734	96,336	78,244	65,883
Selected Cash Flow Items					
Net Cash Flow from Operating Activities	58,722	41,134	54,300	39,919	28,235
Depreciation, Depletion & Amortization including Impairment - Cash Flow - to Reconcile	20,690	17,090	14,712	15,137	11,266
Capital Expenditures - Net - Cash Flow	30,038	30,655	36,563	30,363	17,530
Net Change in Cash - Total	20,635	3,937.4	9,331.1	14,498	6,954.2
Free Cash Flow Net of Dividends	17,341	1,088.1	8,123.5	23.55	1,878.4
Selected Per Share Data					
Dividend Yield - Common Stock - Gross - Issue Specific - %	1.5%	2.0%	2.5%	1.7%	1.8%
Dividend Yield - Common Stock - Gross - Issue Specific - %	1.2%	1.9%	2.4%	1.6%	1.6%
Dividend Yield - Common Stock - Net - Issue Specific - %	1.5%	2.0%	2.5%	1.7%	1.8%
Dividend Yield - Common Stock - Net - Issue Specific - %	1.0%	1.5%	1.9%	1.3%	1.3%
EPS - Diluted - excluding Extraordinary Items Applicable to Common - Total	1.41	1.04	1.32	0.82	0.68
Shares used to calculate Diluted EPS - Total	25,930	25,929	25,929	25,930	25,930
Profitability / Return					
Gross Profit Margin - %	56.1%	54.4%	59.6%	51.6%	53.1%
EBITDA Margin - %	68.6%	67.2%	68.8%	67.6%	67.1%
Operating Margin - %	45.7%	42.6%	49.5%	40.9%	42.3%
Income before Tax Margin - %	48.6%	45.3%	50.5%	41.8%	43.7%
Income Tax Rate - %	16.6%	14.4%	11.1%	10.0%	11.4%
Net Margin - %	40.5%	38.8%	44.9%	37.6%	38.7%
Free Cash Flow	28,654	10,456	17,703	9,542.0	10,685
Return on Average Common Equity - % (Income available to Common excluding Extraordinary Items)	30.0%	25.8%	39.1%	29.7%	29.3%
Return on Average Total Assets - % (Income before Discontinued Operations & Extraordinary Items)	19.0%	15.7%	23.0%	18.4%	20.2%
Return on Invested Capital - %	23.9%	20.1%	29.8%	23.3%	25.3%
Growth					
Revenue from Business Activities - Total	90,192	69,418	76,036	56,849	45,482
Operating Profit before Non-Recurring Income/Expense	41,198	29,590	37,660	23,274	19,246
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	61,852	46,680	52,345	38,401	30,511
Income before Discontinued Operations & Extraordinary Items	36,535	26,903	34,154	21,383	17,597
EPS - Diluted - excluding Extraordinary Items Applicable to Common - Total	1.41	1.04	1.32	0.82	0.68
Common Shares - Outstanding - Total	25,933	25,932	25,930	25,930	25,930



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Financial Strength / Leverage					
Total Debt Percentage of Total Assets	15.7%	17.3%	17.9%	20.3%	13.4%
Total Debt Percentage of Total Capital	19.5%	21.6%	23.1%	25.8%	16.7%
Total Debt Percentage of Total Equity	24.3%	27.5%	30.1%	34.8%	20.0%
Debt Service	-1,234.1	-995.2	2,195.1	3,840.7	3,971.5
Debt Service Percentage of Normalized after Tax Profit			6.4%	17.7%	22.9%
Interest Coverage Ratio	126.0	76.79	95.43	120.0	272.3
Dividend Coverage - %	1,005.4%	248.7%	356.4%	209.1%	199.7%
Earnings Retention Rate	0.90	0.60	0.72	0.52	0.50
Dividend Payout Ratio - %	10.0%	40.2%	28.1%	47.8%	50.1%
Enterprise Value Breakdown					
Market Capitalization	10,24,291	5,39,387	3,86,311	6,23,937	5,65,490
Debt - Total	32,030	31,258	29,132	27,274	13,165
Minority Interest - Total	1,068.5	793.6	485.2	88.29	34.36
Cash & Short Term Investments - Total	75,801	55,890	51,916	43,480	28,491
Enterprise Value	9,81,588	5,15,549	3,64,012	6,07,819	5,50,198
Dupont / Earning Power					
Asset Turnover	0.47	0.41	0.51	0.49	0.52
Income before Tax Margin - %	48.6%	45.3%	50.5%	41.8%	43.7%
Pretax ROA - %	22.8%	18.4%	25.9%	20.4%	22.8%
Total Assets to Total Shareholders Equity - including Minority Interest & Hybrid Debt	1.57	1.63	1.69	1.61	1.45
Pretax ROE - %	35.7%	29.9%	43.9%	32.9%	33.1%
Tax Complement	0.83	0.86	0.89	0.90	0.89
Return on Average Common Equity - % (Income available to Common excluding Extraordinary Items)	30.0%	25.8%	39.1%	29.7%	29.3%
Earnings Retention Rate	0.90	0.60	0.72	0.52	0.50
Reinvestment Rate - %	27.0%	15.4%	28.1%	15.5%	14.6%
Productivity					
Net Income after Tax per Employee					3,40,559
Sales per Employee					8,80,225
Total Assets per Employee					18,89,393
Liquidity					
Current Ratio	2.44	2.40	2.17	2.17	1.77
Quick Ratio	2.21	2.13	1.94	1.91	1.55
Working Capital to Total Assets	0.27	0.23	0.22	0.23	0.17
Operating					
Accounts Receivable Turnover	12.12	9.81	10.33	9.20	9.21
Average Receivables Collection Days	30.20	37.31	35.44	39.79	39.75
Payables Turnover	19.16	17.05	17.05	17.07	15.19
Average Payables Payment Days	19.10	21.46	21.46	21.44	24.09
Inventory Turnover	4.67	4.11	4.33	4.64	5.56
Average Inventory Days	78.43	89.03	84.51	78.91	65.77
Average Net Trade Cycle Days	89.52	104.9	98.49	97.27	81.43

