TTM Technologies, Inc.

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MFIF

Minutemen Fixed Income Fund

Investment Thesis

We recommend an overweight position on TTM Technologies, Inc. (TTMI) 4.00% 2029 senior unsecured notes. TTMI is a leading global printed circuit board (PCB) manufacturer focusing on quick turn and volume production of technologically advanced PCBs. Over the past few years, TTMI has engaged in M&A activity to strengthen its portfolio of products and exposure to the aerospace and defense (A&D) end-market. We believe the market is not recognizing TTMI's recent acquisition of Telephonics which strengthens its A&D end market. In addition, TTMI recently announced a new highly automated manufacturing facility in Malaysia. The new facility decreases TTMI's exposure to China while also bringing increased capacity. The market is also placing too much risk on the softening demand TTMI has been experiencing in a few of its end-markets. Softening demand in some end markets is supported by TTMIs diverse end market mix. TTMI is focused on creating a long-cycle business to reduce its exposure to cyclicality in markets. We expect to see TTMI's 2029 notes tighten by about 40-70 bps due to the acquisition of Telephonics, new facility in Malaysia, and market overreaction to softening demand.

Figure 1: Capitalization Table

TTM Technologies, Inc.					
LTM EBITDA	298				
LTM Leverage	3.24x				
Debt Oustanding (USD in millions)					
Type	**Amount O/S**	**Maturity**	**Coupon**	**Price**	**YTW**
1st Lien Secured Loans					
TTMI Revolver	Undrawn	6/3/2024			
TTMI Revolver	30.00	6/3/2024	L + 140 bps	N/A	5.14
Term Loan B1	405.88	9/28/2024	L + 250 bps	99.25	6.17
Senior Unsecured Bonds					
Senior Unsecured Notes	500	3/1/2029	4.000%	86.62	6.43
Total Value of Debt	935.88				

Source: MFIF Analysis, Bloomberg

Security Data

Bond Maturity: 03/01/2029

Rating: Ba3/BB-

Rank: Senior Unsecured

Price: 87.66

Yield-to-Worst: 6.43

Call Date: 03/01/2024

Coupon: 4.00%

OAS: 277.2

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Company Overview

TTM Technologies, Inc. is a leading global printed circuit board (PCB) manufacturer, as well as a designer and manufacturer of high-frequency radio frequency (RF) and microwave components and assemblies. TTMI is the largest PCB manufacturing company in North America in terms of PCB capabilities. TTMI's operating footprint is spread across 24 specialized facilities in North America and China. TTMI serves ~1600 customers comprised of original equipment manufacturers (OEMs) and electronic manufacturing serves (EMS) providers. Of TTMI's 1600 customers, the largest five accounted for 30% of revenue in FY2021. The company operates within five different end markets, with aerospace and defense (A&D) being its largest revenue contribution.

Industry Overview

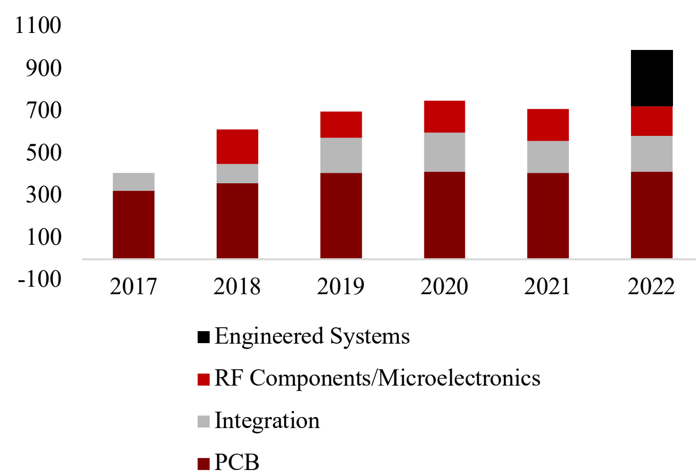
The PCB industry is comprised of the largest 40 manufacturers combining for a market share of approximately 74%. PCBs are manufactured in panels from sheets of laminated material which is then dived into multiple PCBs. Each PCB consists of a pattern of electrical circuity engraved from copper. These etchings provide an electrical connection between the components mounted on it. PCBs are the foundation for nearly all electronic products. Worldwide demand for PCBs is expected to grow at a CAGR of 8.1% from 2020 to 2025. As the industry moves forward, TTMI expects to see shorter electronic product life cycles and increased complexity of PCBs.

