Woolworths Holdings Limited Active GEM Fund Ownership Report 12/31/2022

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In this data report, we analyse Woolworths Holdings Limited 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 270 active funds with a combined AUM of \$333.04Bn.

We analyse the latest published filings for all funds and aggregate together as of 12/31/2022. 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.

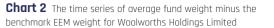
All Cash Flow calculations are on a best estimates basis. We use monthly position changes and month end prices to estimate the net buying and selling value for each stock within each fund in our analysis.





Chart 1 The time series of average fund weight for Woolworths C Holdings Limited

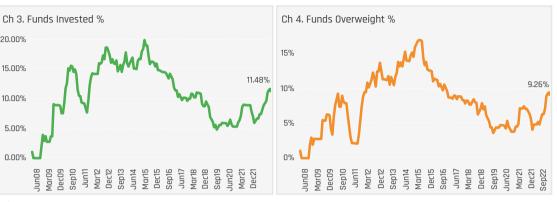






**Chart 3** The time series of funds invested % for Woolworths Holdings Limited

**Chart 4** The time series of Funds Overweight the EEM % for Woolworths Holdings Limited



**Chart 5** Aggregated fund ownership data among active GEM funds, ranked by the most widely held stocks. Filtered for South Africa stocks only, Woolworths Holdings Limited highlighted in red.

**Chart 6** Aggregated fund ownership data among active GEM funds, ranked by most widely held stocks. Filtered for Consumer Discretionary stocks only, Woolworths Holdings Limited highlighted in red.

Ch 6. Consumer Discretionary Stocks. Aggregate Holdings Data, Ranked by Most Widely Held.

#### Ch 5. South Africa Stocks. Aggregate Holdings Data, Ranked by Most Widely Held.

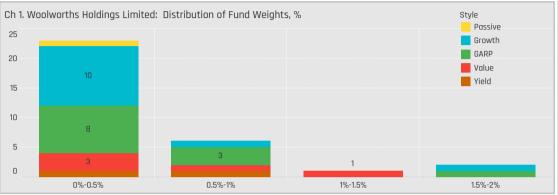
Ticker	Stock Name	Funds Invested %	Average Weight	Vs Benchmark	Fund AUM, \$	Ticker	Stock Name	Funds Invested %	Average Weight	Vs Benchmark	Fund AUM, \$
NPN-ZA	Naspers Limited Class N	29.26%	0.44%	-0.13%	\$1,444.79M	9988-HK	Alibaba Group Holding Ltd.	74.81%	2.21%	-0.38%	\$6,682.65M
FSR-ZA	FirstRand Limited	24.44%	0.23%	-0.06%	\$1,265.20M	JD-US	JD.com, Inc. Sponsored ADR Class A	62.22%	1.07%	0.11%	\$3,550.66M
CPI-ZA	Capitec Bank Holdings Limited	22.59%	0.22%	0.07%	\$1,143.59M	WALMEX-MX	Wal-Mart de Mexico SAB de CV	42.59%	0.63%	0.34%	\$2,517.11M
CLS-ZA	Clicks Group Limited	21.85%	0.21%	0.14%	\$503.77M	MELI-US	MercadoLibre, Inc.	40.37%	0.69%	0.69%	\$2,100.66M
ABG-ZA	Absa Group Limited	21.85%	0.18%	0.03%	\$223.67M	YUMC-US	Yum China Holdings, Inc.	28.89%	0.55%	0.18%	\$3,307.54M
IMP-ZA	Impala Platinum Holdings Limited	18.89%	0.09%	-0.08%	\$412.19M	000270-KR	Kia Corp.	27.78%	0.22%	0.03%	\$693.24M
AMS-ZA	Anglo American Platinum Limited	16.30%	0.08%	0.01%	\$160.18M	2331-HK	Li Ning Company Limited	27.04%	0.33%	0.01%	\$1,507.85M
MTN-ZA	MTN Group Limited	15.93%	0.10%	-0.10%	\$406.64M	000333-CN	Midea Group Co. Ltd. Class A	26.30%	0.32%	0.32%	\$1,148.91M
GFI-ZA	Gold Fields Limited	15.56%	0.10%	-0.05%	\$311.82M	PDD-US	Pinduoduo, Inc. Sponsored ADR Class A	25.93%	0.32%	-0.33%	\$1,452.49M
SSW-ZA	Sibanye Stillwater Limited	14.44%	0.07%	-0.04%	\$138.62M	1211-HK	BYD Company Limited Class H	23.70%	0.20%	-0.12%	\$441.76M
NED-ZA	Nedbank Group Limited	14.44%	0.07%	-0.02%	\$155.61M	TCOM-US	Trip.com Group Ltd. Sponsored ADR	20.37%	0.26%	-0.04%	\$835.10M
SBK-ZA	Standard Bank Group Limited	14.07%	0.08%	-0.12%	\$269.90M	2313-HK	Shenzhou International Group Holdings Limi	20.37%	0.18%	0.04%	\$628.95M
BID-ZA	Bid Corporation Limited	14.07%	0.12%	0.02%	\$301.90M	500520-IN	Mahindra & Mahindra Ltd.	20.00%	0.27%	0.06%	\$540.76M
VOD-ZA	Vodacom Group Limited	13.33%	0.08%	0.01%	\$106.37M	LREN3-BR	Lojas Renner S.A.	18.89%	0.11%	0.05%	\$589.68M
MRP-ZA	Mr Price Group Limited	13.33%	0.05%	0.01%	\$104.90M	6690-HK	Haier Smart Home Co., Ltd. Class H	18.15%	0.17%	0.05%	\$564.22M
SLM-ZA	Sanlam Limited	12.96%	0.10%	0.02%	\$299.99M	SE-US	Sea Ltd. (Singapore) Sponsored ADR Class A	17.78%	0.13%	0.13%	\$945.06M
BVT-ZA	Bidvest Group Limited	12.59%	0.08%	0.02%	\$128.07M	VIPS-US	Vipshop Holdings Ltd Sponsored ADR	17.41%	0.13%	0.04%	\$412.38M
SHP-ZA	Shoprite Holdings Limited	11.85%	0.08%	-0.02%	\$286.71M	2020-HK	ANTA Sports Products Ltd.	16.67%	0.17%	-0.08%	\$402.15M
WHL-ZA	Woolworths Holdings Limited	11.48%	0.05%	-0.02%	\$77.43M	1585-HK	Yadea Group Holdings Ltd.	16.67%	0.09%	0.05%	\$89.32M
KIO-ZA	Kumba Iron Ore Limited	11.48%	0.04%	0.01%	\$85.51M	505200-IN	Eicher Motors Limited	16.30%	0.13%	0.04%	\$329.37M
OMU-ZA	Old Mutual Ltd.	10.74%	0.03%	-0.02%	\$60.59M	012330-KR	Hyundai Mobis Co., Ltd	15.93%	0.12%	-0.03%	\$260.85M
SOL-ZA	Sasol Limited	10.37%	0.05%	-0.09%	\$116.78M	881-HK	Zhongsheng Group Holdings Ltd.	14.81%	0.11%	0.06%	\$522.05M
MCG-ZA	Multichoice Group Ltd	8.52%	0.03%	-0.01%	\$43.25M	005380-KR	Hyundai Motor Company	14.81%	0.11%	-0.15%	\$336.23M
MNDI-GB	Mondi plc	8.15%	0.10%	0.10%	\$151.18M	532500-IN	Maruti Suzuki India Limited	14.44%	0.12%	-0.07%	\$429.03M
APN-ZA	Aspen Pharmacare Holdings Limited	7.78%	0.02%	-0.03%	\$39.58M	WHL-ZA	Woolworths Holdings Limited	11.48%	0.05%	-0.02%	\$77.43M

### Fund Holdings



Chart 1 The distribution of Woolworths Holdings Limited weights among the 270 active GEM funds in our analysis, broken down by fund Style.