Income Statement - Standardized (Currency: Standardized)					
Field Name	30-12-2024	30-12-2023	30-12-2022	30-12-2021	30-12-2020
Revenues					
Revenue from Goods & Services	90,192	69,418	76,036	56,849	45,482
Sales of Goods & Services - Net - Unclassified	90,192	69,418	76,036	56,849	45,482
Revenue from Business Activities - Total	90,192	69,418	76,036	56,849	45,482
Operating Expenses					
Cost of Operating Revenue	39,575	31,683	30,750	27,505	21,332
Cost of Revenues - Total	39,575	31,683	30,750	27,505	21,332
Cost of Revenues - Unclassified	20,169	15,647	17,123	13,473	11,002
Amortization in Cost of Revenues	197.6	210.0	204.4	199.6	164.3
Depreciation in Cost of Revenues	19,209	15,826	13,423	13,833	10,166
Gross Profit - Industrials/Property - Total	50,617	37,735	45,286	29,344	24,150
Selling, General & Administrative Expenses - Total	9,381.9	8,151.2	7,614.3	6,060.3	4,926.2
Selling, General & Administrative Expenses - Unclassified	3,019.2	2,294.9	2,130.9	1,593.2	1,208.0
Research & Development Expense	6,362.7	5,856.3	5,483.4	4,467.1	3,718.2
Other Operating Expense/(Income) - Net	37.41	-6.30	12.07	9.59	-22.07
Operating Expenses - Total	48,994	39,828	38,376	33,575	26,236
Operating Profit	41,198	29,590	37,660	23,274	19,246
Operating Profit before Non-Recurring Income/Expense	41,198	29,590	37,660	23,274	19,246
Non-Operating Expenses					
Financing Income/(Expense) - Net - Total	2,681.3	1,449.9	496.0	503.2	172.3
Interest Expense - Net of (Interest Income)	-2,390.7	-1,550.9	-358.4	-10.55	-235.6
Interest Income - Non-Bank	2,717.7	1,936.2	753.1	204.4	306.3
Interest Expense - Net of Capitalized Interest	327.1	385.3	394.6	193.9	70.69
Interest Expense on Capital Financing - Gross	617.2	588.6	484.2		
Interest Capitalized	290.1	203.3	89.57		
Non-Interest Financial Income/(Expense) - Total	290.6	-101.0	137.6	492.6	-63.30
Foreign Exchange Gain/(Loss) - Non-Business	311.6	-86.24	151.3	489.3	-112.2
Sale of Investments Held for Sale, Maturity & Trading - Gain/(Loss)	-21.07	-14.71	-13.77	3.34	48.88
Equity Earnings/(Loss) - before Taxes including Non-Recurring	152.1	149.5	261.9	200.7	122.0
Other Non-Operating Income/(Expense) - Total	70.69	45.35	60.83	55.33	39.96
Non-Operating Rental Income				2.94	2.70
Non-Recurring Adjustments - Non-Operating- Decrease/(Increase)	35.85		26.56	0	0.35
Normalized Pre-tax Profit	44,102	31,235	38,478	24,034	19,580
Non-Recurring Income/Expense					
Non-Recurring Income/(Expense) - Total	-293.1	208.3	-49.22	-285.5	279.5
Impairment - Tangible & Intangible Fixed Assets	35.85		26.56	0	0.35
Impairment - Fixed Assets	35.85		26.56	0	0.35
Impairment - Financial Investments	1.56	1.15	1.76	-0.10	0.12
Fair Value Adjustments - Financial Investments	-255.7	209.5	-20.91	-285.6	280.0
Pre-Tax Income					
Income before Taxes	43,809	31,443	38,429	23,748	19,859



Applied Portfolio Management

Taxes					
Income Taxes	7,273.4	4,540.8	4,275.2	2,365.5	2,262.4
Income Taxes for the Year - Current	7,205.3	4,408.0	4,948.2	3,194.7	2,475.5
Income Taxes - Deferred	68.13	132.8	-673.0	-829.1	-213.1
Net Income After Tax					
Net Income after Tax	36,535	26,903	34,154	21,383	17,597
After Tax Income/Expense					
Income before Discontinued Operations & Extraordinary Items	36,535	26,903	34,154	21,383	17,597
Net Income before Minority Interest	36,535	26,903	34,154	21,383	17,597
Minority Interest	-26.05	-23.45	12.44	19.09	9.26
Net Income after Minority Interest	36,561	26,926	34,141	21,364	17,588
Net Income					
Income Available to Common Shares	36,561	26,926	34,141	21,364	17,588
Other Comprehensive Income					
Other Comprehensive Income - Starting Line	36,535	26,903	34,154	21,383	17,597
Other Comprehensive Income - Foreign Currency	2,003.7	-464.5	1,707.7	-221.4	-1,013.6
Other Comprehensive Income - Unrealized Investment Gain/(Loss)	219.4	195.2	-348.2	-54.83	98.16
Other Comprehensive Income - Hedging Gain/(Loss)	-2.34	-1.12	44.64	3.23	0.82
Other Comprehensive Income - Associated Companies	6.66	3.42	23.67	-5.38	-10.02
Other Comprehensive Income - Pension Related	4.50	-20.02	-27.64	8.67	-119.4
Other Comprehensive Income - Income Tax	-1.21	4.00	24.85	-3.17	14.35
Other Comprehensive Income - Net of Tax - Total	2,230.8	-283.0	1,425.1	-272.9	-1,029.8
Comprehensive Income before Minority Interest - Total	38,766	26,620	35,579	21,110	16,567
Comprehensive Income - Attributable to Minority Interest - Total	-56.69	-49.96	6.91	19.18	9.26
Comprehensive Income - Attributable to Parent Company Equity Holders - Total	38,823	26,670	35,572	21,091	16,558
Share/Per Share - Basic					
Net Income - Basic - including Extraordinary Items Applicable to Common - Total	36,561	26,926	34,141	21,364	17,588
Income available to Common excluding Extraordinary Items	36,561	26,926	34,141	21,364	17,588
Shares used to calculate Basic EPS - Total	25,928	25,929	25,929	25,930	25,930
EPS - Basic - including Extraordinary Items Applicable to Common - Total	1.41	1.04	1.32	0.82	0.68
EPS - Basic - excluding Extraordinary Items Applicable to Common - Total	1.41	1.04	1.32	0.82	0.68
EPS - Basic - excluding Extraordinary Items - Normalized - Total	1.42	1.03	1.32	0.83	0.67
Allocated Net Income including Extraordinary Items Applicable to Common - Issue Specific	36,561	26,926	34,141	21,364	17,588
Earnings Allocation Factor - Basic - Issue Specific	1.00	1.00	1.00	1.00	1.00
Shares used to calculate Basic EPS - Issue Specific	25,928	25,929	25,929	25,930	25,930
EPS - Basic - including Extraordinary Items Applicable to Common - Issue Specific	1.41	1.04	1.32	0.82	0.68
EPS - Basic - excluding Extraordinary Items Applicable to Common - Issue Specific	1.41	1.04	1.32	0.82	0.68
EPS - Basic - excluding Extraordinary Items - Normalized - Issue Specific	1.42	1.03	1.32	0.83	0.67
Earnings Allocation Factor - Basic - Issue Specific	1.00	1.00	1.00	1.00	1.00
Shares used to calculate Basic EPS - Issue Specific - DR	5,185.5	5,185.8	5,185.8	5,186.1	5,186.1
EPS - Basic - including Extraordinary Items Applicable to Common - Issue Specific - DR	7.05	5.19	6.58	4.12	3.39
EPS - Basic - excluding Extraordinary Items Applicable to Common - Issue Specific - DR	7.05	5.19	6.58	4.12	3.39
EPS - Basic - excluding Extraordinary Items - Normalized - Issue Specific - DR	7.11	5.15	6.59	4.17	3.34
EPS - Basic from Discontinued Operations & Extraordinary Items	0	0	0	0	0
Comprehensive Earnings Per Share - Basic - Issue Specific	1.50	1.03	1.37	0.81	0.64
Comprehensive Earnings Per Share - Basic - Issue Specific - DR	7.49	5.14	6.86	4.07	3.19



