

# User Guide

Last Updated: June 2021

# Welcome To ETF Action!

We're so excited to share with you the breadth and depth of the resources available to you on the ETF Action data and analytics platform. Whether you've just signed up for <u>your free trial</u> or you've been a subscriber for years, there's always something new to learn about our system.

In the pages that follow, we'll provide step-by-step instructions and detailed screenshots outlining how to navigate ETF Action, including how to find, filter, and compare securities; save and export your data; and deploy our various analytical tools. Note: We're about to get deep into the weeds, so if you'd prefer to jump to a specific section, please use the links in the **Table of Contents** for easier navigation.

If you have a question or issue not answered in this User's Guide, please don't hesitate to email us at <u>team@etfaction.com</u>, and someone will get back to you ASAP to walk you through the system.

Thanks for reading, and for being an ETF Action subscriber!

- The ETF Action Team

# Before You Start: 7 ETF Action Tips & Tricks

We know you're ready to get started ready using the ETF Action platform. Below are a few quick notes and reminders to help you get the most out of your ETF Action experience:

# 1. (Almost) All Data Is Updated Daily.

All data within the ETF Terminal is updated as of previous day's close. The few exceptions are listed below:

- Updated During Open Hours: Security prices, as seen in the Dashboard, ETF Terminal, and Model • Tracker, are updated every fifteen seconds throughout the trading day.
- Updated Weekly: Fundamental equity data, using FactSet's individual security data and aggregated by ETF Action data for individual securities, is updated once weekly.
- Updated Monthly: Fundamental fixed income data, as provided by FactSet, is updated once monthly. •

# 2. Orange Means Interactive.



Throughout the ETF Action platform, you'll see orange boxes, filters, menus, links, and other fields. Interact with these to perform various actions: Type in tickers; click navigational buttons; select time or filter ranges; and more.

# 3. Filter Data to Your Exact Specifications.



The Filter is a powerful tool for quickly navigating data on 2,400+ ETFs and 20,000+ stocks. Click the Filter button to specify a data range (e.g., a particular investment theme, a minimum and/or maximum expense ratio, etc.) Click again to close the Filter menu.

# 4. Click to Drill Deeper on Charts.

Every chart in ETF Action contains a wealth of data. Hover or click on charts to drill deeper into specific data points. For example, clicking on a given sector in the Sector Breakdown bar chart (under the "Composition" tab) will further reveal industry exposures within that sector. You can close this sub-chart by clicking the Back button in the upper right corner.

# 5. Most Time Ranges Are Flexible.

For most line charts, such as historical performance or moving day averages, we provide a number of pre-selected time ranges, spanning 3 months to 10 years. However, you also may specify custom time ranges for your chart: Simply type a start and end date into the orange boxes in the upper right-hand corner of the chart.

You may also select a time frame by clicking and dragging over a select area, right on the chart itself.

# 6. Save Your Research for Later.

Don't lose your hard work! ETF Action allows you to save your work in a variety of ways.

- Save tables as .csv files by clicking the Export button.
- Print and/or export charts in .png, .jpeg, .pdf, and .sdg formats by clicking the = button.
- Label and save ETF/stock searches under "My Screens" by clicking the button.
- Create and save new model portfolios by clicking New Model under "Model Tracker."

# 7. We're Here to Help.

Sometimes it's easier to understand all that a service has to offer when there's someone to act as your guide. We're happy to walk you through the ETF Action platform in a free, 30-minute live demo, customized to your specific interests and needs.

Please email Rowland Wilhelm at <u>rowland@etfaction.com</u> or <u>fill out this contact form</u> to schedule a demo.

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# The ETF Action Platform: Overview

**ETF Action is a research and data analytics platform enabling you to focus the markets through the lens of ETFs.** By leveraging ETFs' signature transparency and best-in-class FactSet data for over 2,400+ ETFs and 20,000+ stocks, our platform allows quick and intuitive research of various market segments, ETFs, and single stocks in the pursuit of building stronger investment portfolios.

The **Platform** section of ETF Action is your home base for searching, comparing, visualizing, modeling, and learning more about ETFs or individual securities.

# How To Navigate The ETF Action Platform

There are seven main toolsets available in the ETF Action Platform. Upon login or after selecting "Platform" at the top of your browser screen, the **ETF Terminal** will load by default.

		Р		Admin	Platform	Research	Model Portfolios	Webinars	My Account			
Dashboard  FTF Terminal	Landscape 🔘	Research 🗿	Compare O S	ecurity Lookup 🧿	Model Track	(er O						Refresh
Portfolio Visualizer												
Earnings Scorecard	Funds AUM (\$MM) 2,411 \$5,613,600		Day Net Flows (\$MM) 30 -2,017 \$7	Day Net Flows (\$MM) 9 9,564	0 Day Net Flows (\$MN 255,586	(I) YTD Net Flow: \$59,635	s (\$MM) 1 Yr Net Flows (\$MN \$516,815	0				
Ownership Screener												
ETF Overlap Analyzer	Overview									<b>a</b>	.everaged   🗌 Ir	
Data Explorer	Overview	×.								Exclude: LL1	.everaged   L_1 Ir	iverse   🛄 ETNs
User Guide 📥	Enter Tickers (Comma Sep	oarated)				×	Compare t					
	ETF Navigator Export										Primary Data	Source: FoctSet*
	Show 100 🗸 entries									Sec	arch:	<u> </u>
	Ticker 👌	Fund Name	\$	Brand 0		Classificat	tion	Inception (	Expense 0	AUM (\$MM) 👻	TTM Yield 🔅	YTD 0
		Reset Filters		T		т	l i i i i i i i i i i i i i i i i i i i		T	T	т	T
	SPY SPDR S&P 5	500 ETF Trust	SPDR	Equ	ity : U.S. : Size & Style	: Broad Market		1993-01-22	0.09%	\$322,648	1.52%	0.63%
	IVV iShares Core	s&P 500 ETF	iShares	Equ	ity : U.S. : Size & Style	: Broad Market		2000-05-15	0.03%	\$236,542	1.57%	0.59%
	VTI Vanguard T	otal Stock Market ETF	Vanguard	Equ	ity : U.S. : Size & Style	: Broad Market		2001-05-24	0.03%	\$208,151	1.42%	1.37%
	VOO Vanguard S	&P 500 ETF	Vanguard	Equ	ity : U.S. : Size & Style	: Broad Market		2010-09-07	0.03%	\$181,391	1.54%	0.61%
	QQQ Invesco QQ	Q Trust	Invesco	Equ	ity : U.S. : Size & Style	: Broad Market		1999-03-10	0.20%	\$153,148	0.54%	2.77%
	VEA Vanguard F	TSE Developed Markets	s ETF Vanguard	Equ	ity : Dev Ex-U.S. : Size	& Style : Broad Mar	rket	2007-07-20	0.05%	\$89,469	2.03%	0.68%
	AGG iShares Core	e U.S. Aggregate Bond	ETF iShares	Fite	ed Income : U.S. : Multi-	-Sector : Broad Mar	ket	2003-09-22	0.04%	\$86,252	2.15%	-0.65%
	IEFA IShares Core	e MSCI EAFE ETF	IShares	Equ	ity : Dev Ex-U.S. : Size	& Style : Broad Mar	rket	2012-10-18	0.07%	\$84,917	1.87%	0.59%
	IEMG iShares Core	e MSCI Emerging Marke	ts ETF Shares	Equ	ity : Emerging : Size &	Style : Broad Marke	et	2012-10-18	0.11%	\$75,943	1.76%	5.77%
	VWO Vanguard F	TSE Emerging Markets	ETF Vanguard	Equ	ity : Emerging : Size &	Style : Broad Marke	et	2005-03-04	0.10%	\$75,721	1.82%	5.75%
	BND Vanguard T	otal Bond Market ETF	Vanguard	Fite	d Income : U.S. : Multi-	-Sector : Broad Mar	ket	2007-04-03	0.04%	\$70,302	2.40%	-0.83%

All ETF Action Toolsets can be found on the left-hand sidebar. They include:

		Dashboard
1.	Dashboard	> ETF Terminal
2.	ETF Terminal	Portfolio Visualizer
3.	Portfolio Visualizer	Earnings Scorecard
4.	Earnings Scorecard	Ownership Screener
5.	Ownership Screener	
6.	ETF Overlap Analyzer	ETF Overlap Analyzer
7.	ETF Data Explorer	ETF Data Explorer
		User Guide 🛓

As you navigate between these Toolsets, **your searches will** *never* **be reset**, **until you choose to reset them**. Therefore, you can jump back and forth between Toolsets, without losing your work.

Each Toolset consists of several individual *Research Tools*, which will be explained in the following sections.

# How To "Hard Reset" The ETF Action Platform

To conduct a new search, load a new set of ETFs into a given Toolset, or create a new model, it is not necessary to manually reset or refresh the **ETF Action** platform each time. However, given that searches persist across Toolsets, sometimes it's just faster and more desirable to clear existing work all at once.

To reset the ETF Action platform completely and start afresh, click the green "Refresh" button at the top of the **ETF Terminal**, found in the **Research Lens**:

			Admin Pl	atform Research	Model Portfolios	Webinars	My Account	
Dashboard  > ETF Terminal	Landscape 🧿 R	esearch 🧿 Com	pare O Secu	rity Lookup 🧿 Model 1	racker O			Refresh
Portfolio Visualizer								
Earnings Scorecard		Avg. Expense 5 Day Net 0.54% <b>\$-1,14</b> 4	Flows (\$MM) 30 Day 1 \$87,2	Net Flows (\$MM) 90 Day Net Flows 67 \$319,973	(\$MM) YTD Net Flows \$444,747	(\$MM) 1 Yr Net F \$774,3	Flows (\$MM) 310	
Ownership Screener								
ETF Overlap Analyzer	Overview	~				Evolue	de: 🗆 Leveraged   🗆 I	
ETF Data Explorer	Overview	·				Exclud		nverse   🗆 ETNS
User Guide 🛓	Enter Tickers (Comma Separa	sted)		×	Compare 🏦		Primary Data	Source: FactSet*
	Ticker 🍦	Fund Name	Brand	Classification	Inception	Expense 🔶	AUM TTM (\$MM) Yield	♦ YTD ♦
		Reset Filters	T	т		т	τ	т
	SPY SPDR S&P 500 E	TF Trust	SPDR	Equity : U.S. : Size & Style : Broad Market	1993-01-22	0.09% \$3	365,662 1.32%	13.78%
	IVV iShares Core S&	P 500 ETF	iShares	Equity : U.S. : Size & Style : Broad Market	2000-05-15	0.03% \$2	282,865 0.64%	13.77%
	VTI Vanguard Total	Stock Market ETF	Vanguard	Equity : U.S. : Size & Style : Broad Market	2001-05-24	0.03% \$2	249,447 1.28%	13.87%
	VOO Vanguard S&P 5	00 ETF	Vanguard	Equity : U.S. : Size & Style : Broad Market	2010-09-07	0.03% \$2	229,641 1.38%	13.82%

