

Western Digital

Ticker Site BiG	WDC
Ticker BiGlobal Trade	WDC
Ticker BT24	WDC
Ticker BiG Power Trade	WDC
P/E Ratio 2019E	24.85
P/BV Ratio	1.96
EV/EBITDA	23.32

Source: BiG Research;

Price and Performance (Values in USD)

Price	62.80
52 week high	65.31
52 week low	35.02
YTD	69.9%
Average daily volume (un)	5,174,859
Market Capitalization (mn)	18,677
Beta	1.30
Dividend	2.00
EPS	-2.58

Source: BiG Research;

Analysts Consensus (last 3 months)

Buy	16
Hold	12
Sell	3

Source: BiG Research;

Financial Data

Sales (USD mn)	16,569
EBITDA (USD mn)	1,899
Number of Employees	61,800
ROA	-5.6%
ROE	-14.7%
D/E	1.06
Dividend Yield	3.19%

Source: BiG Research;

Notes:

All quotes were updated in Bloomberg at 14h13 of December 27th, 2019.

Relevant Information:

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<https://www.big.pt/InformacaoMercado/s/TradingIdeas/Index/-1>

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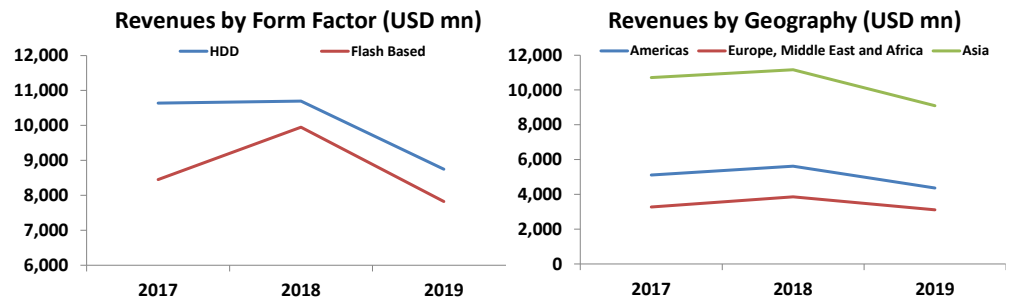
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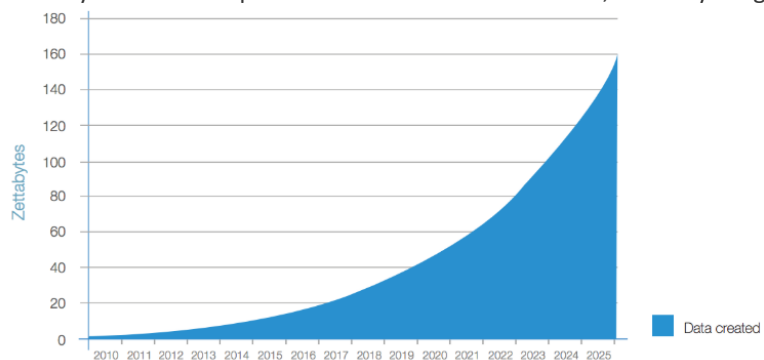
Western Digital (Ticker: WDC US)
Description

Western Digital is a semiconductor company specialized in the memory segment. Its products serve almost every industry and are used in datacenters, mobile sensors, computers etc. It was founded in 1970 in California, where it has its headquarters. It also generates revenue from a portfolio of more than 14,000 patents worldwide.

Western Digital trades in the NYSE with a market capitalization of USD 18.7 bn.


Investment Case

Growth in memory demand: Since 2018 the industry has been suffering due to rise in supply which outpaced demand. However in the long run, the predicted increase in memory use is exponential and this growth will benefit companies exposed to this trend. Below is a study of the development of data created worldwide, made by Seagate:



Source: IDC's Data Age 2025 study, sponsored by Seagate, April 2017

However the company's exposure to TMC, the departure of CEO and high level of debt are risks which delay our confidence in an investment in the company.