Applied Portfolio Management

Share/Per Share - Diluted					
Dilution Adjustment					0
Net Income - Diluted - including Extraordinary Items Applicable to Common - Total	36,561	26,926	34,141	21,364	17,588
Diluted Income available to Common excluding Extraordinary Items	36,561	26,926	34,141	21,364	17,588
Shares used to calculate Diluted EPS - Total	25,930	25,929	25,929	25,930	25,930
EPS - Diluted - including Extraordinary Items Applicable to Common - Total	1.41	1.04	1.32	0.82	0.68
EPS - Diluted - excluding Extraordinary Items Applicable to Common - Total	1.41	1.04	1.32	0.82	0.68
EPS - Diluted - excluding Extraordinary Items - Normalized - Total	1.42	1.03	1.32	0.83	0.67
Allocated Diluted Net Income including Extraordinary Items Applicable to Common - Issue Specific	36,561	26,926	34,141	21,364	17,588
Earnings Allocation Factor - Diluted - Issue Specific	1.00	1.00	1.00	1.00	1.00
Shares used to calculate Diluted EPS - Issue Specific	25,930	25,929	25,929	25,930	25,930
EPS - Diluted - including Extraordinary Items Applicable to Common - Issue Specific	1.41	1.04	1.32	0.82	0.68
EPS - Diluted - excluding Extraordinary Items Applicable to Common - Issue Specific	1.41	1.04	1.32	0.82	0.68
EPS - Diluted - excluding Extraordinary Items - Normalized - Issue Specific	1.42	1.03	1.32	0.83	0.67
Earnings Allocation Factor - Diluted - Issue Specific	1.00	1.00	1.00	1.00	1.00
Shares used to calculate Diluted EPS - Issue Specific - DR	5,185.9	5,185.9	5,185.9	5,186.1	5,186.1
EPS - Diluted - including Extraordinary Items Applicable to Common - Issue Specific - DR	7.05	5.19	6.58	4.12	3.39
EPS - Diluted - excluding Extraordinary Items Applicable to Common - Issue Specific - DR	7.05	5.19	6.58	4.12	3.39
EPS - Diluted - excluding Extraordinary Items - Normalized - Issue Specific - DR	7.11	5.15	6.59	4.17	3.34
EPS - Diluted from Discontinued Operations & Extraordinary Items	0	0	0	0	0
Comprehensive Earnings Per Share - Diluted - Issue Specific	1.50	1.03	1.37	0.81	0.64
Comprehensive Earnings Per Share - Diluted - Issue Specific - DR	7.49	5.14	6.86	4.07	3.19
Share/Per Share - Dividends					
DPS - Common - Gross - Issue - By Announcement Date	0.50	0.39	0.37	0.38	0.34
DPS - Common - Gross - Issue - By Announcement Date	0	0	0	0	0
DPS - Common - Net - Issue - By Announcement Date	0.50	0.39	0.37	0.38	0.34
DPS - Common - Net - Issue - By Announcement Date	0	0	0	0	0
DPS - Common - Gross - Issue - DR - By Announcement Date	2.45	1.93	1.79	1.91	1.75
DPS - Common - Net - Issue - DR - By Announcement Date	1.94	1.53	1.42	1.51	1.38
EBIT/EBITDA & related					
Earnings before Interest & Taxes (EBIT)	41,198	29,590	37,660	23,274	19,246
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	61,852	46,680	52,345	38,401	30,511
Depreciation/Amortization - Income Statement					
Depreciation & Amortization - Supplemental	20,654	17,090	14,686	15,127	11,266
Depreciation Expense - Total - Supplemental	20,368	16,793	14,392	14,833	11,022
Depreciation - Fin Lease Right-of-Use Assets - Total - Suppl	114.7	111.1	103.2	91.54	91.07
Amortization - Total - Supplemental	286.3	297.3	294.1	293.9	244.1
Intangible Amortization - Other - Supplemental	286.3	297.3	294.1	293.9	244.1
Amortization of Licenses, Copyrights, Property Rights & Designs - Supplemental	85.07	89.67	93.82	96.22	81.66
Amortization of Computer Software - Supplemental	170.5	170.5	160.4	154.9	124.6
Amortization of Brands, Patents, Trademarks, Marketing & Artistic Intangibles - Supplemental	30.72	37.18	39.90	42.85	37.78
Depreciation/Amortization - Total					
Depreciation, Depletion & Amortization - Total	20,654	17,090	14,686	15,127	11,266
Depreciation - Total	20,368	16,793	14,392	14,833	11,022
Amortization of Intangible Assets excluding Goodwill - Total	286.3	297.3	294.1	293.9	244.1
Research & Development					
Research & Development Expense - Expensed & Capitalized - Total - Supplemental	6,362.7	5,856.3	5,483.4	4,467.1	3,718.2
Research & Development Expense - Supplemental	6,362.7	5,856.3	5,483.4	4,467.1	3,718.2
Labor & Related Expenses					
Labor & Related Expenses - Total	9,405.4	7,697.6	8,042.6	5,907.2	4,782.3
Labor & Related Expenses - Supplemental	9,405.4	7,697.6	8,042.6	5,907.2	4,782.3
Stock-Based Compensation Expense - Net of Tax - Supplemental	30.98	12.41	8.12		0.18
Stock-Based Compensation Expense - Pre-tax - Supplemental	38.73	15.51	10.15		0.22
Stock-Based Compensation - Tax Benefit - Supplemental	7.75	3.10	2.03		0.04
Auditor Fees					
Auditor Fees		2.80	2.66	2.15	2.39
Audit-Related Fees		2.56	1.74	2.15	2.05
Fees - Other		0.24	0.92		0.34
Normalized					
Normalized after Tax Profit	36,828	26,694	34,203	21,668	17,318
Normalized Net Income from Continuing Operations	36,828	26,694	34,203	21,668	17,318
Normalized Net Income - Bottom Line	36,854	26,718	34,191	21,649	17,308
Earnings before Interest & Taxes (EBIT) - Normalized	41,711	29,684	38,120	24,023	19,344
Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA) - Normalized	62,365	46,774	52,806	39,150	30,610
Lease Expenses					
Lease Expense - Total - Supplemental					
Depreciation of Financial Lease ROU Assets - Supplemental	114.7	111.1	103.2	91.54	91.07
Variable Financial Lease Expenses - Supplemental				6.04	8.73
Interest Expense on Financial Lease Liabilities - Supple	11.64	12.27	8.97	6.92	7.73
Short-Term Lease Cost - Supplemental	5.65	39.02	158.9	188.0	107.1
Sublease Income - Supplemental				2.94	2.70
Other					
Cost of Revenue including Operation & Maintenance (Utility) - Total	39,575	31,683	30,750	27,505	21,332
Cost of Revenues excluding Depreciation	20,169	15,647	17,123	13,473	11,002
Interest Expense	327.1	385.3	394.6	193.9	70.69
Operating Expenses	48,994	39,828	38,376	33,575	26,236
Selling, General & Administrative Expenses excluding Research & Development Expenses	3,019.2	2,294.9	2,130.9	1,593.2	1,208.0