Investment Rationale and Catalysts

Acquisition of Telephonics

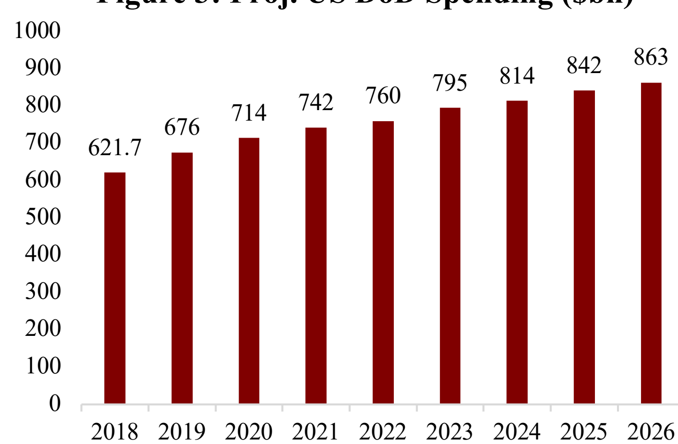
In 2Q22, TTMI closed a $330M all-cash acquisition of Telephonics. Telephonics is a leading global provider of highly sophisticated technology systems solutions including radar, electronic warfare, surveillance, and communication. These systems are deployed over a wide variety of markets. This acquisition aims to widen TTMI's aerospace and defense (A&D) product offering by integrating vertically into higher-level engineered system solutions and horizontally into surveillance and communications markets, while strengthening its position in radar systems. As of 3Q22, A&D revenues account for 38% of total TTMI revenue, compared to just 31% in 3Q21. Excluding the impact of Telephonics, A&D revenues grew 7% YoY. With the acquisition of Telephonics, A&D revenue backlog grew from $871M to $1.16B. This is primarily due to Telephonics deriving ~95% of revenues from the A&D end-market with 50% of those being in the radar segment. In addition, over 50% of A&D revenue will be from engineered products while PCBs will be less than 50%. We believe the market is not properly pricing in the value that it brings to TTMI's portfolio. Diversification of product offerings within each end-market is key to expanding on TTMI's strategy of greater technological complexity. TTMI also saw significant bookings for the Spy 6 radar program. Geopolitical tensions are also benefiting TTMI through

Figure 2: A&D Revenue by Product



Source: Company Filings, MFIF Analysis

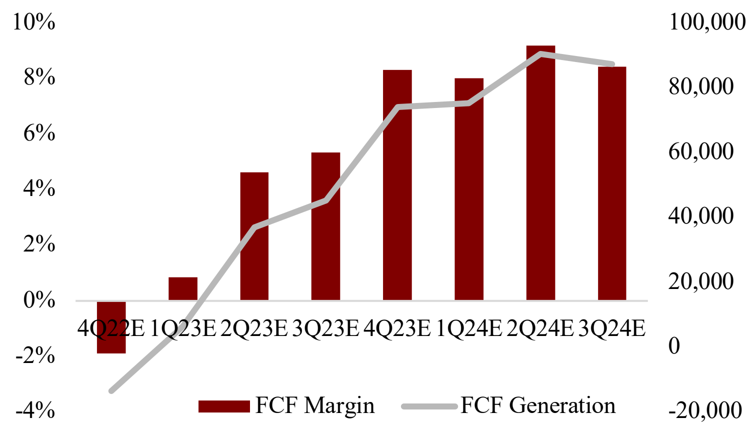
Figure 3: Proj. US DoD Spending ($bn)