Relative Valuation

Name	Country	Market Cap (mn)	Currency	P/E 2020E	EV/EBITDA	YTD	Div. Yield	ROE	NetDebt/EBITDA	Margin EBITDA
CABOT MICROELECTRONICS CORP	UNITED STATES	4,201	USD	16.9	20.8	51.4%	1.2%	4.8%	3.7	20.1%
TERADYNE INC	UNITED STATES	11,668	USD	21.9	14.3	121.9%	0.5%	30.9%	-0.9	29.1%
AMKOR TECHNOLOGY INC	UNITED STATES	3,331	USD	20.2	4.0	111.7%	n.a.	2.7%	1.1	18.7%
INFICON HOLDING AG-REG	SWITZERLAND	1,880	CHF	29.3	18.8	56.6%	2.8%	28.5%	-0.2	20.0%
ENTEGRIS INC	UNITED STATES	6,883	USD	21.7	18.6	82.9%	0.6%	25.3%	1.9	23.7%
ASML HOLDING NV	NETHERLANDS	113,523	EUR	30.8	35.4	94.4%	0.8%	19.3%	0.4	25.3%
MKS INSTRUMENTS INC	UNITED STATES	6,090	USD	18.0	14.8	72.9%	0.7%	8.9%	1.3	19.6%
KLA CORP	UNITED STATES	28,206	USD	16.2	15.8	99.7%	1.7%	53.3%	1.0	34.4%
APPLIED MATERIALS INC	UNITED STATES	56,117	USD	14.1	14.2	87.3%	1.4%	35.9%	0.5	25.4%
ADVANCED MICRO DEVICES	UNITED STATES	51,928	USD	43.4	56.6	152.6%	n.a.	12.7%	-0.2	9.1%
NVIDIA CORP	UNITED STATES	146,384	USD	33.1	45.1	79.2%	0.3%	23.3%	-2.8	25.8%
MICRON TECHNOLOGY INC	UNITED STATES	61,215	USD	10.7	5.3	73.7%	n.a.	10.0%	-0.2	46.2%
WESTERN DIGITAL CORP	UNITED STATES	18,677	USD	10.1	23.3	69.9%	3.2%	-14.7%	6.8	6.6%
Average exc. WDC				21.0	17.4	86.54%	1.11%	23.29%	1.0	24.0%

Source: BiG Research

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Income Statement (USD mn)	2019	2018	2017
Revenues	16,569	20,647	19,093
Cost of goods sold	12,817	12,942	13,021
Research & Development	2,182	2,400	2,441
Marketing, General and admin.	1,317	1,473	1,445
Other expenses	166	215	232
Operating Expenses	16,482	17,030	17,139
EBIT	87	3,617	1,954
Interest expenses	374	616	821
EBT	-249	2,085	769
Taxes	467	1,410	372
Net Income	-716	675	397
Earnings Per Share	-2.58	2.20	1.34

Source: Company's data

Free Cash Flow (USD mn)	2019	2018	2017
Operational Cash Flow	1,547	4,205	3,437
Business Net Income	-754	675	397
Depreciation and Amortization	1,812	2,056	2,128
Changes in Working Capital	-260	486	91
Others	749	988	821
Investment Cash Flow	-1,272	-1,655	-636
Capex	-757	-909	-557
Financial investments & others	-515	-746	-79
Financial Cash Flow	-1,829	-3,900	-4,595
Debt change	-685	-2,793	-4,291
Share buyback	-445	-371	235
Dividends	-584	-593	-574
Others	-115	-143	35
Change in free cash flow	-1,554	-1,350	-1,794
Cash at the end of period	3,450	5,004	6,354

