Taiwan Semiconductor Manufacturing Co., Ltd. Active GEM Fund Ownership Report 3/31/2023





In this data report, we analyse Taiwan Semiconductor Manufacturing Co., Ltd. holdings among active GEM Funds. For benchmark comparisons, we use the iShares MSCI Emerging Markets ETF, proportionally adjusted to remove any cash holdings. The current fund sample spans 384 active funds with a combined AUM of \$400.95Bn.

We analyse the latest published filings for all funds and aggregate together as of 3/31/2023. We show the most recent snapshot in positioning, time series data going back to 1/31/2008 and recent allocation shifts by the managers in our analysis.

All Cash Flow calculations are on a best estimates basis. We use monthly position changes and month end prices to estimate the net buying and selling value for each stock within each fund in our analysis.



Chart 3 The time series of funds invested % for Taiwan

Semiconductor Manufacturina Co., Ltd.



Chart 4 The time series of Funds Overweight the EEM % for

Taiwan Semiconductor Manufacturing Co., Ltd.

Chart 1 The time series of average fund weight for Taiwan Semiconductor Manufacturing Co., Ltd.



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Chart 2 The time series of average fund weight minus the

benchmark EEM weight for Taiwan Semiconductor Manufacturing

Ch 3. Funds Invested % Ch 4. Funds Overweight % 60% 53.919 87.50% 80.00% 70.00% 40% 60.00% 50.00% 40.00% 20% 30.00% 20.00% 10.00% Π% Sep19 Mar21 Dec21 Sep22 Dec09 Sep10 Mar12 Dec12 Sep13 Dec15 Dec18 un08 Jar 09 Jun14 Mar15

Chart 5 Aggregated fund ownership data among active GEM funds, ranked by the most widely held stocks. Filtered for Taiwan stocks only, Taiwan Semiconductor Manufacturing Co., Ltd. highlighted in red.

Chart 6 Aggregated fund ownership data among active GEM funds, ranked by most widely held stocks. Filtered for Information Technology stocks only, Taiwan Semiconductor Manufacturing Co., Ltd. highlighted in red.

Ch 5. Taiwan Stocks. Aggregate Holdings Data, Ranked by Most Widely Held.

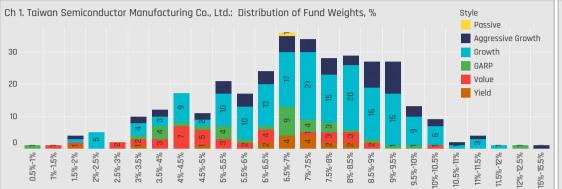
Ch 6. Information Technology Stocks. Aggregate Holdings Data, Ranked by Most Widely Held.

Ticker	Stock Name	Funds Invested %	Average Weight	Vs Benchmark	Fund AUM, \$	Ticker	Stock Name	Funds Invested %	Average Weight	Vs Benchmark	Fund AUM, \$
2330-TW	Taiwan Semiconductor Manufacturing Co., L	87.50%	6.09%	-0.48%	\$26,922.38M	2330-TW	Taiwan Semiconductor Manufacturing Co., L	87.50%	6.09%	-0.48%	\$26,922.38M
2454-TW	MediaTek Inc	51.04%	0.72%	0.13%	\$3,226.41M	005930-KR	Samsung Electronics Co., Ltd.	74.48%	2.98%	-0.58%	\$13,541.88M
2308-TW	Delta Electronics, Inc.	33.07%	0.39%	0.10%	\$1,386.38M	500209-IN	Infosys Limited	54.17%	0.78%	-0.09%	\$3,110.05M
2317-TW	Hon Hai Precision Industry Co., Ltd.	32.81%	0.43%	-0.23%	\$1,353.31M	2454-TW	MediaTek Inc	51.04%	0.72%	0.13%	\$3,226.41M
5871-TW	Chailease Holding Co. Ltd.	27.34%	0.28%	0.12%	\$1,333.70M	000660-KR	SK hynix Inc.	47.66%	0.76%	0.19%	\$2,751.75M
6415-TW	Silergy Corp.	22.92%	0.16%	0.09%	\$1,015.97M	532540-IN	Tata Consultancy Services Limited	35.42%	0.49%	-0.04%	\$3,144.32M
2303-TW	United Microelectronics Corp.	20.57%	0.15%	-0.17%	\$393.25M	2308-TW	Delta Electronics, Inc.	33.07%	0.39%	0.10%	\$1,386.38M
3711-TW	ASE Technology Holding Co., Ltd.	18.75%	0.16%	-0.02%	\$512.86M	2317-TW	Hon Hai Precision Industry Co., Ltd.	32.81%	0.43%	-0.23%	\$1,353.31M
2891-TW	CTBC Financial Holding Company Ltd.	17.97%	0.15%	-0.04%	\$301.36M	006400-KR	Samsung SDI Co., Ltd	27.34%	0.39%	-0.08%	\$1,306.19M
2345-TW	Accton Technology Corp.	16.93%	0.15%	0.07%	\$685.40M	005935-KR	Samsung Electronics Co Ltd Pfd Non-Voting	26.82%	0.52%	0.00%	\$1,324.53M
3037-TW	Unimicron Technology Corp.	15.36%	0.06%	-0.03%	\$233.59M	035420-KR	NAVER Corp.	25.00%	0.22%	-0.10%	\$800.16M
2301-TW	Lite-On Technology Corp.	15.10%	0.09%	0.01%	\$228.93M	992-HK	Lenovo Group Limited	23.44%	0.20%	0.08%	\$501.52M
2912-TW	President Chain Store Corporation	14.58%	0.13%	0.05%	\$367.32M	532281-IN	HCL Technologies Limited	23.44%	0.20%	-0.01%	\$621.08M
2881-TW	Fubon Financial Holding Co., Ltd.	14.58%	0.09%	-0.12%	\$303.09M	6415-TW	Silergy Corp.	22.92%	0.16%	0.09%	\$1,015.97M
3034-TW	Novatek Microelectronics Corp.	14.06%	0.11%	-0.01%	\$276.86M	601012-CN	LONGi Green Energy Technology Co., Ltd. Cla	20.83%	0.18%	0.13%	\$460.58M
2379-TW	Realtek Semiconductor Corp	13.80%	0.07%	-0.01%	\$215.47M	2303-TW	United Microelectronics Corp.	20.57%	0.15%	-0.17%	\$393.25M
2603-TW	Evergreen Marine Corp. (Taiwan) Ltd.	13.54%	0.04%	-0.04%	\$107.82M	GLOB-US	Globant SA	18.75%	0.18%	0.18%	\$608.45M
1590-TW	Airtac International Group	13.28%	0.13%	0.04%	\$550.02M	3711-TW	ASE Technology Holding Co., Ltd.	18.75%	0.16%	-0.02%	\$512.86M
8069-TW	E Ink Holdings Inc.	13.02%	0.08%	0.00%	\$166.40M	2345-TW	Accton Technology Corp.	16.93%	0.15%	0.07%	\$685.40M
6409-TW	Voltronic Power Technology Corp.	12.76%	0.14%	0.09%	\$409.16M	968-HK	Xinyi Solar Holdings Ltd.	15.89%	0.12%	0.03%	\$292.69M
1216-TW	Uni-President Enterprises Corp.	12.50%	0.11%	-0.07%	\$522.98M	3037-TW	Unimicron Technology Corp.	15.36%	0.06%	-0.03%	\$233.59M
6669-TW	Wiwynn Corp.	11.98%	0.10%	0.05%	\$407.05M	2382-HK	Sunny Optical Technology (Group) Co., Ltd.	15.10%	0.08%	-0.05%	\$374.18M
2882-TW	Cathay Financial Holdings Co., Ltd.	11.98%	0.08%	-0.10%	\$200.75M	2301-TW	Lite-On Technology Corp.	15.10%	0.09%	0.01%	\$228.93M
2395-TW	Advantech Co., Ltd.	11.46%	0.13%	0.05%	\$266.53M	TOTS3-BR	TOTVS S.A.	14.84%	0.12%	0.08%	\$195.41M
2474-TW	Catcher Technology Co., Ltd.	11.20%	0.06%	-0.01%	\$160.76M	036570-KR	NCsoft Corporation	14.58%	0.06%	-0.01%	\$323.04M



Chart 1 The distribution of Taiwan Semiconductor Manufacturina Co., Ltd. weights among the 384 active GEM funds in our analysis. broken down by fund Style.

