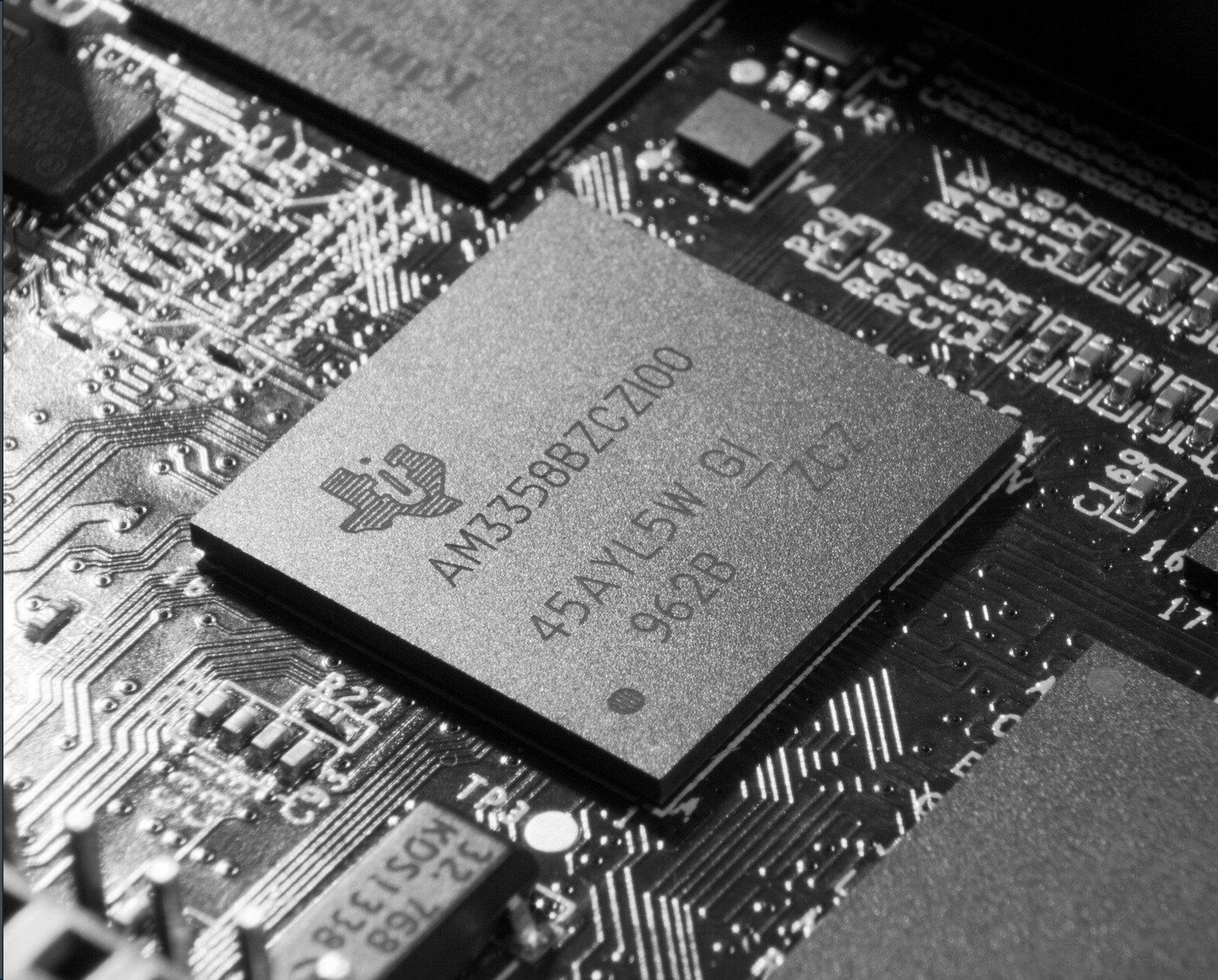
Texas Instruments

NASDAQ: TXN

Technology Sector

UWIG Winter 2025



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Overview

Company, industry, and supply chain overview

Semiconductor industry overview

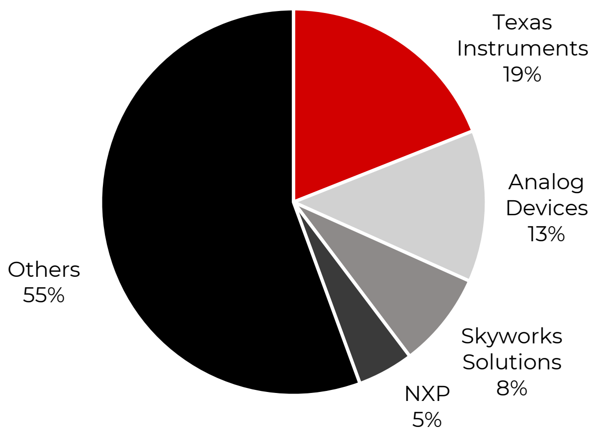
Semiconductor industry is highly competitive with significant barriers to entry

Industry trends

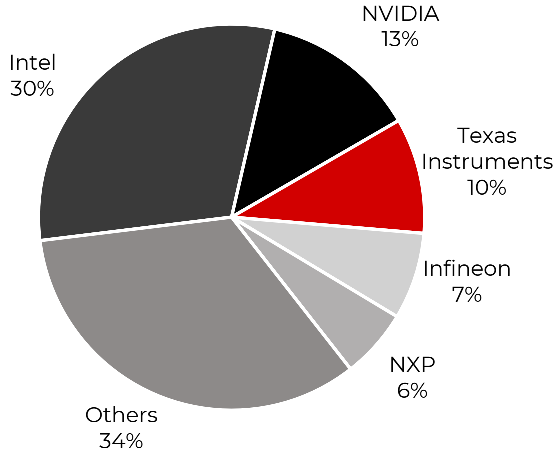
- **Industry growth:** Global revenue projected to reach $1.01 trillion in 2030
- **Major components:** Memory, embedded, logic, analog, and OSD
- **Key market drivers:** Internet of Things (IoT), electric vehicles (EVs), 5G telecommunication, industrial automation, energy efficiency

Key players (market share)

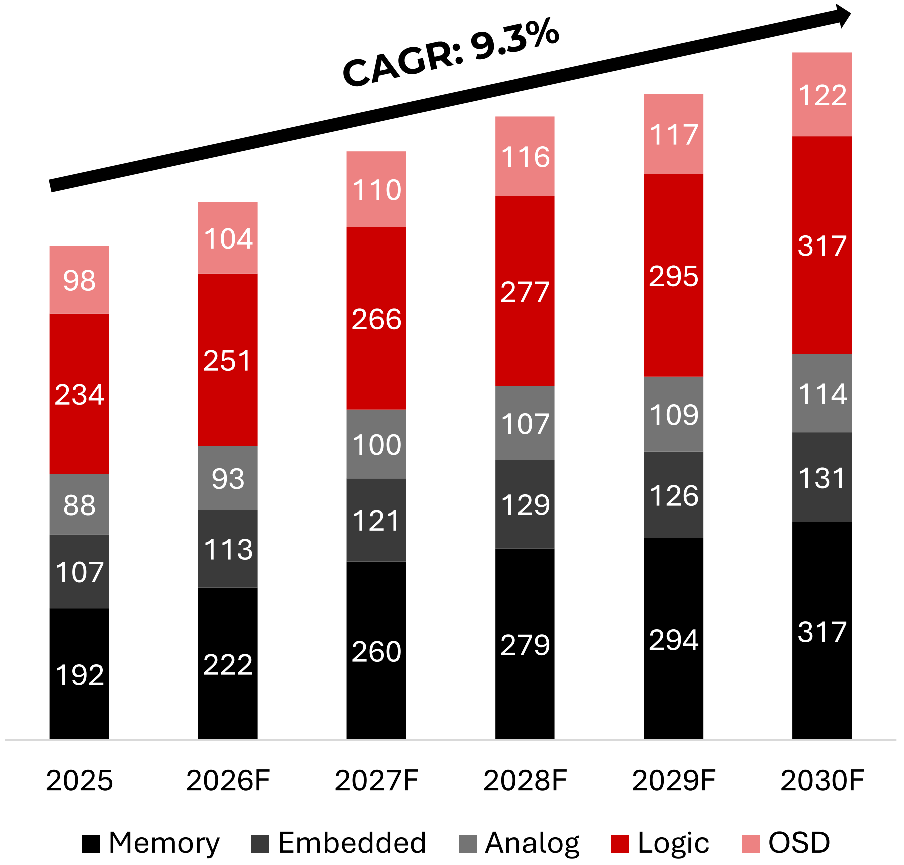
Analog market share



Embedded market share



Market size ($Bn)



Company overview

TXN is the 6th largest semiconductor company by market cap

Business overview

- TXN sells semiconductors that are essential building blocks of electronic systems
- Founded in 1930; Headquartered in Dallas, Texas
- Stock first traded in 1953 on NYSE
- **Reportable segments:** Analog and Embedded processors
- **End markets:** Automotive, industrial, personal electronics, enterprise systems, communications

Strategic objectives

Broad portfolio of analog and embedded products

Disciplined capital allocation to R&D and marketing

Build closer direct relationship with customers

Maximize value through cost and revenue efficiency

Product portfolio

Automotive

2024 TXN revenue: ~$5.5Bn (35%)
Infotainment and cluster · advanced driver assistance system (ADAS) · hybrid, electric, and powertrain systems · passive safety


Industrial

2024 TXN revenue: ~$ 5.3Bn (34%)
Industrial automation · aerospace and defense · medical and healthcare · energy infrastructure · building automation · robotics

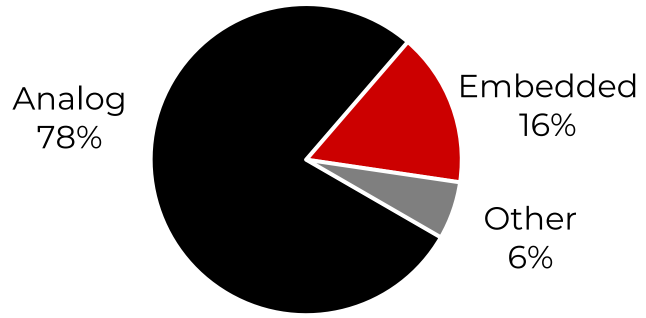

Personal electronics

2024 TXN revenue: ~$ 3.1Bn (20%)
Mobile phones · PC and notebooks · portable electronics · tablets · connected printers · home theater and entertainment · TV · wearables · gaming

