



## Western Digital Corporation (NASDAQ: WDC)

Analyst: Evan Clarke

We recommend an underweight position on Western Digital's 4.750% notes due in 2026. WDC has in the past two quarters began to achieve sequential revenue growth once again for the first time since fiscal 2018, and management has attributed this to the normalization of the flash market pricing normalization. WDC's 26 notes have tightened relative to its competitors because of its greater exposure to flash memory and SSD's. We believe this tightening is unjustified because Western Digital's QLC technology has inferior durability and speed relative to its competitors, which will hinder its ability to capture increasing market share. On the hard drive side of its business, we believe Western Digital is struggling to implement the microwave assisted magnetic recording (MAMR) into its new products, which is why it has subtly changed plans for its new 20TB drive to have Shingled Magnetic Recording (SMR) instead of Conventional Magnetic Recording (CMR). Meanwhile, Seagate's newest 20TB drive implements Heat Assisted Magnetic Recording (HAMR). Seagate's new products allow for CMR to be used, which will improve performance and allow for them to scale their hard drives more rapidly until WDC can implement MAMR. We believe that Western Digital's weak competitive position and inferior credit metrics will result in its 2026 notes widening 40-60 bps.

Figure 1: Capitalization Table

Western Digital Capitalization Table						
LTM EBITDA as of 12/31/2019		1,711.0				
Outstanding Debt Metrics & Leverage						
Type of Debt	Rate%	Maturity	Debt Outstanding (\$MM)	M Adj. EBI	Price	Yield
Revolver	L + 150	2/27/2023	--		--	--
Term Loan A	L + 150	2/27/2023	4,708		99.88	3.37%
Term Loan B	L + 175	4/29/2023	1,693		100.25	3.13%
<b>Total 1st Lien Debt</b>			<b>6,401.2</b>	<b>3.7x</b>		
Senior Unsecured	4.750%	2/15/2026	2300		107.88	3.24%
Unsecured Convertible	1.500%	2/1/2024	1100		101.58	1.09%
Unsecured Convertible	0.500%	2/1/2022	35		92.72	12.67%
<b>Total Senior Unsecured</b>			<b>3,435.0</b>	<b>5.7x</b>		
<b>Total Debt</b>			<b>9,836.2</b>	<b>5.7x</b>		
Market Capitalization (\$MM)			19,000.1			
Less: Cash			3,137.0			
<b>Enterprise Value</b>			<b>25,699.3</b>	<b>15.0x</b>		

### Security Data

Bond Maturity: 02/15/2026

Rating: BB+/Baa3

Tranche: Senior Unsecured

Price: \$107.8785

YTW: 3.24%

Call Date: 11/15/2025

Coupon: 4<sup>3</sup>/<sub>4</sub>

Z-Spread: 191.5 bps

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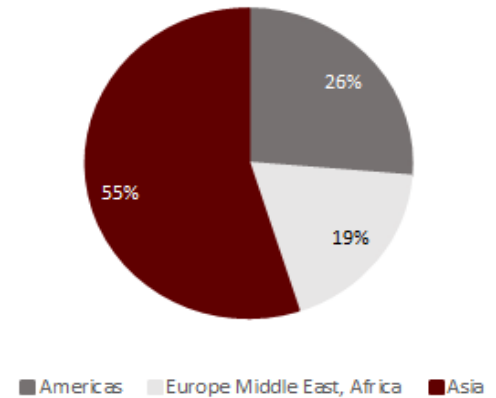
**Company Description**

Western Digital, founded in 1970 and began as a producer of semiconductors. It is now an international firm that produces both flash-based and hard drive storage for hyperscale and midsize companies, along with consumers. Its products are used in mobile phones, gaming consoles, computers, cloud storage, machine learning, and more. It creates both internal and external drives. Due to rapidly increasing demand for data storage for big data analysis, Internet of Things (IoT), and 5G technology, the memory market is expected to grow at a CAGR of ~26% over the next four years. The market is highly competitive, and WDC’s main competitors are Samsung, SK Hynix, Micron, and Seagate. The low marginal cost of manufacturing drives incentivizes producers to flood the market with their new product, causing the market for memory to be highly cyclical. NAND spot prices have begun to flatten out after sustained declines that caused WDC’s gross margins to compress significantly. Management is optimistic that memory prices have reached a trough, and that the company will be able to achieve a profit margin of 35-40% in the long run.