Source: US DoD, MFIF Analysis

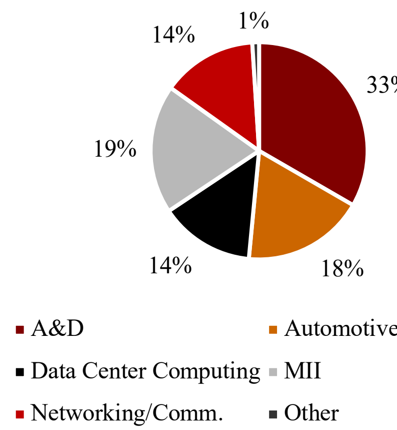
an increased defense budgets. US defense budget for FY2023 emphasizes perceived strategic threats from China and Russia, with a key focus on electronic warfare and cybersecurity. Within the first three months of Russia's invasion of Ukraine, European nations planned ~$204B of increased budget spending focused on future military technology. Despite this acquisition, TTMI still has ample liquidity with ~$330M of cash on its balance sheet. TTMI has positioned itself to see consistent FCF generation as it is committed to increasing its end-market diversification.

Figure 4: FCF Generation vs FCF Margin



Source: MFIF Analysis

Figure 5: Revenue by End Market



Source: Company Filings, MFIF Analysis

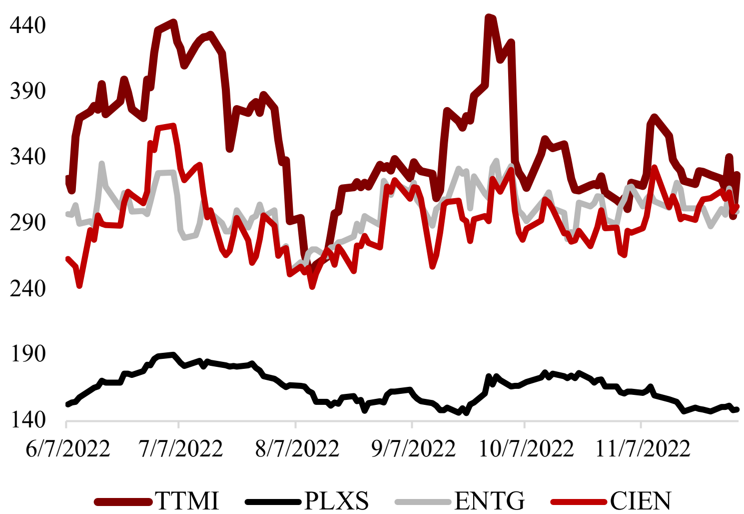
New Factory in Malaysia

In March of 2022, TTMI announced that they will be building a highly automated PCB manufacturing facility in Penang, Malaysia. The new facility will serve customers in TTMI's commercial markets such as data center computing, and medical, industrial, and instrumentation. TTMI's capital investment to build the plane will be ~$130M through 2025. It expects a phase one capacity of $180M in FY2024 with 25% expansion room for phase two. They currently have 6 PCB fabrication plants and 1 RF plant in China. This facility will be the second of TTMI's foreign properties to existing outside of China. TTMI provides a one-stop design, manufacturing, and test solution to its customers which allows them to better serve the time-sensitive high-growth markets in which they serve. TTMI's differentiation strategy involves directing each customer to the facility best suited to the customer's product type, delivery time, complexity, and volume needs. TTMI's heavy reliance on its manufacturing plants is associated with greater risk because the Chinese government has a history of changing legal requirements with minimal notice. The decision to build this factory is a response to increasing concerns about its lack of regional diversification to limit exposure to supply chain disruptions. From a manufacturing capability standpoint, TTMI has ~50% exposure to China. In addition, we believe the market is overcompensating for the reduction in FCF margins due to the capital investment to build plant. Historically, TTMI has operated with a FCF margin of ~8%. With the acquisition of Telephonics and the new factory in Malaysia, we are projecting FCF margins to shrink to ~3-4% but returning to 8% by the end of the projection period.

Overreaction to Macroeconomic Headwinds

With the current macroeconomic environment, we believe the market is placing an unreasonable amount of risk on the softening demand TTMI is experiencing. TTMI has been experiencing a booking slowdown in parts of its commercial business as customers are focusing on managing inventories. TTMI's 90-day revenue backlog declined from $703.7M at the end of June to $672.9M at the end of September. In addition, TTMI's book-to-bill was 0.92 at the end of Q3, an increase from 0.89 at the end of Q2. It is primarily below 1 due to the slowdown in bookings as the commercial side of the business faces some supply chain challenges. Overall capacity utilization in North America was 45% in Q3 compared to 50% in Q3 the year prior. This is primarily due to labor shortages TTMI has been facing but they expect those to relive in FY2023.