**Chart 2** The largest Woolworths Holdings Limited holders in our analysis, on a portfolio weight basis.



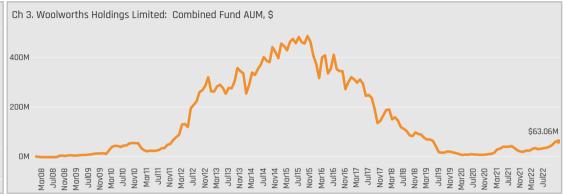
#### Ch 2. Woolworths Holdings Limited: Top Fund Holdings, %

Fund Name	Style	
Virtus Emerging Markets Opportunities Fund	GARP	
White Fleet - OLZ Equity Emerging Market Optimized ESG	Growth	
Celsius Invt. Fd. SICAV - Sustainable Em. Markets	Value	1.07%
Morgan Stanley Instl. Fund - Emerging Markets Portfolio	Growth	0.84%
Pictet Global Selection Fund - Global Growing Market	GARP	0.58%
NN(L) SICAV - Emerging Markets High Dividend Fund	Yield	0.58%
Swisscanto Sammelstiftung Emerging Market Equity Fund	GARP	0.55%
Robeco Capital Gr. Fds QI Emerging Markets Active Equities	Value	0.55%
Victory Sophus Emerging Markets Fund	GARP	0.52%
WisdomTree Tr Emerging Markets Dividend Fund	Yield	0.46%
KBC Equity Fund - SRI Emerging Markets	Growth	0.44%
Fidelity SAI Emerging Markets Value Index Fund	Value	0.33%
Northern Trust Invt. Fds. Plc - EM Multifactor ESG Fund	GARP	0.33%
SPP Emerging Markets Plus	Growth	0.32%
VALIC Company I - Emerging Economies Fund	GARP	0.31%
Amundi Funds - Emerging World Equity	Growth	0.30%
Nordea 2 - Emerging Markets Enhanced Equity Fund	Growth	0.27%
State Street Sustainable Climate Emerging Markets Enhanced Eq.	GARP	0.26%
Robeco QI Inst. Emerging Markets Enhanced Index Eq. Fd.	GARP	0.26%
Wellington Mgmt. Funds (IE) Plc - Emerging Mkts. Local Eq.	Growth	0.21%
Robeco Capital Gr. Fds QI EM Sust. Active Eq.	Value	0.21%
Robeco Capital Gr. Fds QI EM Sustainable Enhanced Index Eq.	GARP	0.19%
Man Funds Plc - Numeric Emerging Markets Equity	GARP	0.11%
Russell Investment Co Emerging Markets Fund	GARP	0.08%
SPP Emerging Markets SRI	Growth	0.08%
iShares MSCI Emerging Markets ETF	Passive	0.06%
BlackRock Sustainable Advantage Emerging Markets Equity Fund	Growth	0.06%
Fonditalia - Equity Global Emerging Markets	Value	0.06%
SEI Institutional Intl. Trust - Emerging Markets Equity Fund	GARP	0.06%
Morgan Stanley Pathway Emerging Markets Equity Fund	Growth	0.02%
NN (L) - Emerging Markets Enhanced Index Sustainable Equity	Growth	0.02%
Hirtle Callaghan Emerging Markets Portfolio	Growth	0.01%

	1.85
	1.72%
1.07%	
0.84%	
0.58%	
0.58%	
0.55%	
0.55%	
0.52%	
0.46%	
0.44%	
0.33%	
0.33%	
0.32%	
0.31%	
0.30%	
0.27%	
0.26%	
0.26%	
0.21%	
0.21%	
0.19%	
0.11%	
0.08%	
0.08%	
0.06%	
0.06%	
0.06%	
0.06%	
0.02%	
0.02%	

Chart 3 The time-series of combined fund AUM in Woolworths Holdings Limited stocks out of the \$333.04Bn in total active AUM in our analysis.

**Chart 4** The largest Woolworths Holdings Limited holders in our analysis, on an \$ AUM basis.



#### Ch 4. Woolworths Holdings Limited: Top Fund Holdings, \$

	Fund Name	Style	
.85%	iShares MSCI Emerging Markets ETF	Passive	\$14.38
%	Celsius Invt. Fd. SICAV - Sustainable Em. Markets	Value	\$11.45M
	Fidelity SAI Emerging Markets Value Index Fund	Value	\$9.17M
	KBC Equity Fund - SRI Emerging Markets	Growth	\$4.72M
	Morgan Stanley Instl. Fund - Emerging Markets Portfolio	Growth	\$4.18M
	Swisscanto Sammelstiftung Emerging Market Equity Fund	GARP	\$3.80M
	Robeco Capital Gr. Fds QI Emerging Markets Active Equities	Value	\$3.80M
	SPP Emerging Markets Plus	Growth	\$3.64M
	Amundi Funds - Emerging World Equity	Growth	\$3.04M
	Robeco QI Inst. Emerging Markets Enhanced Index Eq. Fd.	GARP	\$2.51M
	Victory Sophus Emerging Markets Fund	GARP	\$2.22M
	Virtus Emerging Markets Opportunities Fund	GARP	\$2.17M
	VALIC Company I - Emerging Economies Fund	GARP	\$1.73M
	State Street Sustainable Climate Emerging Markets Enhanced Eq.	GARP	\$1.60M
	Nordea 2 - Emerging Markets Enhanced Equity Fund	Growth	\$1.51M
	Wellington Mgmt. Funds (IE) Plc - Emerging Mkts. Local Eq.	Growth	\$1.24M
	NN(L) SICAV - Emerging Markets High Dividend Fund	Yield	\$0.94M
	White Fleet - OLZ Equity Emerging Market Optimized ESG	Growth	\$0.81M
	SEI Institutional Intl. Trust - Emerging Markets Equity Fund	GARP	\$0.79M
	SPP Emerging Markets SRI	Growth	<b>\$0.68M</b>
	Russell Investment Co Emerging Markets Fund	GARP	\$0.64M
	Man Funds Plc - Numeric Emerging Markets Equity	GARP	\$0.49M
	Fonditalia - Equity Global Emerging Markets	Value	\$0.48M
	Northern Trust Invt. Fds. Plc - EM Multifactor ESG Fund	GARP	\$0.38M
	Robeco Capital Gr. Fds QI EM Sustainable Enhanced Index Eq.	GARP	\$0.37M
	Robeco Capital Gr. Fds QI EM Sust. Active Eq.	Value	\$0.20M
	WisdomTree Tr Emerging Markets Dividend Fund	Yield	\$0.11M
	Morgan Stanley Pathway Emerging Markets Equity Fund	Growth	\$0.10M
	NN (L) - Emerging Markets Enhanced Index Sustainable Equity	Growth	\$0.10M
	Pictet Global Selection Fund - Global Growing Market	GARP	\$0.10M
	Hirtle Callaghan Emerging Markets Portfolio	Growth	\$0.09M
	BlackRock Sustainable Advantage Emerging Markets Equity Fund	Growth	\$0.01M

### Aggregate Ownership Changes



**Chart 1** The largest changes in average Stock weight between 6/30/2022 and 12/31/2022. Woolworths Holdings Limited highlighted in red.