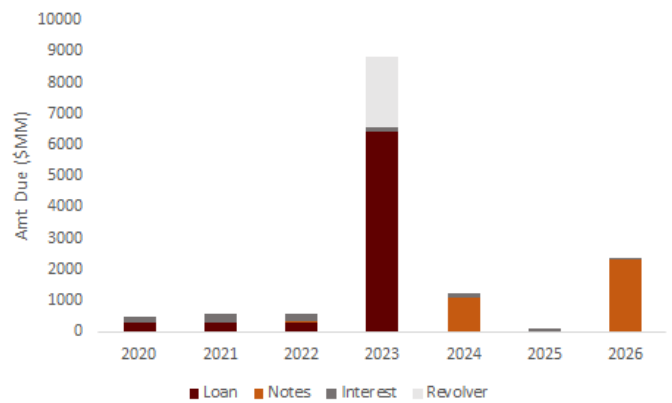
**Market Share Competitiveness in HDD Segment**

Back in 2018 Western Digital’s management team was extremely optimistic regarding its new MAMR technology for its hard drives, but has not been able to follow through on this promise, which will cause it to lose market share in CY20. According to guidance given in 2018, its 18TB hard drive was supposed to utilize CMR. It subtly updated guidance to change the drive to have SMR, which has slower performance because of overwriting the desired data will write over adjacent data as well. WDC’s new 20TB drive which is being sampled this year is also slated to have SMR technology. MAMR technology was supposed to make SMR unnecessary, and this change of course indicates difficulties in implementing the novel technology. Management had previously boasted MAMR as the technology that would pave the way to 40TB drives, but that future has become more uncertain. Meanwhile, Seagate Technologies is rolling out a 20TB CMR hard drive that utilizes HAMR, which sets path for Seagate to scale up storage capacity and capture market leadership in the hard drive market. **By the second half of CY20, we expect Western Digital to cede ~3% market share to Seagate and face pressure in margins as it loses technological leadership.**

**Figure 2: Revenue Breakdown (Geographic)**



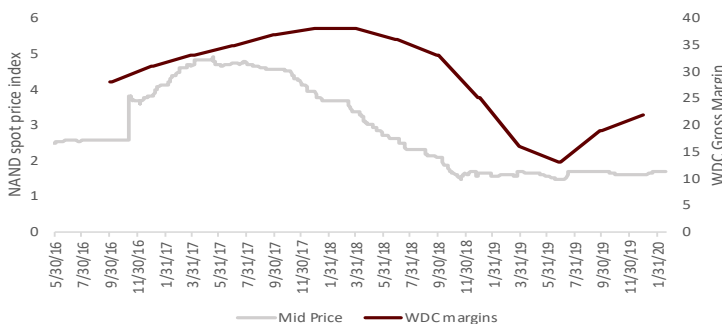
**Figure 3: Debt Repayment Schedule**



**Risks**

- NAND market is expected to grow most in Asia/China; WDC is much more exposed to China (42%), vs MU (15%) and STX (4%)
- WDC experiences a breakthrough with MAMR technology, allowing it to scale hard drives to 40TB as it had previously promised
- DRAM ASPs fail to improve as much as NAND, allowing WDC margins to approach those of MU
- Many NAND-producing factories are located in China; increased disruption from coronavirus could tighten supply and boost WDC’s ASP’s

**Figure 4: NAND Flash Spot Prices**



### Management is Overly Optimistic Regarding Enterprise SSDs

Western Digital's BiCS5, which was recently unveiled, utilizes quad level cell (QLC) technology that will hinder its ability to double market share in Enterprise SSDs in the coming year. While it currently has a 9% market share, management has expressed enthusiasm in guidance that it is confident that the company will be able to more than double market share to ~20% in the coming year after it signed a contract with a hyperscale company. We remain skeptical in WDC's ability to do so on account of quad level cell technology suffering in performance and lifespan. QLC is much more densely packed, meaning more layers need to be sifted through in order to find the desired data. Also, the nature of the data having a higher areal density makes it much more prone to wear. Additionally, competitors Micron and Intel have released 3D Xpoint technology, which is faster than NVMe SSD and also more durable. **We believe that enterprises will be inclined to opt for the superior technology despite the higher price, creating a barrier to Western Digital gaining significant enterprise SSD market share as they had promised to their investors.**

