

Texas Instruments Inc.

No quick recovery but CHIPS Act could support cash flows

Reiterate Rating: NEUTRAL | PO: 175.00 USD | Price: 174.34 USD

Reiterate Neutral on assumption of 2H rebound

Muted Q4 with sales \$4.08bn, -10% QoQ and -13% YoY. Q1 outlook sales midpoint of \$3.6bn down -12% QoQ and well below consensus at \$4bn. Per TXN, industrial/auto weakness continues, with auto just starting its correction phase that could last several quarters. TXN has now undergone a peak (Q3'22) to potential trough (Q1'24E) sales decline of -30%, similar to what we have seen at peers ADI and MCHP (though they saw higher upcycle and steeper downcycle). Visibility remains limited, and TXN results have negative read-across for peers incl. ADI, MCHP, NXPI and ON. Overall we lower FY24/25E pf-EPS by -21%/-12% to \$4.89/\$5.54, though maintain our \$175 PO, now based on 41x CY25E EV/FCF vs 34x previously to reflect incremental benefits from CHIPS Act subsidies. Our 41x multiple is at the upper end of its historical 15x-42x range, typical of cyclical corrections. Visibility is limited, but usually we tend to see a recovery after 5-6 quarters of declines. NXPI remains our top pick in autos/industrial as it likely under-shipped last year growing auto sales only 9% vs. TXN 19% YoY, and hence could recover faster due to higher auto & lower industrial mix, and with easier YoY compares in mobile segment.

Likes: CHIPS Act grants could be next positive catalyst

As the leading spender on auto/industrial semis domestically, TXN could be in a strong position to claim its share of ~\$11bn of the \$39bn earmarked for mature node technology. The company has not provided any forecasts, but we would not be surprised to see something between \$1-\$3bn (over multiple years), since TXN's capex (\$4bn annually in US out of \$5bn total) is 10x that of peer MCHP who recently received a \$170mn grant. CHIPS Act grants would conceptually be netted against gross capex, and hence be incremental benefits to our depreciation and hence pf-EPS forecasts.

Risks: EPS impaired near-medium term

Ignoring CHIPS Act benefits, TXN's CY25 pf-EPS is unlikely to exceed prior highs given the multi-year depreciation headwind to GM. For instance, if we assume 2H24 sales accelerate and CY24 grows a robust 20% such that sales jump to \$20bn (vs. our forecast of \$17.8bn), the implied EPS is only around \$7/share, well below the \$8.26/\$9.41 TXN delivered in CY21/22. Second, we note gradually rising risk of insourcing from competitors in China (40% of sales, though only half for domestic China customers).

Estimates (Dec) (US\$)	2022A	2023A	2024E	2025E	2026E
EPS	9.41	7.07	4.89	5.54	6.31
EPS Change (YoY)	13.9%	-24.9%	-30.8%	13.3%	13.9%
Consensus EPS (Bloomberg)			6.59	7.56	10.25
DPS	4.69	5.02	5.27	5.60	6.16
Valuation (Dec)					
P/E	18.5x	24.7x	35.7x	31.5x	27.6x
Dividend Yield	2.7%	2.9%	3.0%	3.2%	3.5%
EV / EBITDA*	14.0x	18.1x	22.8x	17.2x	14.4x
Free Cash Flow Yield*	3.7%	0.9%	2.3%	2.5%	3.2%

* For full definitions of *IQmethod*SM measures, see page 13.

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Timestamp: 23 January 2024 09:43PM EST

23 January 2024

Equity

Key Changes

(US\$)	Previous	Current
2024E Rev (m)	17,552.6	15,796.3
2025E Rev (m)	18,830.2	17,824.8
2026E Rev (m)	NA	19,552.4
2024E EPS	6.15	4.89
2025E EPS	6.24	5.54
2026E EPS	NA	6.31
2024E DPS	5.59	5.27

Vivek Arya
Research Analyst
BoFA
vivek.arya@bofa.com

Blake Friedman
Research Analyst
BoFA
blake.friedman@bofa.com

Duksan Jang
Research Analyst
BoFA
duksan.jang@bofa.com

Lauren Guy
Research Analyst
BoFA
lauren.guy2@bofa.com

Stock Data

Price	174.34 USD
Price Objective	175.00 USD
Date Established	15-Dec-2023
Investment Opinion	B-2-7
52-Week Range	139.48 USD - 188.12 USD
Mkt Val (mn) / Shares Out (mn)	158,336 USD / 908.2
Free Float	99.8%
Average Daily Value (mn)	1016.38 USD
BoFA Ticker / Exchange	TXN / NAS
Bloomberg / Reuters	TXN US / TXN.OQ
ROE (2024E)	26.9%
Net Dbt to Eqty (Dec-2023A)	48.9%
ESGMeter™	High

ESGMeter is not indicative of a company's future stock price performance and is not an investment recommendation or rating. ESGMeter is independent of BoFA Global Research's equity investment rating, volatility risk rating, income rating, and price objective for that company. For full details, refer to "BoFA ESGMeter Methodology".

TXN: Texas Instruments
ADI: Analog Devices
MCHP: Microchip
ON: ON Semiconductor; NXPI: NXP Semiconductor

iQprofileSM Texas Instruments Inc.

iQmethodSM – Bus Performance*

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Return on Capital Employed	37.8%	25.1%	16.4%	18.6%	21.1%
Return on Equity	62.4%	41.2%	26.9%	32.0%	39.2%
Operating Margin	50.6%	41.8%	31.6%	31.7%	32.8%
Free Cash Flow	5,923	1,349	3,567	3,930	5,020

iQmethodSM – Quality of Earnings*

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Cash Realization Ratio	1.0x	1.0x	1.9x	1.8x	1.8x
Asset Replacement Ratio	3.0x	4.3x	3.1x	2.2x	1.9x
Tax Rate	12.8%	12.2%	12.4%	12.4%	12.5%
Net Debt-to-Equity Ratio	39.0%	48.9%	44.8%	65.2%	89.9%
Interest Cover	47.4x	20.8x	14.0x	15.9x	18.0x

Income Statement Data (Dec)

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Sales	20,028	17,519	15,796	17,825	19,552
% Change	9.2%	-12.5%	-9.8%	12.8%	9.7%
Gross Profit	13,771	11,019	8,982	9,711	10,648
% Change	11.3%	-20.0%	-18.5%	8.1%	9.7%
EBITDA	11,119	8,569	6,816	9,009	10,795
% Change	12.2%	-22.9%	-20.5%	32.2%	19.8%
Net Interest & Other Income	(108)	87	120	120	120
Net Income (Adjusted)	8,710	6,476	4,458	5,025	5,696
% Change	12.6%	-25.6%	-31.2%	12.7%	13.4%

Free Cash Flow Data (Dec)

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Net Income from Cont Operations (GAAP)	8,749	6,510	4,486	5,053	5,724
Depreciation & Amortization	925	1,175	1,620	2,300	2,600
Change in Working Capital	(404)	(686)	2,045	1,099	1,145
Deferred Taxation Charge	NA	NA	NA	NA	NA
Other Adjustments, Net	(550)	(579)	416	479	551
Capital Expenditure	(2,797)	(5,071)	(5,000)	(5,000)	(5,000)
Free Cash Flow	5,923	1,349	3,567	3,930	5,020
% Change	-5.9%	-77.2%	164.4%	10.2%	27.7%
Share / Issue Repurchase	(3,430)	(30)	(800)	(800)	(800)
Cost of Dividends Paid	(4,297)	(4,557)	(4,771)	(5,045)	(5,521)
Change in Debt	994	2,500	0	0	0

Balance Sheet Data (Dec)

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Cash & Equivalents	3,050	2,964	3,960	2,045	744
Trade Receivables	1,895	1,787	1,790	1,960	2,150
Other Current Assets	9,076	10,371	6,985	7,344	7,581
Property, Plant & Equipment	6,876	9,999	12,379	14,079	15,479
Other Non-Current Assets	6,310	7,227	6,727	6,227	5,727
Total Assets	27,207	32,348	31,841	31,655	31,680
Short-Term Debt	500	599	599	1,325	2,589
Other Current Liabilities	2,485	2,721	2,882	3,011	3,082
Long-Term Debt	8,235	10,624	10,624	10,624	10,624
Other Non-Current Liabilities	1,410	1,507	1,507	1,507	1,507
Total Liabilities	12,630	15,451	15,612	16,467	17,802
Total Equity	14,577	16,897	16,228	15,188	13,878
Total Equity & Liabilities	27,207	32,348	31,841	31,655	31,680

* For full definitions of iQmethodSM measures, see page 13.