# The Dashboard

2Q (ID) NASDAQ- 2Q (ID) NASDAQ- 7/M Russell 20 8 S&P Small 8 S&P Mid C A MSCI EAFE 2M MSCI EAFE 2M MSCI EM ( Markets)	00 Cap 600 ap 400	Lost () \$389.32 \$317.03 \$216.76 \$105.75 \$251.89 \$75.41	Chg \$-3.27 \$-1.58 \$-8.46 \$-4.05 \$-7.75	-0.50%	-	SPY -0.83%							
M Russell 20 S&P Small S&P Small S&P Small S&P Mid C A MSCI EAFE M MSCI EAFE M MSCI EM (	00 Cap 600 ap 400	\$317.03 \$216.76 \$105.75 \$251.89	\$-1.58 \$-8.46 \$-4.05	-0.50%		SPY -0.83%							
M Russell 20 S&P Small S&P Mid C A MSCI EAFE M MSCI EM ( Markets)	00 Cap 600 ap 400	\$216.76 \$105.75 \$251.89	\$-8.46 \$-4.05	-3.76%		SPY -0.83%							
S&P Small S&P Mid C A MSCI EAFE M MSCI EM ( Markets)	Cap 600 ap 400	\$105.75 \$251.89	\$-4.05			-0.83%							
S&P Mid C MSCI EAFE MSCI EAFE MSCI EA ( Morkets)	ap 400	\$251.89		-3.69%					IWM	ur e	UH	EFA	FEM
MSCI EAFE MSCI EM ( Markets)			\$-7.75						-3.76%	-3.69%	-2.99%	-1.43%	-1.90%
( MSCI EM ( Markets)		\$75.41		-2.99%									
Markets)	merging		\$-1.09	-1.43%									
(D) MSCI EAFE		\$52.90	\$-1.02	-1.90%									
	Small Cap	\$71.56	\$-1.36	-1.87%		QQQ -0.50%							
s MSCI EM ( Markets) S	Emerging mall Can	\$56.35	\$-0.91	-1.58%		-0.50%				scz		EEMS	
licker 🌖 Index	Name 🌵	Last (	Chg 0	% 🔻	Ticke	ar 🌖 Security Name 🌖	Last ()	Chg ≬	% 🗸		Title		🗘 Published 🚽
Treasury In	Barclays US flation \$	125.72	\$0.22	0.18%	FDLO	Fidelity Low Volatility Factor ETF	\$43.19	\$0.03	0.06%	250 CEOs and execs express "alarm" over what co	uld become the largest tax hike in New Yor	k history - CNBC	2021-03-23 10:16:00
						Alpha Architect U.S.				If we want to defend Social Security we'll have to fi	ight - MarketWatch		2021-03-23 09:48:00
Index		\$86.28	\$0.02	0.02%	QMOM	Quantitative Momentum ETF	\$52.48	\$-1.79	-3.30%	Community Solar Is Bringing Renewable Energy to	Everyone - Bloomberg Quicktake		2021-03-23 09:45:30
(D) ICE Short L Securities I	S Treasury \$	110.53	\$0.00	0.00%	QVAL	Alpha Architect U.S. Quantitative Value ETF	\$31.55	\$-0.71	-2.22%	Fire At Renesas Plant Fuels Chip Supply Woes - Ho	ackaday		2021-03-23 09:00:00
U.S. Terrer	ry 20+ Year s	137.51	\$1.25	0.92%		iShares MSCI USA Quality				Antibody drug cuts COVID-19 death risk by 70 per			2021-03-23 08:58:58
					QUAL	Factor ETF	\$119.85	\$-0.93	-0.77%	Consumers lost \$56 billion to identity fraud last yea			2021-03-23 08:56:00
Index	ICE U.S. are Bond	\$26.30	\$0.08	0.30%	VLUE	iShares MSCI USA Value Factor ETF	\$101.01	\$-2.81	-2.71%	GME Stock Falls Ahead Of First Earnings Report Sir		ness Daily	2021-03-23 08:48:00
GOVT-US -			\$0.53	0.46%	MTUM	iShares MSCI USA Momentum Factor ETF	\$159.87	\$-0.96	-0.60%	Fed's Powell Says Recovery Is 'Far From Complete' Delov's Plan For Postal Service Includes Delivery A			2021-03-23 08:44:56 2021-03-23 08:39:53
T GOVT-US - T Treasury Cr Index	S Treasury	113.92				And the rest of the rest of the					no none entringes e ni n		
/T GOVT-US - Treasury C Index			\$0.24	0.18%						AMD: Overblown Intel Risk - Seeking Alpha			2021-03-23 08:37:00
P Treasury in Protected M HY (D) U.S. Treasu Index	flation \$ lotes (TIPS) ry 1-3 Year	\$86.28	\$0.02	0.18%		Fidelity Low Volatility Factor ETF Alpha Architect U.S. Quantitative Momentum ETF				If we want to defend Social Security we'll have to fi Community Solar Is Bringing Renewable Energy to	uld become the largest tax hike in New Yor Ight - MarketWatch Everyone - Bloomberg Quicktake	k history - CNBC	2021-0 2021-0

Real-Time guste and/or trade prices are not sourced from all markets. Provided by IEX Group, Inc

The **Dashboard** is a visualization tool that offers an at-a-glance overview of real-time changes in ETF market segments that are most relevant to you. It consists of three main modules: **Market Tiles, Heatmap,** and **Market Headlines**.

# Market Tiles

The **Market Tiles** depict live prices for the securities within the user's screens and models. Prices are provided by IEX Group. There are three Market Tiles: **Equities, Fixed Income & Commodities**, and **Screens & Models**.

Each entry in the Market Tile includes several data points, including:

- Ticker: The ticker for the ETF
- Index Name (Equities, Fixed Income & Commodities Market Tiles): The name of the index that the ETF tracks.
- Security Name (Screens & Models Market Tile): The full name of the ETF or stock.
- *Last:* Last traded price for the security.
- *Chg:* Change in price from the previous quote.
- %: Percentage change in price from previous quote.

Some ETFs have a (D) by their tickers. For these funds, prices are delayed by up to 15 minutes.

#### Changing Securities Listed In The Market Tiles

Each Market Tile comes preloaded with several screens, either built by ETF Action or by the user:

• *Equities:* 23 ETF Action built screens across Core, Size & Style, Factor, Sector & Industry, and Region & Country.

- *Fixed Income & Commodities:* 4 ETF Action built fixed income screens, including U.S. Government, Broad Market, Municipal, and Corporate; as well as 5 ETF Action built Commodities screens.
- Screens & Models: Any screens the user has saved in the ETF Terminal will be accessible under My Screens. Professional Level subscribers will also be able to access their saved models, if any (under "My Models"); and the ETF Action Active Index Model (AIM) Portfolios (under "ETF Action AIM Portfolios").

To change between these screens, select a new screen from that Market Tile's dropdown menu.

# Heatmap

The Heatmap displays live price changes (by percentage) for securities in the paired Market Tile screen or model.

- For screens, the security boxes in the Heatmap are equally sized.
- For models, the security boxes in the Heatmap are based on weight of the security within the portfolio.

# Changing Securities Displayed in the Heatmap

To change the securities displayed in the **Heatmap**, first select a **Market Tile** from the Heatmap dropdown menu (e.g., Equities, Fixed Income & Commodities, or Screens & Models). Then select the desired screen from the dropdown menu on the relevant Market Tile. This "pairs" the Market Tile and the Heatmap. The Heatmap will automatically change to reflect the new screen or model.

# Market Headlines

Market Headlines is a news feed of the top headlines from various trusted media sources from around the world.

- *Title* indicates the article headline and outlet in which it was first published.
- *Published* indicates the date and time in Pacific Time at which the article was first published.

To read an article, simply click on the relevant headline. A new browser tab will open; you will not be forced to navigate away from ETF Action.

# **ETF** Terminal

The **ETF Terminal** is your home base for ETF and equity research. This Toolset is where most of the data/analytics tools on the ETF Action platform are housed, and you can expect that the majority of your time on our platform will take place in the ETF Terminal.

There are five main Toolsets, sometimes called "lenses," within the ETF Terminal. These include the:

- 1. Landscape Lens: Visually depicts the data that can be called up in the Research Lens.
- 2. **Research Lens:** Allows you to search, filter, and compare a set of ETFs from the database of over 2,400+ funds.
- 3. **Compare Lens:** Allows you to compare the performance, risk statistics, composition, fundamental metrics, and holdings for a list of up to 12 ETFs, as well as generate comparative **Custom Reports**.
- 4. Security Lookup: Allows you to look up the aggregate ETF ownership for a list of up to 20 stocks.
- 5. Model Tracker: Aggregates information about model portfolios, including the ETF Action AIM Portfolios, the ETF All-Stars® Thematic Select Lists, and the user's My Models.

Each of these Toolsets are reviewed in-depth in the following sections.

# Landscape Lens

Dashboard	Landscap	e 🔍 🖪	lesearch	0	Compo	are 🗿	Secu	urity Lo	ookup	0	Mod	el Trac	ker 🧿						Ref	resh				
✓ ETF Terminal																								
> ETF Action AIM Portfolios	Chart Type: He	atman 🖌	Group By:	Accet	Class	Y Date	a Tab: P	orformar	200		~ 1	Data Poir	t 1 D	<b>m</b> /	¥ Sci	ile By: AL	INA (CNANA)	~						
> ETF All-Stars Thematic Select Lists	churt type. He	uunup •	Group by.	Asset	Cluss	Dutt		enomu		rmance	e: 1 Day			uy		AC	JIVI (\$IVIIVI)			=				
> Equity Screens	Equity																Fixed	Incom						
Fixed Income Screens	Equity																AGO		BND	VCIT				
Commodity Screens		SPY IVV		VI	VTI VOO				c	QQ	-0.2		-0.19%	-0.13%										
<ul> <li>Currency Screens</li> </ul>		0.36%				0.37%				37%			0.37%			0.12%								
• My Models																		MBB	мив нус					
My Screens																	BNDX -0.16%	-0.08	% -0.02% <mark>0.10</mark>	0% -0.1				
Portfolio Visualizer	VEA	VTV 0.64%		VUG 0.17%		IWF 0.17%	IJI O.	R 11%		WM .17%	UI 0.9	H 91%	VIG 0.81%	6	EFA 0.21%	IWD 0.61%	VCSH		SHV IUSB BI -001 IEF SC US.	0 N/A				
Earnings Scorecard	0.33%																-0.04%	SHY -0.0	-00 0 L	STBLV				
Ownership Screener		VO	XLF 1.21%	XLF -0.		ITOT 0.40%	VYM 0.59%	VEU 0.389		VW 0.03%	EEM 0.84%	SCHX 0.35%	IWR 0.719	IXU % 0.4		DIA % 0.72%		SCHP	VT0 IS	00 I S				
· · ·		0.64%	0.64%	0.64%	0.64%	0.64%															LQD -0.26%	0.13%	-0 VG FPE	s
ETF Overlap Analyzer	IEFA 0.24%	vxus		SCHD 0.65%	VBR 0.76%	VV 0.33%	ARKK 0.17%	IVE 0.71%	VT 0.40%	MDY 0.86%	SCHB 0.41%	QUAL 0.94%	VGK 0.21%			OY IWN 74% -0.279		JPST -0.0	-0 N/A V SP					
ETF Data Explorer	0.24%	0.45%			ACWI SCH	IA VLUE		MTUM V								GSLC IWO	BSV	GOVT	BIL -0 N/A BK	s				
User Guide 🕹			0.46%	SP	PYV IUSG	SPDW SPY	G EWJ >	LU MG	к уот	FDN	VFH SP	LG EFG	IBB IU	isv ijs	SC SC.	. XLB VSS	-0.02%		IGIB H					
	vwo	VB 0.59%		0VY 0.3	7 0.06%	BJP NO	EZU IJK	FT SF	LV ES	IYW I	I XBI	OEF VO.	IYR M	EWT	FN H E	FN E	TIP	VMBS -0.0	IEI S	E S				
	0.81%		0.66%	IW SGU 0.3	VV 0.7 0.	.4 0.6	0.1 0.9	. 1.0 0.	6 0 <b>.</b> 5.	00.	.4 1.0	0.10.2.	0.8 1.	0	0 0	20 0	. 0.10%	TLT -1.0	-0 FL					
		VGT	SCHF	.33% то	Q 0.5	D S PRF	F IE V	SP F	X IGV	Q F	E S	V F R	S K.	I X	. S I E	MA	IGSB		0.1 N					
		-0.02%	0.0.00	WP 0.53% XL	0  JJ -( LP 0.7	D = U		DI S.		ER							N/A	0.06%	SC SP					
	IEMG 0.72%	VNQ			0.2	A 0		000		01	0 <sup>1</sup>	. 0,	S J	F	0	LL	Comm	odity	IAU	SLV				
		0.68%		/XF FV	VD BB V .8 0.1 0					I							PDBC	GLDM 0.28%		0.5				