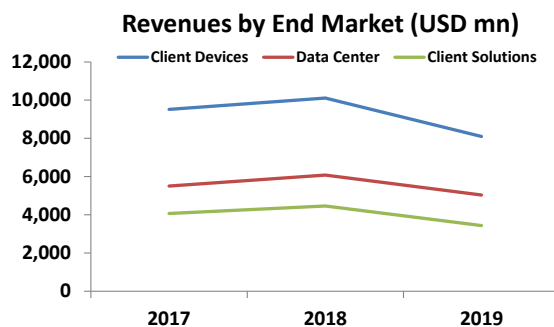
Source: Company's data

Balance Sheet (USD mn)	2019	2018
Assets	26,370	29,235
Cash & Equivalents	3,455	5,005
Short term investments	2,791	2,105
Receivables	1,204	2,197
Inventories	3,283	2,944
Property and equipment	2,843	3,095
Intangible Assets & Goodwill	11,787	12,755
Other Assets	1,007	1,134
Liabilities	16,403	17,704
Short term Debt	276	179
Long term Debt	10,246	10,993
Payables	3,541	4,277
Other liabilities	2,340	2,255
Total Shareowner's Equity	9,967	11,531
Total Equity and Liabilities	26,370	29,235

Source: Company's data

Income Statement

Western Digital fiscal year ends in June 30. During fiscal 2019, the company accelerated the closure of the HDD manufacturing facility in Kuala Lumpur, Malaysia, in order to reduce costs of USD 800 mn per year. No customer represents more than 10% of revenues and top 10 customers in 2019 represented 42%. In 2019, revenues dropped almost 20% due to lower average selling price per gigabyte of flash based products and lower sales of HDD products. This decrease led to a decline of 50% on gross profit. Several charges were recorded in the year: USD 264 mn due to underutilization of flash manufacturing, USD 145 mn due to a power outage and USD 110 mn to reduce inventory net realizable value.



Source: Company data

Free Cash Flow

The fall in profit led to a decline of more than 50% in the Operational Cash Flow. Still the company used this amount to pay for capex and reduce debt, while increasing share buybacks. In July 2018, the board approve a total program of stock repurchases of USD 5bn, of which USD 4.5bn is still available.

Balance Sheet

The company is reducing debt, however still has around USD 4.2bn in net debt. Intangible assets and goodwill of USD 12 bn pose a risk in case the company has to revalue its assets due to a decline in demand and pricing of its products. Below is a summary of the company's commitments and maturity of those:

	Total	1 Year (2020)	2-3 Years (2021-2022)	4-5 Years (2023-2024)	More than 5 Years (Beyond 2024)
			(in millions)		
Long-term debt, including current portion ⁽¹⁾	\$ 10,694	\$ 276	\$ 587	\$ 7,531	\$ 2,300
Interest on debt	1,902	423	815	445	219
Flash Ventures related commitments ⁽²⁾	5,867	2,620	2,366	808	73
Operating leases	291	59	78	38	116
Purchase obligations and other commitments	2,977	2,050	523	194	210
Mandatory Deemed Repatriation Tax	1,104	62	199	285	558
Total	\$ 22,835	\$ 5,490	\$ 4,568	\$ 9,301	\$ 3,476

Source: Company data

Management Team

Stephen D. Milligan (CEO): Was appointed CEO on January of 2013 but announced in 2019 that his retirement. Before he was president of Hitachi Global Storage Technologies on which he led a turnaround which preceded the acquisition of the company by Western Digital. Prior to joining Hitachi in 2007, Milligan was CFO of Western Digital. In the beginning of his career he worked in PWC and Dell. He holds a bachelor degree in accounting from the Ohio State University.

In 2019, CEO Milligan received from Western Digital around USD 12.9mn, including salary (USD 1.25 mn), stocks and options (USD 11.6mn) and other benefits.

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▲ Main segments by type of client

Client Devices (2019 rev. USD 8 bn, growth -20%): This segment comprises HDDs and SSDs for PCs, notebooks, security surveillance systems, gaming consoles and set top boxes. It also includes flash embedded storage for smartphones, tablets wearables, automotive and IoT, and flash based memory wafers and components.