Company Sector

Semiconductors

Company Description

Texas Instruments is a broad-based supplier of semiconductor components, ranging from digital signal processors, to high-performance analog components, to digital light-processing technology and calculators. 65% of TXN sales are exposed to the well diversified, business-to-business Industrial, Automotive, Communications Infrastructure, and Enterprise markets.

Investment Rationale

We rate TXN Neutral. We believe TXN is among the highest quality semiconductor companies in the analog sector, with a strong track record of consistent share gains. However, near-term capex commitments could slow free cash flow growth, limiting FCF upside.

Stock Data

Average Daily Volume

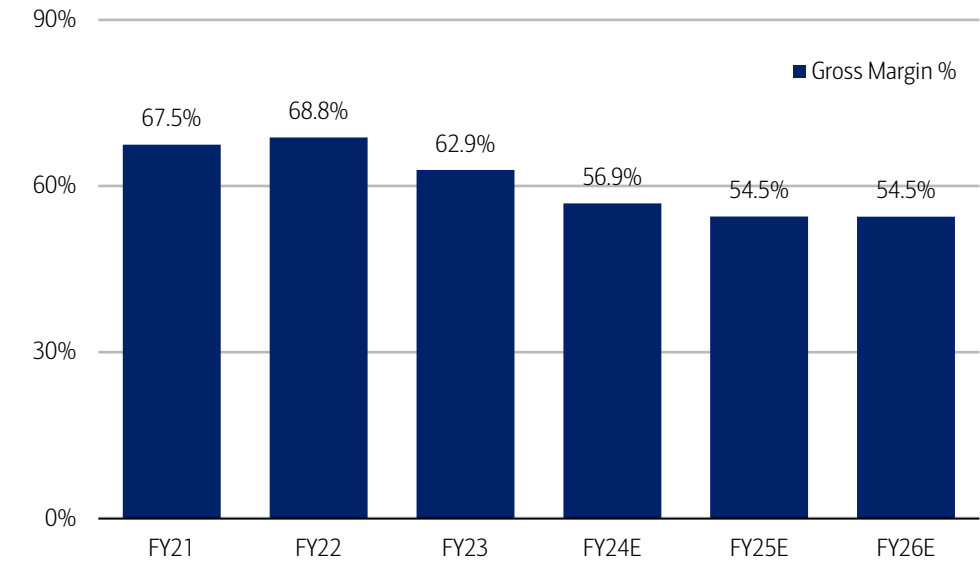
5,829,890

Quarterly Earnings Estimates

	2023	2024
Q1	1.85A	1.06E
Q2	1.87A	1.14E
Q3	1.85A	1.37E
Q4	1.49A	1.32E

Historical Gross Margin

Exhibit 1: CY21-CY26E gross margin %
GM will likely fall to 57% in CY24E



Source: Company reports, Bloomberg

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Summary of model changes

Exhibit 2: Summary of TXN estimates changes

We lower CY24E sales/EPS on continued macro concerns

	Sales (\$mn)			GAAP EPS		
	Old	NEW	delta	Old	NEW	delta
1Q24E	\$3,994	\$3,600	(\$394)	\$1.31	\$1.10	(\$0.21)
2Q24E	\$4,309	\$3,817	(\$492)	\$1.49	\$1.19	(\$0.30)
3Q24E	\$4,619	\$4,210	(\$409)	\$1.68	\$1.41	(\$0.27)
4Q24E	\$4,631	\$4,170	(\$461)	\$1.69	\$1.36	(\$0.33)
FY24E	\$17,553	\$15,796	(\$1,756)	\$6.17	\$5.06	(\$1.11)
YoY	0.1%	-9.8%	-10%	-12.4%	-28.4%	-18%
1Q25E	\$4,497	\$4,089	(\$408)	\$1.46	\$1.25	(\$0.21)
2Q25E	\$4,709	\$4,426	(\$283)	\$1.57	\$1.43	(\$0.14)
3Q25E	\$4,907	\$4,745	(\$162)	\$1.69	\$1.61	(\$0.08)
4Q25E	\$4,717	\$4,564	(\$153)	\$1.56	\$1.42	(\$0.14)
FY25E	\$18,830	\$17,825	(\$1,005)	\$6.28	\$5.71	(\$0.57)
YoY	7.3%	12.8%	-5%	1.9%	12.9%	-9%
1Q26E	\$4,719	\$4,571	(\$149)	\$2.09	\$1.41	(\$0.67)
2Q26E	\$4,959	\$4,864	(\$95)	\$1.64	\$1.61	(\$0.04)
3Q26E	\$5,216	\$5,116	(\$100)	\$1.77	\$1.79	\$0.02
4Q26E	\$5,099	\$5,002	(\$97)	\$1.68	\$1.69	\$0.01
FY26E	\$19,994	\$19,552	(\$442)	\$7.18	\$6.50	(\$0.69)
YoY	6.2%	9.7%	-2%	14.3%	13.7%	-10%

Source: BofA Global Research estimates, company report

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Q4 reported vs. expectations

Exhibit 3: Summary of Q4 results

Q4 sales was 1% below consensus, with EPS 1% below

	Dec-22	Sep-23	Dec-23						
			Guidance	Consensus	BofA	Reported	Delta	QoQ	YoY
Sales (\$mn)	\$4,670	\$4,532	\$4100 (\$3930 - \$4270)	\$4,127	\$4,100	\$4,077	-1.2%	-10.0%	-12.7%
QoQ%	-10.9%	0.0%		-8.9%	-9.5%	-10.0%			
Analog	3,558	3,353		3,069	3,034	3,120	1.7%	-6.9%	-12.3%
Embedded	837	890		829	859	752	-9.2%	-15.5%	-10.2%
Other	275	289		228	207	205	-10.0%	-29.1%	-25.5%
Gross Margin %	66.1%	62.1%		60.1%	60.5%	59.6%	-46	-249	-648
Gross Profit	3,087	2,815			2,482	2,431		-13.6%	-21.3%
R&D	434	471			495	460		-2.3%	6.0%
SG&A	429	452			470	438		-3.1%	2.1%
Opex Total	863	923			965	898		-2.7%	4.1%
Operating Income	2,176	1,892		\$1,559	1,517	1,533		-19.0%	-29.5%
Op Margin %	47.6%	41.7%		37.8%	37.0%	37.6%	-17	-415	-1002
Financial Income	(9)	30			30	15			
Pretax Income	2,167	1,922			1,547	1,548		-19.5%	-28.6%
Tax expense	205	213			204	177		-16.9%	-13.7%
Tax rate	10.9%	11.9%	13.5% (13% - 14%)		13.5%	11.6%		-0.3%	0.7%
Net Income	1,953	1,699			1,333	1,364		-19.7%	-30.2%
Diluted EPS (GAAP)	\$2.13	\$1.85	\$1.46 (\$1.35 - \$1.57)	\$1.47	\$1.46	\$1.49	1.2%	-19.6%	-30.1%
Diluted Shares	916	916			916	915		-0.1%	-0.1%
Free Cash Flow	1,075	442		1,037.4	1,150	776	-25.2%	75.6%	-27.8%
FCF/sh	\$1.17	\$0.48			\$1.26	\$0.85		75.8%	-27.7%
Inventory \$	2,757	3,908			3,546	3,999		2.3%	45.0%
Inventory days	159	208			200	222		6.7%	39.5%
Capex	967	1,495		1,160.2	1,077	1,148	-1.0%	-23.2%	18.7%