Ch 1. Stock: Change in Average Weight 6/30/2022 - 12/31/2022 HDFC Bank Limited 0.31% ICICI Bank Limited 0.20% 0.20% MercadoLibre, Inc. 0.17% Grupo Financiero Banorte SAB de CV Cla. Pinduoduo, Inc. Sponsored ADR Class A 0.13% Housing Development Finance Corporati. 0.13% PT Bank Mandiri (Persero) Tbk 0.12% Woolworths Holdings Limited 0.03% Oil company LUKOIL PJSC -0.12% Baidu Inc Sponsored ADR Class A -0.15% -0.16% NAVER Corp. NetEase. Inc. -0.17% Tencent Holdings Ltd. -0.29% -0.31% Taiwan Semiconductor Manufacturing C.. Alibaba Group Holding Ltd. -0.37%

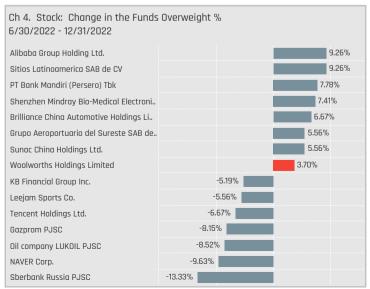
**Chart 2** Measures the largest changes in the average Stock weight vs EEM between 6/30/2022 and 12/31/2022. An increasing figure would indicate an increasing overweight or decreasing underweight. Woolworths Holdings Limited highlighted in red.

Ch 2. Stock: Change in Average Func	l Weight vs EEM
Alibaba Group Holding Ltd.	0.40%
Li Auto, Inc. Sponsored ADR Class A	0.31%
HDFC Bank Limited	0.31%
MercadoLibre, Inc.	0.20%
Taiwan Semiconductor Manufacturing C	0.20%
NIO Inc. Sponsored ADR Class A	0.19%
XPeng, Inc. ADR Sponsored Class A	0.16%
Woolworths Holdings Limited	0.02%
Bajaj Finserv Limited	-0.11%
Oil company LUKOIL PJSC	-0.12%
Asustek Computer Inc.	-0.13%
Kuaishou Technology Class B	-0.14%
BeiGene Ltd	-0.16%
Li Auto, Inc. Class A	-0.18%
Tencent Holdings Ltd0	.43%

 ${\rm Chart}~{\rm 3}$  Measures the largest changes in the percentage of funds invested in each Stock between 6/30/2022 and 12/31/2022. , Woolworths Holdings Limited highlighted in red.

Ch 3. Stock: Change in Funds Inve 6/30/2022 - 12/31/2022	ested %	
Sitios Latinoamerica SAB de CV		9.26%
Shenzhen Mindray Bio-Medical Electroni		7.04%
PT Bank Mandiri (Persero) Tbk		7.04%
Brilliance China Automotive Holdings Li		6.67%
Sunac China Holdings Ltd.		5.56%
ICICI Bank Limited		5.19%
Grupo Aeroportuario del Sureste SAB de		4.81%
Woolworths Holdings Limited		3.33%
Country Garden Services Holdings Co. Lt	-5.19%	
Leejam Sports Co.	-5.56%	
Polskie Gornictwo Naftowe i Gazownictw	-5.93%	
Gazprom PJSC	-8.15%	
Oil company LUKOIL PJSC	-8.52%	
NAVER Corp.	-10.37%	
Sberbank Russia PJSC	-13.33%	

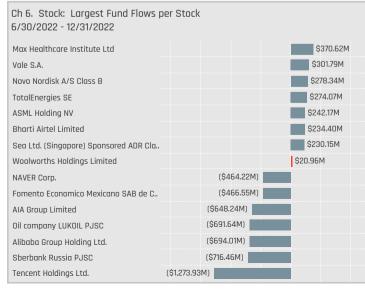
**Chart 4** Measures the largest changes in the percentage of funds overweight each Stock compared to the iShares MSCI Emerging Markets ETF between 6/30/2022 and 12/31/2022, Woolworths Holdings Limited highlighted in red.



**Chart 5** Shows the cumulative fund flows for Woolworths Holdings Limited stocks among the 270 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 6/30/2022 and 12/31/2022, Woolworths Holdings Limited highlighted in red.



### Fund Holding Changes



Chart 1 The largest fund weight increases between 6/30/2022 - 12/31/2022.

Chart 2 The largest fund weight decreases between 6/30/2022 - 12/31/2022 Both charts show the current weight and whether the weight change represented a new or closed position.

#### Ch 1. Woolworths Holdings Limited: Largest Increases in Position, %

Fund Name	New or Close	Latest Weight	Weight Change
Virtus Emerging Markets Opportunities Fund	New	1.85%	1.85%
Morgan Stanley Instl. Fund - Emerging Markets Portfolio	New	0.84%	0.84%
White Fleet - OLZ Equity Emerging Market Optimized ESG		1.72%	0.69%
Pictet Global Selection Fund - Global Growing Market	New	0.58%	0.58%
Robeco Capital Gr. Fds QI Emerging Markets Active Equities	New	0.55%	0.55%
Celsius Invt. Fd. SICAV - Sustainable Em. Markets		1.07%	0.53%
VALIC Company I - Emerging Economies Fund	New	0.31%	0.31%
Amundi Funds - Emerging World Equity	New	0.30%	0.30%
Robeco Capital Gr. Fds QI EM Sust. Active Eq.	New	0.21%	0.21%
Robeco QI Inst. Emerging Markets Enhanced Index Eq. Fd.		0.26%	0.20%
Robeco Capital Gr. Fds QI EM Sustainable Enhanced Index Eq.		0.19%	0.14%
Fidelity SAI Emerging Markets Value Index Fund		0.33%	0.13%
Man Funds Plc - Numeric Emerging Markets Equity	New	0.11%	0.11%
NN(L) SICAV - Emerging Markets High Dividend Fund		0.58%	0.11%
Swisscanto Sammelstiftung Emerging Market Equity Fund		0.55%	0.10%
KBC Equity Fund - SRI Emerging Markets		0.44%	0.07%
Northern Trust Invt. Fds. Plc - EM Multifactor ESG Fund		0.33%	0.06%
BlackRock Sustainable Advantage Emerging Markets Equity Fund	New	0.06%	0.06%
State Street Sustainable Climate Emerging Markets Enhanced Eq.		0.26%	0.06%
Nordea 2 - Emerging Markets Enhanced Equity Fund		0.27%	0.04%

#### Ch 2. Woolworths Holdings Limited: Largest Decreases in Position, %

Fund Name	New or Close Latest Weight	Weight Change
Victory Sophus Emerging Markets Fund		0.52% -0.02%
SPP Emerging Markets Plus	0.32%	-0.02%

Chart 3 The largest buyers in US dollar terms between 6/30/2022 - 12/31/2022.