Data Center Solutions and devices (2019 rev. USD 5 bn, growth -17%): For Data Centers, Western Digital produces high capacity enterprise HDDs and high performance enterprise SSDs. It also supplies software and system solutions.

Client Solutions (2019 rev. USD 3.4 bn, growth -23%): This includes HDDs and SSDs embedded into external storage products or removable flash based products like USBs or wireless drives.

▲ Division of revenues by type of Storage

HDD (2019 rev. USD 8.7bn, growth -18%, gross margin 29%): This type of storage uses a rotating disc to store and read magnetic information. Is slower than SSDs which use circuits to store information but is able to store more information and at a lower price. Western Digital developed a technology that enables HDDs to operate in a closed environment with helium instead of air, improving this way the capacity and performance attributes.

SSD (2019 rev. USD 7.8bn, growth -21%, gross margin 20%): SSDs use the flash technology to store information. Western Digital has a partnership with TMC (Toshiba Memory Corporation) to develop this kind of storage. The major drive of sales of SSD has been the smartphones market which demands increasingly larger storage capacity in smaller SSDs. In 2018 WDC introduced the 4 bits per cell architectures (QLC technology) and 3 dimensional flash technology (3D NAND)

▲ Production

SSDs: Western Digital's flash-based supply requirements for flash based products come mainly from the business ventures with Toshiba (TMC), which provides leading edge, high quality and low cost flash memory wafers. Western Digital is obliged to take the share of output agreed or pay for the fixed costs associated with that capacity. This may lead to an increase in inventory when demand drops.

HDDs: Their production depends mainly of assembly of recording heads, magnetic media and a printed circuit board. The recording head and media technologies are produced in house but all other components are outsourced.

▲ Flash Ventures with Toshiba

The collaboration between Western Digital and Toshiba is called Flash Ventures, of which WDC holds 49.9% ownership position. Western Digital pays for the variable costs of products received under the venture but also has to pay for around 50% of the costs despite the amount of product received.

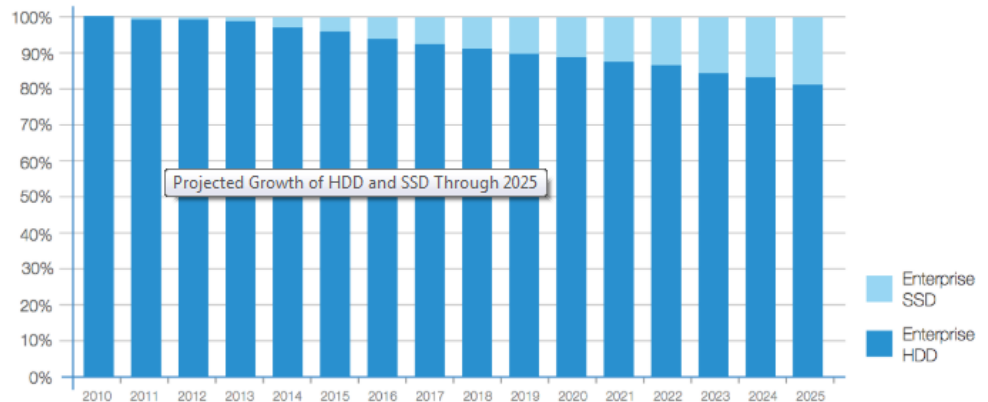
In May 2019, WDC agreed to fund 50% of the new K1 facility of 3D NAND wafer fabrication in Kitakami, Iwate, Japan.

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Risks

Drop in SSD memory price vs HDD: HDD (hard-drive) memories are much cheaper than SSDs (around 10x cheaper), however, SSDs offer multiple advantages due to low power usage, more speed in accessing memory, lower heat and vibration. If the price of SSDs gets closer to HDDs there could be a shift towards SSDs which would impact margins of Western Digital.