The Landscape Lens is a visualization tool enabling you to render almost any data point accessible in the **Research** Lens in a succinct heatmap, allowing you to easily spot data trends across asset classes, sectors, varying time frames, and more. **Generally, green boxes indicate positive numerical or percentage values, while red boxes indicate negative values.** (For certain indicators, such as RSI, green can represent desirable ranges for the data, while red indicates undesirable ranges.)

The Landscape Lens consists of two elements:

- 1) Several Interactive Menus that allow you to group and narrow down ETF-level data,
- 2) A Landscape Heatmap that displays data specified in the Interactive Menus.

**By default, the Landscape Heatmap loads the 500 largest ETFs by assets under management.** But it can also be loaded with ETFs from the **Research Lens**, or with models and screens imported from the **Model Tracker** (See "How <u>To Load Other Sets Of ETFs Into The Landscape Heatmap</u>" below.)

# How To Change The Landscape Heatmap

The Interactive Menus allow you to specify various qualities about the Landscape Heatmap, including:

- Chart Type: Select the type of visualization depicted, from Heatmap, Histogram, or Scatter Plot.
- *Group By:* Select how securities should grouped within the heatmap. There are fifteen classification subcategories that can be specified, including:
  - <u>ETF Action Classification categories</u>: Asset Class, Sub-Asset Class, Composite, Market, Region, Country, Segment, Group, Reach, Strategy, Implementation, Discipline
  - Organization-level categories: Issuer, Distributor, Listing Exchange
- *Data Tab:* Select from nine data categories, which correspond to data tabs in the Research Lens (see: "Research Lens"). These categories include:
  - Performance: Historical returns of the ETFs
  - Flows (\$MM): Net inflows/outflows for the ETFs, in millions of dollars
  - Technical Analysis: Technical indicators, such as percentages above/below moving averages or RSI
  - Equity Key Ratios (TTM): Fundamental accounting metrics, like P/E or ROE
  - Key Ratio vs. 5Y Avg.: Key equity ratios, compared to their 5-year averages
  - **Growth Estimates:** Growth estimates for future time periods.
  - o 2021E Trends: How earnings and sales estimates are trending over multiple time frames
  - Equity Ratings & Targets: How analysts ratings have changed for the ETFs
  - Fixed Income Fundamentals: Key bond metrics, such as yield or duration.
- Data Point: Specifies the discrete data point to be visualized across the set of ETFs (e.g., YTD performance, P/E ratios, or yield to maturity).

# How To Drill Deeper On The Landscape Heatmap

The **Landscape Heatmap** is interactive; by clicking on various elements of the chart, you can narrow down into different categories.

**To drill down by grouping (selected in the** *Group By* **Interactive Menu),** simply click on a heading in the heatmap, e.g., "Equity" or "Broad-Market." The heatmap's field will narrow, displaying only the ETFs that fall within that grouping. To return to the full view of the Landscape Heatmap, click the grey "Back" button in the top right corner.

**To drill down by individual securities,** click a ticker (or anywhere on its box in the **Landscape Heatmap)** to be taken to that ETF's Research Frames in the **Research Lens**. To return to the full view of the Landscape Heatmap, click on the

"**Research**" tab at the top of the screen, so that the red circle with a minus sign et urns into a green plus sign (For more information on ETF Research Frames, see "ETF Research Frames".)

### How To Load Other Sets Of ETFs Into The Landscape Heatmap

By default, the Landscape Heatmap loads the top 500 largest ETFs by assets under management. But custom sets of ETFs can be loaded into the Landscape Heatmap from the Research Lens and the Model Tracker.

### Loading ETFs Into The Landscape Lens From The Research Lens

To load a list of ETFs from the **Research Lens**, simply type the desired tickers into the **ETF Navigational Bar**, then click "Landscape" from the top of the screen:

	TE	Admin	Platform Research N	Model Portfolios	Webinars	My Account
Dashboard	Landscape O Research G	Compare 💿 Se	curity Lookup 🗿 🛛 Model Ti	racker (0)		
> ETF Terminal	Eunuscupe 🕑 Research 🦉	Compare Se				Refresh
Portfolio Visualizer						
Earnings Scorecard	Funds AUM (\$MM) Avg. Expense 2,547 \$6,442,946 0.54%		ay Net Flows (\$MM) 90 Day Net Flows ,267 \$319,973	(\$MM) YTD Net Flows \$444,747	(\$MM) 1 Yr Net Flows ( \$774,310	\$MM)
Ownership Screener						
TF Overlap Analyzer	Overview Y				Exclude:	Leveraged   🗌 Inverse   🗌 ETNs
TF Data Explorer	Overview				Exclude.	
Jser Guide 去	Enter Tickers (Comma Separated)		×	Compare 🕆		
	ETF Navigator Export 🛓					Primary Data Source: FactSet*
	Show 100 v entries	Brand		Inception	Expense AUM (\$MM)	Search: TTM \$ YTD \$
	Reset Filters		7		т т	Yield T
	SPY SPDR S&P 500 ETF Trust	SPDR	Equity : U.S. : Size & Style : Broad Market	1993-01-22	0.09% \$365,662	2 1.32% 13.78%
	IVV iShares Core S&P 500 ETF	iShares	Equity : U.S. : Size & Style : Broad Market	2000-05-15	0.03% \$282,86	5 0.64% 13.77%
	VTI Vanguard Total Stock Market E	TF Vanguard	Equity : U.S. : Size & Style : Broad Market	2001-05-24	0.03% \$249,44	7 1.28% 13.87%
	VOO Vanguard S&P 500 ETF	Vanguard	Equity : U.S. : Size & Style : Broad Market	2010-09-07	0.03% \$229,64	1 1.38% 13.82%



\*Heatmap limited to top 500 funds by weight. Use filters below to see isolate select market segments

To return to the Research Lens, click "Research" at the top of the screen.

To specify a new set of ETFs to visualize in the heatmap, change the tickers in the **ETF Navigational Bar** of the **Research Lens**.

### How To Load ETFs Into The Landscape Lens From the Model Tracker

To load a list of ETFs from the **Model Tracker**, simply load the desired model portfolio or saved screen into the Model Tracker from the left sidebar (see: "<u>Model Tracker</u>"). Then click "Landscape" from the top of the screen.

	Admin Platform Research Model Portfolios Webinars My Account
Dashboard	Landscape   Research   Compare   Security Lookup   Model Tracker   Refresh
ETF Terminal	Relies
ETF Action AIM Portfolios	
ETF All-Stars Thematic elect Lists	New Model
Equity Screens	
Fixed Income Screens	Create a new model or open existing.
Commodity Screens	
Currency Screens	Funds AUM (\$MM) Avg. Expense 5 Day Net Flows (\$MM) 30 Day Net Flows (\$MM) 90 Day Net Flows (\$MM) YTD Net Flows (\$MM) 1 Yr Net Flows (\$MM)
My Models	2,549 \$6,505,940 0.54% \$15,754 \$111,494 \$338,487 \$471,396 \$791,142
My Screens	
ortfolio Visualizer	Overview V
arnings Scorecard	
wnership Screener	Enter Tickers (Commo Separated) 🗙 🖬 Compare 🕆
TF Overlap Analyzer	
TF Data Explorer	ETF Navigator Primary Data Source: FactSet
Jser Guide よ	Show 100 v entries Search:
	Ticker Fund Name Brand Classification Inception Expense AUM TTM Yield YTD
	Reset Filters Y Y Y Y
	SPY         SPDR S&P 500 ETF Trust         SPDR         Equity : U.S. : Size & Style : Broad Market         1993-01-22         0.09%         \$369,141         1.31%         14.86%
	IVV         iShares Core S&P 500 ETF         iShares         Equity : U.S. : Size & Style : Broad         2000-05-15         0.03%         \$284.353         0.64%         14.85%



Portfolios that can be viewed as a Landscape Heatmap may include:

- The ETF Action AIM Portfolios<sup>P</sup>
- The ETF All-Stars® Thematic Select Lists<sup>P</sup>
- Prebuilt Equity, Fixed Income, Commodity and Currency Screens

- Saved custom model portfolios, under "My Models"<sup>P</sup>
- Saved screens from the Research Lens, under "My Screens"

*P*: Indicates a selection that is only available to Professional subscribers.

To close the Landscape Heatmap and return to the Model Tracker, click "Model Tracker" at the top of the screen.

To specify a new model or screen to visualize in the Landscape Heatmap, change the model or screen in the Model Tracker.

#### How To Export The Landscape Heatmap

The Landscape Heatmap graphic, as well as the data underpinning it, can be exported to a variety of file formats by clicking the three parallel lines in the top right corner of the chart.

The Landscape Heatmap can be viewed in full screen, printed, or exported to a .png, .jpeg, .pdf, or .svg file; while the data underpinning the Landscape Heatmap can be exported to a .csv or .xls file.