Source: BofA Global Research estimates, company report, Bloomberg

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Q1 guidance vs. expectations

Table 1: Q1 estimates and guidance summary

Q1 sales guided below Street expectations. EPS guided about below expectations

	Dec-23	Mar-24E			
	Reported	BofA	Cons	Guidance	New BofA
Sales (\$mn)	\$4,077	\$3,994	\$4,091	\$3,600 (\$3,450 - \$3,750)	\$3,600
QoQ%	-10.0%	-2.6%	-0.9%		-11.7%
Analog	3,120	2,943	3,052		2,731
Embedded	752	850	834		684
Other	205	200	231		185
Gross Margin %	59.6%	58.5%	59.5%		57.8%
Gross Profit	2,431	2,336			2,080
R&D	460	492			483
SG&A	438	479			464
Opex Total	898	972			947
Operating Income	1,533	1,365	\$1,497		1,133
Op Margin %	37.6%	34.2%	36.6%		31.5%
Financial Income	15	30			30
Pretax Income	1,548	1,395			1,163
Tax expense	177	183			146
Tax rate	11.6%	13.5%		13%	13.0%
Net Income	1,364	1,201			1,010
Diluted EPS (GAAP)	\$1.49	\$1.31	\$1.42	\$1.06 (\$0.96 - \$1.16)	\$1.10
Diluted Shares	915	915			914

Source: BofA Global Research estimates, company report, Bloomberg

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Balance sheet, cash flow snapshot

Table 2: Summary of cash balance, inventory, and cash flow trends

Net cash per share of -\$2.89 was down QoQ, inventory days decreased to about 222 days

	4Q22	1Q23	2Q23	3Q23	4Q23		
	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	QoQ%	YoY%
Total Cash	\$9,067	\$9,545	\$9,552	\$8,948	\$8,575	-4.2%	-5.4%
ST Debt	\$500	\$500	\$299	\$300	\$599		
LT Debt	\$8,235	\$9,626	\$10,920	\$10,922	\$10,624		
Total Debt	\$8,735	\$10,126	\$11,219	\$11,222	\$11,223		
Net Cash	\$332	(\$581)	(\$1,667)	(\$2,274)	(\$2,648)		
Net Cash/Share	\$0.36	(\$0.63)	(\$1.82)	(\$2.48)	(\$2.89)		
DSO	36.9	39.0	39.3	39.7	39.9		
DPO	48.9	57.1	51.8	37.8	44.3		
Inventory \$	\$2,757	\$3,288	\$3,729	\$3,908	\$3,999	2.3%	45.0%
Inventory Turns	2.3	1.8	1.7	1.8	1.6		
Inventory Days	158.9	197.9	209.9	207.7	221.7	14.0	62.8
Cash Conversion days	146.9	179.8	197.4	209.6	217.2		
Cash Flow from Ops	\$2,042	\$1,160	\$1,399	\$1,937	\$1,924	-0.7%	-5.8%
Capex	(\$967)	(\$982)	(\$1,446)	(\$1,495)	(\$1,148)		
Free cash flow	\$1,075	\$178	(\$47)	\$442	\$776	75.6%	-27.8%
Dividends	1,123	\$1,125	\$1,125	\$1,126	1,181	4.9%	5.2%
Repurchases	848	\$103	\$79	\$46	65	41.3%	-92.3%
Dividends as % of FCF (ttm)	73%	99%	139%	273%	338%		
Repurchases as % of FCF (ttm)	61%	71%	64%	65%	22%		
Shareholder returns as a % of FCF (ttm)	134%	170%	203%	338%	360%		

Source: BofA Global Research estimates, company report

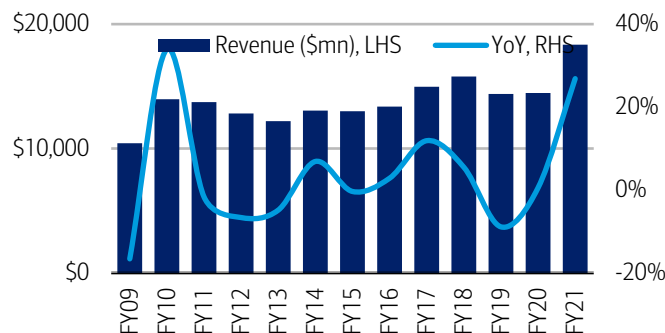
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Key Charts

Chart 1: TXN annual revenue and YoY growth

2021 marks peak growth, followed by a period of normalization

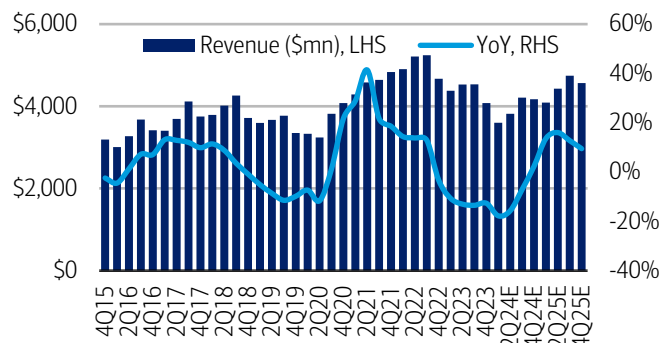


Source: BofA Global Research estimates, company report

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Chart 2: TXN quarterly revenue and YoY growth

2Q21 marks peak growth as future periods will yield tough compares

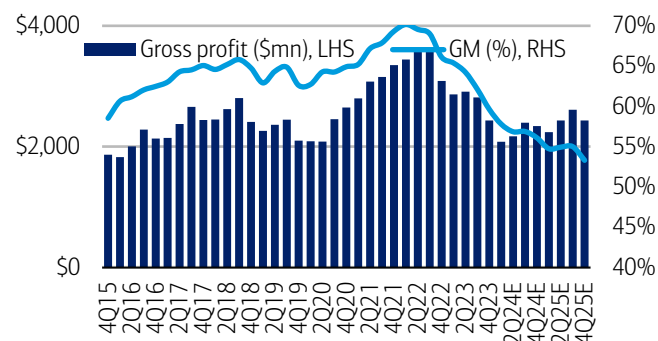


Source: BofA Global Research estimates, company report

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Chart 3: TXN quarterly gross profit and GM%

GMs likely to fall as depreciation becomes a headwind

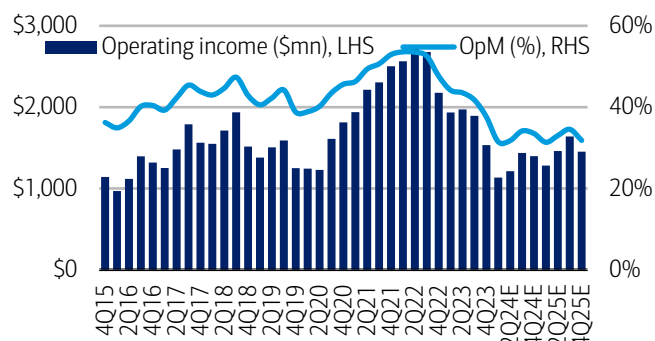


Source: BofA Global Research estimates, company report

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Chart 4: TXN quarterly operating income and OpM%