Applied Portfolio Management

Balance Sheet - Standardized (Currency: Standardized)					
Field Name	30-12-2024	30-12-2023	30-12-2022	30-12-2021	30-12-2020
Current Assets					
Cash & Short-Term Investments	75,801	55,890	51,916	43,480	28,491
Cash & Cash Equivalents	64,896	47,762	43,916	38,431	23,515
Short-Term Investments - Total	10,905	8,127.7	8,000.6	5,049.2	4,976.8
Financial Assets - Short-Term	10,905	8,127.7	8,000.6	5,049.2	4,976.8
Derivative Financial Instruments - Hedging - Short-Term	0.33	0	0.08	6.23	80.48
Loans & Receivables - Net - Short-Term	8,299.2	6,584.0	7,568.1	7,158.0	5,203.5
Trade Accounts & Trade Notes Receivable - Net	8,299.2	6,581.7	7,565.8	7,155.8	5,201.7
Trade Accounts & Trade Notes Receivable - Gross	8,313.0	6,599.0	7,576.7	7,168.3	5,210.5
Provision - Trade Accounts & Trade Notes Receivable	13.82	17.32	10.85	12.52	8.78
Receivables - Other - Total	0.01	2.34	2.26	2.22	1.80
Inventories - Total	8,780.5	8,180.6	7,232.5	6,968.2	4,892.4
Inventories - Raw Materials	2,180.7	1,955.1	1,330.1	824.2	854.0
Inventories - Work in Progress	5,526.9	5,100.7	4,109.7	4,969.0	3,265.3
Inventories - Finished Goods	1,073.0	1,124.8	1,792.8	1,175.0	773.1
Other Current Assets - Total	1,318.8	854.7	421.5	379.7	234.7
Total Current Assets	94,200	71,509	67,139	57,992	38,902
Non-Current Assets					
Investments - Long-Term	3,404.6	3,253.6	1,350.2	267.8	316.6
Financial Assets - Long-Term	3,404.6	3,253.6	1,350.2	267.8	316.6
Investments in Associates, Joint Ventures and Unconsolidated Subsidiaries	1,141.4	965.3	904.0	792.6	671.1
Property, Plant & Equipment - Net - Total	99,897	1,01,196	89,471	72,454	56,396
Assets Leased Out under Operating Lease - Net	6.15	1.65	0.70	0.17	35.73
Property, Plant & Equipment - excluding Assets Leased Out - Net - Total	99,890	1,01,194	89,470	72,454	56,360
Land & Buildings - Net	16,203	14,271	9,851.0	9,974.8	9,050.2
Land/Improvements - Net	379.6	230.2	232.4	216.1	122.4
Buildings - Net	15,823	14,041	9,618.6	9,758.7	8,927.8
Plant, Machinery & Equipment - Net	48,477	54,950	33,720	39,016	37,452
Construction in Progress - Net	32,926	29,578	43,695	21,404	7,977.4
Right of Use Tangible Assets - Total - Net	1,224.0	1,317.5	1,370.8	1,181.2	987.7
Right of Use Tangible Assets - Capital/Finance Lease - Net	1,224.0	1,317.5	1,370.8	1,181.2	987.7
Property, Plant & Equipment - Other - Net	1,060.1	1,078.0	833.6	877.9	892.6
Property, Plant & Equipment - Gross - Total	2,45,553	2,36,589	2,09,453	1,90,173	1,58,696
Assets Leased Out under Operating Lease - Gross	6.15	1.65	0.70	6.93	50.81
Property, Plant & Equipment - excluding Assets Leased Out - Gross	2,45,546	2,36,587	2,09,453	1,90,166	1,58,645
Land & Buildings - Gross	29,653	26,903	21,085	21,041	18,749
Land/Improvements - Gross	398.2	248.4	250.6	234.1	140.4
Buildings - Gross	29,255	26,655	20,834	20,807	18,609
Plant, Machinery & Equipment - Gross	1,78,502	1,75,510	1,40,496	1,43,791	1,28,478
Construction in Progress - Gross	32,951	29,603	43,721	21,404	7,977.4
Right of Use Tangible Assets - Total - Gross	1,224.0	1,317.5	1,370.8	1,181.2	987.7
Right of Use Tangible Assets - Capital/Finance Lease - Gross	1,224.0	1,317.5	1,370.8	1,181.2	987.7
Property, Plant & Equipment - Other - Gross	3,215.9	3,253.5	2,780.8	2,748.1	2,452.8
Property, Plant & Equipment - Accumulated Depreciation & Impairment - Total	1,45,656	1,35,393	1,19,983	1,17,719	1,02,300
Assets Leased Out under Operating Lease - Accumulated Depreciation & Impairment				6.76	15.08
Property, Plant & Equipment - excluding Assets Leased Out - Accumulated Depreciation & Impairment - Total	1,45,656	1,35,393	1,19,983	1,17,712	1,02,285
Land & Buildings - Accumulated Depreciation & Impairment	13,451	12,632	11,234	11,066	9,699.2