# Research Lens

Lands	cape 💿 Research 🗿 Compa	re 🧿 Security L	Lookup 💿 Model Tracker 💿					Refrest
inds ,445	AUM (\$MM) Avg. Expense 5 Day Net Flov \$5,792,886 0.54% \$13,502	ws (\$MM) 30 Day Net Fla \$109,932	ws (\$MM) 90 Day Net Flows (\$MM) YTD Net Flows (\$MM) 1 Y Net Flow 5383.040 5972.070 505152					
verview	~					Exclude:	_everaged   🗌 Ir	nverse   🗌 I
ter Tick	ers (Comma Separated)		× 🖬 Comp	are t				
F Navig	ator Export ±						Primary Data	a Source: Fac
ow 10	0 🗸 entries					Sea	arch:	
ow 10 Ticker		🔷 Brand	Classification	Inception \$	Expense 🔶	Sea	arch: TTM Yield  🎄	YTD
		Brand	Classification	Inception \$	Expense 🔅			YTD
Ticker	Fund Name			Inception		AUM (\$MM) 🔻	TTM Yield	
Ficker Y	Fund Name Reset Filters	T	Y		T	AUM (\$MM) 👻	TTM Yield 🔶	T
Ticker YY	Fund Name Reset Filters SPDR S&P 500 ETF Trust	SPDR	Equity : U.S. : Size & Style : Brood Market	1993-01-22	<b>T</b> 0.09%	AUM (\$MM) - \$332,721	TTM Yield 🔅	<b>T</b> 4.20%
Ticker YY V	Fund Name Reset Filters SPDR 5&P 500 ETF Trust IShares Core 5&P 500 ETF	SPDR iShares	Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market	1993-01-22 2000-05-15	• 0.09% 0.03%	AUM (\$MM) \$332,721 \$254,321	TTM Yield 🔶	<b>*</b> 4.20% 4.15%
Ticker YY V TI	Fund Name Reset Filters SPDR SAP 500 ETF Trust iShares Core SAP 500 ETF Vanguard Total Stack Market ETF	SPDR iShares Vanguard	Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market	1993-01-22 2000-05-15 2001-05-24	<ul> <li>0.09%</li> <li>0.03%</li> <li>0.03%</li> </ul>	AUM (\$MM)  \$332,721 \$254,321 \$217,145	TTM Yield (*) T 1.47% 1.52% 1.37%	<b>*</b> 4.20% 4.15% 4.97%
<b>Ficker</b> Y 1 00 2Q	Fund Name Reset Filters SPDR S&P 500 ETF Vanguard Total Stack Market ETF Vanguard S&P 500 ETF	SPDR iShares Vanguard Vanguard	Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market	1993-01-22 2000-05-15 2001-05-24 2010-09-07	0.09%           0.03%           0.03%           0.03%	AUM (\$MM) \$332,721 \$254,321 \$217,145 \$198,914	TTM Yield   TTM Yield   TA7%  1.47%  1.52%  1.37%  1.16%	<ul> <li>4.20%</li> <li>4.15%</li> <li>4.97%</li> <li>4.18%</li> </ul>
Ticker PY 1 00 2Q 2A	Fund Name Reset Filters SPDR SAP 500 ETF Trust IShares Core SAP 500 ETF Vanguard Total Stock Market ETF Vanguard SAP 500 ETF Invesco QQQ Trust	SPDR iShares Vanguard Vanguard Invesco	Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market	1993-01-22 2000-05-15 2001-05-24 2010-09-07 1999-03-10	C.09% 0.03% 0.03% 0.03% 0.20%	AUM (\$MM) \$332,721 \$254,321 \$217,145 \$198,914 \$146,712	TTM Yield (*) 147% 152% 137% 116% 0.56%	4.20%           4.15%           4.97%           4.18%           -0.91%
Ticker 'Y V T DO QQ A FA	Fund Name Reset Filters SPDR SAP 500 ETF Trust Shares Core SAP 500 ETF Vanguard Total Stack Market ETF Vanguard SAP 500 ETF Invesco QQQ Trust Vanguard FTSE Developed Markets ETF	SPDR IShares Vanguard Vanguard Invesco Vanguard	Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market Equity : Dev Ex-U.S. : Size & Style : Brood Market	1993-01-22 2000-05-15 2001-05-24 2010-09-07 1999-03-10 2007-07-20	0.09%           0.03%           0.03%           0.03%           0.03%           0.03%           0.03%           0.05%	AUM (\$MM)  \$ 332,721 \$ 254,321 \$ 217,145 \$ 198,914 \$ 146,712 \$ 92,494	TTM Yield (*) 147% 152% 137% 116% 0.56% 198%	4.20%           4.15%           4.97%           4.18%           -0.91%           4.02%
Ticker PY V TI DO QQ EA FA GG	Fund Name Reset Filters SPDR S&P 500 ETF Trust Shares Core S&P 500 ETF Vonguard Total Shock Market ETF Vonguard S&P 500 ETF Invesco QQQ Trust Vonguard FTSE Developed Markets ETF Ishares Core MSCI EAFE ETF	SPDR Shares Vanguard Vanguard Invesco Vanguard iShares	Equity : U.S. : Size & Style : Brood Morket Equity : U.S. : Size & Style : Brood Morket Equity : U.S. : Size & Style : Brood Morket Equity : U.S. : Size & Style : Brood Morket Equity : U.S. : Size & Style : Brood Morket Equity : Dev Ex-U.S. : Size & Style : Brood Morket Equity : Dev Ex-U.S. : Size & Style : Brood Morket	1993-01-22 2000-05-15 2001-05-24 2010-09-07 1999-03-10 2007-07-20 2012-10-18	0.09%           0.03%           0.03%           0.03%           0.03%           0.03%           0.05%           0.07%	AUM (\$MM)	TTM Yield (*) 147% 152% 152% 137% 116% 0.56% 198% 184%	4.20%           4.15%           4.97%           4.18%           -0.91%           4.02%           4.11%
	Fund Name Reset Filters SPDR SAP 500 ETF Trust IShares Core SAP 500 ETF Vanguard Total Stock Market ETF Vanguard SAP 500 ETF Invesco QQQ Trust Vanguard FTSE Developed Markets ETF IShares Core MSCI EAFE ETF IShares Core U.S. Aggregate Bond ETF	SPDR iShares Vanguard Vanguard Invesco Vanguard iShares IShares	Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : Dev Ex-U.S. : Size & Style : Broad Market Equity : Dev Ex-U.S. : Size & Style : Broad Market Equity : Dev Ex-U.S. : Size & Style : Broad Market Equity : Dev Ex-U.S. : Size & Style : Broad Market	1993-01-22 2000-05-15 2001-05-24 2010-09-07 1999-03-10 2007-07-20 2012-10-18 2003-09-22	<ul> <li>C.09%</li> <li>0.03%</li> <li>0.03%</li> <li>0.03%</li> <li>0.20%</li> <li>0.05%</li> <li>0.07%</li> <li>0.04%</li> </ul>	AUM (\$MM) \$332,721 \$254,321 \$217,145 \$198,914 \$146,712 \$22,494 \$6,337 \$86,337 \$84,416	TTM Yield (*) 1.47% 1.52% 1.37% 1.16% 0.56% 1.98% 1.84% 2.13%	4.20%           4.15%           4.97%           4.18%           -091%           4.02%           4.11%           -2.85%

The **Research Lens** is a powerful, all-in-one ETF screener, comparative tool, research database, and visualization generator. It is split into two main modules:

- The **ETF Navigator**, which allows you to access and analyze thousands of data points in our database of over 2,400 ETFs;
- The ETF Research Frames, which allow you to drill deep into data and statistics for individual ETFs.

Each are discussed in more detail in the sections that follow.

By default, the **Research Lens** is set to the **ETF Navigator**. By clicking on the green "plus" sign next to the "Research" menu tab at the top of the platform, you can call up the **ETF Search Box**, allowing you to access the **Research Frames** for individual ETFs.

	TE	Admin F	Platform Research M	odel Portfolios	Webinars My	Account
Dashboard	Landscape  Research	Compare O Sec	urity Lookup 💿 🛛 Model Tra	cker 0		
> ETF Terminal	Lundscupe 🖉 Research 🥑	compare 🕑 🛛 See				Refresh
Portfolio Visualizer						
Earnings Scorecard		5 Day Net Flows (\$MM) 30 Da \$-1,144 \$87,	y Net Flows (\$MM) 90 Day Net Flows (\$ 267 \$319,973	MM) YTD Net Flows (\$MM \$444,747	<li>1 Yr Net Flows (\$MM) \$774,310</li>	
Ownership Screener						
ETF Overlap Analyzer	Overview 🗸					raged   🗆 Inverse   🗆 ETNs
ETF Data Explorer	Overview				Exclude: U Level	aged   U Inverse   U ETNs
User Guide 🛃	Enter Tickers (Comma Separated)		X	Compare 1		rimary Data Source: FactSet*
	ETF Navigator Export					arch:
	Show 100 v entries Ticker 🖗 Fund Name	🔶 Brand	Classification	♦ Inception ♦ Exp	ense 🍦 🛛 AUM (\$MM) 🔻	TTM 🔶 YTD 🍦
	Reset Filters	Т	т		т т	ТТ
	SPY SPDR S&P 500 ETF Trust	SPDR	Equity : U.S. : Size & Style : Broad Market	1993-01-22 0.0	\$365,662	1.32% 13.78%
	IVV iShares Core S&P 500 ETF	iShares	Equity : U.S. : Size & Style : Broad Market	2000-05-15 0.0	\$282,865	0.64% 13.77%
	VTI Vanguard Total Stock Market ETF	Vanguard	Equity : U.S. : Size & Style : Broad Market	2001-05-24 0.0	\$249,447	1.28% 13.87%
	VOO Vanguard S&P 500 ETF	Vanguard	Equity : U.S. : Size & Style : Broad Market	2010-09-07 0.0	\$229,641	1.38% 13.82%

You can also click on an individual ETF's entry in the ETF Navigator Table to call up the Research Frames for that ETF.

# NOTE: How To "Hard Reset" The ETF Action Platform

To conduct a new search, load a new set of ETFs into a given Toolset, or create a new model, it is not necessary to manually reset or refresh the **ETF Action** platform each time. However, given that searches and queries persist across Toolsets, sometimes it is faster and more desirable to clear existing work all at once.