Operating margins could fall further

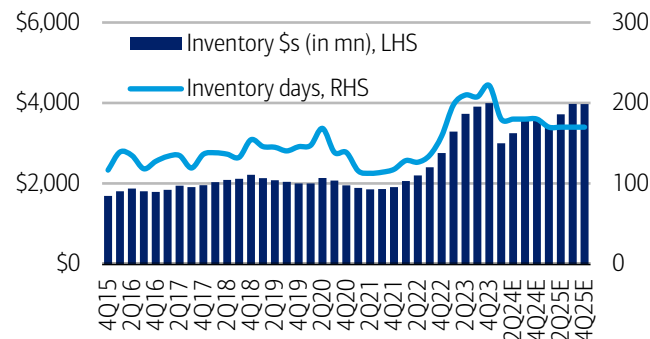


Source: BofA Global Research estimates, company report

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Chart 5: TXN quarterly inventory dollars and days

Inventory days increasing past target of 190 days at high-end

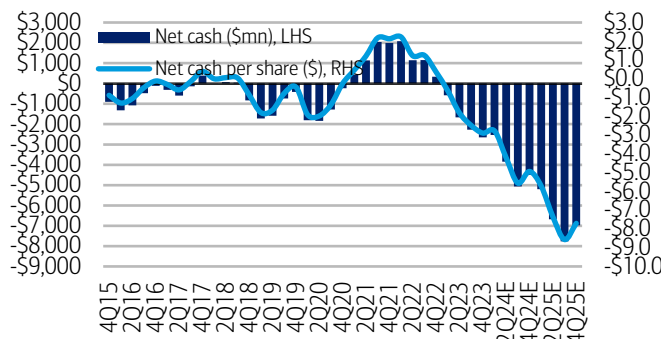


Source: BofA Global Research estimates, company report

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Chart 6: TXN quarterly net cash and net cash per share

TXN quarterly net cash and net cash per share decreases with time

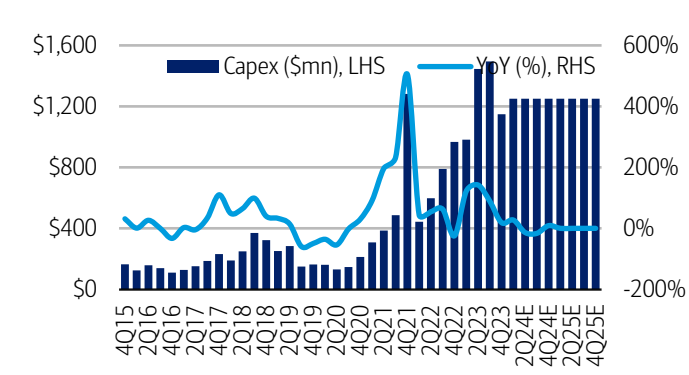


Source: BofA Global Research estimates, company report

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Chart 7: TXN quarterly capex and YoY growth

Quarterly capex expected to step up in FY24 due to new fabs

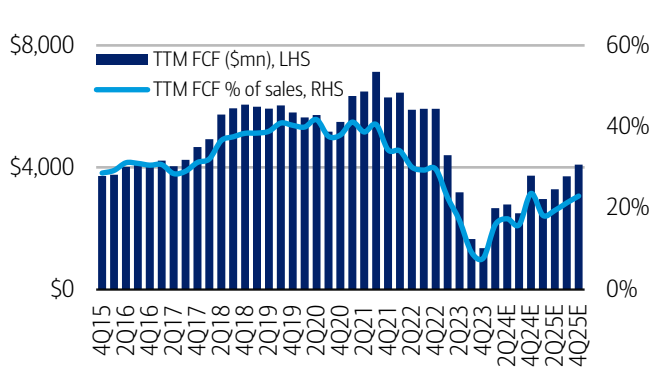


Source: BofA Global Research estimates, company report

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Chart 8: TXN quarterly TTM FCF and TTM FCF as a % of sales

TTM FCF to decline with rising capex



Source: BofA Global Research estimates, company report

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Exhibit 4: TXN – Income Statement (\$mn)

TXN growth will likely decline in FY24E

	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	3Q23	4Q23	1Q24E	2Q24E	3Q24E	4Q24E	FY21	FY22	FY23
FY (Dec)	Mar-21	Jun-21	Sep-21	Dec-21	Mar-22	Jun-22	Sep-22	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24E	Jun-24E	Sep-24E	Dec-24E	Dec-21	Dec-22	Dec-23
Revenues	\$4,289	\$4,580	\$4,643	\$4,832	\$4,905	\$5,212	\$5,241	\$4,670	\$4,379	\$4,531	\$4,532	\$4,077	\$3,600	\$3,817	\$4,210	\$4,170	\$18,344	\$20,028	\$17,519
QoQ %	5.2%	6.8%	1.4%	4.1%	1.5%	6.3%	0.6%	-10.9%	-6.2%	3.5%	0.0%	-10.0%	-11.7%	6.0%	10.3%	-0.9%			
YoY %	28.8%	41.4%	21.6%	18.5%	14.4%	13.8%	12.9%	-3.4%	-10.7%	-13.1%	-13.5%	-12.7%	-17.8%	-15.8%	-7.1%	2.3%	26.9%	9.2%	-12.5%
Cost of Goods Sold	1,492	1,503	1,491	1,482	1,463	1,587	1,624	1,583	1,516	1,621	1,717	1,646	1,520	1,647	1,816	1,831	5,968	6,257	6,500
Gross Profit	2,797	3,077	3,152	3,350	3,442	3,625	3,617	3,087	2,863	2,910	2,815	2,431	2,080	2,169	2,394	2,339	12,376	13,771	11,019
R&D Expenses	386	391	388	389	391	414	431	434	455	477	471	460	511	516	521	500	1,554	1,670	1,863
SG&A Expenses	425	425	412	404	422	422	431	429	474	461	452	438	482	487	482	487	1,666	1,704	1,825
Total Opex	858	864	847	847	879	902	939	911	929	938	923	898	992	1,002	1,003	987	3,416	3,631	3,688
Operating Income	1,939	2,213	2,305	2,503	2,563	2,723	2,678	2,176	1,934	1,972	1,892	1,533	1,088	1,167	1,392	1,352	8,960	10,140	7,331
Interest/Other Income	0	29	(30)	(40)	(37)	(42)	(20)	(9)	12	30	30	15	30	30	30	30	(41)	(108)	87
Pre-tax Income	1,939	2,242	2,275	2,463	2,526	2,681	2,658	2,167	1,946	2,002	1,922	1,548	1,118	1,197	1,422	1,382	8,919	10,032	7,418
Tax expense	186	311	328	325	325	390	363	205	238	280	213	177	140	147	169	177	1,150	1,283	908
Income allocated to RSU	(8)	(7)	(9)	(9)	(9)	(10)	(11)	(9)	(9)	(8)	(10)	(7)	(7)	(7)	(7)	(7)	(33)	(39)	(34)
Net Income	1,745	1,924	1,938	2,129	2,192	2,281	2,284	1,953	1,699	1,714	1,699	1,364	970	1,044	1,246	1,198	7,736	8,710	6,476
EPS (GAAP)	\$1.87	\$2.05	\$2.07	\$2.27	\$2.35	\$2.45	\$2.47	\$2.13	\$1.85	\$1.87	\$1.85	\$1.49	\$1.06	\$1.14	\$1.37	\$1.32	\$8.26	\$9.41	\$7.07
EPS (pro-forma, with options)	\$1.91	\$2.10	\$2.11	\$2.27	\$2.35	\$2.45	\$2.47	\$2.13	\$1.85	\$1.87	\$1.85	\$1.49	\$1.06	\$1.14	\$1.37	\$1.32	\$8.40	\$9.41	\$7.07
Diluted Share Count	935	937	936	936	934	930	923	916	916	916	916	915	914	913	911	910	936	926	916
Margins (GAAP)																			
Gross Margin %	65.2%	67.2%	67.9%	69.3%	70.2%	69.6%	69.0%	66.1%	65.4%	64.2%	62.1%	59.6%	57.8%	56.8%	56.9%	56.1%	67.5%	68.8%	62.9%
R&D Expense %	9.0%	8.5%	8.4%	8.1%	8.0%	7.9%	8.2%	9.3%	10.4%	10.5%	10.4%	11.3%	14.2%	13.5%	12.4%	12.0%	8.5%	8.3%	10.6%
SG&A Expense %	9.9%	9.3%	8.9%	8.4%	8.6%	8.1%	8.2%	9.2%	10.8%	10.2%	10.0%	10.7%	13.4%	12.7%	11.4%	11.7%	9.1%	8.5%	10.4%
Total Opex %	20.0%	18.9%	18.2%	17.5%	17.9%	17.3%	17.9%	19.5%	21.2%	20.7%	20.4%	22.0%	27.6%	26.3%	23.8%	23.7%	18.6%	18.1%	21.1%
Operating Margin %	45.2%	48.3%	49.6%	51.8%	52.3%	52.2%	51.1%	46.6%	44.2%	43.5%	41.7%	37.6%	30.2%	30.6%	33.1%	32.4%	48.8%	50.6%	41.8%
Pretax Income %	45.2%	49.0%	49.0%	51.0%	51.5%	51.4%	50.7%	46.4%	44.4%	44.2%	42.4%	38.0%	31.1%	31.4%	33.8%	33.1%	48.6%	50.1%	42.3%
Tax rate %	9.6%	13.9%	14.4%	13.2%	12.9%	14.5%	13.7%	9.5%	12.2%	14.0%	11.1%	11.4%	12.6%	12.2%	11.9%	12.8%	12.9%	12.8%	12.2%
Net income %	40.7%	42.0%	41.7%	44.1%	44.7%	43.8%	43.6%	41.8%	38.8%	37.8%	37.5%	33.5%	27.0%	27.3%	29.6%	28.7%	42.2%	43.5%	37.0%