Land/Improvements - Accumulated Depreciation & Impairment	18.56	18.19	18.19	18.04	18.03
Buildings - Accumulated Depreciation & Impairment	13,432	12,614	11,216	11,048	9,681.2
Plant, Machinery & Equipment - Accumulated Depreciation & Impairment	1,30,025	1,20,560	1,06,776	1,04,776	91,025
Construction in Progress - Accumulated Depreciation & Impairment	24.12	25.77	25.86	0	0
Property, Plant & Equipment - Other - Accumulated Depreciation & Impairment	2,155.9	2,175.5	1,947.2	1,870.2	1,560.2
Other Non-Current Assets - Total	4,671.5	2,647.5	2,655.7	1,962.0	1,129.6
Deferred Tax - Asset - Long-Term	2,011.4	2,091.6	2,262.7	1,773.7	924.6
Other Non-Current Assets	2,660.1	555.8	393.0	188.3	205.0
Intangible Assets - Total - Net	801.7	742.0	850.3	967.9	917.8
Goodwill/Cost in Excess of Assets Purchased - Net	185.2	188.9	189.4	194.1	193.7
Intangible Assets - excluding Goodwill - Net - Total	616.5	553.1	660.9	773.8	724.2
Computer Software - Intangible Assets - Net	402.0	308.7	321.7	343.9	218.2
Brands, Patents, Trademarks, Marketing & Artistic Intangibles - Net	50.44	57.65	75.46	118.8	152.1
Licenses, Franchises, Copyrights, Property Rights, Prototypes, Contract Based, Models & Designs - Net	164.1	186.8	263.7	311.1	353.9
Intangible Assets - Gross - Total	3,082.2	3,053.3	3,006.5	3,033.4	2,675.5
Goodwill/Cost in Excess of Assets Purchased - Gross	185.2	188.9	189.4	194.1	193.7
Intangible Assets - excluding Goodwill - Gross	2,897.0	2,864.4	2,817.0	2,839.3	2,481.9
Computer Software - Intangible Assets - Gross	1,625.1	1,607.4	1,591.9	1,575.2	1,290.8
Brands, Patents, Trademarks, Marketing & Artistic Intangibles - Gross	400.6	402.4	382.7	414.9	401.7
Licenses, Franchises, Copyrights, Property Rights, Prototypes, Contract Based, Models & Designs - Gross	871.3	854.6	842.4	849.2	789.4
Intangible Assets - Accumulated Amortization & Impairment - Total	2,280.5	2,311.3	2,156.2	2,065.5	1,757.7
Goodwill - Accumulated Amortization & Impairment	0	0	0	0	0
Intangible Assets - excluding Goodwill - Accumulated Amortization & Impairment - Total	2,280.5	2,311.3	2,156.2	2,065.5	1,757.7
Computer Software - Intangible Assets - Accumulated Amortization & Impairment	1,223.1	1,298.7	1,270.2	1,231.3	1,072.6
Brands, Patents, Trademarks, Marketing & Artistic Intangibles - Accumulated Amortization & Impairment	350.2	344.8	307.2	296.1	249.7
Licenses, Franchises, Copy/Property Rights, Prototypes, Contract Based, Models & Designs - Accumulated	707.2	667.8	578.8	538.1	435.5
Total Non-Current Assets	1,09,916	1,08,804	95,231	76,445	59,431
Total Assets					
Total Assets	2,04,116	1,80,313	1,62,370	1,34,436	98,333
Current Liabilities					
Trade Accounts Payable & Accruals - Short-Term	16,813	12,461	12,247	8,277.2	6,014.0
Trade Accounts & Trade Notes Payable - Short-Term	2,264.0	1,867.3	1,848.5	1,758.2	1,463.8
Accrued Expenses - Short-Term	14,549	10,594	10,398	6,519.0	4,550.2
Short-Term Debt & Current Portion of Long-Term Debt	1,918.8	394.5	716.8	4,390.3	3,312.1
Short-Term Debt & Notes Payable	0	0	0	4,147.0	3,154.4
Current Portion of Long-Term Debt including Capitalized Leases	1,918.8	394.5	716.8	243.3	157.7
Current Portion of Long-Term Debt excluding Capitalized Leases	1,825.8	302.9	631.7	164.8	92.61
Capitalized Leases - Current Portion	93.00	91.60	85.15	78.54	65.11
Derivative Liabilities - Hedging - Short-Term	14.23	894.8	3.83	24.96	3.39
Income Taxes - Payable - Short-Term	4,497.1	3,223.8	3,950.7	2,152.4	1,920.2
Dividends/Distributions Payable	6,723.2	5,493.7	4,664.2	5,146.4	4,618.1
Other Current Liabilities - Total	8,603.7	7,307.9	9,298.0	6,694.0	6,114.5
Deferred Income - Short-Term	2,727.9	1,718.8	2,315.7	1,434.9	490.7
Other Current Liabilities	5,875.7	5,589.1	6,982.4	5,259.2	5,623.8
Total Current Liabilities	38,570	29,776	30,880	26,685	21,982