To reset the ETF Action platform completely and start afresh, click the green "Refresh" button at the top of the ETF Terminal, found in the Research Lens:

		Admin P	latform Research M	odel Portfolios	Webinars My	Account
Dashboard    ETF Terminal	Landscape  Research	Compare 🧿 Secu	rrity Lookup 🧿 🛛 Model Tro	acker O		Refresh
Portfolio Visualizer						
Earnings Scorecard		ay Net Flows (\$MM) 30 Day	Net Flows (\$MM) 90 Day Net Flows (\$ 67 \$319,973	MM) YTD Net Flows (\$1 \$444,747	MM) 1 Yr Net Flows (\$MM) \$774,310	
Ownership Screener						
ETF Overlap Analyzer	Quantiew Y				European Colorese	raged   🗆 Inverse   🗆 ETNs
ETF Data Explorer	Overview 🗸				Exclude: Level	
User Guide 🛓	Enter Tickers (Comma Separated) ETF Navigator Export  Show 100  entries		X	Compare 🕆		rimary Data Source: FactSet*
	Ticker 🖗 Fund Name		Classification	Inception E	xpense 🔅 AUM (\$MM) 🔻	TTM Yield \$\U00e9 YTD
	Reset Filters	Т	Т		т	ТТ
	SPY SPDR S&P 500 ETF Trust	SPDR	Equity : U.S. : Size & Style : Broad Market	1993-01-22	0.09% \$365,662	1.32% 13.78%
	IVV iShares Core S&P 500 ETF	iShares	Equity : U.S. : Size & Style : Broad Market	2000-05-15	0.03% \$282,865	0.64% 13.77%
	VTI Vanguard Total Stock Market ETF	Vanguard	Equity : U.S. : Size & Style : Broad Market	2001-05-24	0.03% \$249,447	1.28% 13.87%
	VOO Vanguard S&P 500 ETF	Vanguard	Equity : U.S. : Size & Style : Broad Market	2010-09-07	\$229,641	1.38% 13.82%

# Understanding The ETF Navigator

Lands	cape 💿 Research 💿 Compo	re 💿 Security L	.ookup 💿 Model Tracker 💿				l	Refresh
	AUM (\$MM) Avg. Expense 5 Day Net Flo \$5,792,886 0.54% \$13,502	ws (\$MM) 30 Day Net Fla \$109,932	ows (\$MM) 90 Day Net Flows (\$MM) YTD Net Flows (\$MM) 1 Yr Net Flow 5338.048 \$173.676 \$541.524					
Iverview	v					Exclude:	Leveraged	Inverse   🗌 ETI
iter Ticke	ers (Comma Separated)		× 🖬 Compo	are 🕯				
TF Navig	ator Export 🛓						Primary Dat	ta Source: FactSe
iow 10	10 🗸 entries					Sec	arch:	
ow 10 Ticker		Brand	Classification	Inception \$	Expense 🔅	Sec	arch: TTM Yield 🔅	YTD 🔶
		Brand	Classification	Inception \$	Expense 🔶			YTD 🔶
Ticker	Fund Name			Inception		AUM (\$MM) 🚽	TTM Yield 🔅	
Ticker	Fund Name Reset Filters	T	۲		T	AUM (\$MM)	TTM Yield 🔅	T
Ticker PY /V	Fund Name Reset Filters SPDR S&P 500 ETF Trust	SPDR	Equity : U.S. : Size & Style : Brood Market	1993-01-22	0.09%	AUM (\$MM) 🗸	TTM Yield 🔅	<b>T</b> 4.20%
Ticker PY /V TI	Fund Name Reset Filters SPDR S&P 500 ETF Trust IShares Core S&P 500 ETF	SPDR iShares	Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market	1993-01-22 2000-05-15	0.09%	AUM (\$MM) \$332,721 \$254,321	TTM Yield	<b>*</b> 4.20% 4.15%
Ticker PY V TI 00	Fund Name Reset Filters SPDR S&P 500 ETF Trust IShares Core S&P 500 ETF Vanguard Total Stock Market ETF	SPDR iShares Vanguard	Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market	1993-01-22 2000-05-15 2001-05-24	0.09% 0.03% 0.03%	AUM (\$MM) \$332,721 \$254,321 \$217,145	TTM Yield	<b>*</b> 4.20% 4.15% 4.97%
Ticker PY V TI 00 QQ	Fund Name Reset Filters SPDR S&P 500 ETF Trust IShares Core S&P 500 ETF Vanguard Total Stock Market ETF Vanguard S&P 500 ETF	SPDR IShares Vanguard Vanguard	Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market	1993-01-22 2000-05-15 2001-05-24 2010-09-07	0.09% 0.03% 0.03% 0.03%	AUM (\$MM) \$332,721 \$254,321 \$217,145 \$198,914	TTM Yield (*) T 1.47% 1.52% 1.37% 1.16%	<b>x</b> 4.20% 4.15% 4.97% 4.18%
Ticker PY V TI QQ EA	Fund Name Reset Filter: SPDR S&PO ETF Trust Shores Core S&P 500 ETF Vanguard Total Stock Market ETF Vanguard S&P 500 ETF Invesco QQQ Trust	SPDR IShares Vanguard Vanguard Invesco	Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market Equity : U.S. : Size & Style : Brood Market	1993-01-22 2000-05-15 2001-05-24 2010-09-07 1999-03-10	0.09% 0.03% 0.03% 0.03% 0.03%	AUM (\$MM) \$332,721 \$254,321 \$217,145 \$198,914 \$146,712	TTM Yield (*) 1.47% 1.52% 1.37% 1.16% 0.56%	¥           4.20%           4.15%           4.97%           4.18%           -0.91%
Ticker PY /V TI 200 200 200 200 200 200 200 20	Fund Name Reset Filters SPDR S&P 500 ETF Trust IShares Core S&P 500 ETF Vanguard Total Stock Market ETF Vanguard S&P 500 ETF Invesco QQQ Trust Vanguard FTSE Developed Markets ETF	SPDR iShares Vanguard Vanguard Invesco Vanguard	Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : Dev Ex-U.S. : Size & Style : Broad Market	1993-01-22 2000-05-15 2001-05-24 2010-09-07 1999-03-10 2007-07-20	0.09% 0.03% 0.03% 0.03% 0.20% 0.20%	AUM (\$MM) \$332,721 \$254,321 \$217,145 \$198,914 \$146,712 \$92,494	TTM Yield TTM Yield 1.47% 1.52% 1.37% 1.16% 0.56% 1.98%	4.20%           4.15%           4.97%           4.18%           -0.91%           4.02%
Ticker PY VV TI QQQ EA EA	Fund Name Reset Filters SPDR S&P 500 ETF Trust iShares Core S&P 500 ETF Vanguard Table Stock Market ETF Vanguard S&P 500 ETF Invesco QQQ Trust Vanguard FTSE Developed Markets ETF IShares Core MSCI EAFE ETF	SPDR iShares Vanguard Vanguard Invesco Vanguard iShares	Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : U.S. : Size & Style : Broad Market Equity : Dev Ex-U.S. : Size & Style : Broad Market Equity : Dev Ex-U.S. : Size & Style : Broad Market	1993-01-22 2000-05-15 2001-05-24 2010-09-07 1999-03-10 2007-07-20 2012-10-18	0.09% 0.03% 0.03% 0.03% 0.03% 0.05% 0.05%	AUM (\$MM) \$332,721 \$254,321 \$217,145 \$198,914 \$146,712 \$92,494 \$86,337	TTM Yield 1.47% 1.52% 1.37% 1.16% 0.56% 1.98% 1.84%	4.20%           4.15%           4.97%           4.18%           -0.91%           4.02%           4.11%
	Fund Name Reset Filters SPDR S&P 500 ETF Trust IShares Core S&P 500 ETF Vanguard Total Stock Market ETF Vanguard Stop ETF Invesco QQQ Trust Vanguard FTSE Developed Markets ETF IShares Core MSCI EAFE ETF IShares Core U.S. Aggregate Bond ETF	SPDR IShares Vanguard Vanguard Invesco Vanguard IShares IShares	Equity: U.S.: Size & Style : Broad Market           Equity: U.S.: Size & Style : Broad Market           Equity: U.S.: Size & Style: Broad Market	1993-01-22 2000-05-15 2001-05-24 2010-09-07 1999-03-10 2007-07-20 2012-10-18 2003-09-22	<ul> <li>0.09%</li> <li>0.03%</li> <li>0.03%</li> <li>0.20%</li> <li>0.05%</li> <li>0.07%</li> <li>0.04%</li> </ul>	AUM (\$MM) \$332,721 \$254,321 \$217,145 \$198,914 \$146,712 \$92,494 \$86,337 \$84,416	TTM Yield  TTM Yield  TA7% 1.47% 1.52% 1.37% 1.16% 0.56% 1.98% 1.84% 2.13%	¥           4.20%           4.15%           4.97%           4.18%           -0.91%           4.02%           4.11%           -2.85%

The **ETF Navigator** is a screening tool that allows you to quickly find, filter, and compare fund-level data on ETFs from among the 2,400+ funds in our database, including exposures, performance, technical indicators, growth estimates, and key equity ratios. It consists of two main modules:

- An ETF Navigator Summary Statistics Bar, which summarizes key flows information for the selected set of ETFs
- An ETF Navigator Table, which lists specified data for the selected set of ETFs

#### The ETF Navigator Summary Statistics Bar



Summary information about the selected set of ETFs, including net flows across several time periods, appears at the top of the ETF Navigator in the **ETF Navigator Summary Statistics Bar.** This bar dynamically updates, based on your search results in the **ETF Navigator Table.** The listed data points include:

- Funds: Total number of funds in the selected set
- AUM (\$MM): Total assets under management of the ETFs in the selected set
- Avg. Expense: The simple average expense ratio of all the ETFs in the selected set
- 5 Day Net Flows (\$MM): The net flows for all the ETFs in the selected set over the past five market trading days.
- 30 Day Net Flows (\$MM): The net flows for all the ETFs in the selected set over the past 30 market trading days.
- 90 Day Net Flows (\$MM): The net flows for all the ETFs in the selected set over the past 90 market trading days.
- *YTD Net Flows (\$MM):* The net flows for all the ETFs in the selected set year-to-date.
- 1 Yr Net Flows (\$MM): The net flows for all the ETFs in the selected set over the past 12 months of market trading days.