**Chart 4** The largest sellers in US dollar terms between 6/30/2022 - 12/31/2022

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

Ch 3. Woolworths Holdings Limited: Largest Fund Inflows, \$

Fund Name	New or Close	Latest AUM, \$	Fund Flows, \$
Celsius Invt. Fd. SICAV - Sustainable Em. Markets		\$11.45M	\$4.95
Morgan Stanley Instl. Fund - Emerging Markets Portfolio	New	\$4.18M	\$3.57M
Robeco Capital Gr. Fds QI Emerging Markets Active Equities	New	\$3.80M	\$3.34M
Fidelity SAI Emerging Markets Value Index Fund		\$9.17M	\$2.67M
Amundi Funds - Emerging World Equity	New	\$3.04M	\$2.65M
Virtus Emerging Markets Opportunities Fund	New	\$2.17M	\$1.91M
VALIC Company I - Emerging Economies Fund	New	\$1.73M	\$1.72M
Robeco QI Inst. Emerging Markets Enhanced Index Eq. Fd.		\$2.51M	\$1.54M
Man Funds Plc - Numeric Emerging Markets Equity	New	\$0.49M	\$0.43M
Robeco Capital Gr. Fds QI EM Sustainable Enhanced Index Eq.		\$0.37M	\$0.24M
Russell Investment Co Emerging Markets Fund		\$0.64M	\$0.20M
Robeco Capital Gr. Fds QI EM Sust. Active Eq.	New	\$0.20M	\$0.17M
White Fleet - OLZ Equity Emerging Market Optimized ESG		\$0.81M	\$0.16M
Pictet Global Selection Fund - Global Growing Market	New	\$0.10M	\$0.08M
iShares MSCI Emerging Markets ETF		\$14.38M	\$0.01M
BlackRock Sustainable Advantage Emerging Markets Equity Fund	New	\$0.01M	\$0.00M
Northern Trust Invt. Fds. Plc - EM Multifactor ESG Fund		\$0.38M	\$0.00M
Wellington Mgmt. Funds (IE) Plc - Emerging Mkts. Local Eq.		\$1.24M	\$0.00M
Swisscanto Sammelstiftung Emerging Market Equity Fund		\$3.80M	\$0.00M
SEI Institutional Intl. Trust - Emerging Markets Equity Fund		\$0.79M	\$0.00M

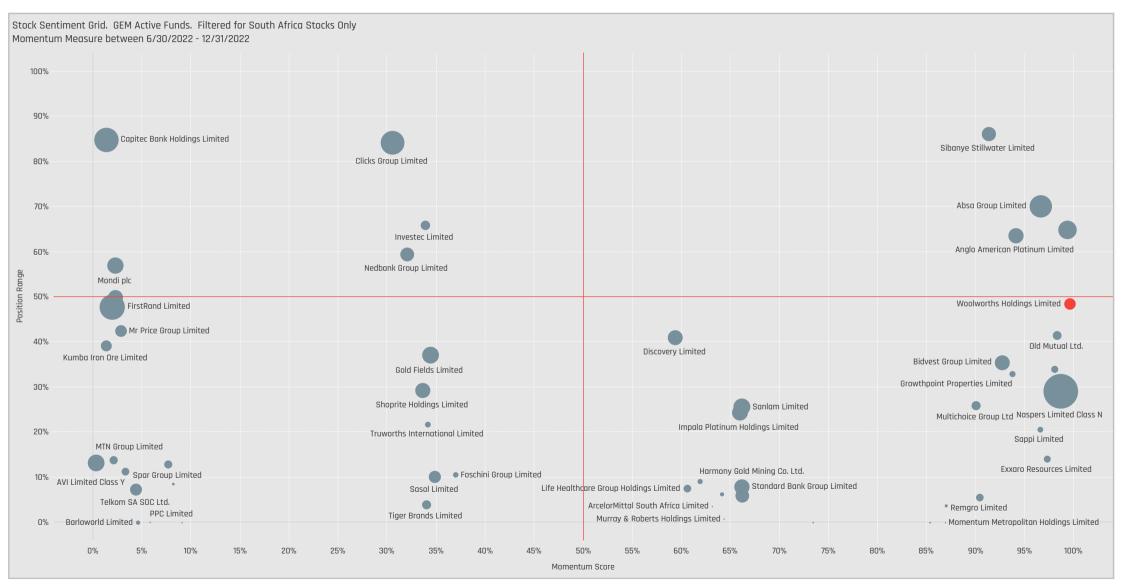
#### Ch 4. Woolworths Holdings Limited: Largest Fund Outflows, \$

Fund Name	New or Close	Latest AUM, \$	Fund Flows, \$
State Street Sustainable Climate Emerging Markets Enhanced Eq.	•	\$1.60M	(\$1.13M)
SPP Emerging Markets Plus		\$3.64M	(\$0.86M)
Victory Sophus Emerging Markets Fund	•	\$2.22M	(\$0.53M)
SPP Emerging Markets SRI		\$0.68M	(\$0.14M)
WisdomTree Tr Emerging Markets Dividend Fund	1	\$0.11M	(\$0.02M)

Stock Sentiment Grid [Country]