Source: BofA Global Research estimates, company report

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**Exhibit 5: TXN – Segment Model (\$mn)**

All segments are set to decline sequentially in Q1

FY (Dec)	1Q21 Mar-21	2Q21 Jun-21	3Q21 Sep-21	4Q21 Dec-21	1Q22 Mar-22	2Q22 Jun-22	3Q22 Sep-22	4Q22 Dec-22	1Q23 Mar-23	2Q23 Jun-23	3Q23 Sep-23	4Q23 Dec-23	1Q24E Mar-24E	2Q24E Jun-24E	3Q24E Sep-24E	4Q24E Dec-24E	FY21 Dec-21	FY22 Dec-22	FY23 Dec-23
Analog	3,280	3,464	3,548	3,758	3,816	3,992	3,993	3,558	3,289	3,278	3,353	3,120	2,731	2,867	3,154	3,154	14,050	15,359	13,040
Embedded Processing	767	780	738	764	782	821	821	837	832	894	890	752	684	719	790	790	3,049	3,261	3,368
Other	242	336	357	310	307	399	427	275	258	359	289	205	185	231	265	225	1,245	1,408	1,111
DLP/Calc/ASIC	242	336	357	310	307	399	427	275	258	359	289	205	185	231	265	225	1,245	1,408	1,111
Legacy Wireless	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	4,289	4,580	4,643	4,832	4,905	5,212	5,241	4,670	4,379	4,531	4,532	4,077	3,600	3,817	4,210	4,170	18,344	20,028	17,519
QoQ%																			
Analog	4.9%	5.6%	2.4%	5.9%	1.5%	4.6%	0.0%	-10.9%	-7.6%	-0.3%	2.3%	-6.9%	-12.5%	5.0%	10.0%	0.0%	29.1%	9.3%	-15.1%
Embedded Processing	6.5%	1.7%	-5.4%	3.5%	2.4%	5.0%	0.0%	1.9%	-0.6%	7.5%	-0.4%	-15.5%	-9.0%	5.0%	10.0%	0.0%	18.6%	7.0%	3.3%
Other	5.7%	38.8%	6.3%	-13.2%	-1.0%	30.0%	7.0%	-35.6%	-6.2%	39.1%	-19.5%	-29.1%	-10.0%	25.0%	15.0%	-15.0%	23.9%	13.1%	-21.1%
DLP/Calc/ASIC	5.7%	38.8%	6.3%	-13.2%	-1.0%	30.0%	7.0%	-35.6%	-6.2%	39.1%	-19.5%	-29.1%	-10.0%	25.0%	15.0%	-15.0%	23.9%	13.1%	-21.1%
Legacy Wireless	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	5.2%	6.8%	1.4%	4.1%	1.5%	6.3%	0.6%	-10.9%	-6.2%	3.5%	0.0%	-10.0%	-11.7%	6.0%	10.3%	-0.9%	26.9%	9.2%	-12.5%
YoY%																			
Analog	33.3%	42.3%	23.8%	20.2%	16.3%	15.2%	12.5%	-5.3%	-13.8%	-17.9%	-16.0%	-12.3%	-17.0%	-12.5%	-5.9%	1.1%	29.1%	9.3%	-15.1%
Embedded Processing	17.5%	42.9%	13.4%	6.1%	2.0%	5.3%	11.2%	9.6%	6.4%	8.9%	8.4%	-10.2%	-17.8%	-19.6%	-11.2%	5.1%	18.6%	7.0%	3.3%
Other	12.0%	29.7%	18.6%	35.4%	26.9%	18.8%	19.6%	-11.3%	-16.0%	-10.0%	-32.3%	-25.5%	-28.5%	-35.8%	-8.2%	10.0%	23.9%	13.1%	-21.1%
DLP/Calc/ASIC	12.0%	29.7%	18.6%	35.4%	26.9%	18.8%	19.6%	-11.3%	-16.0%	-10.0%	-32.3%	-25.5%	-28.5%	-35.8%	-8.2%	10.0%	23.9%	13.1%	-21.1%
Legacy Wireless	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	28.8%	41.4%	21.6%	18.5%	14.4%	13.8%	12.9%	-3.4%	-10.7%	-13.1%	-13.5%	-12.7%	-17.8%	-15.8%	-7.1%	2.3%	26.9%	9.2%	-12.5%
% of Sales																			
Analog	76.5%	75.6%	76.4%	77.8%	77.8%	76.6%	76.2%	76.2%	75.1%	72.3%	74.0%	76.5%	75.9%	75.1%	74.9%	75.6%	76.6%	76.7%	74.4%
Embedded Processing	17.9%	17.0%	15.9%	15.8%	15.9%	15.8%	15.7%	17.9%	19.0%	19.7%	19.6%	18.4%	19.0%	18.8%	18.8%	19.0%	16.6%	16.3%	19.2%
Other	5.6%	7.3%	7.7%	6.4%	6.3%	7.7%	8.1%	5.9%	5.9%	7.9%	6.4%	5.0%	5.1%	6.0%	6.3%	5.4%	6.8%	7.0%	6.3%
DLP/Calc/ASIC	5.6%	7.3%	7.7%	6.4%	6.3%	7.7%	8.1%	5.9%	5.9%	7.9%	6.4%	5.0%	5.1%	6.0%	6.3%	5.4%	6.8%	7.0%	6.3%
Legacy Wireless	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: BofA Global Research estimates, company report

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Exhibit 6: TXN – Balance Sheet (\$mn)