For now and according to a study sponsored by Seagate there is no expectation that replacement of HDD by SSD will be at a very high rate:



Source: IDC's Data Age 2025 study, sponsored by Seagate, April 2017

Industry cycle: Memories are close to being a commodity and as such whenever demand grows, investment grows leading to oversupply. This happened in 2018 leading to a sharp decline in prices. Due to the partnership with TMC, the flexibility to decrease production of flash memories is low as the company has to pay 50% of the fixed costs of the venture, so in periods of low demand, a high level of inventory is created.

Competition: This industry is highly competitive and among the main players besides Western Digital are Samsung, Toshiba, Intel, Seagate, IM Flash, Micron, Cypress, Kingston, SK Hynx and STMicroelectronics.

Dependence on Toshiba Memory facilities: Recently Toshiba Memory was spun off from the main Toshiba conglomerate (2018), after the major accounting scandal of Toshiba in 2015. TMC is now owned by a consortium led by Bain Capital with financing from Apple, Hoya, Kingston, Seagate and SK Hynx. This may alter strategy of the partnership which may not be in line with WDC desires or plans. Furthermore, its facilities suffered a power outage in June 2019 which resulted in the loss of between 6 to 15 exabytes of flash memory.

Foreign exchange: The majority of revenues are in USD while significant costs are in foreign currency. Consequently a weakness in USD would deteriorate profit margins. Furthermore, the partnership with TMC was denominated in JPY so if JPY appreciates vs USD, Western Digital costs will increase. The company does some hedging.

Rating		
Agency	Rating	Outlook
S&P	BB+	NEG
Moody's	Baa3	NEG
Fitch	BB+	POS

Source: BiG Research

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Graph



Source: BiGlobal Trade (partner Saxo Bank); BiG Research

Calendar

January 2nd, 2020: Ex-Date quarterly dividends of USD 0.50 per share

January 24th, 2020: 2Q20 earnings

Annex:

Production, R&D and marketing locations:

Location	Buildings Owned or Leased	Approximate Square Footage	Description
United States			
California			
Fremont	Leased	290,000	Manufacturing of head wafers and R&D
Irvine	Leased	490,000	R&D, administrative, marketing and sales
Milpitas	Owned	589,000	R&D, marketing and sales, and administrative
San Jose	Owned and Leased	2,750,000	Manufacturing of head wafers, head, media and product development, R&D, administrative, marketing and sales
Colorado			
Longmont	Leased	62,000	R&D
Minnesota			
Rochester	Leased	121,000	Product development
Asia			
China			
Shanghai	Owned	774,000	Assembly and test of SSDs
Shenzhen	Owned and Leased	567,000	Manufacturing of media
Japan			
Fujisawa	Owned	661,000	Product development
Malaysia			
Johor	Owned	277,000	Manufacturing of substrates
Kuala Lumpur	Owned	146,000	R&D
Kuching	Owned	285,000	Manufacturing and development of substrates
Penang	Owned	1,664,000	Assembly and test of SSDs, manufacturing of media, and R&D
Philippines			
Laguna	Owned	632,000	Manufacturing of HGAs and slider fabrication
Thailand			
Bang Pa-In	Owned	1,577,000	Slider fabrication, manufacturing of HDDs and HGAs, and R&D
Prachinburi	Owned	838,000	Manufacturing of HDDs
India			
Bangalore	Owned and Leased	638,000	R&D and marketing
Middle East			
Israel			
Kfar Saba	Owned	167,000	R&D and marketing
Tefen	Owned	64,000	R&D and marketing

Source: Company data

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 - Accumulate, expected absolute return between +5% and +15%;
 - Keep/Neutral, expected absolute return between -5% and +5%;
 - Reduce, expected absolute return between -5% and -15%;
 - Sell, expected absolute return below -15%;The investment framework aforementioned is merely indicative and not globally strict.
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