Chart 2 The largest Taiwan Semiconductor Manufacturing Co., Ltd. holders in our analysis, on a portfolio weight basis.



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Ch 2. Taiwan Semiconductor Manufacturing Co., Ltd.: Top Fund Holdings, %

Fund Name
Gemequity
Amundi Funds Emerging Markets Equity ESG Improvers
Templeton Developing Markets Trust
Delaware VIP Trust - Emerging Markets Series
JPMCB Emerging Markets Equity Focused Fund
Delaware Emerging Markets Fund
FTIF SICAV - Emerging Markets Fund
Raiffeisen Sustainable Emerging Markets Equities
BNP Paribas Funds - Emerging Equity
Baillie Gifford Overseas Growth Fund - Emer. Mkts. Leading Co.
Ashmore Emerging Markets Active Equity Fund
Baillie Gifford Overseas Growth Funds ICVC - EM. Growth
Nordea Emerging Market Equities
Putnam Emerging Markets Equity Fund
Danske Invest Emerging Markets Equity Fund (FI)
Baillie Gifford Worldwide Funds Plc - Emer. Mkts. All Cap
Natixis AM Funds - Global Emerging Equity
TIAA-CREF Emerging Markets Equity Fund
Calvert Emerging Markets Equity Fund
JPMorgan Emerging Markets Equity Fund
Vontobel Fund II - MTX Sustainable Emerging Markets Leaders X
Fisher Invts. Instl. Fds. Plc - Emerging Markets Equity Fund
Handelsbanken Tillvaextmarknad Tema
Nordea 1 - Emerging Stars Equity Fund
Artisan Sustainable Emerging Markets Fund
BlackRock Sustainable Emerging Markets Equity Fund
Pictet - Emerging Markets
Fidelity Funds SICAV - Emerging Markets Fund
Jupiter Asset Mgmt. Series Plc - Global EM Focus Fd.
Schroder ISF - Emerging Markets
Fisher Invts. Instl. Fds. Plc - Emerging Markets Eq. ESG Fund
Martin Currie Emerging Markets Fund

Neuberger Berman Invt. Funds Plc - EM Sus. Eq. Fd.

Style	
Aggressive Growth	15.17%
GARP	12.36%
Growth	11.69%
Growth	11.37%
Aggressive Growth	11.31%
Growth	11.17%
Growth	11.14%
Growth	10.65%
Aggressive Growth	10.51%
Growth	10.47%
Growth	10.46%
Growth	10.44%
Value	10.23%
Aggressive Growth	10.20%
Growth	10.12%
Growth	10.09%
Aggressive Growth	10.08%
Growth	10.07%
Growth	9.99%
Aggressive Growth	9.95%
GARP	9.89%
Growth	9.81%
Growth	9.78%
Aggressive Growth	9.74%
Growth	9.73%
Growth	9.71%
Growth	9.70%
Growth	9.64%
Aggressive Growth	9.62%
Growth	9.61%
Growth	9.57%
Aggressive Growth	9.48%
Aggressive Growth	9.47%

Chart 3 The time-series of combined fund AUM in Taiwan Semiconductor Manufacturing Co., Ltd. stocks out of the \$400.95Bn in total active AUM in our analysis.

Chart 4 The largest Taiwan Semiconductor Manufacturing Co., Ltd. holders in our analysis, on an \$ AUM basis.



Fund Name Style \$1,934.13M Fidelity Inv. Trust - Emerging Markets Opportunities Fund Growth Invesco Developing Markets Fund Growth \$1.865.55M \$1.633.86M iShares MSCI Emerging Markets ETF Passive \$987.90M American Funds New World Fund Growth \$816.99M JPMorgan Emerging Markets Equity Fund Aggressive Growth T Rowe Price Emerging Markets Stock Fund Aggressive Growth \$663.61M \$592.69M Fidelity Inv. Trust - Emerging Markets Fund Aggressive Growth Growth \$552.81M MFS Emerging Markets Equity Fund \$544.56M Delaware Emerging Markets Fund Growth \$431.82M BlackRock Emerging Markets Fund Inc. Growth Vontobel Fund - mtx Sustainable Emerging Markets Leaders Growth \$405.68M \$404.95M Schroder ISF - Emerging Markets Growth GQG Partners Emerging Markets Equity Fund GARP \$391.05M \$381.00M Federated Hermes Invt. Funds - Global Emerging Markets Equity Aggressive Growth \$347.32M Fidelity Funds SICAV - Emerging Markets Fund Growth \$335.74M Allspring Emerging Markets Equity Fund Growth \$312.48M Baron Emeraina Markets Fund Growth GS Funds - Emerging Markets Equity Portfolio Growth \$304.17M \$282.01M JPMorgan Funds - Emerging Markets Opportunities Fund Growth \$253.44M Nordea 1 - Emerging Stars Equity Fund Aggressive Growth \$244.68M American Century Emerging Markets Fund Growth Fidelity Institutional Funds - Emerging Markets Fund Growth \$241.92M Calvert Emerging Markets Equity Fund \$234.86M Growth \$226.71M Gemequity Aggressive Growth UBS (Irl) Investor Selection Plc - Glb. Emer. Oppo. Fund Growth \$226.01M BlackRock Global Funds - Emerging Markets Fund \$217.71M Growth \$217.56M Fidelity Series Emerging Markets Fund Growth \$214.22M Candriam Sustainable - Equity Emerging Market Aggressive Growth Fidelity Advisor Focused Emerging Markets Fund Growth \$213.63M JPMCB Emerging Markets Equity Focused Fund \$203.74M Aggressive Growth JPMorgan Trust IV - Emerging Markets Research Enhanced Equity Growth \$200.56M \$195.18M GS Funds - Emerging Markets CORE Equity Portfolio GARP

\$193.98M

Growth

Ch 4. Taiwan Semiconductor Manufacturing Co., Ltd.: Top Fund Holdings, \$

Principal Funds Inc. - Origin Emerging Markets Fund

Aggregate Ownership Changes



Chart 1 The largest changes in average Stock weight between 9/30/2022 and 3/31/2023. Taiwan Semiconductor Manufacturing Co., Ltd. highlighted in red.

Ch 1. Stock: Change in Average We 9/30/2022 - 3/31/2023	eight	
Taiwan Semiconductor Manufacturing C		0.88%
Tencent Holdings Ltd.		0.71%
Samsung Electronics Co., Ltd.		0.43%
Alibaba Group Holding Ltd.		0.31%
MercadoLibre, Inc.		0.20%
MediaTek Inc		0.19%
Ping An Insurance (Group) Company of C		0.16%
AIA Group Limited		0.11%
Petroleo Brasileiro SA	-0.12%	
Meituan Class B	-0.16%	
Infosys Limited	-0.16%	
Banco Bradesco SA Pfd	-0.20%	
ICICI Bank Limited	-0.23%	
Reliance Industries Limited	-0.23%	
JD.com, Inc. Class A	-0.26%	

Chart 2 Measures the largest changes in the average Stock weight vs EEM between 9/30/2022 and 3/31/2023. An increasing figure would indicate an increasing overweight or decreasing underweight. Taiwan Semiconductor Manufacturing Co., Ltd. highlighted in red.

Ch 2. Stock: Change in Average Fund	Weight vs FFM
Li Auto, Inc. Sponsored ADR Class A	0.22%
MercadoLibre, Inc.	0.20%
Taiwan Semiconductor Manufacturing C	0.17%
Adani Enterprises Limited	0.15%
Adani Gas Ltd.	0.15%
Saudi National Bank	0.15%
Adani Transmission Ltd	0.15%
Al Rajhi Bank	0.15%
NAVER Corp.	-0.10%
Bajaj Finserv Limited	-0.10%
LG Energy Solution Ltd.	-0.11%
BeiGene Ltd	-0.15%
Kuaishou Technology Class B	-0.16%
Li Auto, Inc. Class A	-0.22%
Tencent Holdings Ltd0.5	6%

Chart 3 Measures the largest changes in the percentage of funds invested in each Stock between 9/30/2022 and 3/31/2023. , Taiwan Semiconductor Manufacturing Co., Ltd. highlighted in red.