Capex is set to increase with capacity investments

FY (Dec)	1Q21 Mar-21	2Q21 Jun-21	3Q21 Sep-21	4Q21 Dec-21	1Q22 Mar-22	2Q22 Jun-22	3Q22 Sep-22	4Q22 Dec-22	1Q23 Mar-23	2Q23 Jun-23	3Q23 Sep-23	4Q23 Dec-23	1Q24E Mar-24E	2Q24E Jun-24E	3Q24E Sep-24E	4Q24E Dec-24E	FY21 Dec-21	FY22 Dec-22	FY23 Dec-23
Assets																			
Cash & Equivalents	2,442	3,649	5,663	4,631	3,505	3,802	3,169	3,050	4,477	3,439	2,566	2,964	3,038	1,689	425	960	4,631	3,050	2,964
Inventories	1,890	1,856	1,863	1,910	2,060	2,199	2,404	2,757	3,288	3,729	3,908	3,999	2,998	3,249	3,582	3,613	1,910	2,757	3,999
Deferred income taxes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prepaid exp. & other curr. assets	245	340	287	335	330	267	238	302	313	277	265	761	761	761	761	761	335	302	761
Total current assets	10,405	11,177	13,585	13,685	14,010	13,043	13,772	14,021	15,023	15,514	15,097	15,122	13,916	12,933	12,169	12,735	13,685	14,021	15,122
PP&E (net)	3,431	3,678	4,021	5,141	5,439	5,931	6,485	6,876	7,665	8,525	9,320	9,999	10,639	11,249	11,829	12,379	5,141	6,876	9,999
Long-term investments	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goodwill	4,362	4,362	4,362	4,362	4,362	4,362	4,362	4,362	4,362	4,362	4,362	4,362	4,362	4,362	4,362	4,362	4,362	4,362	4,362
Acquisition-related intangibles	105	57	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deferred income taxes	331	326	309	263	273	293	291	473	486	537	632	757	757	757	757	757	263	473	757
Total assets	19,639	20,603	23,273	24,676	25,276	24,723	26,057	27,207	29,220	30,939	31,638	32,348	32,032	31,909	31,975	31,841	24,676	27,207	32,348
Liabilities & stockholders' Equity																			
Accounts payable	567	587	596	653	641	712	780	851	952	923	713	802	769	847	947	963	653	851	802
Accrued exp. & other liabilities	388	477	665	775	386	520	734	799	686	561	707	911	911	911	911	911	775	799	911
Income taxes payable	278	107	101	121	405	115	123	189	372	121	108	172	172	172	172	172	121	189	172
Total current liabilities	1,700	2,201	2,413	2,569	2,528	2,560	2,798	2,985	2,904	2,711	2,652	3,320	3,287	3,365	3,465	3,481	2,569	2,985	3,320
Long-term debt	6,250	5,752	7,239	7,241	7,242	6,745	7,438	8,235	9,626	10,920	10,922	10,624	10,624	10,624	10,624	10,624	7,241	8,235	10,624
Underfunded retirement plans	130	131	129	79	81	71	69	118	123	127	141	108	108	108	108	108	79	118	108
Deferred income taxes	88	87	86	87	94	90	92	66	73	69	66	63	63	63	63	63	87	66	63
Def. credits & other liabilities	1,305	1,279	1,255	1,367	1,314	1,165	1,153	1,226	1,251	1,172	1,226	1,336	1,336	1,336	1,336	1,336	1,367	1,226	1,336
Total liabilities	9,473	9,450	11,122	11,343	11,259	10,631	11,550	12,630	13,977	14,999	15,007	15,451	15,418	15,496	15,596	15,612	11,343	12,630	15,451
Total stockholders equity	10,166	11,153	12,151	13,333	14,017	14,092	14,507	14,577	15,243	15,940	16,631	16,897	16,614	16,413	16,379	16,228	13,333	14,577	16,897
Liabilities & stockholders' Equity	19,639	20,603	23,273	24,676	25,276	24,723	26,057	27,207	29,220	30,939	31,638	32,348	32,032	31,909	31,975	31,841	24,676	27,207	32,348
Key Metrics																			
Cash and equivalents	\$6,686	\$7,390	\$9,782	\$9,739	\$9,825	\$8,387	\$9,090	\$9,067	\$9,545	\$9,552	\$8,948	\$8,575	\$8,649	\$7,300	\$6,036	\$6,571	\$9,739	\$9,067	\$8,575
Short term debt	\$0	\$499	\$500	\$500	\$500	\$499	\$499	\$500	\$500	\$299	\$300	\$599	\$599	\$599	\$599	\$599	\$500	\$500	\$599
Long term debt	\$6,250	\$5,752	\$7,239	\$7,241	\$7,242	\$6,745	\$7,438	\$8,235	\$9,626	\$10,920	\$10,922	\$10,624	\$10,624	\$10,624	\$10,624	\$10,624	\$7,241	\$8,235	\$10,624
Net Cash per share	\$0.47	\$1.22	\$2.18	\$2.13	\$2.23	\$1.23	\$1.25	\$0.36	(\$0.63)	(\$1.82)	(\$2.48)	(\$2.89)	(\$2.82)	(\$4.30)	(\$5.69)	(\$5.11)	\$2.13	\$0.36	(\$2.89)
Days Sales Outstanding (DSO)	34	31.6	32.4	32.0	33	38	35	37	39	39	40	39.9	38	38.3	38	38.6			
Days Payables Outstanding (DPO)	35	35.5	36.4	40.1	40	41	44	49	57	52	38	44.3	46	46.3	47	47.3			
Inventory Turns	3	3.2	3.2	3.1	3	3	3	2	2	2	2	1.6	2	2.0	2	2.0			
Inventory Days (DIO)	116	112.7	114.0	117.6	128	126	135	159	198	210	208	221.7	180	180.0	180	180.0			
Cash conversion days (DIO+DSO-DPO)	115	108.8	110.0	109.5	122	124	127	147	180	197	210	217.2	172	172.0	171	171.3			

Source: BofA Global Research estimates, company report

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**Exhibit 7: TXN – Statement of Cash Flows (\$mn)**