## The ETF Navigator Table

Overview	~					Exclude:	everaged   🗌 In	verse   🗌 ETI
Enter Tickers	: (Comma Separated)		× D	Compare #				
ETF Navigate	or Export 🛓						Primary Data	Source: FactSe
Show 100	✓ entries					Sea	rch:	
Ticker	Fund Name	♦ Brand	Classification	eq Inception $ eq$	Expense	AUM (\$MM) 👻	TTM Yield	YTD \$
	Reset Filters	т	T		T	T	T	T
SPY	SPDR S&P 500 ETF Trust	SPDR	Equity : U.S. : Size & Style : Broad Market	1993-01-22	0.09%	\$337,453	1.44%	6.03%
IVV	iShares Core S&P 500 ETF	iShares	Equity : U.S. : Size & Style : Broad Market	2000-05-15	0.03%	\$258,969	1.49%	6.03%
VTI	Vanguard Total Stock Market ETF	Vanguard	Equity : U.S. : Size & Style : Broad Market	2001-05-24	0.03%	\$222,666	1.34%	7.30%
V00	Vanguard S&P 500 ETF	Vanguard	Equity : U.S. : Size & Style : Broad Market	2010-09-07	0.03%	\$201,955	1.14%	6.04%
QQQ	Invesco QQQ Trust	Invesco	Equity : U.S. : Size & Style : Broad Market	1999-03-10	0.20%	\$149,791	0.55%	1.62%
VEA	Vanguard FTSE Developed Markets ETF	Vanguard	Equity : Dev Ex-U.S. : Size & Style : Broad Market	2007-07-20	0.05%	\$94,015	1.95%	5.30%
IEFA	iShares Core MSCI EAFE ETF	iShares	Equity : Dev Ex-U.S. : Size & Style : Broad Market	2012-10-18	0.07%	\$87,342	1.82%	5.11%
AGG	iShares Core U.S. Aggregate Bond ETF	iShares	Fixed Income : U.S. : Multi-Sector : Broad Market	2003-09-22	0.04%	\$84,307	2.14%	-3.30%
vwo	Vanguard FTSE Emerging Markets ETF	Vanguard	Equity : Emerging : Size & Style : Broad Market	2005-03-04	0.10%	\$78,273	1.81%	5.45%
IEMG	iShares Core MSCI Emerging Markets ETF	iShares	Equity : Emerging : Size & Style : Broad Market	2012-10-18	0.11%	\$78,239	1.78%	5.16%
IWM	iShares Russell 2000 ETF	iShares	Equity : U.S. : Size & Style : Broad Market	2000-05-22	0.19%	\$75,156	0.87%	19.57%

The **ETF Navigator Table** provides hundreds of metrics for all U.S.-listed ETFs and ETNs within the ETF Action Classification system. There are 19 categories, accessible from the dropdown menu right under the **ETF Navigator Summary Statistics Bar.** These categories include:

- <u>Overview</u>: Lists tickers, fund names, brand, ETF Action Classification, inception date, expense ratio, total assets under management, trailing-twelve-month yield, and YTD performance for all the ETFs in the selected set.
- <u>ETF Action Classification</u>: Lists the twelve-part groupings for each ETF in the ETF Action Classification System, from highest level ("Asset Class" and "Sub-Asset Class") to more granular ("Implementation" and "Discipline")
- <u>Organization</u>: Details about the service providers for each of the ETFs in the selected set, including issuer, advisor, sub-advisor (if any), distributor, index provider (if any), and listing exchange.
- <u>Index & Structure</u>: Details about each ETF's index or active methodology, including index name, index selection criteria, index weighting scheme, type of exchange-traded product, legal structure, leverage factor, currency hedge (if any), tax reporting form, and frequency of dividends.
- *Performance:* Provides performance data for each ETF in the selected set, on time frames ranging from one day to 10 years.
- *FactSet Ratings:* Provides FactSet ratings for each ETF in the selected set, including benchmark, R-squared data, and beta data; efficiency, tradability, and fit scores; segment comparisons; and closure risk.
- *Flows:* Provides net flows information for each ETF in the selected set, on time frames ranging from one day to 5 years.
- <u>Trading & Liquidity</u>: Provides data on trading costs and liquidity for each ETF in the selected set, including median premiums/discounts, spreads, average and median trading volumes, and overlap with U.S. market hours.
- <u>Technical Analysis</u>: Provides data on technical indicators for each ETF in the selected set, including % away from 52-week high/low; % above/below the 50-day and 200-day moving averages, and 14-day RSI.
- <u>Equity Composition</u>: Breaks down the equity exposures for each ETF in the selected set, including the number of holdings, the weighted average market capitalization of the ETF, the % of the portfolio allocated to the ten largest holdings; regional exposures; and market capitalization (size) exposures.
- *Equity GICS Sector:* Breaks down the sector exposure for each ETF in the selected set across the 12 GICS sectors.
- <u>Equity Key Ratios</u>: Provides data on twelve equity key ratios, including yield; gross and net margins; ROE and ROA; P/E, P/S, P/BK, and P/CF ratios; interest coverage; long-term D/E; and payout ratio.
- *Key Ratios vs. 5Y Avq:* The above twelve equity key ratios, as compared to their five-year averages; expressed as a percentage.
- <u>Growth Estimates:</u> Growth estimates for fundamentals for each stock, including earnings per share, sales per share, cash flow per share, and book value per share; over both the current fiscal year and next year.
- <u>2021E Trends:</u> Average analyst estimates for earnings and sales, over the next month, three months, six months, and twelve months.
- <u>Equity Ratings & Targets:</u> Deeper detail on analyst ratings for the stocks inside ETFs, including coverage percentage; number of analysts; percentage of analysts rating each ETF buy/overweight, hold, or

sell/underweight; implied price return; and change in rating over one month, three months, six months, and twelve months.

- <u>Fixed Income Issue Type</u>: Details about the holdings within fixed income ETFs, including the percentage of the fund in sovereign debt, corporates, municipal debt, asset backed securities, mortgage backed securities, and bank loans.
- *Fixed Income Fundamentals:* Data about fund-level fundamentals of fixed income ETFs, including yield to maturity, yield to worst, average coupon rate, option adjusted spread (in basis points), effective duration, and average life of constituents.

#### Changing How The ETF Navigator Table Displays Entries

By default, the ETF Navigator Table displays the top 100 largest ETFs (by asset management) in the ETF Action database, which consists of 2,400+ funds. To change the number of entries displayed, use the *Show Entries* dropdown menu, and select 10, 25, 50, 100, or All.

		Admin	Platform Research	Model Portfolios	Webinars M	y Account
Dashboard  > ETF Terminal	Landscape 💿 Researc	h 💿 Compare 🔾	Security Lookup 💿 Moo	lel Tracker 🧿		Refresh
Portfolio Visualizer						
Earnings Scorecard	Funds AUM (\$MM) Avg. Exp 2,547 \$6,442,946 0.54%		<b>30 Day Net Flows (\$MM) 90 Day Net</b> \$87,267 \$319,97	Flows (\$MM) YTD Net Flows (\$M 3 \$444,747	IM) 1 Yr Net Flows (\$M \$774,310	IM)
Ownership Screener						
ETF Overlap Analyzer	Overview 🗸				Exclude: 🗌 Lei	veraged   🗌 Inverse   🗌 ETNs
ETF Data Explorer	Overview				Exclude: C Le	
User Guide 🛓	Enter Tickers (Comma Separated) ETF Navigator Export		×	🖬 🛛 Compare 🏦		Primary Data Source: FactSet*
	Show 100 🗸 entries					Search:
	Ticker 🍦 Fund N	ame 🍦 Bra	nd 🔶 Classification	♦ Inception ♦ Ex	pense  AUM (\$MM)	TTM 🔶 YTD 🔅
	Reset F	ilters	T		т	ТТ
	SPY SPDR S&P 500 ETF Trust	SPDR	Equity : U.S. : Size & Style : E Market	Iroad 1993-01-22 0	.09% \$365,662	1.32% 13.78%
	IVV iShares Core S&P 500 ET	F iShares	Equity : U.S. : Size & Style : B Market	Iroad 2000-05-15 0	.03% \$282,865	0.64% 13.77%
	VTI Vanguard Total Stock Ma	rket ETF Vanguard	Equity : U.S. : Size & Style : E Market	iroad 2001-05-24 0	.03% \$249,447	1.28% 13.87%
	VOO Vanguard S&P 500 ETF	Vanguard	Equity : U.S. : Size & Style : E Market	Iroad 2010-09-07 0	.03% \$229,641	1.38% 13.82%

To organize the **ETF Navigator Table** results in ascending or descending order, click the small up and down arrows at next to the heading of each column.

#### How To Use The Pre-Built ETF Action Screens

ETF Action comes loaded with several pre-built equity, fixed income, commodity, and currency ETF screens. To select one of these pre-built screens, use the navigational menus on the grey left-hand sidebar:

		<b>N</b>		Admi	n Platform	Research	Model Portfolios	Webinar	rs My Acco	ount
	shboard TF Terminal	Landscape 🤇	Research O	Compare O	Security Look	up 🧿 Model '	Fracker O			Refresh
> ET	TF Action AIM Portfolios TF All-Stars Thematic ect Lists	Funds AUM (\$M 2,547 \$6,442		5 Day Net Flows (\$MM) \$-1,144	30 Day Net Flows (\$M \$87,267	4M) 90 Day Net Flow \$319,973	s (\$MM) YTD Net Flow \$444,747	s (\$MM) 1 Yr Net \$774	t Flows (\$MM) ,310	
-	uity Screens lore ajor Composites »							-		
> Fo	ize & Style actor ector & Industry	Overview Enter Tickers (Comm				×	Compare 🏦	EXCI	ude: 🗆 Leveraged	🗌 Inverse   🗌 ETNs
> Re > Fix	egion & Country xed Income Screens	ETF Navigator Ex	port ±						Primary	Data Source: FactSet*
• Cu	ommodity Screens urrency Screens y Models	Show 100 v entr	ies Fund Name	¢	Brand 🍦	Classification	Inception	Expense 🍦	Search: AUM T (\$MM) Y	TM 🔶 YTD 🔅
	y Screens		Reset Filters		T	J.S. : Size & Style : Broad		T		ТТ
	nings Scorecard		S&P 500 ETF Trust s Core S&P 500 ETF	SPDR	Market	J.S. : Size & Style : Broad	1333-01-22			32%         13.78%           54%         13.77%

# How To Look Up ETFs In The ETF Navigator

There are several ways to screen the database for a desired set of ETFs, including:

- Typing in individual tickers
- Using the filters
- Using the search buttons

# How To Search For ETFs By Ticker

ETF Action	Classification	~								Exclude: 🗆 L	everaged   🗌	Inverse   🗆 ETNs
 EEM,QQQ,S	CZ,IWM					×	8	Compare 1				
ETF Navigat	Or Export 🛓										Primary Date	a Source: FactSet*
Show 100	✓ entries										Search:	
Ticker 🝦	Fund Name 🍦	Asset Class	Sub- Asset Class	Composite 🍦	Market	Region 🝦	Country 🝦	Segment 🔶	Group	Reach 🝦	Strategy 🖨	Implementation
	Reset Filters	T	T	T	T	T	T	Т	T	T	T	T
QQQ	Invesco QQQ Trust	Equity	Equity	Size & Style	U.S.	North America	U.S.	Broad Market	Broad- based	Large Cap	Beta	Market Cap
IWM	iShares Russell 2000 ETF	Equity	Equity	Size & Style	U.S.	North America	U.S.	Broad Market	Broad- based	Small Cap	Beta	Market Cap

To search a list of known ETFs, enter their tickers into the **ETF Navigational Bar** (the orange navigational field pictured above). As you type the ticker, the funds will automatically populate the **ETF Navigator Table** below. Be sure to separate each entry with a comma.