Ch 3. Stock: Change in Funds Invested % 9/30/2022 - 3/31/2023 Meituan Class B 7.29% Brilliance China Automotive Holdings Li.. 6.25% 5.47% Sunac China Holdings Ltd. 5.21% Americana Restaurants International PLC AngloGold Ashanti Limited 4.69% 4.43% Axis Bank Limited 4.17% Delta Electronics, Inc. Taiwan Semiconductor Manufacturina C., 0.00% Mindtree Limited -4.17% PT Telkom Indonesia (Persero) Tbk Class ... -4,17% -4.43% Polskie Gornictwo Naftowe i Gazownictw.. Yunnan Energy New Material Co., Ltd. Cl., -4.69% XPeng, Inc. ADR Sponsored Class A -5 21% -9.11% NAVER Corp. Localiza Rent A Car SA Rights 2022-31.10.. -12.24%

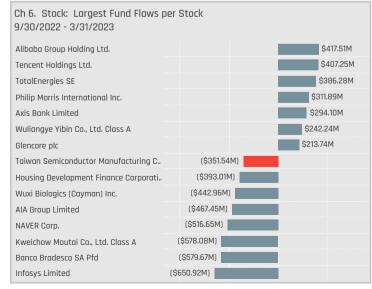
Chart 4 Measures the largest changes in the percentage of funds overweight each Stock compared to the iShares MSCI Emerging Markets ETF between 9/30/2022 and 3/31/2023, Taiwan Semiconductor Manufacturing Co., Ltd. highlighted in red.



Chart 5 Shows the cumulative fund flows for Taiwan Semiconductor Manufacturing Co., Ltd. stocks among the 384 active GEM funds in our analysis. Monthly fund flows are estimated by multiplying the monthly change in stock position by the stock price for every position in every fund in our analysis.



Chart 6 Measures the largest estimated fund flows for each Stock between 9/30/2022 and 3/31/2023, Taiwan Semiconductor Manufacturing Co., Ltd. highlighted in red.



Fund Holding Changes



Chart 1 The largest fund weight increases between 9/30/2022 - 3/31/2023.

Chart 2 The largest fund weight decreases between 9/30/2022 - 3/31/2023 Both charts show the current weight and whether the weight change represented a new or closed position.

Ch 1. Taiwan Semiconductor Manufacturing Co., Ltd.: Largest Increases in Position, %

lew or Close	Latest Weight	Weight Change
		3,79%
lew		3.75%
		3.44%
lew		3.41%
lew		3.35%
		3.33%
lew		3.29%
		3.26%
i		3.25%
		3.18%
		3.13%
		3.01%
lew		2.99%
		2.87%
		2.78%
		2.77%
		2.62%
		2.52%
		2.52%
		2.46%
	lew lew lew	ew ew ew ew ew ew ew ew ew ew

Chart 3 The largest buyers in US dollar terms between 9/30/2022 - 3/31/2023.

Chart 4 The largest sellers in US dollar terms between 9/30/2022 - 3/31/2023

Both charts show the current AUM and whether the fund flow represented a new or closed position.

Ch 3. Taiwan Semiconductor Manufacturing Co., Ltd.: Largest Fund Inflows, \$

Fund Name	New or Close	Latest AUM, \$	Fund Flows, \$
BlackRock Emerging Markets Fund Inc.		\$431.82M	\$146.50M
Fidelity Funds SICAV - Emerging Markets Fund		\$347.32M	\$78.37M
iShares MSCI Emerging Markets ETF		\$1,633.86M	\$71.08M
GS Funds - Emerging Markets CORE Equity Portfolio		\$195.18M	\$56.59M
Fidelity Institutional Funds - Emerging Markets Fund		\$241.92M	\$53.64M
DWS Invest - ESG Global Emerging Markets Equities		\$66.30M	\$52.80M
Swedbank Robur Access Edge Emerging Markets		\$110.21M	\$45.19M
Skagen Kon Tiki	New	\$48.31M	\$43.59M
DNB Global Emerging Markets		\$71.55M	\$34.29M
BlackRock Global Funds - Emerging Markets Fund		\$217.71M	\$32.69M
Lazard Emerging Markets Equity Portfolio		\$93.61M	\$28.77M
Fidelity Funds SICAV - Sust. Emerging Markets Equity Fund		\$127.62M	\$25.06M
JOHCM Emerging Markets Opportunities Fund	New	\$25.71M	\$23.07M
Baron Emerging Markets Fund		\$312.48M	\$22.19M
American Funds Developing World Growth & Income Fund		\$93.64M	\$19.18M
TIAA-CREF Emerging Markets Equity Fund		\$159.65M	\$18.80M
Driehaus Mutual Funds - Emerging Markets Growth Fund		\$149.31M	\$17.27M
AB FCP I - Emerging Markets Growth Portfolio		\$62.47M	\$13.93M
Schroder ISF - Emerging Markets		\$404.95M	\$12.35M
Advisors Series Tr Pzena Emerging Markets Value Fund		\$32.69M	\$11.58M

Ch 4. Taiwan Semiconductor Manufacturing Co., Ltd.: Largest Fund Outflows, \$

st Weight	Weight Change	Fund Name	New or Close	Latest AUM, \$	Fund Flows, \$
%	-4.60%	Invesco Developing Markets Fund		\$1,865.55M	(\$295.02M)
6.44%	-3.00%	GQG Partners Emerging Markets Equity Fund		\$391.05M	(\$207.03M)
%	-2.88%	abrdn Emerging Markets Fund		\$177.54M	(\$83.46M)
%	-2.25%	Nordea 1 - Emerging Stars Equity Fund		\$253.44M	(\$64.75M)
6.83%	-1.55%	American Funds New World Fund		\$987.90M	(\$58.69M)
7.11%	-1.46%	Vontobel Fund - mtx Sustainable Emerging Markets Leaders		\$405.68M	(\$53.30M)
%	-1.44%	GMO Emerging Markets Fund		\$41.69M	(\$38.54M)
3.78%	-1.26%	Robeco QI Customized Emerging Markets Enhanced Index Eq. Fd.		\$104.27M	(\$34.19M)
%	-1.24%	Fisher Invts. Instl. Fds. Plc - Emerging Markets Eq. ESG Fund		\$17.18M	(\$31.31M)
3.52%	-1.22%	JPMorgan Emerging Markets Equity Fund		\$816.99M	(\$27.30M)
5.25%	-1.07%	T Rowe Price Emerging Markets Stock Fund		\$663.61M	(\$23.76M)
4.13%	-0.58%	Amundi Funds - New Silk Road		\$27.96M	(\$21.85M)
3.40%	-0.55%	Fisher Invts. Instl. Fds. Plc - Emerging Markets Equity Fund		\$65.73M	(\$21.04M)
/a	-0.47%	Virtus Vontobel Emerging Markets Opportunities Fund		\$87.13M	(\$19.55M)
3.18%	-0.43%	BNY Mellon Emerging Markets Fund		\$27.23M	(\$19.01M)
5.83%	-0.34%	Causeway Emerging Markets Fund		\$94.23M	(\$18.49M)
7.71%	-0.10%	Van Eck Emerging Markets Fund		\$61.01M	(\$18.39M)
4.24%	-0.08%	Neuberger Berman Emerging Markets Equity Fund		\$50.18M	(\$16.35M)
7.80%	-0.01%	PGIM Jennison Emerging Markets Equity Opportunities Fund	Close		(\$15.99M)
4.78%	0.00%	Touchstone Strategic Trust - Sands Capital E.M. Growth Fund		\$127.69M	(\$14.17M)