We await for incremental color on CHIPS Act benefits

FY (Dec)	1Q21 Mar-21	2Q21 Jun-21	3Q21 Sep-21	4Q21 Dec-21	1Q22 Mar-22	2Q22 Jun-22	3Q22 Sep-22	4Q22 Dec-22	1Q23 Mar-23	2Q23 Jun-23	3Q23 Sep-23	4Q23 Dec-23	1Q24E Mar-24E	2Q24E Jun-24E	3Q24E Sep-24E	4Q24E Dec-24E	FY21 Dec-21	FY22 Dec-22	FY23 Dec-23
Cash Flow From Operations																			
Net income	1,753	1,931	1,947	2,138	2,201	2,291	2,295	1,962	1,708	1,722	1,709	1,371	977	1,051	1,253	1,205	7,769	8,749	6,510
Depreciation	179	184	192	200	200	227	249	249	265	285	303	322	360	390	420	450	755	925	1,175
Stock-based compensation	61	69	50	50	74	85	68	62	104	111	79	68	120	128	91	78	230	289	362
Changes in																			
Accounts receivable	(170)	(7)	(62)	(48)	(94)	(395)	150	145	18	(79)	(20)	189	278	(114)	(167)	0	(287)	(194)	108
Inventories	65	40	(13)	(47)	(150)	(139)	(205)	(353)	(531)	(441)	(179)	(91)	1,001	(252)	(332)	(31)	45	(847)	(1,242)
Prepaid exp. & other cur. assets	73	(50)	76	(42)	21	(1)	25	(39)	(4)	14	28	8	0	0	0	0	57	6	46
Accounts payable and accr. exp.	(310)	(17)	35	(54)	11	19	42	34	(124)	74	27	(10)	(33)	78	100	16	(346)	106	(33)
Income taxes payable	131	(175)	(10)	34	284	(279)	21	68	185	(243)	(7)	58	0	0	0	1,500	(20)	94	(7)
Other	(29)	(61)	(5)	43	(435)	(221)	(85)	(51)	(475)	(188)	(92)	11	0	0	0	0	(52)	(792)	(744)
Cash flow from operations	1,850	2,121	2,428	2,357	2,144	1,768	2,766	2,042	1,160	1,399	1,937	1,924	2,704	1,280	1,364	3,220	8,756	8,720	6,420
Cash Flow From Investing																			
Capex Spending	(308)	(386)	(486)	(1,282)	(443)	(597)	(790)	(967)	(982)	(1,446)	(1,495)	(1,148)	(1,250)	(1,250)	(1,250)	(1,250)	(2,462)	(2,797)	(5,071)
Purchases of short-term investments	(2,782)	(1,952)	(1,693)	(3,697)	(3,988)	(2,461)	(4,346)	(3,688)	(3,013)	(4,047)	(3,080)	(2,565)	0	0	0	0	(10,124)	(14,483)	(12,705)
Sales and maturities of ST investments	0	2,455	1,315	2,708	2,774	4,200	3,033	3,650	4,026	3,065	2,885	3,411	0	0	0	0	6,478	13,657	13,387
Cash flow from investing	(1,109)	127	(884)	(2,229)	(1,668)	1,225	(2,113)	(1,027)	28	(2,385)	(1,694)	(311)	(1,250)	(1,250)	(1,250)	(1,250)	(4,095)	(3,583)	(4,362)
Cash Flow From Financing																			
Dividends paid	(940)	(942)	(942)	(1,062)	(1,063)	(1,060)	(1,051)	(1,123)	(1,125)	(1,125)	(1,126)	(1,181)	(1,180)	(1,179)	(1,177)	(1,235)	(3,886)	(4,297)	(4,557)
Sales & other stock transactions	0	0	75	52	57	0	78	50	85	65	68	45	0	0	0	0	127	185	263
Stock repurchases	(100)	(146)	(139)	(142)	(589)	(1,182)	(996)	(848)	(103)	(79)	(46)	(65)	(200)	(200)	(200)	(200)	(527)	(3,615)	(293)
Cash flow from financing	(1,406)	(1,041)	470	(1,160)	(1,602)	(2,696)	(1,286)	(1,134)	239	(52)	(1,116)	(1,215)	(1,380)	(1,379)	(1,377)	(1,435)	(3,137)	(6,718)	(2,144)
Change in cash & equivalents	(665)	1,207	2,014	(1,032)	(1,126)	297	(633)	(119)	1,427	(1,038)	(873)	398	74	(1,349)	(1,263)	535	1,524	(1,581)	(86)
Beginning cash & equivalents	3,107	2,442	3,649	5,663	4,631	3,505	3,802	3,169	3,050	4,477	3,439	2,566	2,964	3,038	1,689	425	3,107	4,631	3,050
Ending cash & equivalents	2,442	3,649	5,663	4,631	3,505	3,802	3,169	3,050	4,477	3,439	2,566	2,964	3,038	1,689	425	960	4,631	3,050	2,964
Free Cash Flow (FCF)	1,542	1,735	1,942	1,075	1,701	1,171	1,976	1,075	178	(47)	442	776	1,454	30	114	1,970	6,294	5,923	1,349
Trailing 4Q FCF	6,342	6,487	7,132	6,294	6,453	5,889	5,923	5,923	4,400	3,182	1,648	1,349	2,625	2,702	2,374	3,567			
Trailing 4Q FCF % of sales	41.1%	38.7%	40.6%	34.3%	34.0%	30.1%	29.3%	29.6%	22.6%	16.9%	9.1%	7.7%	15.7%	16.9%	15.1%	22.6%	34.3%	29.6%	7.7%
Dividends as % of FCF (ttm)	55.6%	56.2%	52.7%	61.7%	62.1%	70.1%	71.5%	72.5%	99.1%	139.0%	273.0%	337.8%	175.7%	172.7%	198.7%	133.7%	61.7%	72.5%	337.8%
Repurchases as % of FCF (ttm)	16.0%	4.3%	5.6%	8.4%	15.7%	34.8%	49.1%	61.0%	71.1%	63.7%	65.3%	21.7%	14.9%	18.9%	28.0%	22.4%	8.4%	61.0%	21.7%
Total returns as % of FCF (ttm)	71.5%	60.4%	58.3%	70.1%	77.9%	104.9%	120.6%	133.6%	170.2%	202.7%	338.3%	359.5%	190.6%	191.6%	226.7%	156.2%	70.1%	133.6%	359.5%

Source: BofA Global Research estimates, company report

BofA GLOBAL RESEARCH

Price objective basis & risk

NXP Semiconductors NV (NXPI; B-1-7; \$223.93)

Our PO of \$280 is based on 19x 2025E EV/FCF, in line with median diversified auto/industrial compares which trade in a range of 16x-32x CY24E EV/FCF.

Downside risks: 1) Semiconductor cycle risks, 2) Lumpy nature of projects in key identification segment, 3) Some exposure to and growth driven by Apple, which could add volatility, 4) Execution risk surrounding management's capability to reengage following two-year hiatus, 5) Macroeconomic supply/demand disruption.

Texas Instruments Inc. (TXN)

Our \$175 PO is based on 41x CY25E EV/FCF. At high-end of its historical 15x-42x range, which we believe is warranted based on TXN's best in class FCF generation and returns, and based on incremental cash flow from US CHIPS Act grants.

Risks to our price objective: 1) Macro/cyclical risks given high exposure to automotive, industrial, and telco capex markets, also makes TXN susceptible to any potential global trade tensions/tariffs, 2) Increasing capex intensity and higher depreciation burden could be a headwind to gross margins, 3) Increased R&D spending pressure to maintain an edge versus the competition, 4) Inventory cycles and potential double ordering by customers that can often create mismatches between real supply and demand, 5) Exposure to several mature markets such as PC and other consumer.

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I, Vivek Arya, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

US - Semiconductors and Semiconductor Capital Equipment Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	Advanced Micro Devices, Inc	AMD	AMD US	Vivek Arya
	Analog Devices Inc.	ADI	ADI US	Vivek Arya
	Applied Materials, Inc.	AMAT	AMAT US	Vivek Arya
	Arm Holdings	ARM	ARM US	Vivek Arya
	Broadcom Inc	AVGO	AVGO US	Vivek Arya
	Cadence	CDNS	CDNS US	Vivek Arya
	Camtek	CAMT	CAMT US	Vivek Arya
	KLA Corporation	KLAC	KLAC US	Vivek Arya
	Lam Research Corp.	LRCX	LRCX US	Vivek Arya
	M/A-Com	MTSI	MTSI US	Vivek Arya
	Marvell Technology Group Ltd.	MRVL	MRVL US	Vivek Arya
	Microchip	MCHP	MCHP US	Vivek Arya
	Micron Technology, Inc	MU	MU US	Vivek Arya
	Nova	NVMI	NVMI US	Vivek Arya
	NVIDIA Corporation	NVDA	NVDA US	Vivek Arya
	NXP Semiconductors NV	NXPI	NXPI US	Vivek Arya
	onsemi	ON	ON US	Vivek Arya
	Synopsys	SNPS	SNPS US	Vivek Arya
NEUTRAL				
	Advanced Energy Industries	AEIS	AEIS US	Duksan Jang
	Allegro MicroSystems	ALGM	ALGM US	Blake Friedman
	Axcelis Technologies	ACLS	ACLS US	Duksan Jang
	Coherent Corp	COHR	COHR US	Vivek Arya
	GlobalFoundries	GFS	GFS US	Vivek Arya
	Intel	INTC	INTC US	Vivek Arya