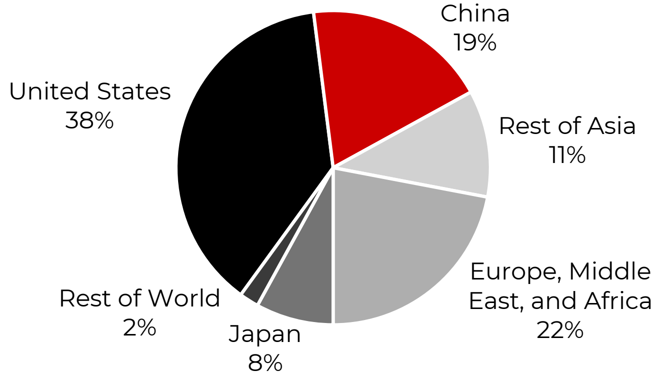

Financial overview

Revenue surged in FY 2022 amid global chip shortage due to pandemic

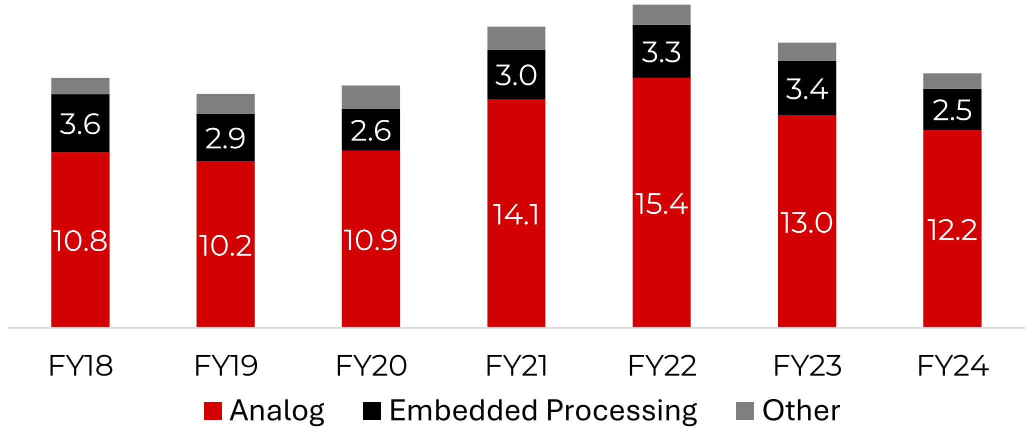
FY24 Revenue breakdown



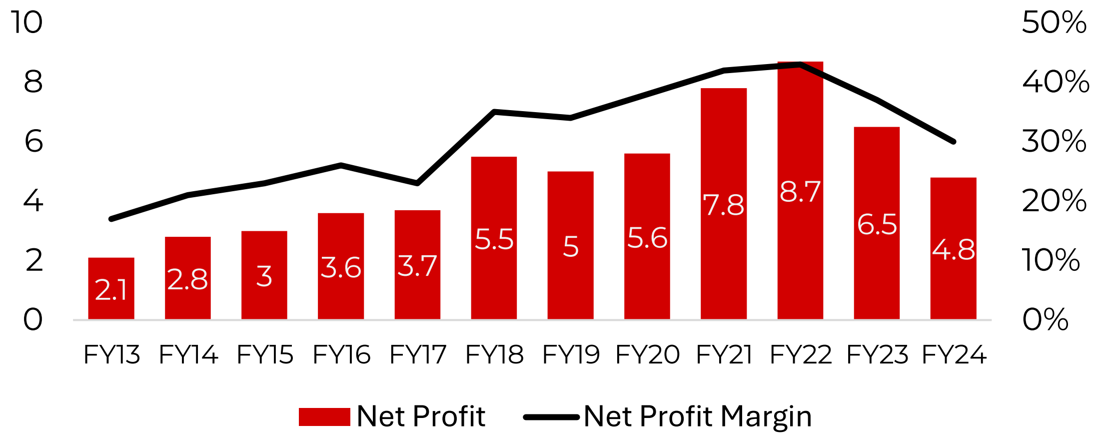
FY24 Revenue by region



Annual revenue trend ($Bn)



Net profit ($Bn)



Analog subsector overview

Analog market forecasted to see consistent demand with 5.64% CAGR

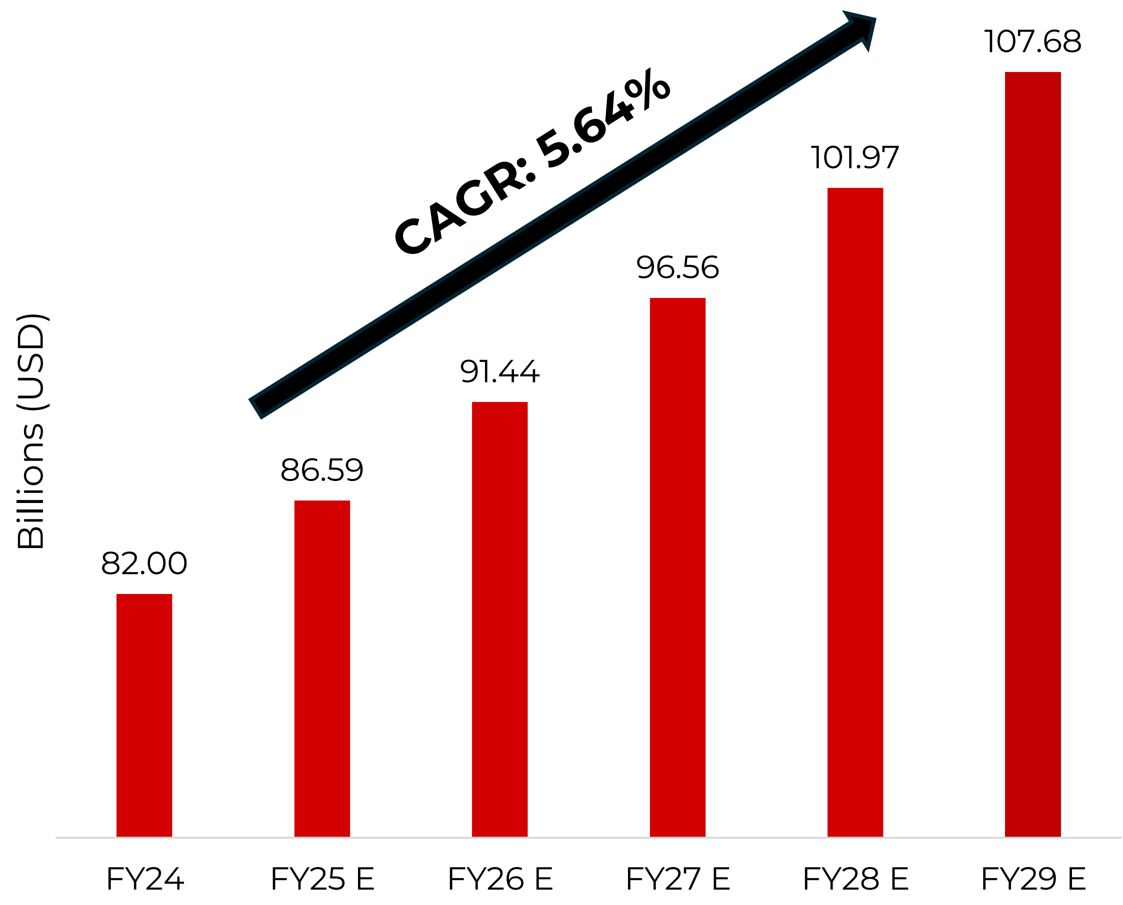
Analog market overview

- Electrical component that measures temperature, sounds, and movement
- Applications: Industrial, Automotive, Personal Electronics, and Aerospace and Defense

Key players and industries served

Company	Industries served
Texas Instruments	Industrial, automotive, and consumer
Analog Devices	Industrial, automotive, and consumer
Infineon	Automotive, green industrial power, and sensor systems
Skyworks	Communications, consumer electronics, automotive

Market forecast



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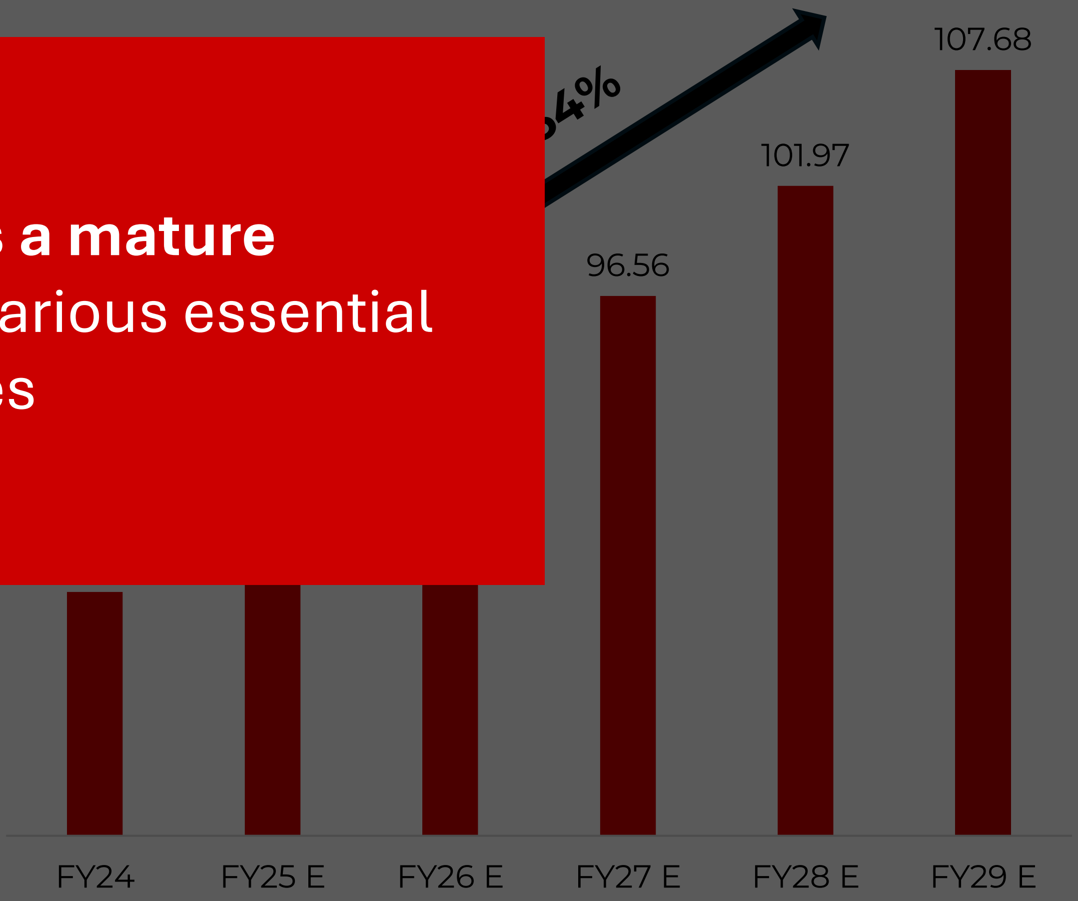