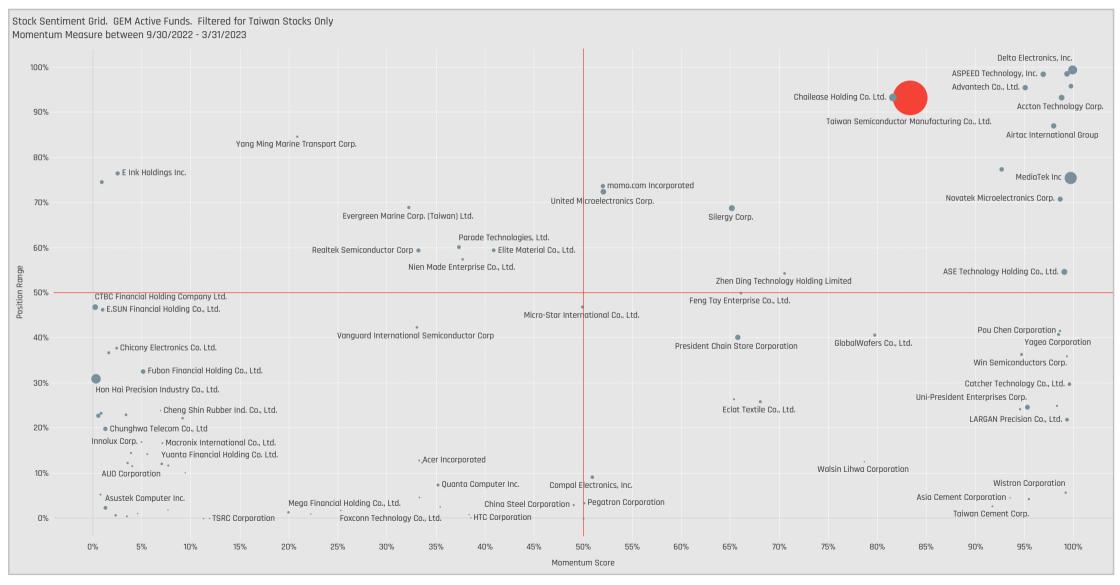
Ch 2. Taiwan Semiconductor Manufacturing Co., Ltd.: Largest Decreases in Position, %

Fund Name		Latest Weight	Weight Change
TCW Developing Markets Equity Fund	Close	0.00%	-4.60%
Amundi Funds - New Silk Road		6.44%	-3.00%
Robeco Umbrella Fund I NV - QI Emerging Sust. Cons. Equities	Close	0.00%	-2.88%
PGIM Jennison Emerging Markets Equity Opportunities Fund	Close	0.00%	-2.25%
BNY Mellon Emerging Markets Fund		6.83%	-1.55%
Lazard Emerging Markets Core Equity Portfolio		7.11%	-1.46%
Rondure New World Fund	Close	0.00%	-1.44%
GQG Partners Emerging Markets Equity Fund		3.78%	-1.26%
BlackRock Defensive Advantage Emerging Markets Fund	Close	0.00%	-1.24%
GMD Emerging Markets Fund		3.52%	-1.22%
Robeco Capital Gr. Fds QI EM Sust. Active Eq.		5.25%	-1.07%
Mercer Emerging Markets Equity Fund		4.13%	-0.58%
Invesco Funds - Emerging Markets Select Equity Fund		3.40%	-0.55%
Robeco Capital Gr. Fds QI Emerging Conservative Equities	Close	0.00%	-0.47%
Mirae Asset Discovery - Emerging Markets Fund		3.18%	-0.43%
Celsius Invt. Fd. SICAV - Sustainable Em. Markets		5.83%	-0.34%
BlackRock UCITS Funds - Emerging Markets Alpha Tilts Fund		7.71%	-0.10%
Artemis Investment Funds ICVC - Global Emerging Markets		4.24%	-0.08%
abrdn Emerging Markets Fund		7.80%	-0.01%
Orbis SICAV - Emerging Markets Equity Fund		4.78%	0.00%

Stock Sentiment Grid [Country]



Sentiment Grid: We combine the latest Stock positioning, long-term positioning and short-term fund activity in the 'Sentiment Grid', below. The Y-Axis measures where today's ownership levels in each Stock sit relative to the long-term range. We calculate the Z-Score of today's average weight, funds invested % and funds o/w % relative to all monthly observations in our fund history (going back to 1/31/2008). A figure close to 100% would indicate today's positioning is close to its maximum ever level, a figure close to zero, the lowest. The X-axis provides a measure of short-term fund activity, or 'Momentum', by looking at the changes in average weight, funds invested % and funds o/w % between 9/30/2022 and 3/31/2023, relative to each Stock. A figure above 50% means a Stock has seen relative increases in ownership, a figure below 50% indicates a relative decrease in positioning. The size of the bubble represents the average weight of each Stock. The Grid is filtered for Taiwan stocks only.

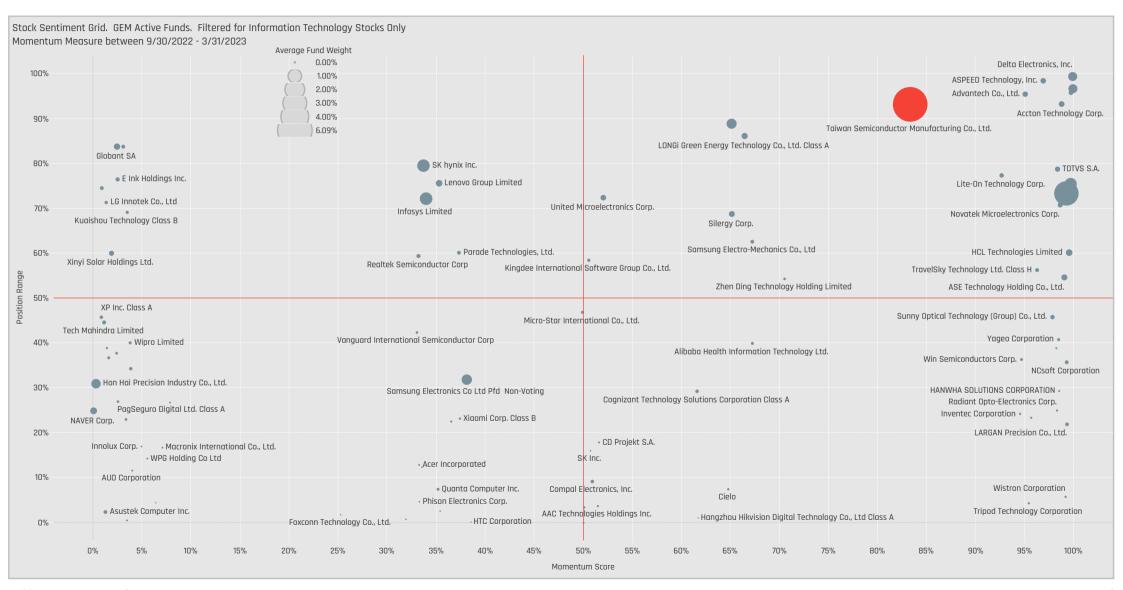


Position Range: Average of: Z-Score Average Weight vs history Z-Score Funds Invested % vs history Z-Score Funds O/W % vs history Momentum Score: Average of: Change in Average Weight (Percentile vs Peers) Change in Funds Invested % (Percentile vs Peers) Change in Funds O/W % (Percentile vs Peers)

Stock Sentiment Grid [Sector]



Sentiment Grid: We combine the latest Stock positioning, long-term positioning and short-term fund activity in the 'Sentiment Grid', below. The Y-Axis measures where today's ownership levels in each Stock sit relative to the long-term range. We calculate the Z-Score of today's average weight, funds invested % and funds o/w % relative to all monthly observations in our fund history (going back to 1/31/2008). A figure close to 100% would indicate today's positioning is close to its maximum ever level, a figure close to zero, the lowest. The X-axis provides a measure of short-term fund activity, or 'Momentum', by looking at the changes in average weight, funds invested % and funds o/w % between 9/30/2022 and 3/31/2023, relative to each Stock. A figure above 50% means a Stock has seen relative increases in ownership, a figure below 50% indicates a relative decrease in positioning. The size of the bubble represents the average weight of each Stock. The Grid is filtered for Information Technology stocks only.



Position Range: Average of: Z-Score Average Weight vs history Z-Score Funds Invested % vs history Z-Score Funds O/W % vs history Momentum Score: Average of: Change in Average Weight (Percentile vs Peers) Change in Funds Invested % (Percentile vs Peers) Change in Funds O/W % (Percentile vs Peers)

Taiwan Semiconductor Manufa..

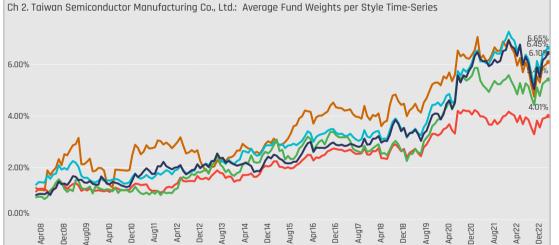
Holdings by Fund Style



Chart 1 The average weights in Taiwan Semiconductor Manufacturing Co., Ltd. stock and the average weights vs the iShares MSCI Emerging Markets ETF, split by fund Style.