Applied Portfolio Management

Non-Current Liabilities					
Debt - Long-Term - Total	30,111	30,864	28,415	22,883	9,853.4
Long-Term Debt excluding Capitalized Leases	29,234	29,929	27,442	22,134	9,121.0
Debt - Non-Convertible - Long-Term	29,234	29,929	27,442	22,134	9,121.0
Capitalized Lease Obligations - Long-Term	877.1	934.8	973.4	749.3	732.4
Deferred Tax & Investment Tax Credits - Long-Term	121.7	1.76	33.73	67.62	61.62
Deferred Tax - Liability - Long-Term	121.7	1.76	33.73	67.62	61.62
Other Non-Current Liabilities - Total	3,436.5	6,143.9	6,219.4	6,468.3	519.2
Provisions - Long-Term	231.2	301.7	304.8	398.3	424.4
Post Employment Benefits - Pension & Other - Long-Term	231.2	301.7	304.8	398.3	424.4
Other Non-Current Liabilities	3,205.2	5,842.2	5,914.6	6,070.0	94.78
Total Non-Current Liabilities	33,669	37,009	34,669	29,419	10,434
Total Liabilities					
Total Liabilities	72,239	66,785	65,549	56,105	32,416
Shareholders' Equity					
Shareholders' Equity - Attributable to Parent Shareholders - Total	1,30,808	1,12,734	96,336	78,244	65,883
Common Equity Attributable to Parent Shareholders	1,30,808	1,12,734	96,336	78,244	65,883
Common Equity - Contributed	10,145	10,729	10,748	11,694	11,243
Common Stock - Issued & Paid	7,909.9	8,451.9	8,480.4	9,357.1	9,236.1
Common Stock - Additional Paid in Capital including Option Reserve	2,234.6	2,277.4	2,267.4	2,337.0	2,007.0
Equity - Non-Contributed - Reserves & Retained Earnings	1,20,664	1,02,005	85,588	66,550	54,640
Retained Earnings - Total	1,19,483	1,02,928	86,258	68,809	56,587
Comprehensive Income - Accumulated - Total	1,180.6	-922.8	-670.6	-2,259.3	-1,947.6
Investments - Unrealized Gain/Loss	-35.39	-133.6	-328.9	20.72	82.70
Hedging Reserves	39.97	45.49	48.38	4.35	0
Foreign Currency Translation Adjustment - Accumulated	1,228.1	-825.1	-384.1	-2,284.3	-2,030.3
Comprehensive Income - Unearned Compensation	-52.10	-9.56	-6.06	0	0
Common Equity - Total	1,30,808	1,12,734	96,336	78,244	65,883
Minority Interest - Equity	1,068.5	793.6	485.2	88.29	34.36
Total Shareholders' Equity					
Total Shareholders' Equity - including Minority Interest & Hybrid Debt	1,31,877	1,13,528	96,821	78,332	65,917
Total Liabilities & Shareholders' Equity					
Total Liabilities & Equity	2,04,116	1,80,313	1,62,370	1,34,436	98,333
Share/Per Share - Common					
Common Shares - Issued - Total	25,933	25,932	25,930	25,930	25,930
Common Shares - Outstanding - Total	25,933	25,932	25,930	25,930	25,930
Common Shares - Treasury - Total	0	0	0	0	0
Common Shares - Authorized - Issue Specific	28,050	28,050	28,050	28,050	28,050
Common Shares - Issued - Issue Specific	25,933	25,932	25,930	25,930	25,930
Common Shares - Outstanding - Issue Specific	25,933	25,932	25,930	25,930	25,930
Common Shares - Treasury - Issue Specific	0	0	0	0	0
Common Shares - Issued - Issue Specific - DR	5,186.6	5,186.4	5,186.1	5,186.1	5,186.1
Common Shares - Outstanding - Issue Specific - DR	5,186.6	5,186.4	5,186.1	5,186.1	5,186.1
Common Shares - Treasury - Issue Specific - DR	0	0	0	0	0
Share/Per Share - Other					
Asset Allocation Factor - Issue Specific	1.00	1.00	1.00	1.00	1.00
Asset Allocation Factor - Issue Specific	1.00	1.00	1.00	1.00	1.00
Right of Use Tangible Assets					
Right of Use Tangible Assets - Total - Net - Supplemental	1,224.0	1,317.5	1,370.8	1,181.2	987.7
Right of Use Tangible Assets - Capital/Finance Lease - Net - Supplemental	1,224.0	1,317.5	1,370.8	1,181.2	987.7
Property, Plant & Equipment - excluding Right of Use Tangible Assets & Capital Leases - Net	98,673	99,879	88,100	71,273	55,408
Right of Use Liabilities					
Finance and Operating Lease Liabilities - Total	970.1	1,026.4	1,058.6	827.8	797.5
Debt including Finance and Operating Lease Liabilities	32,030	31,258	29,132	27,274	13,165
Long-Term & Short-Term					
Derivative Financial Instruments - Hedging - Total	0.33	0	0.08	6.23	80.48
Investments - Total	14,310	11,381	9,350.8	5,317.0	5,293.3
Loans & Receivables - Total	8,299.2	6,584.0	7,568.1	7,158.0	5,203.5
Accounts & Notes Receivable - Trade - Gross - Total	8,313.0	6,599.0	7,576.7	7,168.3	5,210.5
Other Assets - Total	5,990.3	3,502.1	3,077.2	2,341.7	1,364.3
Income Taxes - Payable - Long-Term & Short-Term	4,497.1	3,223.8	3,950.7	2,152.4	1,920.2
Dividends Payable	6,723.2	5,493.7	4,664.2	5,146.4	4,618.1
Payables & Accrued Expenses	16,813	12,461	12,247	8,277.2	6,014.0
Trade Account Payables - Total	2,264.0	1,867.3	1,848.5	1,758.2	1,463.8
Accrued Expenses	14,549	10,594	10,398	6,519.0	4,550.2
Derivative Liabilities - Hedging	14.23	894.8	3.83	24.96	3.39
Debt Related					
Net Debt	-43,772	-24,631	-22,784	-16,206	-15,326
Debt - Total	32,030	31,258	29,132	27,274	13,165
Other					
Contract Liabilities - Short-Term - Advance Consideration & Progress Billings in Excess of Unbilled Revenue	2,727.9	1,718.8	2,315.7	1,434.9	490.7
Minority Interest - Total	1,068.5	793.6	485.2	88.29	34.36
Accruals - Short-Term	-9,266.4	-6,028.9	-7,657.5	-7,124.0	-6,594.4
Asset Accruals	1,35,034	1,32,363	1,18,264	95,812	74,625
Cash & Cash Equivalents - Total	64,896	47,762	43,916	38,431	23,515
Cash & Short Term Investments - Total	75,801	55,890	51,916	43,480	28,491
Debt - including Preferred Equity & Minority Interest - Total	33,098	32,052	29,617	27,362	13,200
Investments - Permanent	4,546.0	4,218.8	2,254.2	1,060.4	987.7
Net Book Capital	88,105	88,897	74,037	62,126	50,591
Net Operating Assets	88,105	88,897	74,037	62,126	50,591
Provisions - Total	352.9	303.5	338.6	465.9	486.0
Shareholders Equity - Common	1,30,808	1,12,734	96,336	78,244	65,883
Tangible Total Equity	1,31,075	1,12,786	95,970	77,364	64,999
Tangible Book Value	1,30,006	1,11,992	95,485	77,276	64,365
Total Book Capital	1,62,838	1,43,993	1,25,468	1,05,517	79,048
Total Capital	1,63,906	1,44,786	1,25,953	1,05,606	79,083
Total Long Term Capital	1,65,546	1,50,537	1,31,489	1,07,751	76,351
Total Fixed Assets - Net	1,09,731	1,08,616	95,042	76,250	59,237
Unearned Revenue - Total	2,727.9	1,718.8	2,315.7	1,434.9	490.7
Working Capital	55,630	41,733	36,258	31,307	16,920
Working Capital - Non-Cash	-20,171	-14,157	-15,658	-12,173	-11,571
Working Capital excluding Other Current Assets & Liabilities	62,915	48,186	45,135	37,621	22,800
Book Value excluding Other Equity	1,30,808	1,12,734	96,336	78,244	65,883
Shareholders					
Common Shareholders - Number		12,26,655	14,56,079	9,41,503	6,09,409
Employees					
Employees - Full-Time/Full-Time Equivalents - Period End					52,045
Employees - Full-Time/Full-Time Equivalents - Current Date					52,045