Figure 6: Option Adjusted Spread (bps)



Source: Bloomberg, MFIF Analysis

Risks to Thesis

- A&D market does not sustain the anticipated growth needed to grow revenue
- Inability to capitalize on increased capacity brought forth by the new factory
- Macroeconomic headwinds continue to inhibit growth in end markets and keep pressure on tight labor market

Figure 7: Comparable Company Analysis

Comps (USD in Millions)	TTMI	PLXS	ENTG	CIEN
Market Cap	1,643	3,045	11,298	6,632
Debt	965	503	5,930	1,136
Net Debt	629	229	5,176	-46
Enterprise Value	2,271	3,274	16,474	6,587
Revenue (LTM)	2,476	3,811	2,971	3,703
Adj. EBITDA (LTM)	298	260	794	453
Debt/EBITDA	3.24x	1.94x	7.47x	2.51x
EBITDA Margin	12.02%	6.82%	26.71%	12.24%
Net Debt/Est. EBITDA	1.79x	0.77x	5.07x	-0.11x
EBITDA/Interest	6.54x	17.80x	5.82x	11.00x
FCF	162	-128	41	23
Debt/FCF	5.97x	-3.94x	145.71x	50.48x
Individual Securities				
Rating (Moody/S&P)	Ba3/BB-	N/A	Baa3/BB+	Ba1/BB
Coupon	4.000%	4.220%	4.750%	4.000%
Maturity	3/1/2029	6/15/2028	4/15/2029	1/31/2030
Price	87.66	95.14	92.35	86.84
YTW	6.4%	5.2%	6.2%	6.3%
OAS	277.4	110.2	259.8	267
Next Call Date	3/1/2024	1/3/2023	1/15/2029	1/31/2025
Spread/Turn of Leverage	85.56 bps	56.91 bps	34.77 bps	106.52 bps

Source: Bloomberg, MFIF Analysis

Despite these headwinds TTMI is facing, it is supported by its diverse end market mix. Each end market is driven differently which allows for support during times of economic downturn. TTMI's instrumentation end-market is heavily weighted towards semiconductor CapEx spending. That market is starting to soften with companies moving forward slowly and not wanting to expand too rapidly. But, in the automotive industry, the outlook is very positive. Six years ago, there were $50 of circuit boards in a vehicle and now there are $90 of circuit boards used in a vehicle. Eventually, management expects this figure to reach $180. The demand for more advanced PCBs is growing as the automotive industry looks to integrate new vehicles with newer and faster technologies. Management also expects Networking and Communications to grow 5% to 8% in 2023 supported by the 5G rollout and wireless infrastructure. TTMI revenue is also supported by the A&D growth talked about in the first point. While TTMI may see softening in a few of its end markets, the diversification in both its products and end markets will allow them to continue generating strong FCF to service its debt payments.

Relative Valuation

TTMI's most relevant comparable company is PLXS. Compared to TTMI's 29's, PLXS's 28's are trading 160 bps tighter. PLXS is currently generating negative FCF while TTMI is generating $161.6M of FCF. Although PLXS generates more revenue, TTMI has an EBITDA margin of 12% compared to PLXS's 6%. Although TTMI's leverage ratio is 3.24x compared to PLXS's 1.94x, we believe that the difference in spread is not justified. TTMI also has product offerings in more markets than PLXS which we believe reduces TTMI's exposure to market volatility. Compared to ENTG, which is trading 20 bps tighter relative to TTMI, TTMI is generating greater FCF and has a lower leverage ratio. Although TTMI has a slightly higher leverage ratio than CIEN, TTMI is generating significantly greater FCF with a similar EBITDA margin. We believe that TTMI's strong financial position will lead to a tightening as these points are realized.