Figure 5: Comparable Credit Metrics

	WDC	MU	STX
Market Cap (\$MM)	19000	61109	13580
Net Debt	6699	-3767	2121
EV	25699	57342	15701
Revenue	15582	20637	9958
EBITDA	1711	9647	1660
FCF	646	1367	1183
Net Debt/EBITDA	3.7x	-0.4x	1.3x
Net Debt/FCF	10.4x	-2.8x	1.8x
Rating	BB+/Baa3	BBB-/Baa3	BB+/Baa3
Bond Maturity	2026	2026	2025
YTW	3.23%	2.66%	2.91%
Z-Spread	191.5	134.2	160.0

### Relative Value

Since November of CY 2019, WDC has tightened ~50bps relative to MU due to improved guidance on NAND pricing, and now trades ~50bps wider. This occurred because 70% of Micron's revenue is from DRAM, which has not yet seen the recovery that NAND is starting to show. However, we believe that Micron's favorable credit metrics will allow it to fare better in times of weak market conditions. We saw Western Digital's overall gross margins decline from near 40% to below 20% as a result of weakening market conditions, along with FCF. We are less confident that Western Digital will be able to handle potential future market volatility as well as we see Micron doing. Micron additionally presents more potential for upside as we expect DRAM prices to increase along with the proliferation of 5G and cloud data storage. Furthermore, we do not see WDC's margins improving relative to MU's to make it an attractive opportunity at current bond prices. **Based on current prices, we believe WDC's 26 notes will widen 40-60bps upon the market's realization of our catalysts later this calendar year.**

### Management

Stephen D. Milligan is currently CEO, and has been since 2013. He has over 20 years of experience in the industry and has been with the company since 2013. He, along with CFO Mark Long both announced that they would step down from their positions after weak performance in fiscal 2019. Milligan will have completed stepping down by September 2020. These two executives both had significant experience in the data storage industry, further adding uncertainty for Western Digital's future.

Michael Cordano is President and COO. He co-founded external storage company Fabrik before joining the WDC team.

Robert Eulau has taken over as CFO. He had not previously been in the data storage industry, but had experience as CFO.