Analog market is a mature market that supports various essential industries

Embedded subsector overview

Embedded processors has various applications from ADAS to home appliances

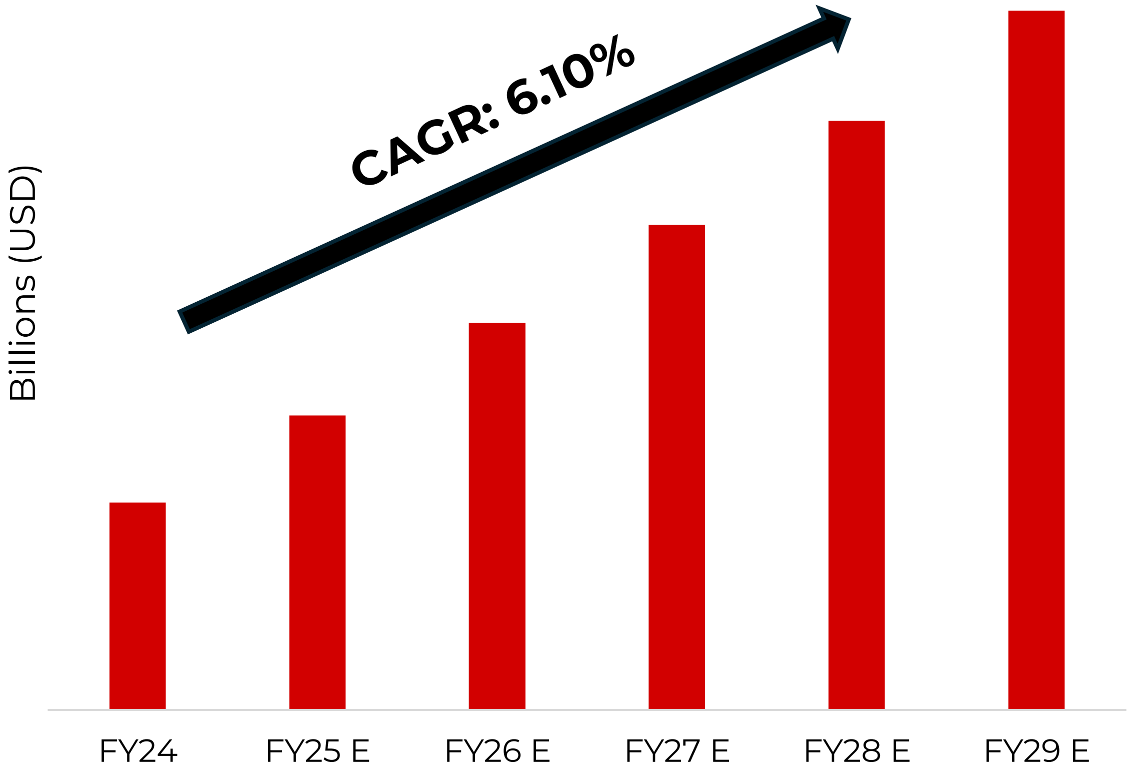
Embedded market overview

- Small computers that use microprocessors to control electrical and mechanical functions
- Applications: Advanced driver assistance systems, medical devices, home appliances

Key players and industries served

Texas Instruments	Industrial, automotive, and consumer
BROADCOM	Data center networking, software, and enterprise solutions
NXP	Industrial, automotive, and communications
intel	Industrial, consumer, and medical

Market forecast



Embedded subsector overview

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Embedded market overview

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- Applications: Advanc systems, medical de

Key players an

	Indus
BROADCOM	Data cen and
NXP	Industrial, automotive, and communications
intel	Industrial, consumer, and medical

Market forecast

Embedded market is a growing market
that is expected to be
used in different applications

Supply chain analysis

TXN’s leverage in key supplier and customer relationships

Top three suppliers

tsmc
Rev: 0.70% | COGS: 8.45%

TEL TOKYO ELECTRON
Rev: 1.47% | CAPEX: 4.24%

KLA
Rev: 1.51% | CAPEX: 3.89%

Texas instruments

Top three customers

ARROW
Rev: 6.74% | COGS: 4.64%

TEL TOKYO ELECTRON
Rev: 2.78% | COGS: 31.82%

Rev: 6.49% | COGS: 0.53%

Supply chain analysis

TXN’s leverage in key supplier and customer relationships

Top three suppliers

tsmc
Rev: 0.70% | COGS: 8.45%

TEL TOKYO ELECTRON
Rev: 1.47% | CAPEX: 4.24%

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Texas instruments

Top three customers

TXN represents a smaller share of TEL’s revenue than TEL represents in TXN’s capital expenditure

TXN is positioned as TEL’s 6th largest customer

TEL has slightly more leverage

Supply chain analysis

TXN’s leverage in key supplier and customer relationships

Top three suppliers

- TSMC — Rev: 0.70% | COGS: 8.45%
- TEL (Tokyo Electron) — Rev: 1.47% | CAPEX: 4.24%
- KLA — Rev: 1.51% | CAPEX: 3.89%

Texas instruments

Top three customers

- Arrow — Rev: 6.74% | COGS: 4.64%
- TEL (Tokyo Electron) — Rev: 2.78% | COGS: 31.82%
- Apple — Rev: 6.49% | COGS: 0.53%

Supply chain analysis

TXN's leverage in key supplier and customer relationships

Top three suppliers

TXN represents a larger share of TEL's capital expenditure than TEL represents in TXN's revenue

TXN is positioned as TEL's largest supplier

TXN has significantly more leverage

Texas instruments

Top three customers

Rev: 6.74% | COGS: 4.64%

TOKYO ELECTRON

Rev: 2.78% | COGS: 31.82%

Rev: 6.49% | COGS: 0.53%

Investment thesis I

Reduced expenses through vertical integration

Reduced expenses through vertical integration

Overview of the vertical integration strategy

Chip Design

Manufacturing

Assembly and testing

D2C sales channel

Benefits

- Greater control of supply chain
- Lower lead times
- Better inventory management

Results

- Lower costs
- Expanded Margins

Reduced expenses through vertical integration

Vertical manufacturing and assembly

Manufacturing process

Wafer manufacturing

- 15 plants worldwide
- Focus on 300mm wafer production
  - 40% cheaper than outsourcing
- 95% of operations in-house by 2030
- New fabrication sites to start production
  - 2025: Sherman, Texas (1 of 4)
  - 2026: Lehi, Utah (2 of 2)

Assembly & testing

- 7 plants worldwide
- Reduces dependency on third parties
- 90% sourced internally by 2030
- New facilities to start operations in 2025
  - Kuala Lumpur, Malaysia
  - Melaka, Malaysia

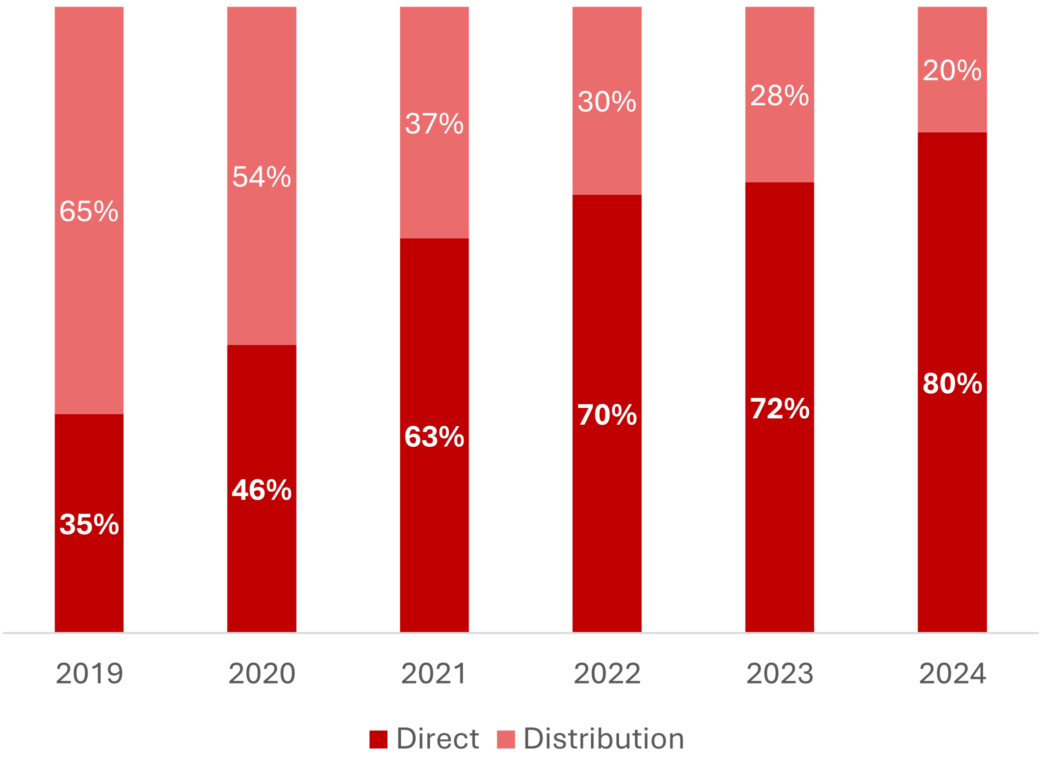
Reduced expenses through vertical integration

D2C sales

D2C sales channel

- Customers can buy directly from TXN:
  - Backlog scheduled at lead time
  - Directly from TI.com for immediate shipment
- Online ordering made convenient for customers, shows best price and availability for products
- D2C sales channel has grown 45% since 2019
  - Increase makes the whole value chain vertical at TXN

Sales channel breakdown



Lower costs through vertical integration

TI has the best vertical integration among competitors

	TI	SKYWORKS	NXP	ANALOG DEVICES	BROADCOM
Design	✓	✓	✓	✓	✓
Manufacturing	✓	✗	✓	✓	✗
Assembly & testing	✓	–	–	–	✗
D2C sales	–	✗	✗	✗	✗

Investment thesis II

Advantages in current economic and political climate

Current state of the CHIPS Act

Short history of the CHIPS Act

CHIPS Act overview

- Enacted in August 2022
- Incentive to boost the US domestic semiconductor manufacturing industry
- $52.7 Billion allocated