Summary Model

TTM Technologies, Inc.									
Fiscal Year	FY2021A	2Q22A	3Q22E	4Q22E	1Q23E	2Q23E	3Q23E	FY2022	FY2023
EOP Date	12/31/2021	6/30/2022	9/30/2022	12/31/2022	3/31/2023	6/30/2023	9/30/2023	12/31/2022	12/31/2023
Income Statement									
Net Sales	2,248,740	625,550	671,080	712,527	758,460	799,701	844,387	2,590,417	3,295,394
Cost of Goods Sold	1,876,729	508,477	542,513	585,914	603,491	621,596	640,244	2,127,241	2,524,783
Gross Profit	**372,011**	**117,073**	**128,567**	**126,613**	**154,968**	**178,105**	**204,143**	**463,176**	**770,611**
Total Operating Expenses	246,020	79,871	78,789	82,981	85,872	88,895	92,056	306,696	362,187
Operating Income	125,991	37,202	49,778	43,632	69,096	89,210	112,086	156,480	408,424
Other Expense:									
Interest expense	(45,475)	(10,711)	(10,939)	(6,671)	(16,671)	(6,671)	(16,671)	(39,682)	(46,683)
Total other expense	(55,938)	(3,073)	(615)	3,757	(6,139)	3,966	(5,927)	(9,322)	(3,920)
Income before Income Tax	**70,053**	**34,129**	**49,163**	**47,388**	**62,957**	**93,176**	**106,159**	**147,157**	**404,503**
Income Tax Provision	(15,639)	(6,337)	(5,635)	(4,006)	(5,323)	(7,877)	(8,975)	(15,209)	(34,197)
Net Income	**54,414**	**27,792**	**43,528**	**43,382**	**57,635**	**85,299**	**97,184**	**131,948**	**370,306**
Growth rates & margins									
Revenue Growth		7.6%	7.3%	6.2%	6.4%	5.4%	5.6%	15.2%	27.2%
Gross Margin	16.5%	18.7%	19.2%	17.8%	20.4%	22.3%	24.2%	17.9%	23.4%
Balance Sheet									
Cash and Cash Equivalents	537,678	266,546	335,625	298,278	270,898	275,759	286,342	298,278	323,235
Total Current Assets	**1,407,413**	**1,380,883**	**1,439,228**	**1,467,794**	**1,513,368**	**1,583,864**	**1,665,493**	**1,467,794**	**1,779,360**
PP&E	665,755	748,439	745,992	763,906	783,503	804,595	827,308	763,906	851,742
Total Assets	**3,025,547**	**3,214,651**	**3,292,890**	**3,360,126**	**3,453,186**	**3,570,643**	**3,702,466**	**3,360,126**	**3,870,009**
Long-Term Debt	943,070	944,437	942,691	949,673	949,673	949,673	949,673	949,673	949,673
Total Liabilities and SE	**3,025,547**	**3,214,651**	**3,292,890**	**3,360,126**	**3,453,186**	**3,570,643**	**3,702,466**	**3,360,126**	**3,870,009**
EBITDA Reconciliation									
(+) EBIT	115,528	44,840	60,102	54,059	79,628	99,847	122,829	186,839	451,186
(+) Depreciation and Amortization	127,331	31,447	35,674	22,090	22,987	23,808	24,695	120,369	97,183
(+) Stock-Based Compensation	-	-	-	-	-	-	-	-	-
EBITDA	**242,859**	**76,287**	**95,776**	**76,149**	**102,615**	**123,654**	**147,524**	**307,208**	**548,369**
FCF Reconciliation									
(+) Cash flow from operations	176,632	79,317	80,006	14,124	35,799	68,040	77,910	209,438	290,489
(-) Capex	(81,951)	(26,482)	(26,318)	(27,628)	(29,409)	(31,008)	(32,741)	(103,873)	(127,777)
Free Cash Flow to Firm	**94,681**	**52,835**	**53,688**	**(13,503)**	**6,391**	**37,033**	**45,169**	**105,566**	**162,712**
Credit Metrics									
Debt/EBITDA (LTM)	1.5x	3.6x	3.2x	3.1x	2.7x	2.4x	2.1x	1.3x	0.9x
Net debt/EBITDA	0.6x	2.6x	2.0x	2.1x	1.9x	1.7x	1.5x	0.9x	0.6x