Applied Portfolio Management

Cash Flow - Standardized (Currency: Standardized)					
Field Name	30-12-2024	30-12-2023	30-12-2022	30-12-2021	30-12-2020
Operating Cash Flow - Indirect					
Profit/(Loss) - Starting Line - Cash Flow	43,809	31,443	38,429	23,748	19,859
Non-cash Items & Reconciliation Adjustments - Cash Flow	18,405	15,399	14,458	14,327	10,786
Equity Income/(Loss) in Net Earnings - Cash Flow - to Reconcile	-152.1	-149.5	-261.9	-200.7	-122.0
Financial Income/(Expense) - Cash Flow - to Reconcile	-2,408.4	-1,565.8	-367.4	-23.52	-257.2
Other Non-Cash Items & Reconciliation Adjustments - Cash Flow - to Reconcile	130.6	-17.63	353.8	-592.1	-46.03
Depreciation, Depletion & Amortization including Impairment - Cash Flow - to Reconcile	20,690	17,090	14,712	15,137	11,266
Depreciation & Depletion - Property, Plant & Equipment - Cash Flow - to Reconcile	20,368	16,793	14,392	14,833	11,022
Impairment - Property, Plant & Equipment including Intangible Assets - Cash Flow - to Reconcile	35.85	0	26.56	9.83	0.35
Amortization - Intangible Assets & Deferred Charges - Cash Flow - to Reconcile	286.3	297.3	294.1	293.9	244.1
Assets Sale - Gain/(Loss) - Cash Flow - to Reconcile	102.0	26.47	10.65	6.50	-55.28
Financial Assets - Unrealized Gain/(Loss) - Cash Flow - to Reconcile	4.29	-0.40		0	-0.10
Share Based Payments - Cash Flow - to Reconcile	38.73	15.51	10.15	0.28	0.22
Income Taxes - Paid/(Reimbursed) - Cash Flow	5,722.6	5,134.0	2,907.3	2,990.3	1,744.3
Interest Paid - Cash	584.3	557.4	410.4	137.3	60.49
Interest & Dividends - Received - Total - Cash Flow	2,398.7	1,809.0	616.3	227.5	356.9
Cash Flow from Operating Activities before Changes in Working Capital	58,306	42,960	50,185	35,176	29,197
Working Capital - Increase/(Decrease) - Cash Flow	416.0	-1,825.7	4,114.6	4,744.0	-962.3
Accounts Receivables - Decrease/(Increase) - Cash Flow	-2,183.8	944.1	-1,109.9	-1,872.1	-263.9
Inventories - Decrease/(Increase) - Cash Flow	-1,149.0	-958.5	-942.0	-1,996.5	-1,846.5
Other Assets - Decrease/(Increase) - Cash Flow	-652.4	-355.9	-251.4	-339.7	-99.64
Accounts Payable - Increase/(Decrease) - Cash Flow	527.7	24.75	262.0	273.2	36.59
Accrued Expenses - Increase/(Decrease) - Cash Flow	3,350.9	-1,908.1	2,750.6	3,160.9	1,211.2
Other Liabilities - Increase/(Decrease) - Total - Cash Flow	522.5	428.1	3,405.3	5,518.2	
Net Cash Flow from Operating Activities	58,722	41,134	54,300	39,919	28,235
Investing Cash Flow					
Capital Expenditures - Net - Cash Flow	30,038	30,655	36,563	30,363	17,530
Property, Plant & Equipment - Purchased/(Sold) - Net - Cash Flow	29,763	30,478	36,330	30,040	17,206
Property, Plant & Equipment - Purchased - Cash Flow	29,791	30,501	36,363	30,054	17,226
Property, Plant & Equipment Sold - Cash Flow	27.88	22.60	33.03	13.98	20.61
Intangible Assets - Purchased/(Sold) - Net - Total - Cash Flow	274.8	177.1	233.2	323.8	324.1
Intangible Assets - Purchased/Acquired - Cash Flow	276.6	177.2	233.6	323.8	324.1
Intangible Assets - Sold - Cash Flow	1.78	0.10	0.42		
Capital Expenditures - Total	30,068	30,678	36,596	30,377	17,550
Investments excluding Loans - Decrease/(Increase) - Cash Flow	-1,817.6	-1,797.6	-4,383.9	153.4	10.42
Investment Securities - Unclassified - Sold/(Purchased) - Net - Total - Cash Flow	-1,817.6	-1,797.6	-4,383.9	153.4	10.42
Investment Securities - Sold/Matured - Unclassified - Cash Flow	5,797.2	5,468.9	3,603.6	9,453.5	9,075.9
Investment Securities - Purchased - Unclassified - Cash Flow	7,614.8	7,266.4	7,987.4	9,300.1	9,065.5
Derivative Financial Instruments - Hedging - Sold/(Purchased) - Total - Cash Flow	3.69	2.19	56.57	9.89	-10.49
Other Investing Cash Flow - Decrease/(Increase)	2,502.9	1,544.1	275.2	20.28	-3.93
Net Cash Flow from Investing Activities	-29,349	-30,907	-40,615	-30,180	-17,534
Financing Cash Flow					
Dividends Paid - Cash - Total - Cash Flow	11,314	9,367.9	9,579.9	9,518.5	8,806.2
Dividends - Common - Cash Paid	11,314	9,367.9	9,579.9	9,518.5	8,806.2
Stock - Total - Issuance/(Retirement) - Net - Cash Flow	-96.26	0	-29.27		
Dividends Paid - Cash - Total - Cash Flow	11,314	9,367.9	9,579.9	9,518.5	8,806.2
Dividends - Common - Cash Paid	11,314	9,367.9	9,579.9	9,518.5	8,806.2
Stock - Total - Issuance/(Retirement) - Net - Cash Flow	-96.26	0	-29.27		
Stock - Issuance/(Retirement) - Net - Excluding Options/Warrants - Cash Flow	-96.26	0	-29.27		
Stock - Common - Issuance/(Retirement) - Net - Cash Flow	-96.26	0	-29.27		
Stock - Common - Repurchased/Retired - Cash Flow	96.26	0	29.27		
Minority Interests & Joint Ventures - Net - Cash Flow	379.5	354.8	546.2	-4.12	0
Debt - Long-Term & Short-Term - Issuance/(Retirement) - Total - Cash Flow	1,651.3	2,098.5	2,740.5	14,198	5,852.6
Debt - Issued/(Reduced) - Short-Term - Total - Cash Flow		0	-3,760.3	1,277.4	-1,072.7
Debt - Issued - Short-Term - Cash Flow				1,277.4	254.2
Debt - Reduced - Short-Term - Cash Flow		0	3,760.3	0	1,326.9
Debt - Issued/(Reduced) - Long-Term - Cash Flow	1,651.3	2,098.5	6,500.8	12,920	6,925.3
Lease liabilities - Issued/(Reduced) - Cash Flow	-89.55	-91.66	-81.56	-71.10	-88.83
Debt - Issued - Long-Term - Cash Flow	2,031.7	2,830.7	6,749.6	13,111	8,094.0
Debt - Reduced - Long-Term - Cash Flow	380.3	732.2	248.9	190.6	1,168.8
Lease liabilities - Reduced - Cash Flow	89.55	91.66	81.56	71.10	88.83
Other Financing Cash Flow - Increase/(Decrease)	-828.1	892.3	7.47	354.4	4.65
Net Cash Flow from Financing Activities	-10,207	-6,022.2	-6,315.1	5,029.6	-2,949.0
Foreign Exchange Effects					
Foreign Exchange Effects - Cash Flow	1,469.8	-267.8	1,961.3	-271.6	-798.0
Change in Cash					
Net Change in Cash - Total	20,635	3,937.4	9,331.1	14,498	6,954.2
Net Cash from Continuing Operations	20,635	3,937.4	9,331.1	14,498	6,954.2
Net Cash - Beginning Balance	44,698	43,766	34,830	23,823	16,221
Net Cash - Ending Balance	64,896	47,762	43,916	38,431	23,515
Supplemental					
Income Taxes - Paid/(Reimbursed) - Cash Flow - Supplemental	5,722.6	5,134.0	2,907.3	2,990.3	1,744.3
Interest Paid - Cash Flow - Supplemental	584.3	557.4	410.4	137.3	60.49
Interest & Dividends - Received - Cash Flow - Supplemental	2,398.7	1,809.0	616.3	227.5	356.9
CF from Optg Activities before Change in WC & Int Payments	58,890	43,517	50,596	35,313	29,258
Cash Dividends Paid & Common Stock Buyback - Net	11,410	9,367.9	9,609.2		
Common Stock Buyback - Net	96.26	0	29.27		
Depreciation, Depletion & Amortization - Cash Flow	20,654	17,090	14,686	15,127	11,266
Free Cash Flow to Equity	30,335	12,577	20,477	23,754	16,558
Free Cash Flow Net of Dividends	17,341	1,088.1	8,123.5	23.55	1,878.4
Free Cash Flow	28,654	10,456	17,703	9,542.0	10,685
Dividends Provided/Paid - Common	3,636.5	10,826	9,579.9	10,215	8,806.2