Figure 6: Relative Z-Spreads

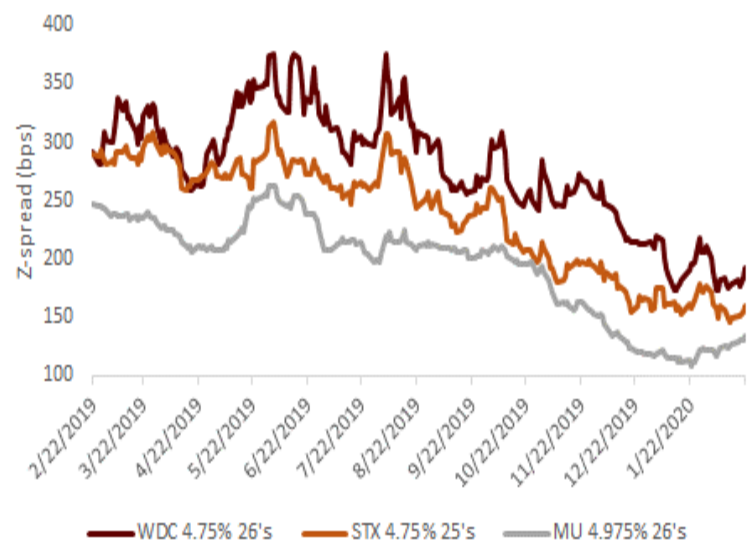


Figure 7: Summary Model

## Western Digital (WDC)

Summary Model | February 26, 2020

	2018	2019	1Q20	2Q20	3Q20e	4Q20e	2020e	2021e	2022e
<b>HDD Revenue</b>	10,698	8,746	2,408	2,396	2,315	2,389	9,508	9,987	9,856
<i>% of total</i>	52%	53%	60%	57%	55%	55%	57%	54%	51%
<b>Flash-Based revenue</b>	9,949	7,823	1,632	1,838	1,894	1,955	7,319	8,508	9,469
<i>% of total</i>	48%	47%	40%	43%	45%	45%	43%	46%	49%
<b>Revenue</b>	\$ 20,647	\$ 16,569	\$ 4,040	\$ 4,234	\$ 4,209	\$ 4,344	\$ 16,827	\$ 18,495	\$ 19,325
Cost of revenue	12,949	12,817	3,282	3,299	3,157	3,171	12,909	13,686	13,721
<i>% of revenue</i>	63%	77%	81%	78%	75%	73%	77%	74%	71%
<b>Gross Profit</b>	\$ 7,698	\$ 3,752	\$ 758	\$ 935	\$ 1,052	\$ 1,173	\$ 3,918	\$ 4,809	\$ 5,604
<i>% margin</i>	37%	23%	19%	22%	25%	27%	23%	26%	29%
<b>Operating Expenses</b>									
R&D	2,400	2,182	574	578	645	654	2,451	2,774	2,899
<i>% of revenue</i>	12%	13%	14%	14%	15%	15%	15%	15%	15%
SG&A	1,473	1,317	305	298	337	348	1,287	1,480	1,546
<i>% of revenue</i>	7%	8%	8%	7%	8%	8%	8%	8%	8%
Employee termination, asset impairment and	215	166	8	9	34	47	98	147	166
Total operating expenses	4,088	3,665	887	885	1,016	1,049	3,836	4,401	4,611
<b>Operating income</b>	\$ 3,610	\$ 87	\$ (129)	\$ 50	\$ 37	\$ 124	\$ 82	\$ 408	\$ 994
Total interest and other income (expense), net	(1,532)	(374)	(108)	(90)	(84)	(91)	(373)	(364)	(364)
Income Tax expense	1,410	467	39	99	51	78	89	343	564
<b>Net Income</b>	668	(754)	(276)	(139)	(99)	(44)	(380)	(299)	66
<b>EBITDA Reconciliation</b>									
Net Income	668	(754)	(276)	(139)	(99)	(44)	188	(299)	66
(+) Interest	676	469	122	105	127	127	481	508	508
(+) Taxes	1,410	467	39	99	51	78	267	343	564
(+) D&A	2,056	1,812	406	399	425	425	1,655	1,638	1,622
<b>EBITDA</b>	\$ 4,810	\$ 1,994	\$ 291	\$ 464	\$ 505	\$ 585	\$ 1,845	\$ 2,190	\$ 2,760
(+) SBC	306	77	77	77	77	77	308	308	308
(+) One time charges	(290)	186	23	47	55	41	166	206	155
<b>Adjusted EBITDA</b>	\$ 4,826	\$ 2,257	\$ 391	\$ 588	\$ 637	\$ 703	\$ 2,319	\$ 2,704	\$ 3,223
<b>Free Cash Flow Reconciliation</b>									
Adjusted EBITDA	4,826	2,257	391	588	637	703	2,319	2,704	3,223
(-) CapEx	835	876	145	160	187	204	696	737	788
(-) Change in Working Capital	486	(260)	82	(62)	75	(125)	(30)	175	(233)
(-) Cash Taxes	1,758	93	66	114	51	78	89	343	564
<b>FCF</b>	\$ 1,747	\$ 1,548	\$ 98	\$ 376	\$ 323	\$ 547	\$ 1,344	\$ 1,449	\$ 2,104
<b>Balance Sheet</b>									
Gross Debt	10,993	10,246	9,961	9,547	9,375	9,243	9,243	8,857	8,644
Cash Balance	5,005	3,455	3,248	3,137	3,011	2,768	2,955	3,045	3,256
Net Debt	5,988	6,791	6,713	6,410	6,364	6,475	6,288	5,812	5,388
<b>Credit Metrics</b>									
Net Debt/EBITDA	1.2x	3.0x	3.4x	3.7x	3.6x	2.7x	2.7x	2.1x	1.7x
EBITDA/Interest	7.1x	4.8x	3.2x	5.6x	5.0x	5.5x	4.8x	5.3x	6.3x
FCF/ Net Debt	0.3x	0.2x	0.1x	0.2x	0.2x	0.3x	0.2x	0.3x	0.4x