Charts 2 & 3 The time series of average fund weights in Taiwan Semiconductor Manufacturing Co., Ltd. stock and average weights vs iShares MSCI Emerging Markets ETF, split by fund Style.





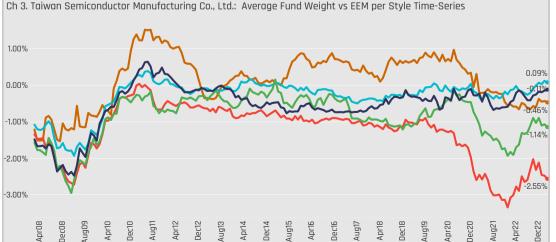


Chart 4 The percentage of funds invested in Taiwan Semiconductor Manufacturing Co., Ltd. stocks and the percentage of funds overweight, split by fund Style.

Chart 5 & 6 The time series of the percentage of funds invested in Taiwan Semiconductor Manufacturing Co., Ltd. stocks and the percentage of funds overweight, split by fund Style.





Ch 6. Taiwan Semiconductor Manufacturing Co., Ltd.: Funds Overweight % per Style Time-Series

China Construction Bank Corpor.. -0.92%

-0.93%

-0.97%

-1.48%

Vale S.A.

Tencent Holdings Ltd.

Samsung Electronics Co., Ltd.



-0.97%

-1.17%

-1.57%

Top Row: For each Style category, each chart shows the largest holders in Taiwan Semiconductor Manufacturing Co., Ltd.

Meituan Class B

Tencent Holdings Ltd.

Vale S.A.

China Construction Bank Corpor.. -0.51%

-0.43%

-0.55%

-0.77%

Middle Row: For each Style category, each chart shows the most widely held stocks and the corresponding average fund weights, with Taiwan Semiconductor Manufacturing Co., Ltd. highlighted in red.

Bottom Row: For each Style category, each chart shows the largest stock overweights and underweights, with Taiwan Semiconductor Manufacturing Co., Ltd. highlighted in red.

Taiwan Semiconductor Manufacturing Co., Ltd. Top Holders: Aggressive Growth	Taiwan Semiconductor Manufacturing Co., Ltd. Top Holders: Growth	Taiwan Semiconductor Manufacturing Co., Ltd. Top Holders: GARP	Taiwan Semiconductor Manufacturing Co., Ltd. Top Holders: Value	Taiwan Semiconductor Manufacturing Co., Ltd. Top Holders: Yield
Fund NameGemequity15.17%JPMCB Emerging Markets Equit.11.31%BNP Paribas Funds - Emerging E.10.51%Putnam Emerging Markets Equi.10.20%Natixis AM Funds - Global Emerg.10.08%JPMorgan Emerging Markets Equ.9.95%Nordea 1 - Emerging Stars Equit.9.74%Jupiter Asset Mgmt. Series Plc9.62%Martin Currie Emerging Markets.9.48%	Fund NameTempleton Developing Markets11.69%Delaware VIP Trust - Emerging11.37%Delaware Emerging Markets Fu11.17%FTIF SICAV - Emerging Markets .11.14%Raiffeisen Sustainable Emergin10.65%Baillie Gifford Overseas Growth10.47%Ashmore Emerging Markets Acti10.46%Baillie Gifford Overseas Growth10.44%Danske Invest Emerging Market10.12%	Fund NameAmundi Funds Emerging Markets.12.36%Vontobel Fund II - MTX Sustaina.9.89%Swedbank Robur Global Emergin.9.19%Schroder ISF - Global Emerging .8.62%Robeco Institutional Emerging M.8.43%SEB Emerging Marketsfond7.72%Daktree (Lux.) Funds - Emerging7.57%Barclays MM Fd. Pic - GlobalAcce7.57%Eurizon AM SICAV - Emerging Ma.7.49%	Fund NameNordea Emerging Market Equities10.23%BNY Mellon Emerging Markets S8.75%Optimix Emerging Markets Fund8.56%Robeco Capital Gr. Fds Emergin.8.50%Mondrian Emerging Markets Valu.8.43%Robeco Capital Gr. Fds Sustain.8.27%Virtus NFJ Emerging Markets Val7.85%AXA IM Equity Trust - Global EM E7.71%Causeway Emerging Markets Fu7.62%	Fund Name DWS Invest - ESG Emerging Mark. 8.34% BlackRock Global Funds - Emergin. 8.16% Allspring (Lux) Ww. Fd EM Equin. 7.83% Aviva Investors - Global Emergin. 7.53% Pictet Global Selection Fund - Gl. 7.35% BNY Mellon Investment Fds Em. 7.25% Magna Umbrella Fund Plc - Emer. 7.23% WisdomTree Tr Emerging Mark. 7.21% JPMorgan Fund ICVC - Emerging . 6.83%
Neuberger Berman Invt. Funds 9.47%	Baillie Gifford Worldwide Funds 10.09%	Old Mut. MultiManager TrQuil. In 7.35%	CPR Invest - GEAR Emerging 7.38%	Goldman Sachs Funds III - Emerg
Taiwan Semiconductor Manufacturing Co., Ltd. Most Widely Held Stocks: Aggressive Growth	Taiwan Semiconductor Manufacturing Co., Ltd. Most Widely Held Stocks: Growth	Taiwan Semiconductor Manufacturing Co., Ltd. Most Widely Held Stocks: GARP	Taiwan Semiconductor Manufacturing Co., Ltd. Most Widely Held Stocks: Value	Taiwan Semiconductor Manufacturing Co., Ltd. Most Widely Held Stocks: Yield
Stock Name Ave. Wgt Funds In	Stock Name Ave. Wgt Funds In	Stock Name Ave. Wgt Funds In	Stock Name Ave. Wgt Funds In	Stock Name Ave. Wgt Funds In
Taiwan Semiconductor Manufact6.45%84.93%	Taiwan Semiconductor Manufact6.65%91.92%	Taiwan Semiconductor Manufact5.43%85.37%	Samsung Electronics Co., Ltd. 2.86% 77.78%	Taiwan Semiconductor Manufact6.10%94.44%
Tencent Holdings Ltd.3.76%72.60%	Tencent Holdings Ltd.3.96%85.86%	Samsung Electronics Co., Ltd. 2.71% 82.93%	Taiwan Semiconductor Manufact4.01%74.07%	Samsung Electronics Co., Ltd. 1.99% 72.22%
MercadoLibre, Inc. 1.95% 71.23%	Samsung Electronics Co., Ltd. 3.50% 80.81%	Alibaba Group Holding Ltd. 2.62% 78.05%	Alibaba Group Holding Ltd.2.38%74.07%	MediaTek Inc 0.67% 72.22%
AIA Group Limited 2.11% 65.75%	Alibaba Group Holding Ltd. 2.69% 79.80%	Grupo Financiero Banorte SAB d 1.00% 73.17%	China Construction Bank Corpor 1.15% 59.26%	Samsung Electronics Co Ltd Pfd 2.19% 66.67%
JD.com, Inc. Class A 1.13% 64.38%	JD.com, Inc. Class A 0.86% 69.70%	Tencent Holdings Ltd.2.54%70.73%	Hon Hai Precision Industry Co., Lt., 0.97% 55.56%	Alibaba Group Holding Ltd.2.06%66.67%
HDFC Bank Limited 2.32% 64.38%	Meituan Class B 0.98% 69.19%	KB Financial Group Inc.0.43%63.41%	KB Financial Group Inc.0.61%53.70%	Ping An Insurance (Group) Comp1.24%61.11%
PT Bank Central Asia Tbk 1.55% 63.01%	MediaTek Inc 0.95% 63.64%	PT Bank Mandiri (Persero) Tbk 0.67% 60.98%	Lenovo Group Limited 0.56% 48.15%	Infosys Limited 0.94% 61.11%
Meituan Class B 1.16% 61.64%	Infosys Limited 0.91% 63.64%	China Construction Bank Corpor 0.85% 60.98%	Shinhan Financial Group Co., Ltd.0.47%46.30%	China Construction Bank Corpor 0.94% 61.11%
Alibaba Group Holding Ltd. 2.00% 60.27%	ICICI Bank Limited 1.13% 60.10%	JD.com, Inc. Class A 0.67% 58.54%	Hana Financial Group Inc.0.53%46.30%	Tencent Holdings Ltd.1.72%55.56%
Samsung Electronics Co., Ltd. 2.09% 50.68%	HDFC Bank Limited 1.34% 59.09%	ICICI Bank Limited 0.89% 58.54%	Baidu Inc Sponsored ADR Class A0.87%46.30%	NetEase, Inc. 0.97% 55.56%
Wal-Mart de Mexico SAB de CV1.23%49.32%	Grupo Financiero Banorte SAB d 0.86% 58.59%	SK hynix Inc. 0.74% 56.10%	Ping An Insurance (Group) Comp0.86%42.59%	KB Financial Group Inc. 0.59% 50.00%
Taiwan Semiconductor Manufacturing Co., Ltd. Top Over/Underweights: Aggressive Growth				
HDFC Bank Limited 2.32%	HDFC Bank Limited 1.34%	Grupo Financiero Banorte SAB d 0.67%	Banco do Brasil S.A. 0.54%	Samsung Electronics Co Ltd Pfd 1.67%
AIA Group Limited 2.11%	AIA Group Limited 0.91%	Banco do Brasil S.A. 0.51%	Lenovo Group Limited 0.44%	AIA Group Limited 0.77%
MercadoLibre, Inc. 1.95%	MercadoLibre, Inc. 0.86%	PT Bank Mandiri (Persero) Tbk 0.47%	KB Financial Group Inc. 0.40%	Midea Group Co. Ltd. Class A 0.62%
PT Bank Central Asia Tbk 1.05%	Grupo Financiero Banorte SAB d 🛛 0.53%	HDFC Bank Limited 0.45%	Hana Financial Group Inc. 0.39%	Ping An Insurance (Group) Comp 0.62%
Wal-Mart de Mexico SAB de CV 0.91%	Wal-Mart de Mexico SAB de CV 0.38%	Prosus N.V. Class N 0.42%	DB INSURANCE CO. LTD 0.36%	Wal-Mart de Mexico SAB de CV 0.60%
Taiwan Semiconductor Manufact0.11%	Taiwan Semiconductor Manufact 0.09%	Housing Development Finance C0.47%	Vale S.A0.62%	Taiwan Semiconductor Manufact0.46%
Alibaba Group Holding Ltd0.80%	America Movil SAB de CV Class B -0.37%	Reliance Industries Limited -0.61%	Samsung Electronics Co., Ltd0.70%	Alibaba Group Holding Ltd0.75%