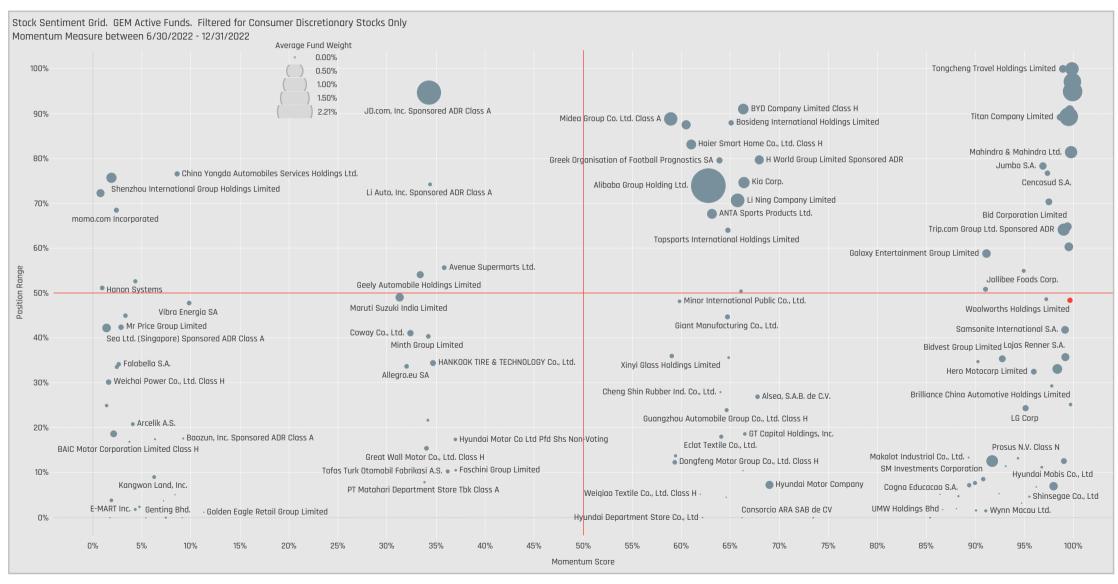
**Sentiment Grid**: We combine the latest Stock positioning, long-term positioning and short-term fund activity in the 'Sentiment Grid', below. The Y-Axis measures where today's ownership levels in each Stock sit relative to the long-term range. We calculate the Z-Score of today's average weight, funds 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 6/30/2022 and 12/31/2022, 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 South Africa 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 6/30/2022 and 12/31/2022, 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 Consumer Discretionary stocks only.



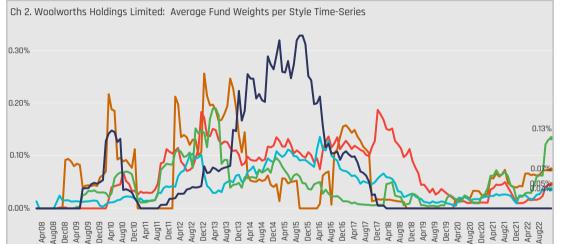
Position Range: Average of: Z-Score Average Weight vs history Z-Score Funds Invested % vs history Z-Score Funds O/W % vs history Momentum Score: Average of: Change in Average Weight (Percentile vs Peers) Change in Funds Invested % (Percentile vs Peers) Change in Funds O/W % (Percentile vs Peers)



**Chart 1** The average weights in Woolworths Holdings Limited 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 Woolworths Holdings Limited stock and average weights vs iShares MSCI Emerging Markets ETF, split by fund Style.

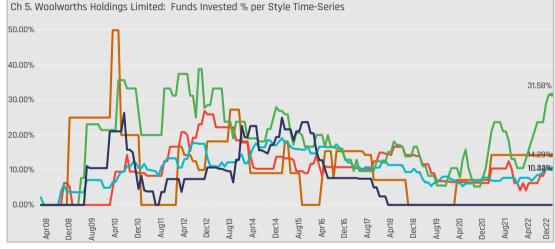


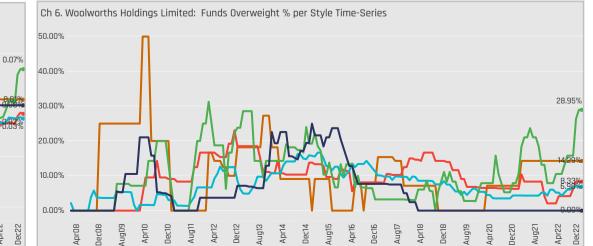


**Chart 4** The percentage of funds invested in Woolworths Holdings Limited stocks and the percentage of funds overweight, split by fund Style.

**Chart 5 & 6** The time series of the percentage of funds invested in Woolworths Holdings Limited stocks and the percentage of funds overweight, split by fund Style.







Ch 3. Woolworths Holdings Limited: Average Fund Weight vs EEM per Style Time-Series 0.10% -0.10% -0.20% Apr22 Apr12 Apr08 Apr10 Aug11 Dec12 Aug13 Apr14 Dec14 Apr18 Dec18 lec08 606n Aug 19 Apr20 Dec20 Aug21 Dec1 Aug1 Apr



**Top Row:** For each Style category, each chart shows the largest holders in Woolworths Holdings Limited

Middle Row: For each Style category, each chart shows the most widely held stocks and the corresponding average fund weights, with Woolworths Holdings Limited highlighted in red.

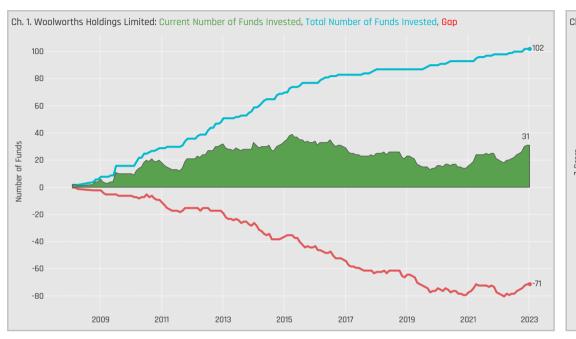
Bottom Row: For each Style category, each chart shows the largest stock overweights and underweights, with Woolworths Holdings Limited highlighted in red.