Initial discussions during Trump era
2017 - 2018

Initial CHIPS Act introduced
2020

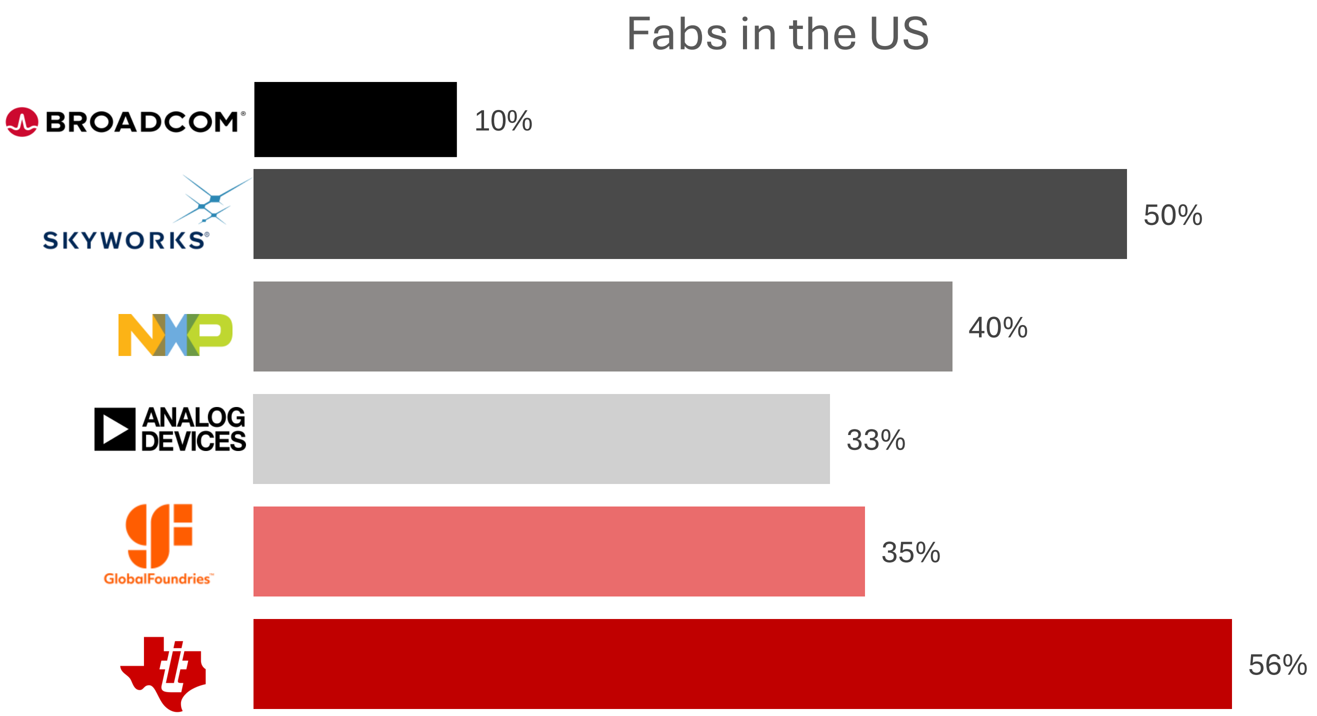
CHIPS Act finalized with Biden and passed
2022

Highly supported by Trump's Commerce Secretary Howard Lutnick & industry experts
2025

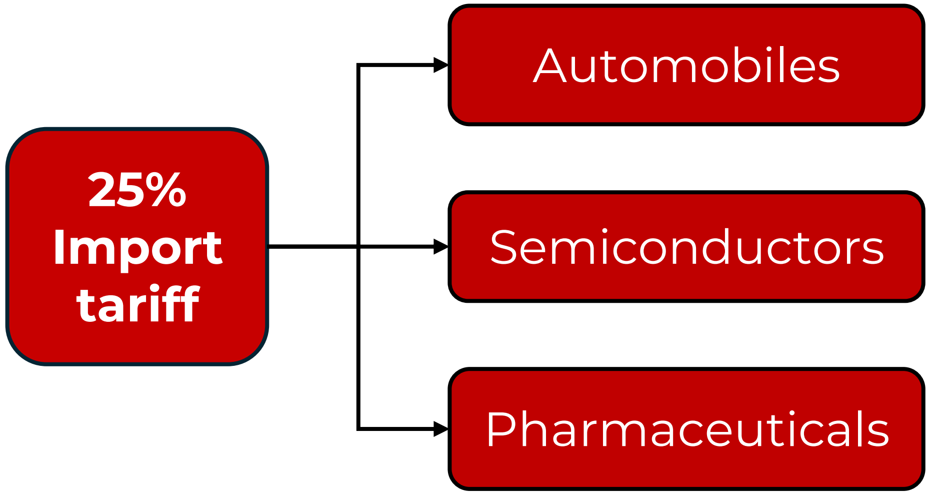
Domestic production & tariffs

TXN against competitors

TXN vs competitors



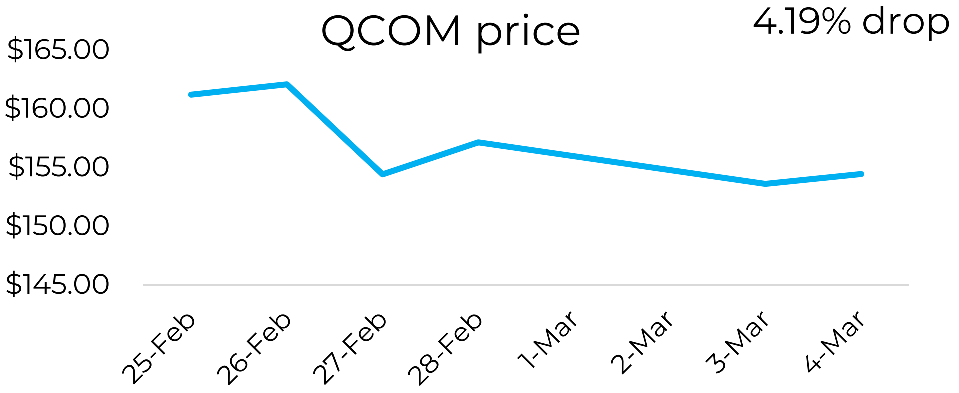
Tariffs

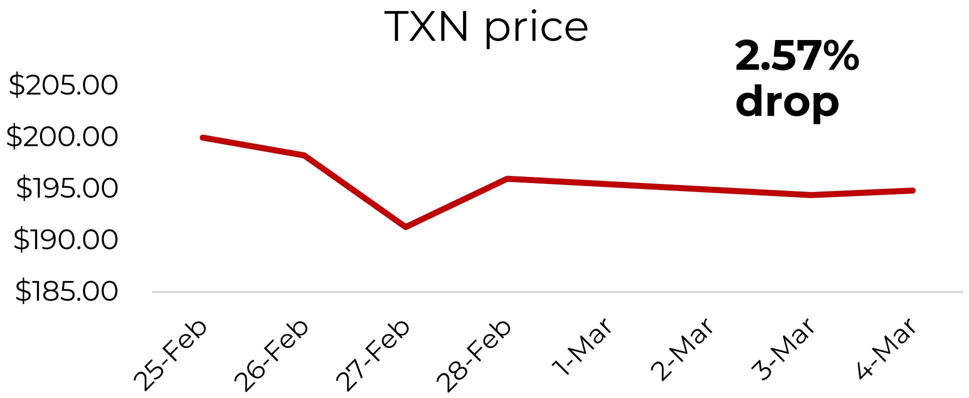


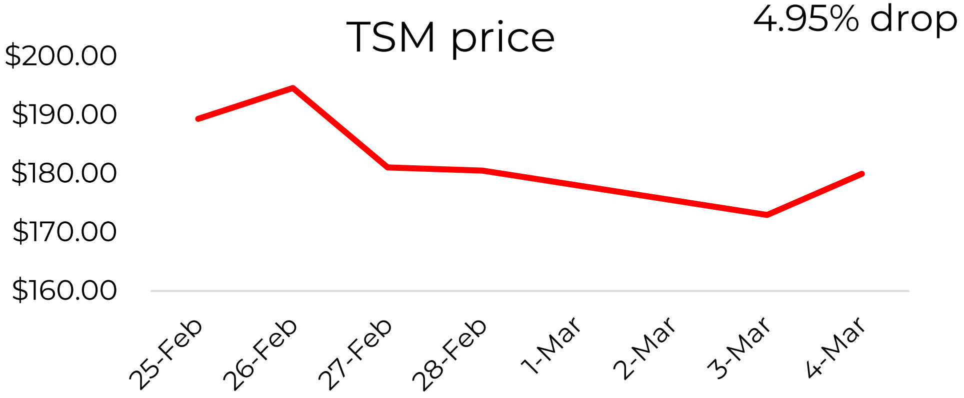
"I've been contacted by some of the biggest companies in the world, and because of what we're doing economically and through tariffs and incentives, they want to come back into the United States" – Donald Trump

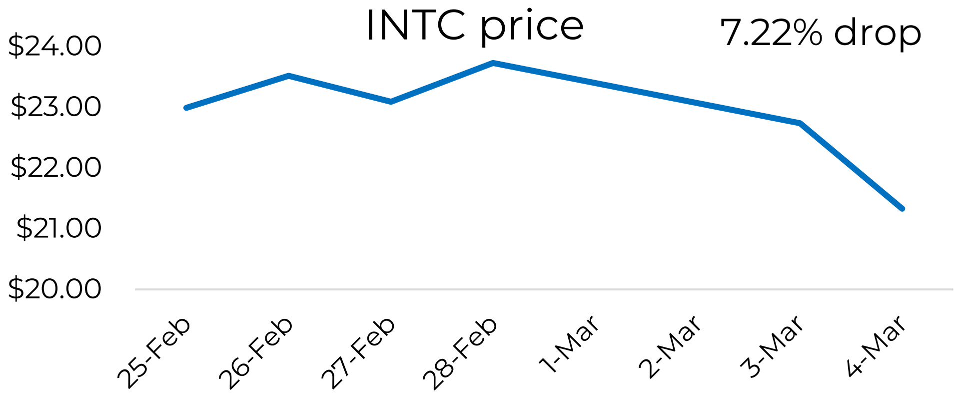
Announcement of tariffs

Effects on stock price*









*As of 03/04/2025

Strategic domestic expansion

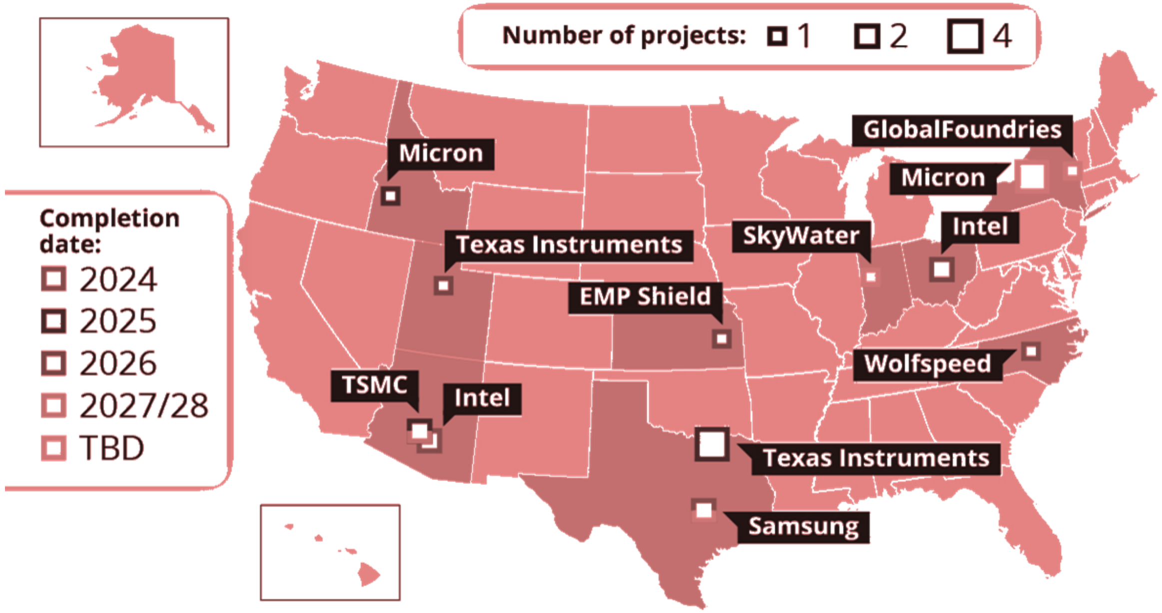
TXN's edge in U.S production

CHIPS Act

- Increased funding to support domestic manufacturing in Texas and Utah (lowest minimum wage)
- Tax credits also provided gov. funds
- TXN received more funding than competitors.