#### How To Search For ETFs Using Filters

	/ (\$MM) Avg. Expense 5 Day Net 933,588 0.54% \$65,874	: Flows (\$MM) 30 Day Net F 6 \$164,140		YTD Net Flows (\$MM) \$258,530	1 Yr Net Flows (\$MM) \$743,662			
Overview	~						Exclude:	.everaged   🗌 Inverse   🗌 ET
Enter Tickers ((	Comma Separated)			×	Compare #			
ETF Navigator								Primary Data Source: FactS
Show 100 V	entries	Brand	Classification 🔶	Inception	Expense	\$ AUM (\$MM)	Sec	¢ YTD \$
	Reset Filters	T	T		T	T	T	T
SPY	SPDR S&P 500 ETF Trust	SPDR	E Select All		^	\$339,537	1.43%	4.51%
IVV	IShares Core S&P 500 ETF	IShares	Alternative : Global : Absolute F	Return : Specialty				
VTI		ionarea	M Alternative : U.S. : Volatility : VI	turn : Specialty		\$257,840	1.48%	4.48%
V11	Vanguard Total Stock Market ETF	Vanguard	M Alternative : U.S. : Volatility : VI Commodity : Global : Agricultur Commodity : Global : Agricultur	X re : Biofuels re : Broad Market		\$257,840 \$220,925	1.48%	4.48%
			M Alternative : U.S. : Volatility : VI E Commodity : Global : Agricultur M Commodity : Global : Agricultur Commodity : Global : Agricultur E Commodity : Global : Agricultur	X re : Biofuels re : Broad Market re : Cocoa re : Coffee				
V00	ETF	Vanguard	Alternative : U.S.: Volatility : VI     Commodity : Global : Agricultur     Commodity : Global : Agricultur	X re : Biofuels re : Broad Market re : Cocca re : Coffee re : Corn re : Cotton		\$220,925	1.33%	5.46%
V00 QQQ VEA	ETF <sup>°</sup> Vanguard S&P 500 ETF	Vanguard Vanguard	M Alternative : U.S. : Volatility : VI E Commodity : Global : Agricultur M Commodity : Global : Agricultur Commodity : Global : Agricultur Commodity : Global : Agricultur M Commodity : Global : Agricultur	X e : Biofuels e : Broad Market re : Cocoa re : Coffee re : Corton re : Corton re : Cotton re : Corton re : Livestock re : Soybeans		\$220,925 \$202,749	1.33% 1.13%	5.46% 4.52%

The powerful ETF Action filters can be used to narrow down entries, as well. Filters can be set by clicking the grey

Filter Button

, located above each column in the ETF Navigator Table.

This will open a **Filter Menu**, where you can then select checkboxes to specify classification categories or set a specific numerical range for the data, as appropriate. Click the Filter button again to close and apply the specified settings.

Results will automatically populate in the ETF Navigator Table as Filters are applied. To reset filters, click the Reset Filters button at the top of the table under the "Fund Name" heading.

The **Filters** can be used in tandem with the **ETF Navigational Bar** and the **Search Bar**; using one or many filters automatically narrows down the results produced by a search in the ETF Navigator Bar and/or Filters.

#### How To Search For ETFs Using The Search Bar

ETF Action	Classification	~								Exclude: 🗌 L	.everaged   🗌	Inverse   🗌 ETNs	
EEM,QQQ,S	CZ,IWM					×	B	Compare 🕆					
ETF Navigat	COT Export 🛓										Primary Dat	a Source: FactSet*	
Show 100	✓ entries										Search:		4
Ticker 🝦	Fund Name	Asset Class	Sub- Asset Class	Composite 🔷	Market 🔶	Region 🝦	Country 🍦	Segment 🔷	Group 🍦	Reach 🍦	Strategy 🍦	Implementation	
	Reset Filters	T	T	T	T	T	T	T	T	T	T	T	
QQQ	Invesco QQQ Trust	Equity	Equity	Size & Style	U.S.	North America	U.S.	Broad Market	Broad- based	Large Cap	Beta	Market Cap	
IWM	iShares Russell 2000 ETF	Equity	Equity	Size & Style	U.S.	North America	U.S.	Broad Market	Broad- based	Small Cap	Beta	Market Cap	

To search for a specific keyword, such as an investment theme or brand name, type a keyword into the **Search Bar** (as indicated above), then click Enter. Search results will automatically populate in the **ETF Summary Table** in the ETF Classification module.

The **Search Bar** can be used in tandem with the **ETF Navigational Bar** and the **Filters**; typing a keyword into the Search Bar automatically narrows down the results produced by the Navigational Bar and/or Filters.

#### How To Exclude Leveraged ETPs, Inverse ETPs, and ETNs

To exclude leveraged and inverse exchange-traded products (ETPs) or exchange-traded notes (ETNs) from the list of potential results, use the check boxes in the upper right corner of the **ETF Navigator Table**:

	I (\$MM) Avg. 35,363 0.3		5 Day Net Flows (\$M \$557	M) 30 Day Net \$3,580	Flows (\$MM)	90 Day Net Fi \$7,535	lows (\$MM)	YTD Net Flows ( \$7,232		'r Net Flows (\$Ml 10,834	м)	
- Action C	assification	~								Exclude:	Leveraged   🗹	Inverse   🗹 ETNs
1,QQQ,SC	Z,IWM					×	•	Compare 🕆				
F Navigato	r Export 🛓										Primary Dat	a Source: FactSet*
iow 100 🔨	<ul> <li>entries</li> </ul>										Search:	
Ticker 🔶	Fund Name 🝦	Asset Class	Sub- Asset Class	Composite 🔷	Market 🝦	Region 🝦	Country	Segment 🔷	Group	Reach	Strategy	Implementation
	Reset Filters	T	T	T	T	T	T	T	T	Т	T	T
200	Invesco QQQ Trust	Equity	Equity	Size & Style	J.S.	North America	U.S.	Broad Market	Broad- based	Large Cap	Beta	Market Cap
WМ	iShares Russell 2000 ETF	Equity	Equity	Size & Style	U.S.	North America	U.S.	Broad Market	Broad- based	Small Cap	Beta	Market Cap

#### How To Save Screens For Later

The ETF Navigator provides several ways for you to save your search results or "screens" for later access and analysis.

To save a list of individual tickers entered into the ETF Navigational Bar, click the orange floppy disk button. A pop-up menu will launch, allowing you to either create a new Saved Screen, or overwrite an existing one:

Save Screen	×
My Screens 🗸	
Overwrite Existing	Screen Name NTA ETFs
OCreate New	Screen Name
Save	

To save, click the orange "Save" button in the lower left corner. <u>Note: Presently, the Save Screen functionality does</u> not work with a list of ETFs produced by using the Filters or the Search Bar. To save these searches, one must first manually enter the tickers into the ETF Navigational Bar.

To call up a Saved Screen, use the navigational menus on the grey left hand sidebar to select "My Screens," then the desired Saved Screen:



#### How To Export The Data In The ETF Navigator Table

Once a set of ETFs has been set in the **ETF Navigator Table**, the data accessible in the **ETF Navigator Table** can be exported, category by category, to a .csv file by clicking on the orange **Export** button next to the Table Title: "ETF Navigator".

After clicking this button, a download window will pop up, indicating your data is ready to open or save.

#### How To Load Screens Into The Compare Lens

Additional data analysis and comparison can be performed on a set of results from the **ETF Navigator** by loading it into the **Compare Lens,** including comparisons of performance and flows, risk stats, composition, fundamentals, and holdings. Users can also build **Custom Reports** of **ETF Navigator** results, as well.

To load ETF Navigator results into the Compare Lens, click the orange "Compare" button next to the **ETF Navigational Bar.** 

ETF Action C	Classification	~								Exclude: 🗆 L	everaged   🗌	Inverse   🗌 ETNs
EEM,QQQ,SC	Z,IWM					×		Compare 🕆	-			
ETF Navigato	Dr Export 🛓										Primary Date	a Source: FactSet*
Show 100	✓ entries		Sub-								Search:	
Ticker 🍦	Fund Name 🍦	Asset Class	Asset Class	Composite 🔶	Market	Region	Country 🍦	Segment 🔷	Group 🍦	Reach 🍦	Strategy 🔷	Implementation
	Reset Filters	T	T	T	T	T	T	T	T	T	T	T
QQQ		Equity	Equity	Size & Style	U.S.	<b>T</b> North America	U.S.	Broad Market	Broad- based	T Large Cap	Beta	T Market Cap

Note: Clicking the green plus sign next to the "Compare" at the top of the ETF Action screen will not automatically load a set of ETF results into the Compare Lens. Only clicking the orange "Compare" button will load the results into the Compare Lens.

#### **ETF Research Frames**

The **ETF Research Frames** are interactive visualizations for individual ETFs. (To see visualizations for a group of ETFs, see "<u>Compare Lens.</u>")

There are two ways to access an individual ETF's Research Frames.

- 1) You can on its entry in the ETF Navigator Table.
- 2) You can click on the "Research" Menu at the top of the screen, then enter the ETF's ticker in the orange ticker box:

Landscape 🔘	Research 🤤	Compare 🔘	Security Lookup	Model Tracke	r (0)		Refresh
Ticker							
Enter ticker or select fund	below.						
Funds AUM (\$MM) 2,547 \$6,442,94	Avg. Expense 6 0.54%	5 Day Net Flows (\$MM) <b>\$-1,144</b>	30 Day Net Flows (\$MM) \$87,267	90 Day Net Flows (\$MM) \$319,973	YTD Net Flows (\$MM) \$444,747	1 Yr Net Flows (\$MM) \$774,310	
Overview	~					Exclude: C Leverage	d   🗋 Inverse   🗍 ETNs
Enter Tickers (Comma S	eparated)			× 🖬 🛛	Compare 1		
ETF Navigator Export						Prima	ry Data Source: FactSet*
Show 100 💙 entries						Search	
Ticker	Fund Name	÷ E	Brand 🔶	Classification 🔶	Inception 🗍 Expens	e	TTM   YTD 🔶
	Reset Filters		T	T	T	T	ТТ
SPY SPDR S&P	500 ETF Trust	SPDR	Equity : U.S. Market	: Size & Style : Broad	1993-01-22 0.09%	\$365,662	1.32% 13.78%

There are ten **ETF Research Frames**, each discussed in more detail in its own section below. The selected **ETF Research Frame** will have its text highlighted in light blue; to change between Research Frames, click on the various Research Frame sub-headings.

To change the selected ETF, type a different ticker into the **Ticker Entry Box** at the top of the **ETF Research Frame Summary Statistics Bar.** 

#### The ETF Research Frame Summary Statistics Bar

PY : SPDR S&P 500 E	TF Trust	<u>Portfolio Look-Throι</u>
Change Volume 7 <b>1.00%</b> 39,799,76 te:2.0534 PM. Provided by IEX Group.		
	s Risk Stats Distributions Composition Top Holdings Fundamentals Technical Analysis ETF	Comps News
rview Performance & Flows		

As with other Toolsets, at the top of the Research Frames is an ever-present **Summary Statistics Bar** that displays relevant information about the selected ETF, including:

- *Ticker:* Displayed in the **Ticker Entry Box.** Can be changed.
- Full Fund Name: Displayed next to the Ticker Entry Box.

- Price: The most recent price (if accessed after hours, then the ETF's closing price)
- *Change:* Daily price change (in %)
- Volume: That day's traded volume (in shares traded)
- ADV: 3-day average trading volume (in shares traded)

Trading information in the **ETF Research Frame Summary Statistics Bar**, which is provided by IEX Group, is updated throughout the trading day on a 15-minute delay.

#### Loading A Selected ETF Into Other Toolsets

From the ETF Research Frame Summary Statistics Bar, an ETF's data can be loaded into other Toolsets, including the **Portfolio Visualizer** and the Earnings Scorecard.