Woolworths Holdings Limited Top Holders: Aggressive Growth	Woolworths Holdings Limited Top Holders: Growth   Fund Name   White Fleet - OLZ Equity Emergin.   Morgan Stanley Instl. Fund - Em.   Morgan Stanley Instl. Fund - Em.   Morgan Stanley Instl. Fund - Em.   Morgan Stanley Instl. Fund - SRI Emerging.   0.44%   SPP Emerging Markets Plus   0.32%   Amundi Funds - Emerging World.   0.30%   Nordea 2 - Emerging Markets En.   0.27%   Wellington Mgmt. Funds (IE) Plc   SPP Emerging Markets SRI   0.08%   BlackRock Sustainable Advanta.   0.02%	Woolworths Holdings Limited Top Holders: GARP Fund Name Virtus Emerging Markets Opport. 185% Pictet Global Selection Fund - Gl. 0.58% Swisscanto Sammelstiftung Eme. 0.55% Victory Sophus Emerging Market. 0.52% Northern Trust Invt. Fds. Plc - EM . 0.33% VALIC Company I - Emerging Eco. 0.31% State Street Sustainable Climat. 0.26% Robeco Capital Gr. Fds QI EM S. 0.19% Man Funds Plc - Numeric Emergi. 0.11%	Woolworths Holdings Limited Top Holders: Value Fund Name Celsius Invt. Fd. SICAV - Sustaina	Woolworths Holdings Limited Top Holders: Yield Fund Name NN(L) SICAV - Emerging Markets 0.58% WisdomTree Tr Emerging Mark 0.46%	
Woolworths Holdings Limited Most Widely Held Stocks: Aggressive Growth	Woolworths Holdings Limited Most Widely Held Stocks: Growth	Woolworths Holdings Limited Most Widely Held Stocks: GARP	Woolworths Holdings Limited Most Widely Held Stocks: Value	Woolworths Holdings Limited Most Widely Held Stocks: Yield	
Image: Provide a constraint of the section	Stock Name   Ave. Wgt   Funds In.     Taiwan Semiconductor Manufach   5.82%   92.24%     Tencent Holdings Ltd.   5.82%   84.48%     Alibaba Group Holding Ltd.   2.49%   81.03%     Samsung Electronics Co., Ltd.   3.23%   78.45%     JD.com, Inc. Sponsored ADR Class.   1.19%   71.55%     Meituan Class B   1.32%   62.07%     HDFC Bank Limited   1.56%   62.07%     Infosys Limited   1.01%   60.34%     Wal-Mart de Mexico SAB de CV   0.74%   57.76%     Woolworths Holdings Limited   0.04%   10.34%	Stock NameAve. WgFunds InSamsung Electronics Co., Ltd.3.21%92.11%Taiwan Semiconductor Manufaci4.87%89.47%Tencent Holdings Ltd.2.82%81.58%Alibaba Group Holding Ltd.2.14%81.58%Grupo Financiero Banorte SAB da.1.06%78.95%JD.com, Inc. Sponsored ADR Clas.1.14%73.68%Meituan Class B0.97%71.05%Infosys Limited0.11%68.42%NetEase, Inc.0.30%31.58%	Stock Name   Ave. Wgt   Funds In.     Samsung Electronics Co., Ltd.   2.59%   77.08%     Taiwan Semicanductor Manufact.   3.59%   75.00%     Alibaba Group Holding Ltd.   2.19%   75.00%     China Construction Bank Corpon.   1.12%   58.33%     Hon Hai Precision Industry Co., Lt.   0.88%   54.17%     KB Financial Group Inc.   0.65%   52.08%     Ping An Insurance (Group) Comp   1.18%   47.92%     Kia Corp.   0.46%   45.83%     Hana Financial Group Inc.   0.46%   45.83%     Woolworths Holdings Limited   0.05%   10.42%	Stock Name   Ave. Wg   Funds In     Taiwan Semiconductor Manufacta   5.12%   92.86%     Samsung Electronics Co., Ltd.   1.89%   64.29%     MediaTek Inc   0.47%   64.29%     China Construction Bank Corpor.   1.09%   64.29%     Alibaba Group Holding Ltd.   1.89%   64.29%     Samsung Electronics Co Ltd Pfd.   1.95%   57.14%     Ping An Insurance (Group) Comp   1.14%   57.14%     Petroleo Brasileiro SA Pfd   0.62%   50.00%     NetEase, Inc.   0.70%   50.00%     Woolworths Holdings Limited   0.07%   14.29%	
Woolworths Holdings LimitedTop Over/Underweights: Aggressive GrowthHDFC Bank Limited2.63%AIA Group Limited2.32%MercadoLibre, Inc.1.64%PT Bank Central Asia Tbk1.16%Wal-Mart de Mexico SAB de CV0.83%Woolworths Holdings Limited-0.05%Tencent Holdings Ltd0.70%Alibaba Group Holding Ltd0.82%China Construction Bank Corpor0.91%Vale S.A0.99%Samsung Electronics Co., Ltd1.78%	Woolworths Holdings LimitedTop Over/Underweights: GrowthHDFC Bank Limited1.56%AIA Group Limited1.26%MercadoLibre, Inc.0.68%Wal-Mart de Mexico SAB de CV0.45%Grupo Financiero Banorte SAB d0.39%Woolworths Holdings Limited-0.33%AI Rajhi Bank-0.36%National Bank of Kuwait K.S.C0.38%Vale S.A0.57%China Construction Bank Corpor0.58%Tencent Holdings Ltd0.73%	Woolworths Holdings Limited Top Over/Underweights: GARPGrupo Financiero Banorte SAB d0.77%State Bank of India0.55%HDFC Bank Limited0.50%PT Bank Mandiri (Persero) Tbk0.42%Hana Financial Group Inc.0.41%Woolworths Holdings Limited0.07%Housing Development Finance C0.58%Meituan Class B-0.59%Reliance Industries Limited-0.64%Taiwan Semiconductor Manufact0.81%Tencent Holdings Ltd.10.99%	Woolworths Holdings Limited Top Over/Underweights: ValueHana Financial Group Inc.0.55%Ping An Insurance (Group) Comp0.52%Naspers Limited Class N0.49%Banco do Brasil S.A.0.43%KB Financial Group Inc.0.42%Woolworths Holdings Limited-0.02%Samsung Electronics Co., Ltd0.74%Reliance Industries Limited-1.17%Meituan Class B-1.41%Taiwan Semiconductor Manufact2.08%Tencent Holdings Ltd3.04%	Woolworths Holdings Limited Top Over/Underweights: YieldSamsung Electronics Co Ltd Pfd1.42%Arca Continental SAB de CV0.71%Inner Mongolia Yili Industrial Gro0.69%AlA Group Limited0.55%Midea Group Co. Ltd. Class A0.55%Woolworths Holdings Limited0.01%Housing Development Finance C0.75%Reliance Industries Limited-1.08%Meituan Class B-1.16%Samsung Electronics Co., Ltd1.43%Tencent Holdings Ltd1.43%	

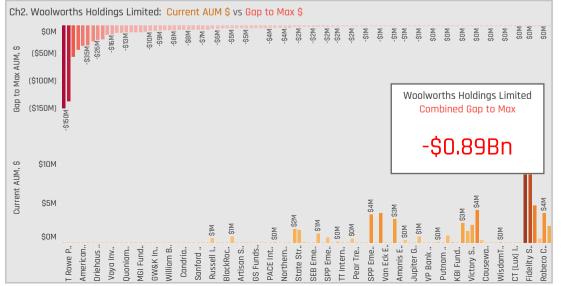


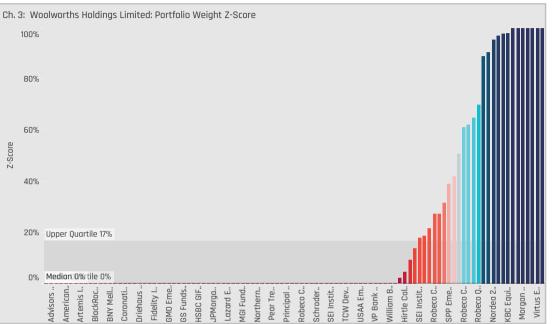
**Chart 1** The blue line shows the total number of funds (out of 270) who have ever owned Woolworths Holdings Limited stock. The green area shows the number of funds invested at any one time and the red line the difference. A download sloping red line means existing investors are closing out positions, 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 Woolworths Holdings Limited. A value of 100% means today's weight is the highest on record for that fund, zero the lowest.

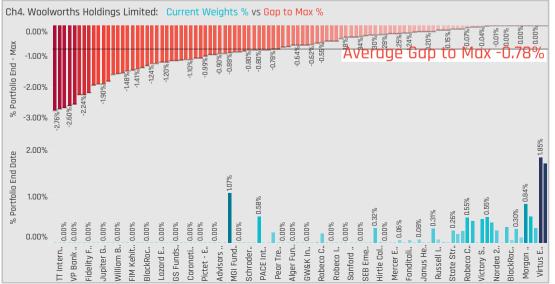


**Chart 2** The orange lines show the current AUM in Woolworths Holdings Limited for each fund. The red lines show the gap between today's weight and the maximum weight for each fund.