Trump's tariffs

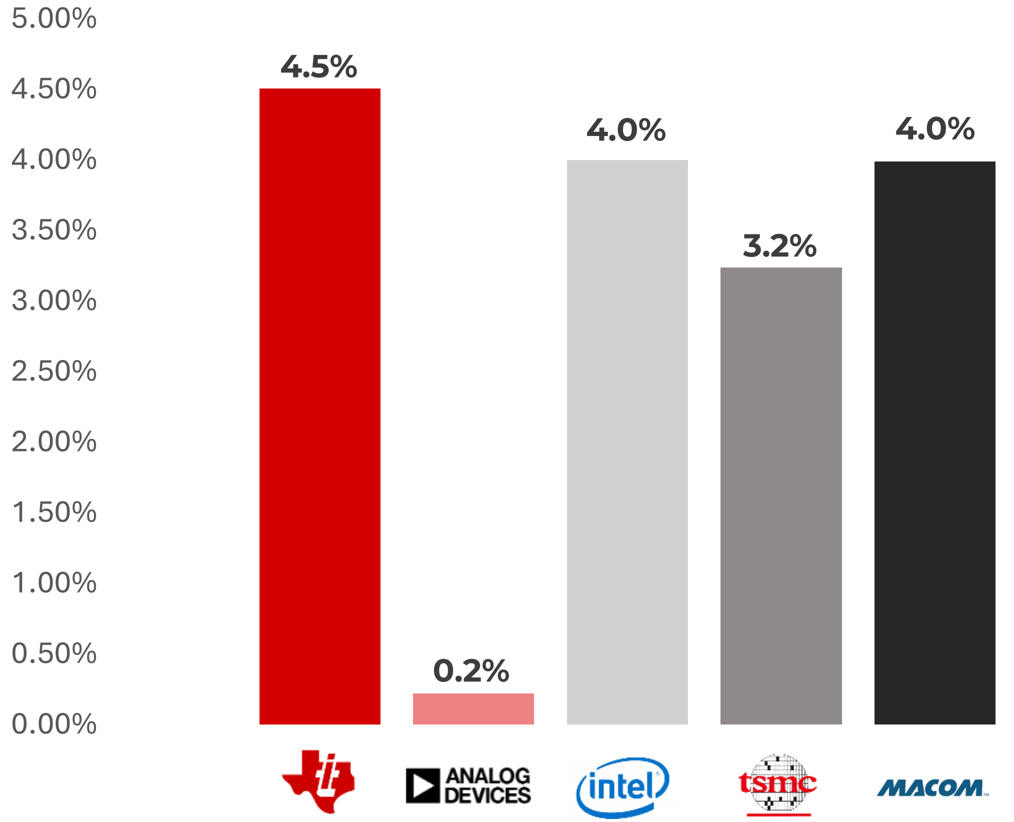
- Semiconductor tariffs would promote American production
- TXN is the leader in domestic analog chips
- Better prepared for tariffs that would hurt competitors reliant on Asian-built chips

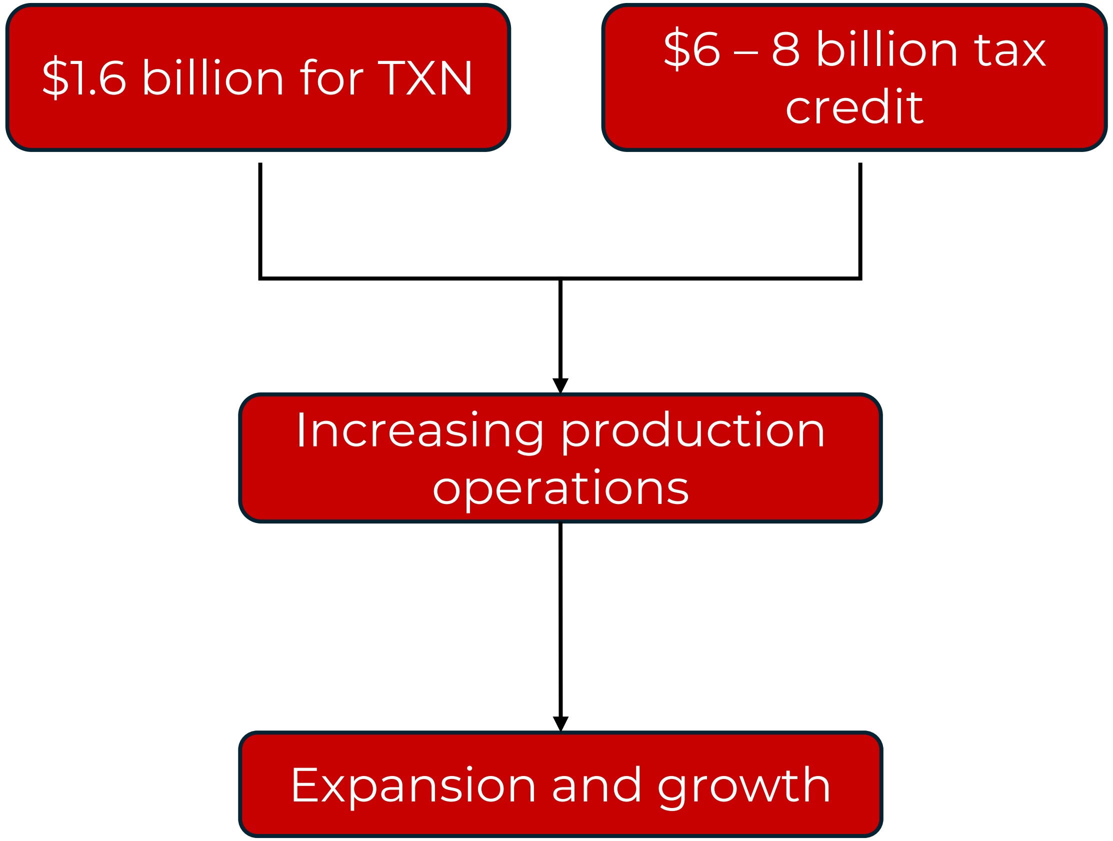


Funding from CHIPS by company

TXN vs. competitors

CHIPS ACT funding (% of total assets)





Investment thesis III

200mm vs 300mm wafer capacity

200mm vs 300mm wafer

Cost reduction of wafer fabrication upgrade

Overview

- Thin, flat disc made of semiconductor material
- Foundation for manufacturing integrated circuits (ICs) and microchips
- Individual chips are cut out of wafers

Cost reduction

	Built on 200mm	**Built on 300mm**
Sales price of example part	$1.00	$1.00
Chip cost	$0.20	$0.12
Assembly, test, other	$0.20	$0.20
Total	$0.40	$0.32
Gross margin %	**60%**	**68%**

TXN fabrication facility timeline

Timeline and benefits of upgrading

TXN manufacturing expansion

- Construction of three new facilities (SM1, SM2, and LFAB2) + upgrading existing plants (RFAB2 and LFAB1)
- $30 billion initial capital expenditure

Long term benefits

- Reduce energy consumption by 20-30% per unit area
- Greater supply chain control (premium pricing)
- Aligns with CHIPS Act funding