Samsung Electronics Co., Ltd.

Taiwan Semiconductor Manufact..

Meituan Class B

Tencent Holdings Ltd.

-0.86%

-0.91%

-1.14%

Reliance Industries Limited

Taiwan Semiconductor Manufact.. -2.55%

Meituan Class B

Tencent Holdings Ltd.

-1.06%

-1.17%

Reliance Industries Limited

Samsung Electronics Co., Ltd.

Meituan Class B

Tencent Holdings Ltd.



Chart 1 The blue line shows the total number of funds (out of 384) who have ever owned Taiwan Semiconductor Manufacturing Co., Ltd. stock. The green area shows the number of funds invested at any one time and the red line the difference. A download sloping red line means existing investors are closing out positions, a rising red line means previous investors are buying back in.

Chart 3 The Z-Score of current weights versus history for all current and previous holders of Taiwan Semiconductor Manufacturing Co., Ltd.. A value of 100% means today's weight is the highest on record for that fund, zero the lowest.

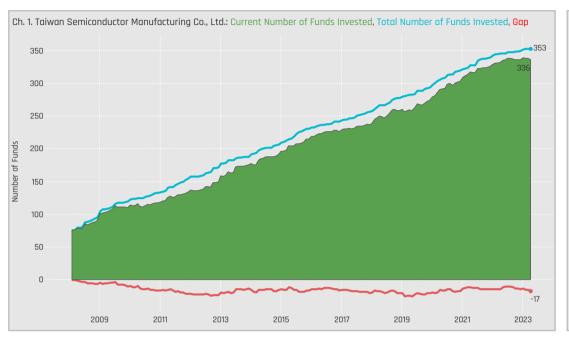


Chart 2 The orange lines show the current AUM in Taiwan Semiconductor Manufacturing Co., Ltd. for each fund. The red lines show the gap between today's weight and the maximum weight for each fund.

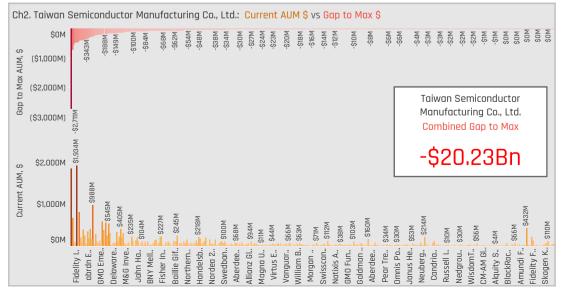




Chart 4 Blue lines show the current weight in Taiwan Semiconductor Manufacturing Co., Ltd. for each fund. The red lines show the gap between today's weight and the maximum weight for each fund.



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Z-Score

Chart 1 Current fund weight, maximum fund weight and difference for Taiwan Semiconductor Manufacturing Co., Ltd. stocks.Chart 2 Current fund AUM, maximum fund AUM and \$ difference for Taiwan Semiconductor Manufacturing Co., Ltd. stocks

Chart 3 Current fund weight, maximum fund weight and Z-Score for Taiwan Semiconductor Manufacturing Co., Ltd. stocks, ranked
by Z-Score

Max Weight

\$42M

\$41M

\$67M

\$48M

\$37M

\$1M

\$4M

\$3M

\$3M

\$0M

\$4M

\$8M

\$9M

\$12M

\$40M

\$0M

\$8M

Chart 4 Current fund AUM, maximum AUM and Z-Score for Taiwan Semiconductor Manufacturing Co., Ltd. stocks, ranked by Z-Score.

Latest Weight

	Latest Weight	Max Weight	Difference
Ch. 1: Taiwan Semiconductor Manufacturing Co., Ltd			
Fund Name			
TCW Developing Markets Equity Fund	0.00%	10.07%	-10.07%
JPMCB Emerging Markets Equity Focused Fund	11.31%	21.37%	-10.06%
East Capital - Global Emerging Markets Sustainable	9.05%	17.81%	-8.75%
Eastspring Investments - Global Emerging Markets Dynamic Fu	0.00%	7.67%	-7.67%
Amonis Equity Emerging Markets	5.91%	13.08%	-7.18%
PGIM Jennison Emerging Markets Equity Opportunities Fund	0.00%	6.31%	-6.31%
Pacific Capital UCITS Funds Plc - North of South EM	0.00%	6.26%	-6.26%
Boston Partners Emerging Markets Fund	0.00%	6.09%	-6.09%
Rondure New World Fund	0.00%	5.89%	-5.89%
Liontrust Investment Funds II - Emerging Markets Fund	4.23%	9.91%	-5.68%
Alger Funds II - Emerging Markets Fund	3.61%	8.98%	-5.37%
GQG Partners Emerging Markets Equity Fund	3.78%	8.80%	-5.02%
Amundi Funds - New Silk Road	6.44%	11.34%	-4.89%
Virtus Vontobel Emerging Markets Opportunities Fund	5.11%	9.78%	-4.67%
Global Advantage Funds - Emerging Markets High Value	2.92%	7.57%	-4.65%
DWS Emerging Markets Equity Fund	7.20%	11.84%	-4.64%
Pictet Global Selection Fund - Global Growing Market	0.00%	4.64%	-4.64%
Lazard Emerging Markets Core Equity Portfolio	7.11%	11.73%	-4.62%
Ohman Emerging Markets	7.33%	11.84%	-4.51%
Sabadell Bolsas Emergentes, FI	6.20%	10.49%	-4.29%