Applied Portfolio Management

Valuation - Standardized (Currency: Standardized)					
Field Name	30-12-2024	30-12-2023	30-12-2022	30-12-2021	30-12-2020
Enterprise Value					
Enterprise Value	9,81,588	5,15,549	3,64,012	6,07,819	5,50,198
Enterprise Value, 5 Year Average	6,03,833	4,65,098	3,96,788	3,62,135	2,68,011
Market Capitalization					
Market Capitalization	10,24,291	5,39,387	3,86,311	6,23,937	5,65,490
Market Capitalization, 5 Year Average	6,27,883	4,83,287	4,13,693	3,77,557	2,82,589
Price Close					
Price Close (End of Period)	197.5	104.0	74.49	120.3	109.0
Price Close (End of Period), 5 Year Average	121.1	93.19	79.77	72.80	54.49
FOCF Yield					
Free Cash Flow Yield - %	2.8%	1.9%	4.6%	1.5%	1.9%
Free Cash Flow Yield - %, 5 Year Average	2.5%	2.2%	2.5%	2.3%	2.8%
Dividend Yield					
Dividend Yield - Common Stock - Net - Issue Specific - %	1.0%	1.5%	1.9%	1.3%	1.3%
Dividend Yield - Common Stock - Net - Issue Specific - %, 5 Year Average	1.3%	1.7%	1.8%	1.8%	2.1%
Dividend Yield - Common Stock - Gross - Issue Specific - %	1.2%	1.9%	2.4%	1.6%	1.6%
Dividend Yield - Common Stock - Gross - Issue Specific - %, 5 Year Average	1.6%	2.1%	2.3%	2.4%	2.8%
Price to Book					
Price to Book Value per Share - Issue Specific	7.83	4.78	4.01	7.97	8.58
Price to Book Value per Share - Issue Specific, 5 Year Average	6.49	5.93	5.92	6.20	5.25
Price to Tangible Book					
Price to Tangible Book Value per Share	7.88	4.82	4.05	8.07	8.70
Price to Tangible Book Value per Share, 5 Year Average	6.54	5.99	5.99	6.27	5.31
Price to Sales					
Price to Revenue from Business Activities - Total per Share	11.36	7.77	5.08	10.98	12.43
Price to Revenue from Business Activities - Total per Share, 5 Year Average	9.29	8.56	8.37	9.28	8.03
Price to FOCF					
Price to Free Cash Flow per Share	35.74	51.58	21.82	65.39	52.93
Price to Free Cash Flow per Share, 5 Year Average	40.75	45.14	39.93	44.39	35.75
Price to CF Per Share					
Price to Cash Flow per Share	17.91	12.26	7.91	17.09	19.59
Price to Cash Flow per Share, 5 Year Average	14.57	13.52	13.26	14.86	13.10
Price to Diluted EPS					
Price to EPS - Diluted - excluding Extraordinary Items Applicable to Common - Total	28.01	20.03	11.31	29.21	32.15
Price to EPS - Diluted - excluding Extraordinary Items Applicable to Common - Total, 5 Year Average	22.98	21.73	21.56	25.84	22.76
Price to Normalized Diluted EPS					
Price to EPS - Diluted - excluding Extraordinary Items - Normalized - Total	27.79	20.17	11.30	28.82	32.67
Price to EPS - Diluted - excluding Extraordinary Items - Normalized - Total, 5 Year Average	6.49	5.93	5.92	6.20	5.25
PEG Ratio					
PE Growth Ratio	0.78	-0.95	0.19	1.36	0.56
PE Growth Ratio, 5 Year Average	0.86	1.19	0.87	1.66	1.79
EV to Sales					
Enterprise Value to Revenue from Business Activities - Total	10.88	7.43	4.79	10.69	12.10
Enterprise Value to Revenue from Business Activities - Total, 5 Year Average	8.93	8.23	8.02	8.90	7.62
EV to EBITDA					
Enterprise Value to Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA)	15.87	11.04	6.95	15.83	18.03
Enterprise Value to Earnings before Interest, Taxes, Depreciation & Amortization (EBITDA), 5 Year Average	13.14	12.28	12.01	13.51	11.72
EV to CFO					
Enterprise Value to Net Cash Flow from Operating Activities	16.72	12.53	6.70	15.23	19.49
Enterprise Value to Net Cash Flow from Operating Activities, 5 Year Average	13.58	12.64	12.23	14.21	12.85
EV to FOCF					
Enterprise Value to Free Cash Flow	34.26	49.31	20.56	63.70	51.49
Enterprise Value to Free Cash Flow, 5 Year Average	39.19	43.44	38.30	42.57	33.90



Applied Portfolio Management

Company Fundamentals - Segments					
Company Name	Taiwan Semiconductor Manufacturing Co Ltd (TSM)				
Country of Exchange	United States of America				
Country of Headquarters	Taiwan				
TRBC Industry Group	Semiconductors & Semiconductor Equipment				
CF Template	IND				
Consolidation Basis	Consolidated				
Scaling	Millions				
Period	Annual				
Export Date	15-04-2025				
Statement Data	2024	2023	2022	2021	2020
Period End Date	31-12-2024	31-12-2023	31-12-2022	31-12-2021	31-12-2020
Statement Date	30-12-2024	30-12-2023	30-12-2022	30-12-2021	30-12-2020
Standardized Currency	USD	USD	USD	USD	USD
Template Type	Industrial	Industrial	Industrial	Industrial	Industrial
Segments - Major Customer (Currency: Standardized)					
Field Name	30-12-2024	30-12-2023	30-12-2022	30-12-2021	30-12-2020
Income/Expense - Customer					
External Revenue - Customer Segment			17,789		17,122
External Revenue - Customer Segment - Customer A	19,456	17,551	17,789	14,518	11,437
External Revenue - Customer Segment - Customer B	10,977	7,744.0		5,505.8	5,684.7
Segment Revenue - % - Customer Segment			100.0%		100.0%
Segment Revenue - % - Customer Segment - Customer A			100.0%		66.8%
Segment Revenue - % - Customer Segment - Customer B					33.2%
Standardized Revenue - Customer Segment			17,789		17,122
Standardized Revenue - Customer Segment - Customer A	19,456	17,551	17,789	14,518	11,437
Standardized Revenue - Customer Segment - Customer B	10,977	7,744.0		5,505.8	5,684.7

11.2 Competitive Analysis

Competitive Factors	TSM	Samsung	Intel	GlobalFoundries	UMC	SMIC
Leading-Edge Capability	3nm	3nm	7nm	12nm	14nm	7nm
Technology Gap to TSM	-	1-2 years	3-4 years	5+ years	5+ years	4-5 years
Manufacturing Scale	Very High	High	High	Medium	Medium	Medium
Customer Diversity	Very High	Medium	Low	High	High	Low
Capital Expenditure (\$B 2024)	\$30.04	\$14.2	\$27.5	\$2.5	\$2.7	\$7.1
Gross Margin (2024)	56.1%	37.5%	38.6%	27.5%	38.2%	32.1%
Operating Margin (2024)	45.7%	19.2%	11.5%	16.8%	27.9%	19.8%
Geographical Diversification	Medium	High	Very High	High	Medium	Low

11.3 Risk Assessment Matrix

Risk Factor	Probability	Impact	Mitigants
China-Taiwan Conflict	Low	Very High	Geographic diversification, strategic importance, U.S. support
Technology Gap Narrowing	Medium	High	Continued R&D investment, scale advantages, execution excellence
Semiconductor Downturn	Medium	Medium	Diversified customer base, AI demand resilience, long-term agreements
Capital Expenditure Efficiency	Low	Medium	Strong track record, scale benefits, government subsidies



Applied Portfolio Management

Supply Chain Disruptions	Medium	Medium	Strategic inventory, supplier diversification, long-term agreements
Regulatory Headwinds	Medium	Medium	Multi-region manufacturing strategy, government relationships

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