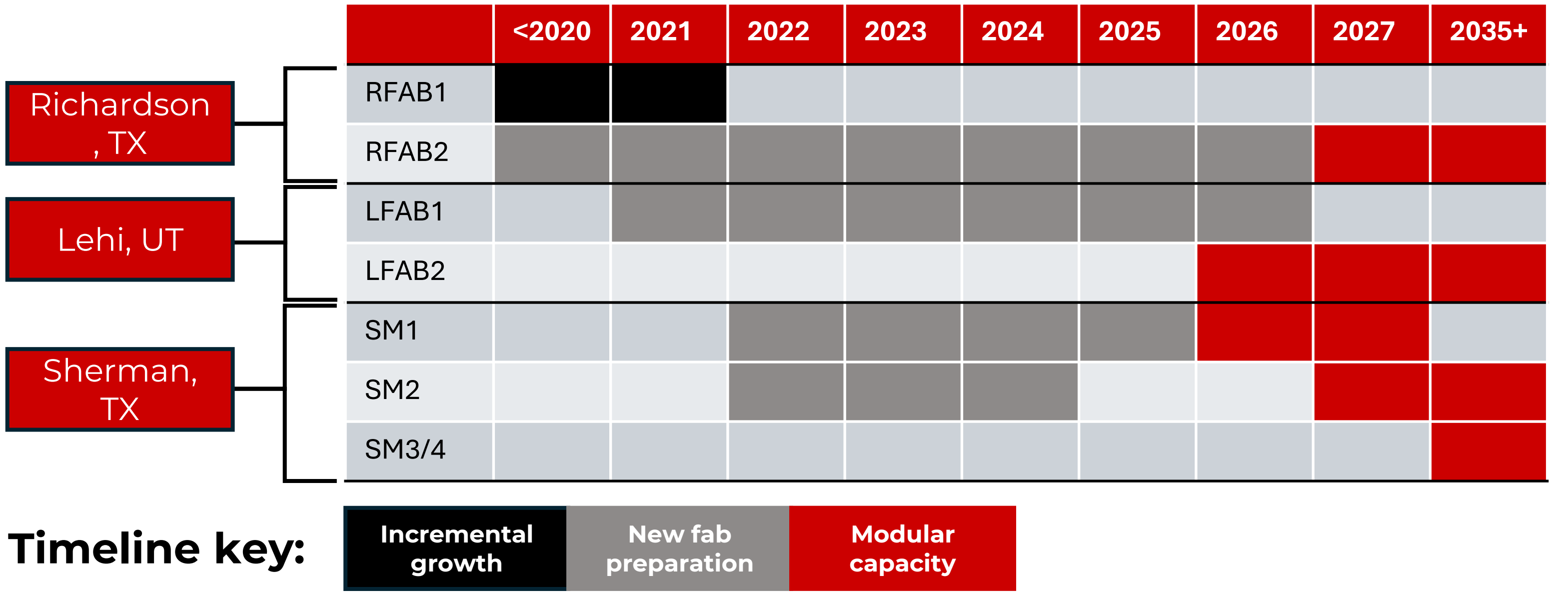
Fabrication facility timeline

2025

First facility production

2026-27

Stronger unlevered free cash flow



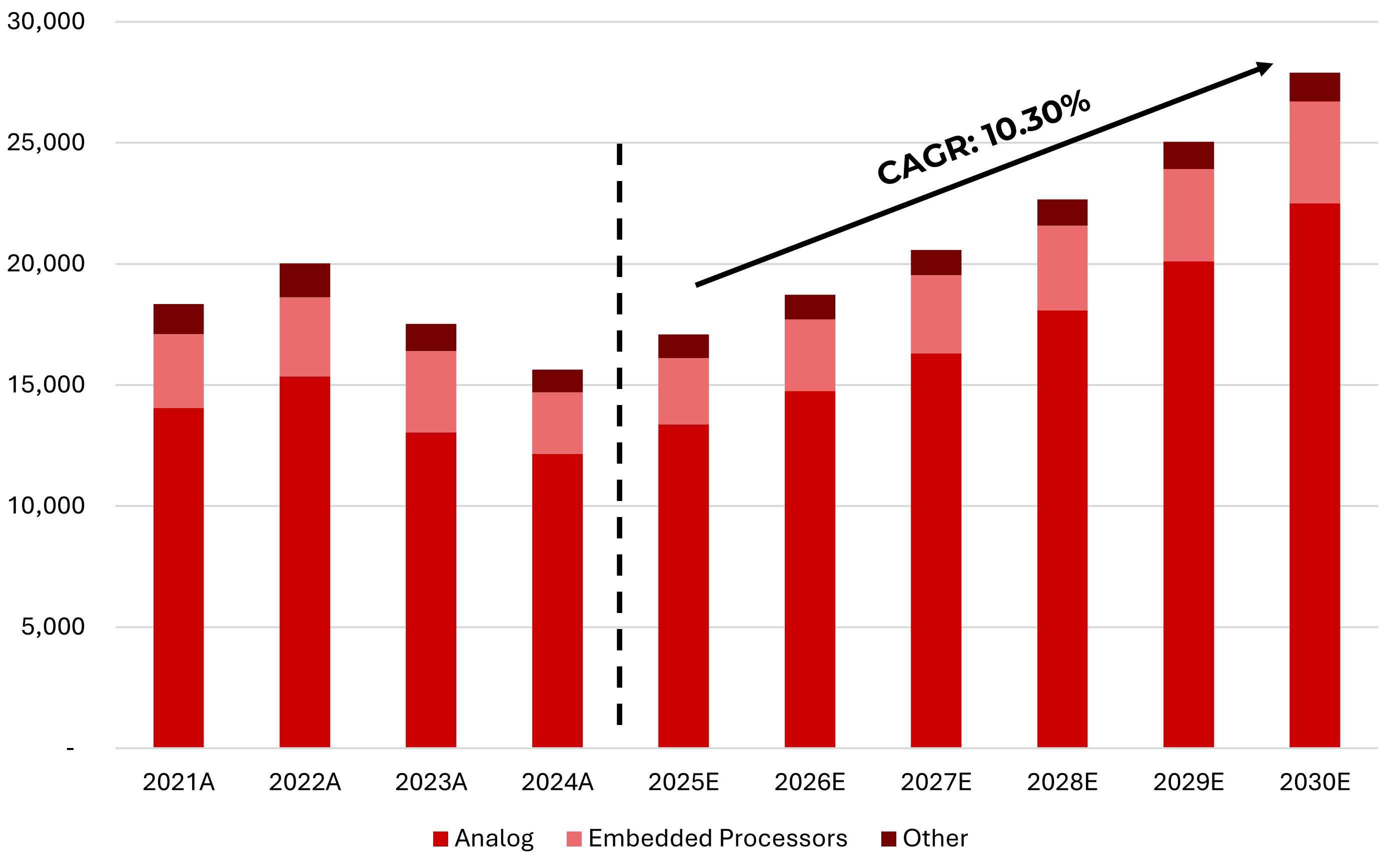
Financial analysis

Revenue forecast, capital expenditures, and credit analysis

Forecasted revenue segments

Analog & embedded processing segment to grow with 300mm wafers

Revenue forecast (in $bn)



Cost & capacity gains from 300mm wafers forecast

300mm wafers

2.3x more chips

40% less expensive

Projected growth segments

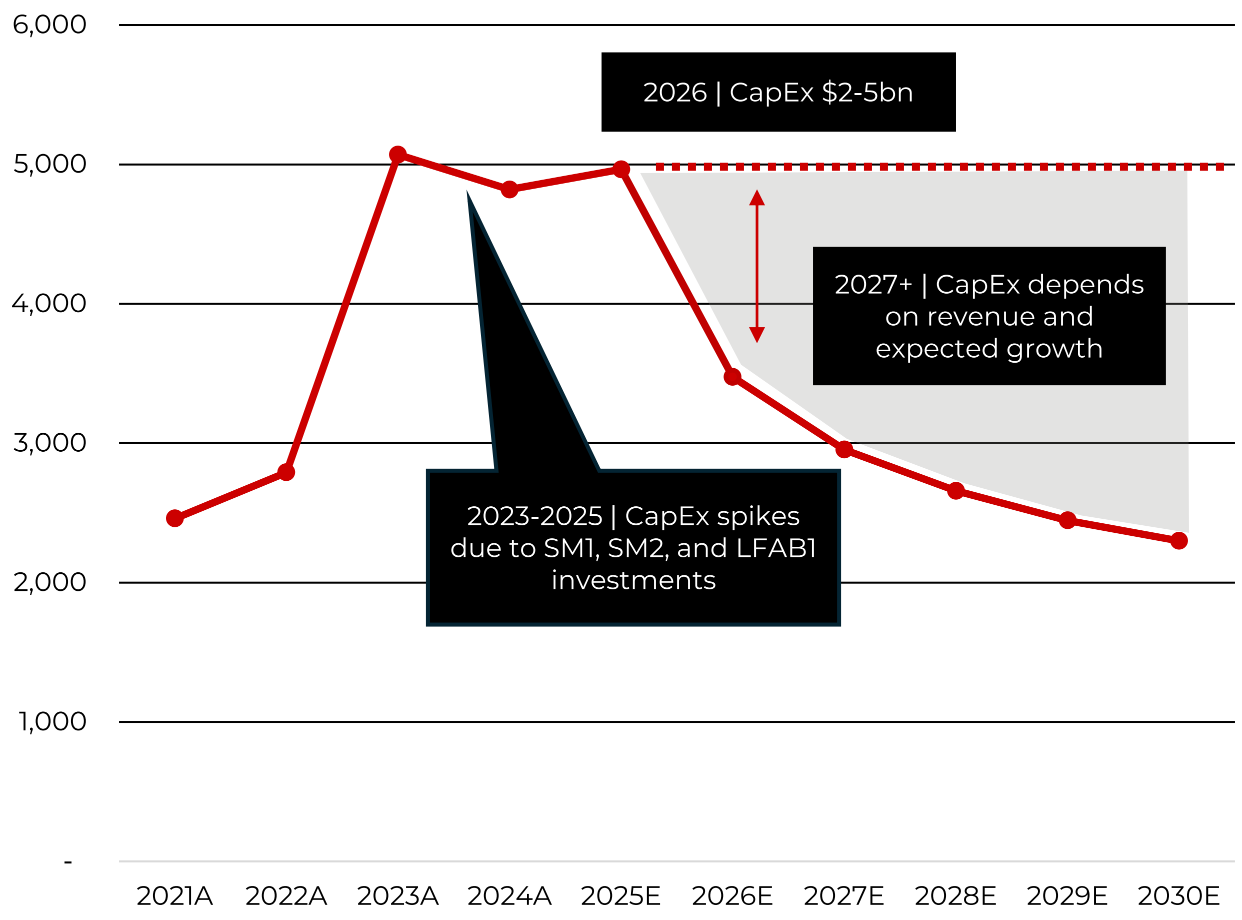
Analog
12%

Embedded Processing
10%

Scalability of capital expenditures

Supports long-term growth

Estimated capital expenditures (in $bn)



Key metrics	2022	2024	2026	2030
% of wafers internal	80%	~90%	>90%	>95%
% of internal wafers 300mm	40%	~60%	>70%	>80%
% of assembly internal	60%	~70%	>85%	>90%

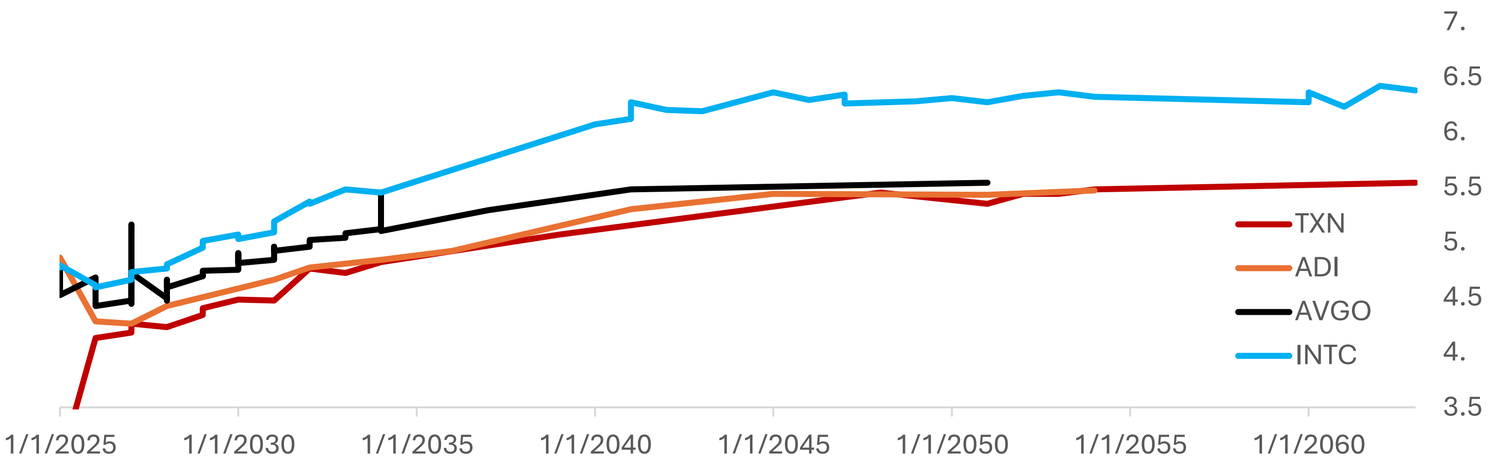
TI's phased CapEx investments through 2026 are strategically aligned to achieve **>95% internal wafer production by 2030**, leveraging cost efficiencies from 300mm wafers and enhanced supply chain control

Credit and earnings analysis

A strong yield curve implies debtors trust TXN to repay its obligations

Company	S&P	Moody's	Altman-Z	Interest coverage	LT debt/Total equity	Outlook
TXN	A+	Aa3	8.9	11.7	76.0%	Stable
ADI	A-	A2	5.6	6.3	18.9%	Stable
AVGO	BBB+	Baa1	5.3	3.4	98.0%	Stable
INTC	BBB	Baa1	1.1	-11.6	46.6%	Stable

Issuer yield curve



Higher investment grade credit rating

Lower yields

Exceptional capability to fulfill financial obligations

Valuation

Valuation and comparable company analysis

Comparable company analysis

TXN leads in profitability with the highest gross and EBITDA margins among competitors.