US - Semiconductors and Semiconductor Capital Equipment Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	Lattice Semiconductor	LSCC	LSCC US	Blake Friedman
	Texas Instruments Inc.	TXN	TXN US	Vivek Arya
UNDERPERFORM				
	Ambarella	AMBA	AMBA US	Vivek Arya
	Credo Technology	CRDO	CRDO US	Vivek Arya
	Lumentum Holdings	LITE	LITE US	Vivek Arya
	Qorvo Inc.	QRVO	QRVO US	Vivek Arya
	Skyworks Solutions, Inc.	SWKS	SWKS US	Vivek Arya
	Teradyne	TER	TER US	Vivek Arya
	Wolfspeed Inc	WOLF	WOLF US	Vivek Arya

iQmethodSM Measures Definitions**Business Performance**

Return On Capital Employed

Return On Equity

Operating Margin

Earnings Growth

Free Cash Flow

Quality of Earnings

Cash Realization Ratio

Asset Replacement Ratio

Tax Rate

Net Debt-To-Equity Ratio

Interest Cover

Valuation Toolkit

Price / Earnings Ratio

Price / Book Value

Dividend Yield

Free Cash Flow Yield

Enterprise Value / Sales

EV / EBITDA

Numerator

NOPAT = (EBIT + Interest Income) × (1 – Tax Rate) + Goodwill Amortization

Net Income

Operating Profit

Expected 5 Year CAGR From Latest Actual

Cash Flow From Operations – Total Capex

Numerator

Cash Flow From Operations

Capex

Tax Charge

Net Debt = Total Debt – Cash & Equivalents

EBIT

Numerator

Current Share Price

Current Share Price

Annualised Declared Cash Dividend

Cash Flow From Operations – Total Capex

EV = Current Share Price × Current Shares + Minority Equity + Net Debt +

Other LT Liabilities

Enterprise Value

Denominator

Total Assets – Current Liabilities + ST Debt + Accumulated Goodwill

Amortization

Shareholders' Equity

Sales

N/A

N/A

Denominator

Net Income

Depreciation

Pre-Tax Income

Total Equity

Interest Expense

Denominator

Diluted Earnings Per Share (Basis As Specified)

Shareholders' Equity / Current Basic Shares

Current Share Price

Market Cap = Current Share Price × Current Basic Shares

Sales

Basic EBIT + Depreciation + Amortization

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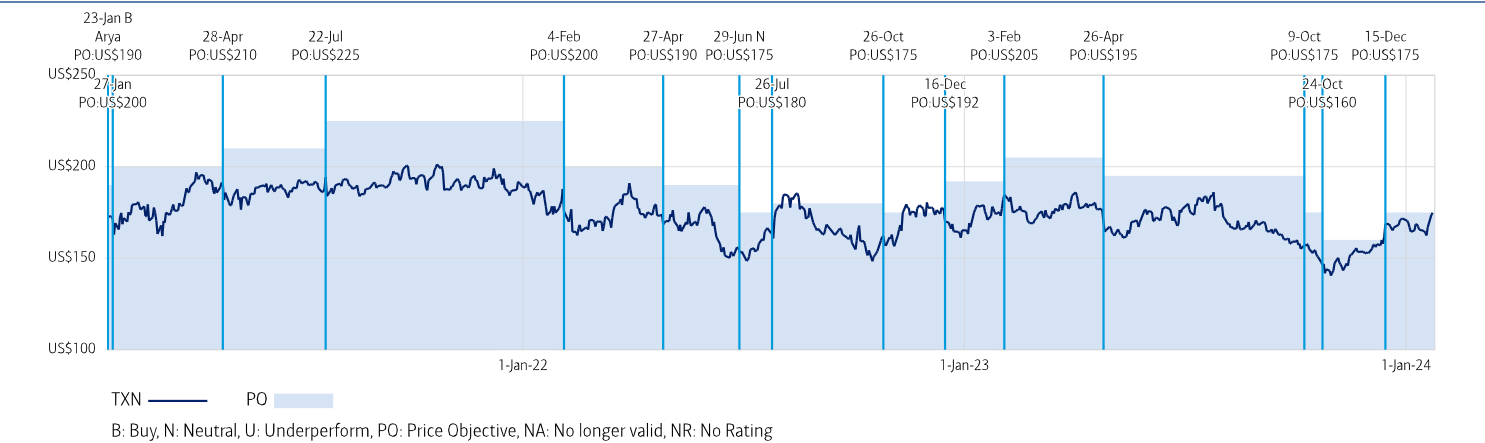
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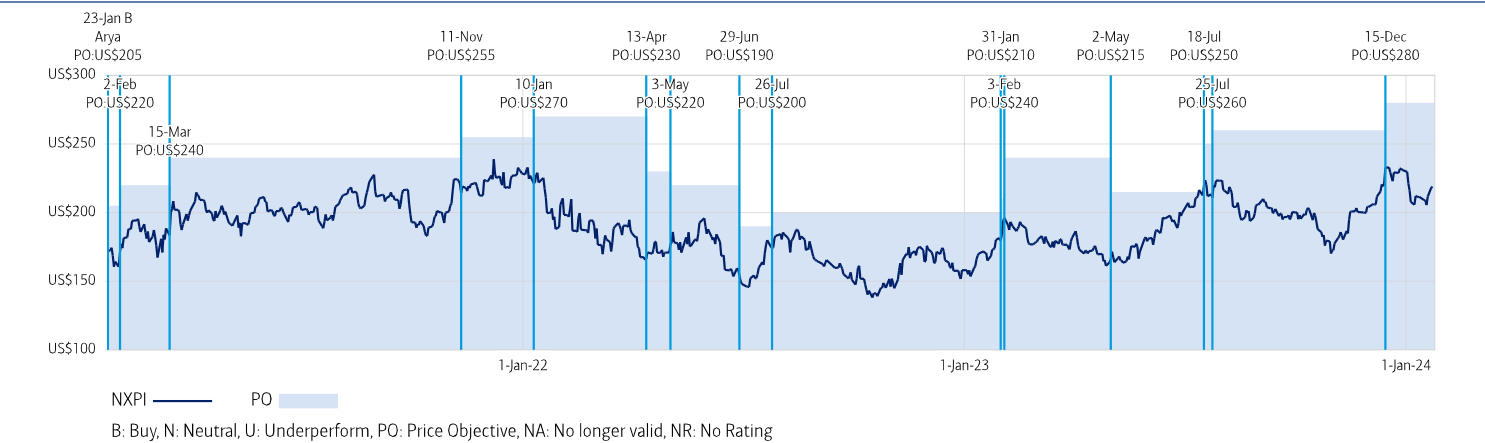
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Texas Instr. (TXN) Price Chart



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NXP Semiconductors (NXPI) Price Chart



The Investment Opinion System is contained at the end of the report under the heading "Fundamental Equity Opinion Key". Dark grey shading indicates the security is restricted with the opinion suspended. Medium grey shading indicates the security is under review with the opinion withdrawn. Light grey shading indicates the security is not covered. Chart is current as of a date no more than one trading day prior to the date of the report.

Equity Investment Rating Distribution: Technology Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	215	53.09%	Buy	111	51.63%
Hold	97	23.95%	Hold	45	46.39%
Sell	93	22.96%	Sell	24	25.81%

Equity Investment Rating Distribution: Global Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	1895	53.62%	Buy	1083	57.15%
Hold	832	23.54%	Hold	454	54.57%
Sell	807	22.84%	Sell	383	47.46%

^{R1} Issuers that were investment banking clients of BofA Securities or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only stocks. A stock rated Neutral is included as a Hold, and a stock rated Underperform is included as a Sell.



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Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster ^{R2}
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

^{R2}Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

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