Ch. 3: Taiwan Semiconductor Manufacturing Co., Ltd.: Highest Ownership Z-Score (%)							
Fund Name							
Zurich Invest Inst. Fds Aktien Emerging Markets	5.32%	5.32%	100.00%				
Voya Investors Trust - JPMorgan Emerging Markets Equity Port.	9.43%	9.43%	100.00%				
Vontobel Fund II - MTX Sustainable Emerging Markets Leaders X	9.89%	9.89%	100.00%				
USAA Emerging Markets Fund	6.19%	6.19%	100.00%				
TCM Invt. Funds Lux Global Emerging High Dividend Equity	1.65%	1.65%	100.00%				
St. James's Place Unit Trust - Emerging Markets Equity	2.20%	2.20%	100.00%				
Skagen Kon Tiki	3.41%	3.41%	100.00%				
SEI Institutional Intl. Trust - Emerging Markets Equity Fund	7.15%	7.15%	100.00%				
Raiffeisen Sustainable Emerging Markets Equities	10.65%	10.65%	100.00%				
PineBridge Global Funds - Global Emer. Mkts. Focus Equity Fund	5.08%	5.08%	100.00%				
Pictet Global Selection Fund - Global High Yield Emerg. Eq.	7.35%	7.35%	100.00%				
Pictet - Emerging Markets	9.70%	9.70%	100.00%				
Optimix Emerging Markets Fund	8.56%	8.56%	100.00%				
ODIN Emerging Markets	6.46%	6.46%	100.00%				
Odey Investments Plc - Brook Global Emerging Markets Fund	4.51%	4.51%	100.00%				
Nordea 1 - Stable Emerging Markets Equity Fund	4.40%	4.40%	100.00%				
Nissay UCITS Funds - Global Emerging Equity Fund	7.25%	7.25%	100.00%				
Neuberger Berman Invt. Funds Plc - EM Sus. Eq. Fd.	9.47%	9.47%	100.00%				
LSV Emerging Markets Equity Fund	1.34%	1.34%	100.00%				
JPMorgan Emerging Markets Equity Fund	9.95%	9.95%	100.00%				

Ch. 4: Taiwan Semiconductor Manufacturing Co., Ltd. լոելցիզդ, Gwnership Z-Տուրդանիչ

\$42M

\$41M

\$110M

\$128M

\$214M

\$67M

\$48M

\$37M

\$1M

\$4M

\$3M

\$3M

\$0M

\$8M

\$9M

\$12M

\$40M \$4M

\$0M

\$8M

Fund Name				Fund Name
Invesco Developing Markets Fund	\$1,866M	\$4,576M	-\$2,711M	Zurich Invest Inst. Fds Aktien Emerging Markets
T Rowe Price Emerging Markets Stock Fund	\$664M	\$1,377M	-\$713M	USAA Emerging Markets Fund
Lazard Emerging Markets Equity Portfolio	\$94M	\$643M	-\$549M	TCM Invt. Funds Lux Global Emerging High Dividend Equity
Virtus Vontobel Emerging Markets Opportunities Fund	\$87M	\$576M	-\$488M	Sydinvest Globale EM-aktier
Fidelity Inv. Trust - Emerging Markets Opportunities Fund	\$1,934M	\$2,397M	-\$463M	Swedbank Robur Access Edge Emerging Markets
Magellan	\$46M	\$509M	-\$463M	St. James's Place Unit Trust - Emerging Markets Equity
JPMorgan Emerging Markets Equity Fund	\$817M	\$1,226M	-\$409M	Skagen Kon Tiki
JPMCB Emerging Markets Equity Focused Fund	\$204M	\$602M	-\$398M	Raiffeisen Sustainable Emerging Markets Equities
Emerging Markets Growth Fund Inc.	\$82M	\$469M	-\$387M	Polen Emerging Markets Growth Fund
GQG Partners Emerging Markets Equity Fund	\$391M	\$773M	-\$382M	Optimix Emerging Markets Fund
Nordea 1 - Emerging Stars Equity Fund	\$253M	\$613M	-\$359M	Nordea 1 - Emerging Wealth Equity Fund
Comgest Growth Plc - Emerging Markets	\$56M	\$413M	-\$357M	New Capital UCITS Fund Plc - Emerging Mkts. Ftr. Leaders Fd.
Fidelity Funds SICAV - Emerging Markets Fund	\$347M	\$690M	-\$343M	LSV Emerging Markets Equity Fund
abrdn Emerging Markets Fund	\$178M	\$507M	-\$330M	Lazard Glb. Active Fds. Plc - Emerging Markets Eq. Adv. Fd.
Vontobel Fund - mtx Sustainable Emerging Markets Leaders	\$406M	\$710M	-\$305M	Invesco Emerging Markets Innovators Fund
Harding Loevner Institutional Emerging Markets Portfolio	\$158M	\$431M	-\$273M	Fidelity Funds SICAV - Sust. Emerging Markets Equity Fund
American Funds New World Fund	\$988M	\$1,261M	-\$273M	Fidelity Advisor Focused Emerging Markets Fund
First Sentier Investors ICVC - Stewart Inv. Glb. EM Leaders	\$31M	\$282M	-\$251M	Dodge & Cox Emerging Markets Stock Fund
JPMorgan Funds - Emerging Markets Opportunities Fund	\$282M	\$505M	-\$223M	Brookfield Invt. Funds - Oaktree Emerging Markets Equity Fund
Causeway Emerging Markets Fund	\$94M	\$311M	-\$216M	BlackRock Strategic Fds Emerging Markets Equity Strategies

Difference



Z-Score

Ch. 2: Taiwan Semiconductor Manufacturing Co., Ltd. Later Rem Gap to Max (\$)Max AUM, \$



Chart 1 Current fund weight, maximum fund weight and the difference for Taiwan Semiconductor Manufacturing Co., Ltd. stocks. Filtered for funds that have bought in to Taiwan Semiconductor Manufacturing Co., Ltd. between 9/30/2022 - 3/31/2023

Chart 2 Current fund AUM, maximum fund AUM and the USD difference for Taiwan Semiconductor Manufacturing Co., Ltd. stocks. Filtered for funds that have bought in to Taiwan Semiconductor Manufacturing Co., Ltd. between 9/30/2022 - 3/31/2023

Latest Weight Max Weight Difference Fund Flows, \$ Ch. 1: Taiwan Semiconductor Manufacturing Co., Ltd.: Largest Gap to Max (%) and Buying between 9/30/2022 - 3/31/2023

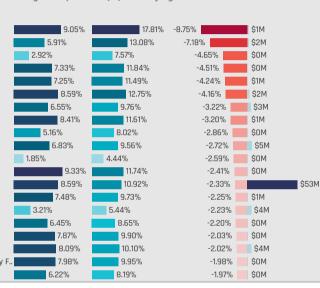
Fund Name

LCL Actions Emergents

East Capital - Global Emerging Markets Sustainable Amonis Equity Emerging Markets

- Global Advantage Funds Emerging Markets High Value Ohman Emerging Markets
- BNY Mellon Investment Fds. Emerging Income Fund Baring Emerging Markets Umbrella Fd. - Global Emerging JPMorgan Funds - Emerging Markets Dividend Fund Alquity SICAV - Future World Fund

Allianz Global Investors Fund - Best Styles EM Equity SRI JPMorgan Fund ICVC - Emerging Markets Income Fund AB FCP II - Emerging Market Value Portfolio FTIF SICAV - Emerging Markets Sustainability Fund DWS Invest - ESG Global Emerging Markets Equities MassMutual Premier Strategic Emerging Markets Fund Cullen Emerging Markets High Dividend Fund Boston Common ESG Impact Emerging Markets Fund Pear Tree Axiom Emerging Markets World Equity Fund Pacific Select Fund - Emerging Markets Portfolio BlackRock Funds I ICAV - Advantage Emerging Markets Equity F.