		TI	Analog Devices	NXP	Intel	Broadcom	Infineon	Skyworks	onsemi	MACOM	Mean	Median
Valuation	Enterprise Value	183.39B	117.03B	62.80B	120.31B	939.74B	49.95B	10.07B	19.12B	8.17B	167.84B	62.80B
	Forward P/E	34.48x	30.21x	17.99x	46.95x	29.50x	23.26x	13.50x	17.45x	32.79x	27.35x	29.50x
	EV/EBITDA	25.66x	27.90x	13.50x	15.68x	33.85x	10.22x	12.46x	10.70x	52.75x	22.52x	15.68x
Margin	Gross Margin	**58.14%**	49.07%	55.58%	33.96%	57.24%	41.33%	41.17%	44.82%	50.91%	48.02%	49.07%
	EBITDA Margin	**48.21%**	43.76%	33.79%	-1.13%	45.41%	27.40%	26.77%	34.33%	19.32%	30.87%	33.79%
Efficiency	Inventory Turnover	1.54	3.11	2.50	3.01	12.06	2.20	2.58	1.80	2.17	3.44	2.50
	Operating Cycle	278.57	171.77	174.11	172.99	63.84	232.78	202.09	260.48	217.81	197.16	202.09

Comparable company analysis

Analysis highlights an EV/EBITDA of 25.66x, div. yield of 2.71%, and strong domestic revenue

	Company	2024 EV/EBITDA	2024 Dividend Yield	Domestic Revenue (%)
Competitors	Analog Devices	27.9x	1.75%	30.10%
	NXP	13.5x	1.82%	10.70%
	intel	15.68x	0.00%	24.50%
	Broadcom	33.85x	1.21%	25.00%
	infineon	10.22x	0.92%	33.20%
	Skyworks	12.46x	3.86%	76.60%
	onsemi	10.7x	0.00%	18.50%
	MACOM	52.75x	0.00%	44.90%
		22.52x Avg	1.36% Avg	33.51% Avg
TXN	Texas Instruments	25.66x	2.71%	38.10%

- Slightly higher than average EV/EBITDA compared to industry peers, justified by its **margins**
- TI's robust earnings **outpace many peers**, underlining its superior profitability and operational efficiency
- With **larger portions of sales** coming from the U.S than rivals, TI is better positioned for stability in the market

Gordon growth approach

Using Gordon Growth, a base case upside of 6.11% is reached

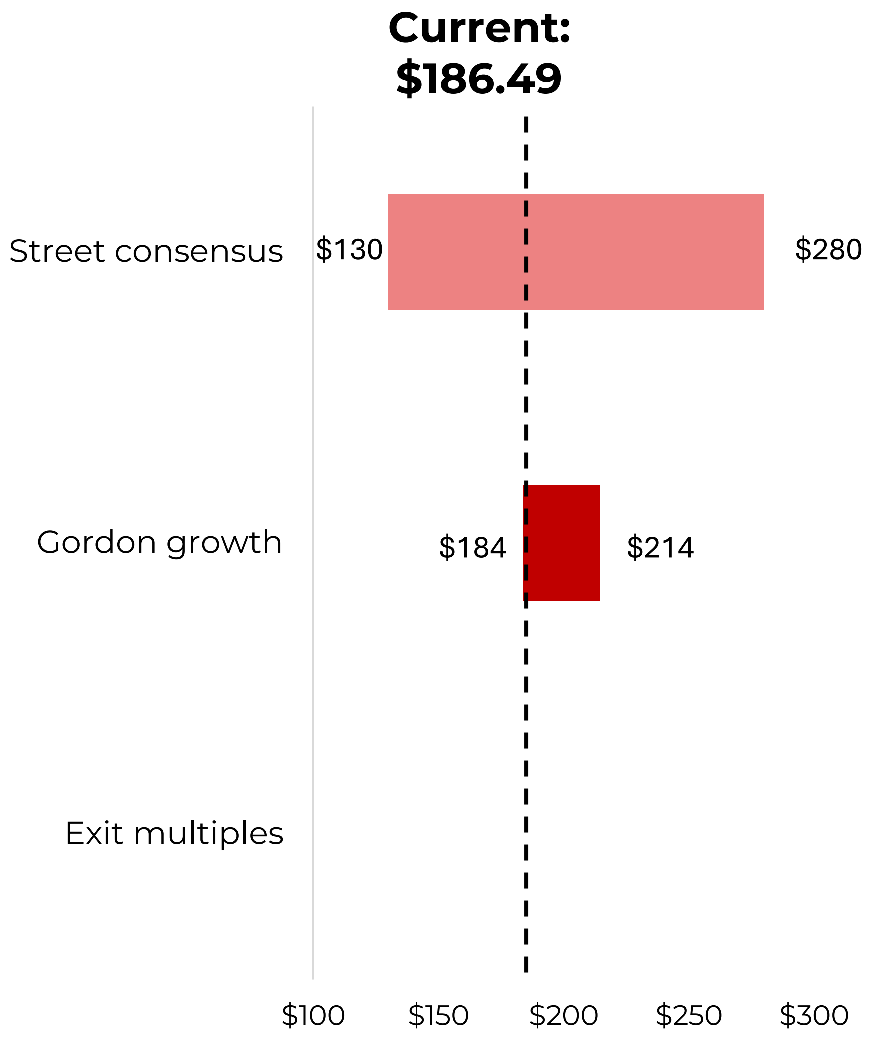
Discounted cash flow valuation assumptions

Cost of Debt	Cost of Equity	WACC	Terminal Growth
4.22%	8.74%	8.34%	2.50%

Implied share price range

Terminal growth rate

WACC	2.25%	2.50%	2.75%
8.09%	$200.27	$207.04	$214.44
8.34%	$191.77	$197.90	$204.57
8.59%	$183.95	$189.52	$195.56



Exit multiples method

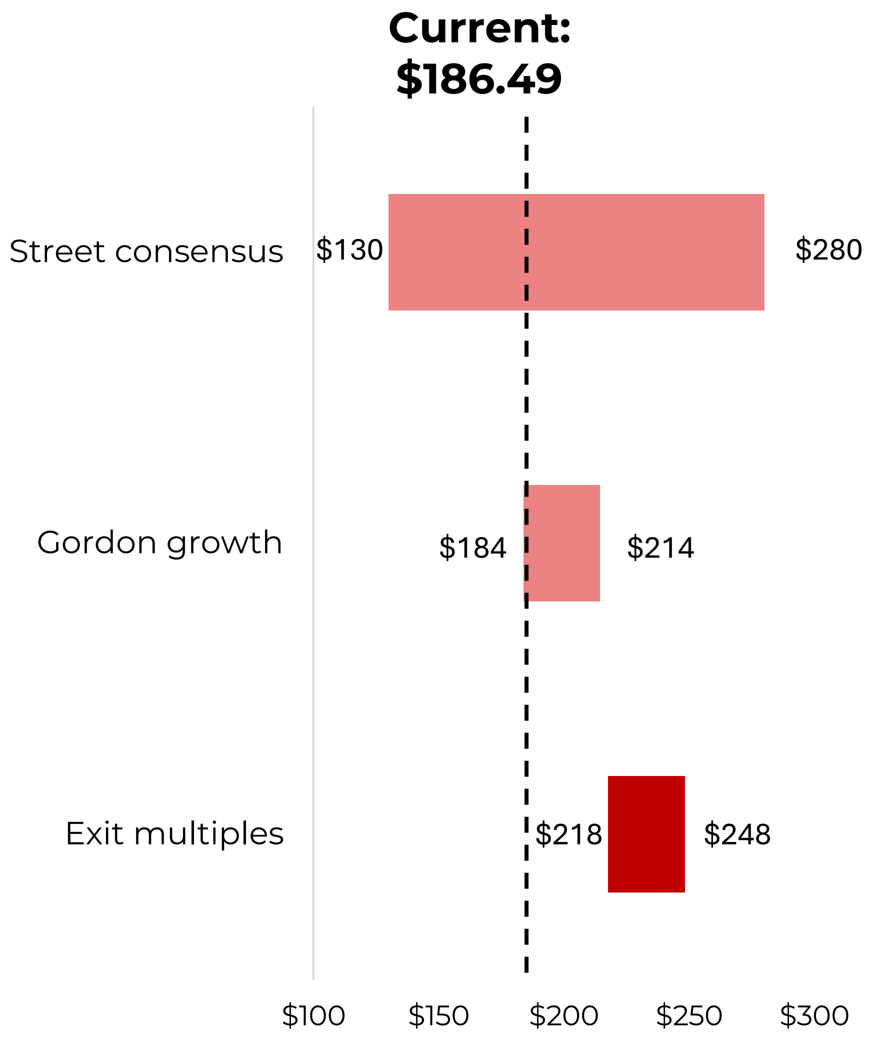
Using an EV/EBITDA exit multiple, a base upside of 25.08% is reached