**Chart 4** Blue lines show the current weight in Woolworths Holdings Limited for each fund. The red lines show the gap between today's weight and the maximum weight for each fund.



SPP Emerging Markets SRI



Chart 1 Current fund weight, maximum fund weight and difference for Woolworths Holdings Limited stocks.Chart 2 Current fund AUM, maximum fund AUM and \$ difference for Woolworths Holdings Limited stocks

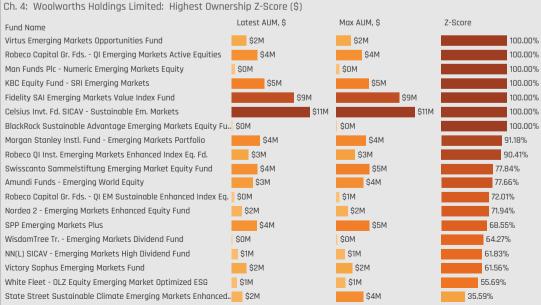
Chart 3	Current fund weight, maximum fund weight and Z-Score for Woolworths Holdings Limited stocks, ranked by Z-Score
Chart 4	Current fund AUM, maximum AUM and Z-Score for Woolworths Holdings Limited stocks, ranked by Z-Score.

Fund Name	Latest Weight	Max Weight	Difference	
Fund Name				Func
Delaware Pooled Emerging Markets Portfolio	0.00%	2.76%	-2.76%	Whit
TT International Funds Plc - Emerging Markets Equity Fund	0.00%	2.71%	-2.71%	Virtu
Mondrian Emerging Markets Value Equity Fund	0.00%	2.66%	-2.66%	Nort
Fidelity Institutional Funds - Emerging Markets Fund	0.00%	2.60%	-2.60%	NN(L
VP Bank Risk Optimised ESG Eq. Fd Emerging Markets Equities	0.00%	2.57%	-2.57%	Morg
JPMorgan Emerging Markets Equity Fund	0.00%	2.24%	-2.24%	Man
Voya Investors Trust - JPMorgan Emerging Markets Equity Port.	0.00%	2.24%	-2.24%	Amu
Fidelity Funds SICAV - Sust. Emerging Markets Equity Fund	0.00%	2.19%	-2.19%	КВС
Quoniam Fds. Selection SICAV - EM Equities Minrisk	0.00%	1.94%	-1.94%	Fidel
JPMorgan Fund ICVC - Emerging Markets Income Fund	0.00%	1.90%	-1.90%	Swis
Jupiter Global Emerging Markets Fund	0.00%	1.90%	-1.90%	Nord
BNY Mellon Investment Fds Emerging Income Fund	0.00%	1.81%	-1.81%	Wisc
MFS Emerging Markets Equity Fund	0.00%	1.59%	-1.59%	Robe
William Blair Emerging Markets Leaders Fund	0.00%	1.57%	-1.57%	Robe
T Rowe Price Emerging Markets Stock Fund	0.00%	1.54%	-1.54%	Stat
Nordea 2 - Stable Emerging Markets Aksjer Etisk	0.00%	1.48%	-1.48%	VALI
FIM Kehittyvaet Markkinat ESG	0.00%	1.45%	-1.45%	Robe
Driehaus Mutual Funds - Emerging Markets Growth Fund	0.00%	1.41%	-1.41%	Celsi
Wellington Mgmt. Funds (IE) Plc - Emerging Markets Equity	0.00%	1.37%	-1.37%	Picte
BlackRock Global Funds - Emerging Markets Equity Income Fund	0.00%	1.31%	-1.31%	SPP

#### Ch. 2: Woolworths Holdinas Limited: Largest Gap to Max (\$)

	riux (ç)					1
Fund Name	Latest AUM, \$	Max AUM, \$		Difference		F
Lazard Emerging Markets Equity Portfolio		\$1	50M -\$150M		11	١
T Rowe Price Emerging Markets Stock Fund		\$13	9M -\$139M		11	F
JPMorgan Emerging Markets Equity Fund		\$57M		-\$57M		N
Fidelity Institutional Funds - Emerging Markets Fund		\$44M		-\$44M		ł
American Funds New World Fund		\$37M		-\$37M		F
Pictet Global Selection Fund - Global High Yield Emerg. Eq.		\$35M		-\$35M		(
Schroder ISF - Emerging Markets		\$29M		-\$29M		E
Driehaus Mutual Funds - Emerging Markets Growth Fund		\$26M		-\$26M		1
Fidelity Inv. Trust - Emerging Markets Fund		\$25M		-\$25M		F
TIAA-CREF Emerging Markets Equity Fund		\$18M		-\$18M		ç
Voya Investors Trust - JPMorgan Emerging Markets Equity Port		\$16M		-\$16M		ł
Principal Investors - International Emerging Markets Fund		\$13M		-\$13M		F
Robeco Capital Gr. Fds QI Emerging Conservative Equities		\$13M		-\$13M		1
Quoniam Fds. Selection SICAV - EM Equities Minrisk		\$13M		-\$13M		ç
Coronation Global Opportunities Fund - Global Emerging Marke.		\$12M		-\$12M		١
MFS Emerging Markets Equity Fund		\$12M		-\$12M		1
MGI Funds Plc - Emerging Markets Equity Fund		\$12M		-\$12M		١
BNY Mellon Emerging Markets Fund		\$11M		-\$11M		۱
Mondrian Emerging Markets Value Equity Fund		\$10M		-\$10M		9
GW&K Investment Funds Plc - Emerging Markets Equity Fund		\$9M		-\$9M		0

Ŀ	Ch. 3: Woolworths Holdings Limited: Highest Ownership Z-Score (%)						
Ŀ	Fund Name	Latest Weight	Max Weight	Z-Score			
1	White Fleet - OLZ Equity Emerging Market Optimized ESG	1.72%	1.72%	100.00%			
1	Virtus Emerging Markets Opportunities Fund	1.85%	1.85%	100.00%			
	Northern Trust Invt. Fds. Plc - EM Multifactor ESG Fund	0.33%	0.33%	100.00%			
	NN(L) SICAV - Emerging Markets High Dividend Fund	0.58%	0.58%	100.00%			
	Morgan Stanley Instl. Fund - Emerging Markets Portfolio	0.84%	0.84%	100.00%			
	Man Funds Plc - Numeric Emerging Markets Equity	0.11%	0.11%	100.00%			
	Amundi Funds - Emerging World Equity	0.30%	0.30%	100.00%			
	KBC Equity Fund - SRI Emerging Markets	0.44%	0.44%	98.19%			
	Fidelity SAI Emerging Markets Value Index Fund	0.33%	0.34%	97.88%			
	Swisscanto Sammelstiftung Emerging Market Equity Fund	0.55%	0.57%	97.19%			
	Nordea 2 - Emerging Markets Enhanced Equity Fund	0.27%	0.28%	95.49%			
	WisdomTree Tr Emerging Markets Dividend Fund	0.46%	0.51%	90.81%			
	Robeco Capital Gr. Fds QI Emerging Markets Active Equities	0.55%	0.62%	88.98%			
	Robeco QI Inst. Emerging Markets Enhanced Index Eq. Fd.	0.26%	0.37%	69.98%			
	State Street Sustainable Climate Emerging Markets Enhanced	0.26%	0.38%	64.90%			
	VALIC Company I - Emerging Economies Fund	0.31%	0.50%	62.18%			
	Robeco Capital Gr. Fds QI EM Sustainable Enhanced Index Eq.	0.19%	0.31%	61.21%			
	Celsius Invt. Fd. SICAV - Sustainable Em. Markets	1.07%	1.96%	50.79%			
	Pictet Global Selection Fund - Global Growing Market	0.58%	1.37%	42.07%			
	SPP Emerging Markets Plus	0.32%	0.62%	39.09%			