Ch. 2: Taiwan Semiconductor Manufacturing Co., Ltd.; Largest Gap to Max (\$) and Buying between 9/30/2022 - 3/31/2023 Fund Flows, \$

	Fund Name					
l	Lazard Emerging Markets Equity Portfolio	\$94M	\$643M	-\$549M	\$29M	
l	Emerging Markets Growth Fund Inc.	\$82M	\$469M	-\$387M	\$3M	
l	Fidelity Funds SICAV - Emerging Markets Fund	\$347M	\$690M	-\$343M	\$78	М
l	JPMorgan Funds - Emerging Markets Opportunities Fund	\$282M	\$505M	-\$223M	\$1M	
l	MFS Emerging Markets Equity Fund	\$553M	\$741M	-\$188M	\$10M	
l	Fidelity Institutional Funds - Emerging Markets Fund	\$242M	\$429M	-\$187M	\$54M	
l	Baron Emerging Markets Fund	\$312M	\$478M	-\$166M	\$22M	
l	CIF - Emerging Markets Growth Fund (LUX)	\$19M	\$184M	-\$165M	\$1M	
l	Schroder ISF - Emerging Markets	\$405M	\$540M	-\$135M	\$12M	
l	Principal Funds Inc Origin Emerging Markets Fund	\$194M	\$324M	-\$130M	\$8M	
l	M&G Investment Funds (7) OEIC - Global Emerging Markets Fun.	. \$30M	\$145M	-\$115M	\$5M	
l	Nordea Emerging Market Equities	\$87M	\$194M	-\$107M	\$2M	
l	Pacific Select Fund - Emerging Markets Portfolio	\$61M	\$149M	-\$88M	\$4M	
l	Aviva Investors - Global Emerging Markets Core Fund	\$104M	\$190M	-\$86M	\$2M	
l	Fidelity Funds SICAV - Institutional Emerging Markets Equity	\$21M	\$101M	-\$80M	\$3M	
l	BlackRock Global Funds - Emerging Markets Fund	\$218M	\$289M	-\$72M	\$33M	
l	William Blair Emerging Markets Growth Fund	\$61M	\$126M	-\$65M	\$OM	
l	Lazard Glb. Active Fds. Plc - Emerging Markets Equity Fund	\$9M	\$72M	-\$63M	\$4M	
I	Ninety One Glb. Strat. Fd Emerging Markets Equity	\$117M	\$179M	-\$62M	\$3M	
I	American Funds Developing World Growth & Income Fund	\$94M	\$150M	-\$57M	\$19M	

Chart 3 Current fund weight, maximum fund weight and Z-Score for Taiwan Semiconductor Manufacturing Co., Ltd. stocks, ranked by Z-Score. Filtered for funds that have sold Taiwan Semiconductor Manufacturing Co., Ltd. between 9/30/2022 - 3/31/2023 and have a % Z-Score of above 50%.

Chart 4 Current fund AUM, maximum AUM and Z-Score for Taiwan Semiconductor Manufacturing Co., Ltd. stocks, ranked by Z-Score. Filtered for funds that have sold Taiwan Semiconductor Manufacturing Co., Ltd. between 9/30/2022 - 3/31/2023 and have a \$ Z-Score of above 50%.

Ch. 3: Taiwan Semiconductor Manufacturing Co., Ltd	Latest Weight .: Z-Score (%) > 5	· · · · · · · · · · · · · · · · · · ·	Z-Score ween 9/30/202	Fund Flows, \$ 2 - 3/31/2023
Fund Name				
Vontobel Fund II - MTX Sustainable Emerging Markets Leaders X	9.89%	9.89%	100.00%	(\$1M)
SEI Institutional Intl. Trust - Emerging Markets Equity Fund	7.15%	7.15%	100.00%	(\$3M)
Pictet - Emerging Markets	9.70%	9.70%	100.00%	(\$1M)
JPMorgan Emerging Markets Equity Fund	9.95%	9.95%	100.00%	(\$27M)
GS Funds - Emerging Markets Equity Portfolio	9.10%	9.10%	100.00%	(\$13M)
Calvert Emerging Markets Equity Fund	9.99%	9.99%	100.00%	(\$9M)
Baillie Gifford Worldwide Funds Plc - Emer. Mkts. All Cap	10.09%	10.09%	100.00%	(\$1M)
Baillie Gifford Overseas Growth Funds ICVC - EM. Growth	10.44%	10.44%	100.00%	(\$5M)
Baillie Gifford Overseas Growth Fund - Emer. Mkts. Leading Co.	10.47%	10.47%	100.00%	(\$13M)
SEI Global Master Fund Plc - Emerging Markets Equity Fund	6.93%	6.95%	99.75%	(\$3M)
Natixis AM Funds - Global Emerging Equity	10.08%	10.13%	99.43%	\$0M
Federated Hermes Invt. Funds - Global Emerging Markets Equity	8.78%	8.85%	99.28%	(\$7M)
TT International Funds Plc - Emerging Markets Unconstrained	9.12%	9.21%	98.25%	(\$6M)
CT (Lux) III - Responsible Global Emerging Markets Equity	8.65%	8.92%	96.96%	(\$3M)
Handelsbanken Tillvaextmarknad Tema	9.78%	10.14%	96.19%	(\$6M)
Allspring (Lux) Ww. Fd EM Equity Income Fund	7.83%	8.21%	95.46%	\$0M
Robeco QI Customized Emerging Markets Enhanced Index Eq. Fd.	7.89%	8.21%	95.46%	(\$34M)
Lazard Emerging Markets Strategic Equity Portfolio	5.42%	5.64%	95.30%	\$0M
Fisher Invts. Instl. Fds. Plc - Emerging Markets Equity Fund	9.81%	10.16%	95.04%	(\$21M)

Ch. 4: Taiwan Semiconductor Manufacturing Co., Ltd.: Z-Score (\$) > 50% and selling between 9/30/2022 - 3/31/2023

Fund Name						
Artemis Investment Funds ICVC - Global Emerging Markets	\$19M	\$19M	98.11%		(\$1M)	
Fidelity SAI Emerging Markets Value Index Fund	\$112M	\$126M	86.51%		(\$6M)	
Vontobel Fund II - MTX Sustainable Emerging Markets Leaders	\$33M	\$38M	86.29%		(\$1M)	
Jupiter Global Emerging Markets Fund	\$3M	\$3M	84.36%		\$0M	
Fidelity Inv. Trust - Emerging Markets Opportunities Fund	\$1,934M	\$2,397M	80.69%		\$0M	
Ashmore Emerging Markets Equity Fund	\$10M	\$12M	80.29%		\$0M	
Handelsbanken Tillvaextmarknad Tema	\$181M	\$229M	78.83%		(\$6M)	
Dunham Emerging Markets Stock Fund	\$9M	\$12M	77.91%		\$0M	
SEB Emerging Marketsfond	\$33M	\$43M	77.60%		(\$4M)	
American Funds New World Fund	\$988M	\$1,261M	77.54%	(\$59M)		
Allianz Global Investors Fund - GEM Equity High Dividend	\$8M	\$10M	76.68%		\$0M	
Fidelity Series Emerging Markets Fund	\$218M	\$266M	76.29%		(\$4M)	
Brown Advisory Emerging Markets Select Fund	\$35M	\$46M	75.73%		(\$3M)	
Fidelity Inv. Trust - Emerging Markets Fund	\$593M	\$783M	75.34%	(\$13M)	
RBC Funds Trust - Emerging Markets Equity Fund	\$152M	\$208M	73.17%		(\$1M)	
SEI Institutional Intl. Trust - Emerging Markets Equity Fund	\$106M	\$142M	72.83%		(\$3M)	
Swedbank Robur Global Emerging Markets	\$100M	\$135M	72.79%		(\$6M)	
Schroder ISF - Global Emerging Market Opportunities	\$134M	\$183M	71.39%		(\$6M)	
Segall Bryant & Hamill Emerging Markets Fund	\$3M	\$4M	71.13%		\$0M	

Appendix

Style Classifications

Each fund is split into a Style category based on the P/E and P/B ratios of their portfolio compared to the benchmark

Aggressive Growth: At least 70% of the portfolio in stocks with a higher P/E than the iShares MSCI Emerging Markets ETF average, and at least 70% with a higher P/B ratio.

Growth: At least 50% of the portfolio in stocks with a higher P/E than the iShares MSCI Emerging Markets ETF average, and at least 50% with a higher P/B ratio.

Value: Either by the fund description, or at least 50% of the portfolio in stocks with a lower P/E ratio than the iShares MSCI Emerging Markets ETF average, and at least 50% with a lower P/B ratio

Yield: As per the fund description only (i.e Yield, Dividend, Income funds).

GARP: All other iterations that do not fit under the above classifications.

Ownership Measures

We track GEM Fund ownership across sectors, industries and stocks using a variety of calculations. They are listed below:

Average Weight: The sum of all fund weights in any measure (region, country, sector, industry, stock) divided by the total number of funds (384) in the analysis.

Average Weight vs EEM: The average weight minus the weight in the iShares MSCI Emerging Markets ETF (cash removed and weights adjusted).

Funds Invested %: The total number of funds with any exposure to a measure divided by the total number of funds (384) in the analysis.

Funds O/W: The total number of funds overweight a measure versus the EEM, divided by the total number of funds (384) in the analysis.

AUM, \$: The combined AUM allocated to a particular measure across the 384 active GEM funds in our analysis, in US Dollars