Discounted cash flow valuation assumptions

Cost of Debt	Cost of Equity	WACC	EV/EBITDA
4.22%	8.74%	8.34%	15.30x

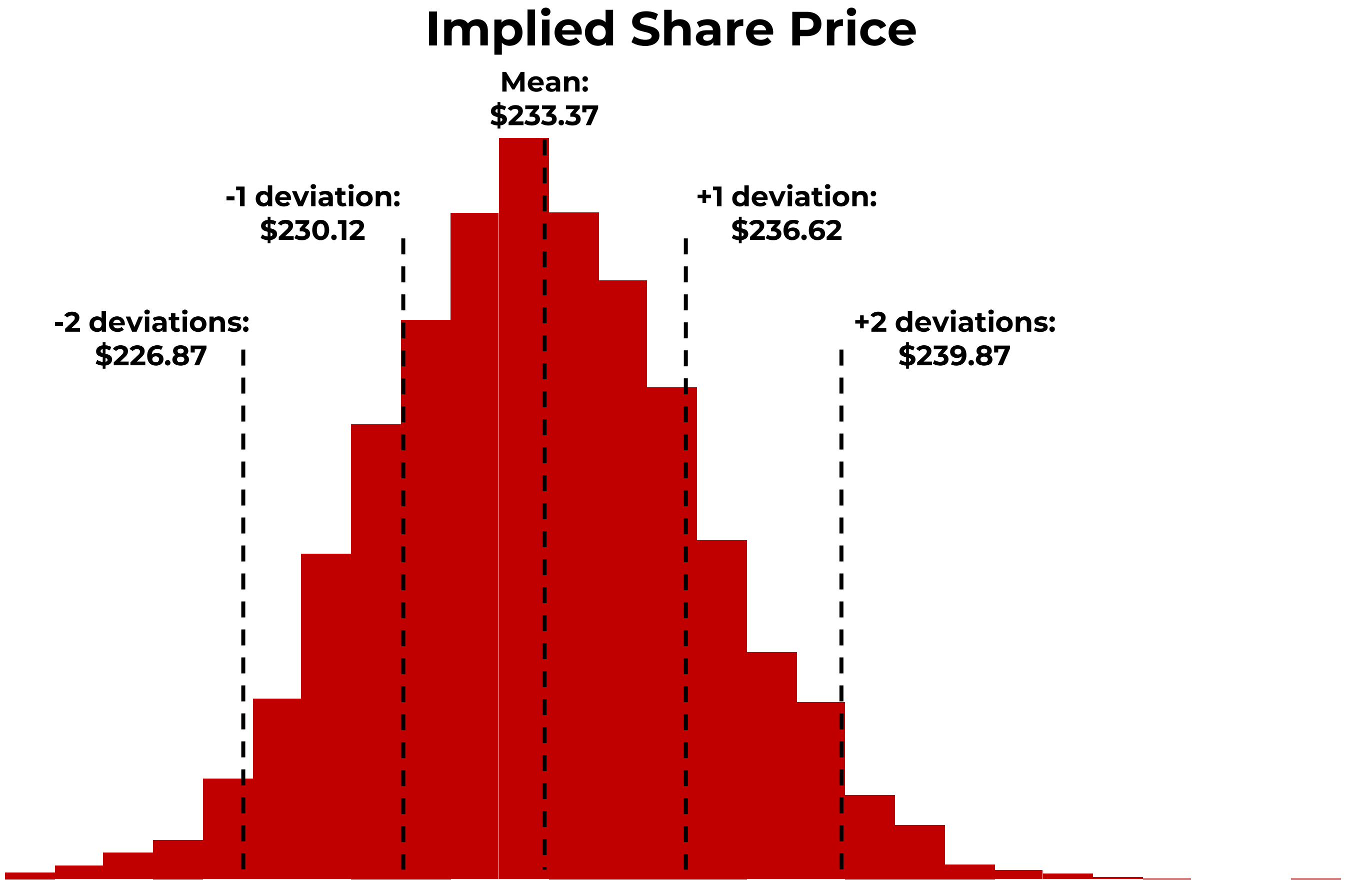
Implied share price range

		EV/EBITDA		
		14.30x	15.30x	16.30x
WACC	8.09%	$224.83	$236.56	$248.28
	8.34%	$221.72	$233.26	$244.80
	8.59%	$217.66	$230.02	$241.37



Monte Carlo simulation

Simulated WACC and implied share price using exit multiples method



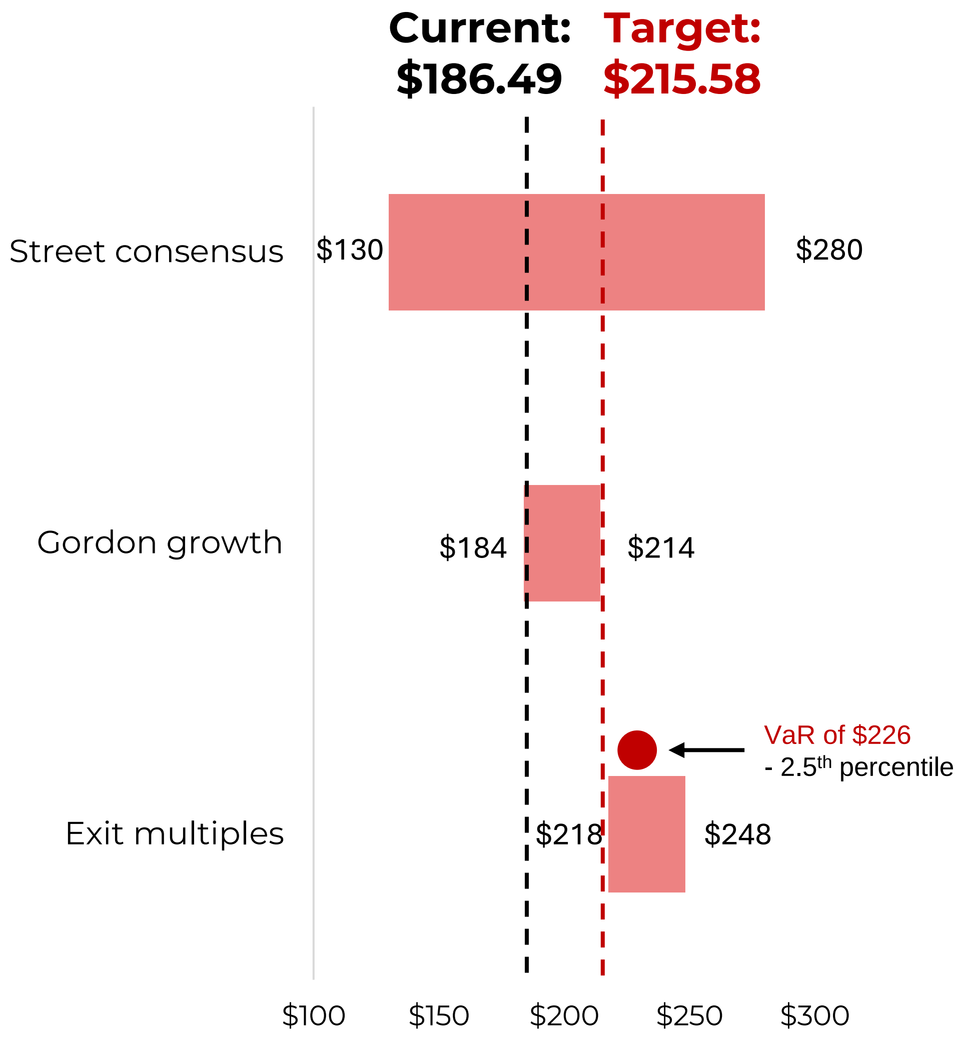
Mean	**$233.37**
Std Dev	**$3.25**
Skew	**0.115**
Kurtosis	**0.128**

Summary valuation

TXN's valuation represents a target base upside of 15.60%

Price target

Method	Weight	Price
Gordon growth	50%	$197.90
Exit multiples	50%	$233.26
Target price		**$215.58**

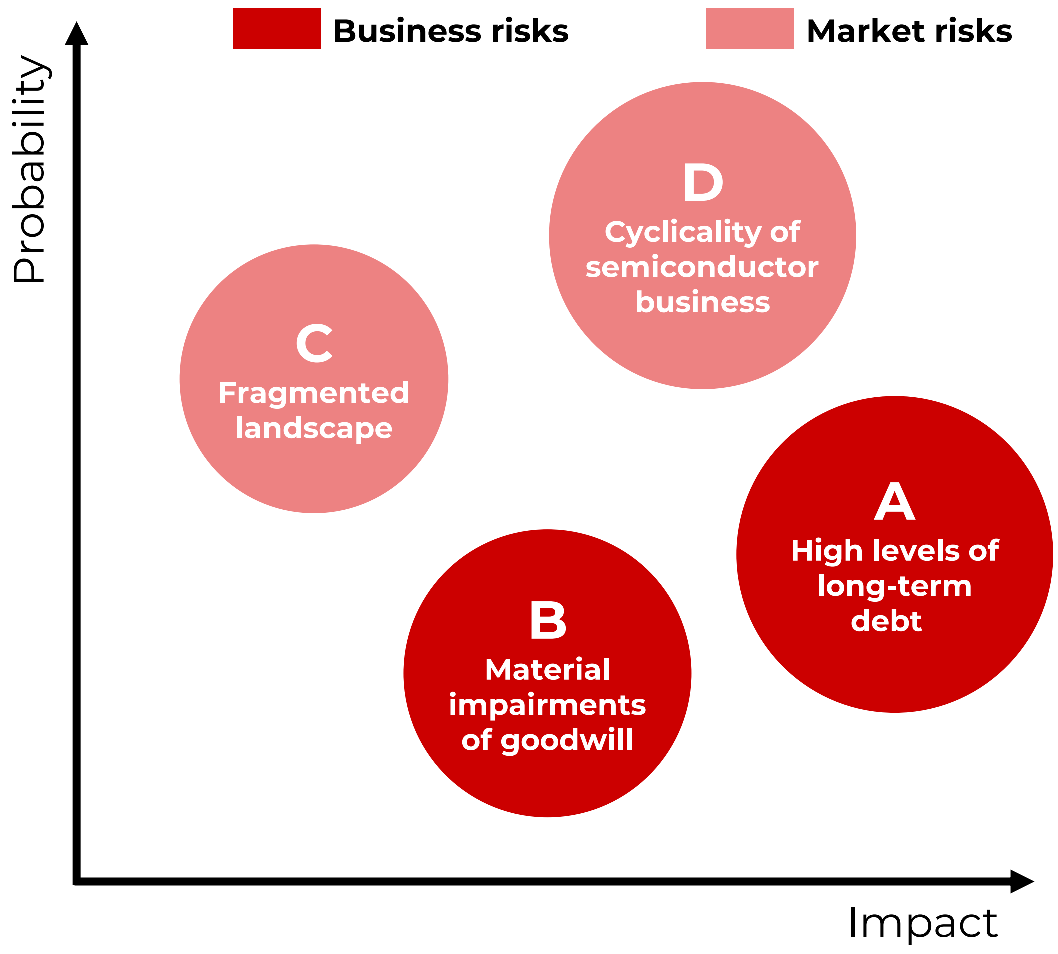


Considerations

Investment risks, mitigations, and catalysts

Risks and mitigations

Business and market risk considerations



Mitigations

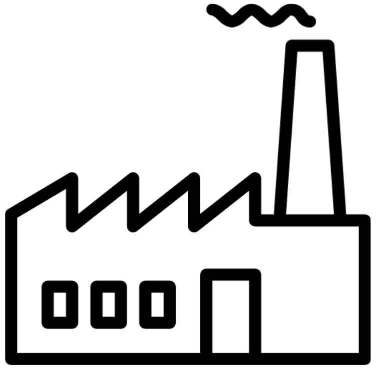
- **A** — A high credit rating paired with a low yield curve highlights the strong capabilities of fulfilling debt obligations
- **B** — Continued strong subsidiary market presence and history of outperforming competitors
- **C** — Strong product line, high reach of channels to market, increased innovation
- **D** — Diversified market for products, reducing impacts of overall cyclicality

Key catalysts that will realize our projected share price

Factors that will trigger major shifts in the growth trajectory

1. Future 10-Ks reflecting an increase in profit margins

2. Tariffs on semiconductors



3. Production starts at new fabs

BUY

Vertical integration | Domestic advantage | 300mm wafers

Date	3/10/2025
Current price	$186.49
Price target	**$215.58**
% Upside	**15.60%**