\$1M

\$3M

16.03%

### Flow Potential



**Chart 1** Current fund weight, maximum fund weight and the difference for Woolworths Holdings Limited stocks. Filtered for funds that have bought in to Woolworths Holdings Limited between 6/30/2022 - 12/31/2022

Chart 2 Current fund AUM, maximum fund AUM and the USD difference for Woolworths Holdings Limited stocks. Filtered for funds Chart 4 Current fund AUM, maximum AUM and Z-Score for Woolworths Holdings Limited stocks, ranked by Z-Score. Filtered for that have bought in to Woolworths Holdings Limited between 6/30/2022 - 12/31/2022

Ch. 1: Woolworths Holdings Limited: Largest Gap to Max (%) and Buying between 6/30/2022 - 12/31/2022

Fund Name	Latest Weight	Max Weight	Difference	Fund Flows, \$
Celsius Invt. Fd. SICAV - Sustainable Em. Markets	1.07%	1.96%	-0.88%	\$5M
Pictet Global Selection Fund - Global Growing Market	0.58%	1.37%	-0.80%	\$0M
Robeco Capital Gr. Fds QI EM Sust. Active Eq.	0.21%	0.76%	-0.55%	\$0M
VALIC Company I - Emerging Economies Fund	0.31%	0.50%	-0.19%	\$2M
Russell Investment Co Emerging Markets Fund	0.08%	0.24%	-0.16%	\$0M
Robeco Capital Gr. Fds QI EM Sustainable Enhanced Index Eq	. 0.19%	0.31%	-0.12%	\$OM
Robeco QI Inst. Emerging Markets Enhanced Index Eq. Fd.	0.26%	0.37%	-0.11%	\$2M
Robeco Capital Gr. Fds QI Emerging Markets Active Equities	0.55%	0.62%	-0.07%	\$3M
Fidelity SAI Emerging Markets Value Index Fund	0.33%	0.34%	0.00%	\$3M
BlackRock Sustainable Advantage Emerging Markets Equity Fu	I 0.06%	0.06%	0.00%	\$0M
Amundi Funds - Emerging World Equity	0.30%	0.30%	0.00%	\$3M
Man Funds Plc - Numeric Emerging Markets Equity	0.11%	0.11%	0.00%	\$0M
Morgan Stanley Instl. Fund - Emerging Markets Portfolio	0.84%	0.84%	0.00%	\$4M
Northern Trust Invt. Fds. Plc - EM Multifactor ESG Fund	0.33%	0.33%	0.00%	\$0M
Virtus Emerging Markets Opportunities Fund	1.85%	1.85%	0.00%	\$2M
White Fleet - OLZ Equity Emerging Market Optimized ESG	1.72%	1.72%	0.00%	\$OM

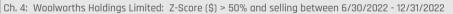
#### Ch. 2: Woolworths Holdings Limited: Largest Gap to Max (\$) and Buying between 6/30/2022 - 12/31/2022

	i lan (ç) ana bayı			
Fund Name	Latest AUM, \$	Max AUM, \$	Difference	Fund Flows, \$
Russell Investment Co Emerging Markets Fund	\$1M	\$7M	-\$6M	\$0M
VALIC Company I - Emerging Economies Fund	\$2M	\$5M	-\$3M	\$2M
Robeco Capital Gr. Fds QI EM Sust. Active Eq.	\$0M	\$2M	-\$2M	\$0M
Amundi Funds - Emerging World Equity	\$3M	\$4M	-\$1M	\$3M
Northern Trust Invt. Fds. Plc - EM Multifactor ESG Fund	\$0M	\$1M	-\$1M	\$0M
White Fleet - OLZ Equity Emerging Market Optimized ESG	\$1M	\$1M	-\$1M	\$0M
Pictet Global Selection Fund - Global Growing Market	\$0M	\$1M	\$0M	\$0M
Robeco QI Inst. Emerging Markets Enhanced Index Eq. Fd.	\$3M	\$3M	\$0M	\$2M
Morgan Stanley Instl. Fund - Emerging Markets Portfolio	\$4M	\$4M	\$0M	\$4M
Robeco Capital Gr. Fds QI EM Sustainable Enhanced Index Eq.	\$0M	\$1M	\$0M	\$0M
BlackRock Sustainable Advantage Emerging Markets Equity Fu.	\$0M	\$0M	\$0M	\$0M
Celsius Invt. Fd. SICAV - Sustainable Em. Markets	\$11M	\$11M	\$0M	\$5M
Fidelity SAI Emerging Markets Value Index Fund	\$9M	\$9M	\$0M	\$3M
Man Funds Plc - Numeric Emerging Markets Equity	\$0M	\$0M	\$0M	\$0M
Robeco Capital Gr. Fds QI Emerging Markets Active Equities	\$4M	\$4M	\$0M	\$3M
Virtus Emerging Markets Opportunities Fund	\$2M	\$2M	\$0M	\$2M

Chart 3 Current fund weight, maximum fund weight and Z-Score for Woolworths Holdings Limited stocks, ranked by Z-Score. Filtered for funds that have sold Woolworths Holdinas Limited between 6/30/2022 - 12/31/2022 and have a % Z-Score of above 50%.

funds that have sold Woolworths Holdings Limited between 6/30/2022 - 12/31/2022 and have a \$ Z-Score of above 50%.





Fund Name	Latest AUM, \$	Max AUM, \$	Z-Score	Fund Flows, \$
SPP Emerging Markets Plus	\$4M	\$51	4 68.55%	(\$1M)
WisdomTree Tr Emerging Markets Dividend Fund	\$0M	\$OM	64.27%	\$0M
Victory Sophus Emerging Markets Fund	\$2M	\$2M	61.56%	(\$1M)

# 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 (270) 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 (270) in the analysis.

**Funds O/W**: The total number of funds overweight a measure versus the EEM, divided by the total number of funds (270) in the analysis.

**AUM, \$**: The combined AUM allocated to a particular measure across the 270 active GEM funds in our analysis, in US Dollars