SPY : SPDR S&P 500 ETF Price Change Volume \$425.10 0.59% 45,110,108 Last Update:June 24, 2021. Provided by IEX Group, I	ADV 59,163,55!	5			Port	iolio Look-Through tfolio Visualizer » hings Scorecard »
Overview Performance & Flows ETF Comps News	Risk Stats	Distributions	Composition	Top Holdings	Fundamentals	Technical Analysis

To load an ETF into the **Portfolio Visualizer**, click the orange "Portfolio Visualizer" button under the Menu heading, "Portfolio Look-Through" in the righthand corner of the **ETF Research Frame Summary Statistics Bar.** 

To load an ETF into the **Earnings Scorecard**, click the orange "Earnings Scorecard" button under the Menu heading, "Portfolio Look-Through" in the righthand corner of the **ETF Research Frame Summary Statistics Bar**.

#### ETF Research Frames: Overview Frame

\$425.10 0.	nange Volume 59% 45,110,10 , 2021. Provided by IEX Grou		5						) Visualizer Scorecarc
Overview	Performance & Flows	Risk Stats	Distributions	Compositio	n Top Holdi	ings Fundament	als Technical Analy:	sis ETF Comps	News
Brand: SPDR	Index: S&P 50	0	_				Price (SPY)		
	rket-cap-weighted index elected by the S&P Com		Zoom	3m 6m Y1	D 1y <b>3y</b>	5y 10y All		Jun 23, 2018	
Inception: 1993-01-22	Expense: 0.09%	аим (\$мм): \$365,662.31						urally the particulation	11"44 <sup>41</sup>
YTD: 13.78%	TTM Yield: 1.32%	30 Day Flows (\$MM): \$-3,797.55	-11 <sup>-14</sup>	HAHL .	and prest tig	how will the thread		ur all un f	
Asset Class: Equity	Sub-Asset Class: Equity	Composite: Size & Style	1 <sup>22</sup>	դ հերկ	lhh <sub>huna</sub> t	4			
Market:	<sub>Region:</sub> North America	Country: U.S.					սև		

The **Overview Frame** provides a wealth of at-a-glance information about the selected ETF, including:

- Brand: The brand name behind the selected ETF (as opposed to the Issuer of the ETF)
- Index: The name of the index the selected ETF tracks, if any
- *Description:* A brief description, provided by FactSet, of the selected ETF's investment objective.
- *Inception:* Date on which the ETF was launched.
- *Expense:* Net expense ratio of the ETF, expressed as a percentage of assets under management (AUM). For commodity pools, the breakeven rate is reported.
- AUM (\$MM): Total assets under management invested in the fund, in millions of dollars
- *YTD:* The ETF's year-to-date performance
- TTM Yield: The ETF's trailing twelve-month yield
- 30 Day Flows (\$MM):
- Asset Class: Primary asset class of the securities within the ETF. If more than one is held, the fund is classified as "Multi-Asset."
- *Sub-Asset Class:* Specific strategies, if any, that the fund uses that could result in lower correlations to the returns of the primary asset class (such as leverage/inverse, non-transparent, long/short, fund-of-funds, etc.)
- Composite: Broadest classification group for each asset class
- Market: Which of four geographical markets the ETF falls into, including U.S., Developed Ex-U.S., Emerging, and Frontier. ETFs that include multiple primary geographical markets are classified as Global or Global Ex-U.S.

- *Region:* Region of focus for the ETF's securities, if stated in the ETF's investment objective. If none stated, then this entry is the same as "Market."
- Country: Country of focus, if any, for the ETF's securities. (If none are listed, this will be the same as "Market")
- Segment: The Size and Style, Sector, or Thematic exposure of the ETF, as noted in the ETF Action Classification System
- *Group:* Additional refinements of the ETF's classification in the ETF Action Classification System, including industry or Thematic Sub-Category exposure.
- *Reach:* The selected ETF's market capitalization exposure: **Extended Market, Large Cap, Mid Cap, Small Cap, Micro Cap,** and **Total Market.**
- *Strategy:* The selected ETF's ETF Action Classification\* Strategy, including sub-categories for **Beta, ESG**, **Factor, Specialty, Tactical** and **Custom** strategies.
- *Implementation:* The weighting methodology of the ETF's portfolio, including market cap weighting, tiered, alt weighting, and more.
- Discipline: Whether the ETF is actively or passively managed

The **Overview Frame** also provides a dynamic, exportable chart of the ETF's historical price and volume. Price is depicted as line graph, while volume is displayed as a bar chart underneath.

By default, the time frame of the Price Chart is three years (3y), with each data point equal to one week's average price. To change this, select one of the pre-set time frames in the top left corner (3m, 6m, YTD, 1 yr, 3y, 5y, 10y, All); or input a custom time range in the orange boxes in the top right corner. Longer time frames change each data point to monthly, while shorter time frames change each data point to daily.

You can also zoom in on a custom time range by clicking and dragging across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

The Price Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the Price Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

#### ETF Research Frames: Performance & Flows



The **Performance & Flows Frame** provides dynamic, exportable charts of the ETF's total return and monthly flows. There are three main visualizations:

- Total Return for the ETF
- Annual Returns for the ETF, dating back 10 years and year-to-date
- Monthly Flows for the ETF, including the past 12 calendar months and month-to-date

**By default, the time frame for the Total Return chart is three years (3y).** To change this, select one of the pre-set time frames in the top left corner (3m, 6m, YTD, 1 yr, 3y, 5y, 10y, All); or input a custom time range in the orange boxes in the top right corner. You can also zoom by clicking and dragging across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

By default, the time frame for the Annual Returns chart is since inception or 10 years, whichever is shorter; as well as year-to-date data. This time range is not adjustable as the **Total Return** chart is; to see annual returns farther back than ten years, or in different frequencies (such as quarterly or daily), refer to the ETF Data Explorer (see: "ETF Data Explorer")

By default, the time frame for the Monthly Flows chart is since inception or the past 12 calendar months, whichever is shorter; as well as month-to-date data. This time range is not adjustable as the **Total Return** chart is; to see monthly flows dating farther back than 12 months, or in different frequencies (such as quarterly or daily), refer to the **ETF Data Explorer** (see: "<u>ETF Data Explorer</u>")

#### All data is current as of the previous day's close.

The Total Return, Annual Returns, and Monthly Flows Charts can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the Total Return, Annual Returns, and Monthly Flows Charts can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.



#### ETF Research Frames: Risk Stats

The **Risk Stats Frame** provides risk and correlation statistics for ETFs with a track record of at least one year. (If the track record is less than one year, then the **Risk Stats Frame** won't load.)

These risk metrics, which are calculated based on monthly returns and compared to a customizable benchmark ETF, are collated in the **ETF Risk Stats Table**, as well as visualized in the **Volatility** and **Drawdowns Line Charts** (see "Volatility And Drawdowns Line Charts" below).

#### Understanding the ETF Risk Stats Table

The ETF Risk Stats Table includes several fields of data, including:

- <u>Portfolio</u>: The name of the ETF (or the name of the designated benchmark ETF)
- <u>Annualized Return</u>: The annualized return of the fund over the specified time period
- <u>Std Dev:</u> Volatility of those returns, over the specified time period
- <u>Correlation</u>: Correlation of the ETF's returns to those of the designated benchmark ETF, over the specified time period
- Sharpe Ratio: The ETF's Sharpe ratio over the specified time period
- <u>Tracking error</u>: The ETF's tracking error relative to its designated benchmark ETF, over the specified time period

- Information Ratio: The ETF's information ratio, relative to its designated benchmark ETF, over the specified time period
- <u>Beta:</u> The ETF's measured beta, over the specified time period
- <u>Alpha (Ann.</u>): The ETF's measured annualized alpha, relative to its designated benchmark ETF, over the specified time period
- <u>Up Capture Ratio</u>: The ETF's measured up capture ratio, relative to its designated benchmark ETF, over the specified time period
- <u>Down Capture Ratio</u>: The ETF's measured down capture ratio, relative to its designated benchmark ETF, over the specified time period
- <u>R2:</u> The ETF's R<sup>2</sup>, relative to its designated benchmark ETF, over the specified time period

If there is not enough data for one or more of these metrics to be calculated over the selected time period, the metrics will be blank, and the fund marked with an asterisk (\*).

#### Customizing The ETF Risk Stats Table

**By default, risk statistics in the table are calculated over a three-year time period.** To change this, select a different time frame from the *Time Period* drop down menu in the upper right corner. Available time frames include 1 Year, 3 Years, 5 Years, 10 Years, and Since Inception:

SPY : SPDR S&P !	500 ETF Trust me ADV									D Look-T D Visualizer S Scorecard	r »
	10,108 59,163 IEX Group, Inc.		butions Com	position	Top Holdings	Fundamentals	Technic	al Analysis	ETF Comps	News	
enchmark: SPY SPDR :	5&P 500 ETF Trust								Time Period	: 3 Year	~
Portfolio	Annualized Return	Std Dev	Correlation	Sharpe Ratio	Tracking Error	Information Ratio	Beta	Alpha (Ann.)	Up Capture Ratio	Down Capture Ratio	R2
SPDR S&P 500 ETF Trust	17.91%	18.40%	1.00	0.90	0.00%	0.00	1.00	0.00%	100.00%	100.00%	100.00%
SPDR S&P 500 ETF Trust	17.91%	18.40%	1.00	0.90	0.00%	0.00	1.00	0.00%	100.00%	100.00%	100.00%

Calculations based on monthly returns between 2018-06-29 and 2021-05-28

**By default, a benchmark fund is assigned based on the ETF's categorization in the ETF Action Classification System.** This can be changed by typing a new ticker in the **Ticker Entry Box** at the top of the **Risk Stats Table:** 

Price Change Volur	10,108 59,163	.555							Portfolio	<u>o Look-T</u> o Visualizer s Scorecard	·»
Overview Performance &	Flows Risk Stats	Distrib	utions Comp	oosition T	op Holdings	Fundamentals	Technic	al Analysis	ETF Comps	News	
										-	
enchmark: SPY SPDR S	S&P 500 ETF Trust 4								Time Period	d: 3 Year	~
enchmark: SPY SPDR S	S&P 500 ETF Trust	Std Dev	Correlation	Sharpe Ratio	Tracking Error	Information Ratio	Beta	Alpha (Ann.)	Time Period Up Capture Ratio	d: 3 Year Down Capture Ratio	¥ R2
	Annualized		Correlation	Sharpe Ratio			Beta 1.00	Alpha (Ann.)	Up Capture	Down Capture	

Calculations based on monthly returns between 2018-06-29 and 2021-05-28. \*Insufficient performance history for calculations.

#### Volatility And Drawdowns Line Charts

The Risk Stats Frame also includes two visualizations: a Volatility Line Chart and a Drawdowns Chart.

- The Volatility Line Chart, titled Std Dev (30 Day Annualized), plots volatility in the ETF's returns over a dynamic time period.
- The **Drawdowns Chart** specifies drawdowns in the ETF over a dynamic time period.

By default, the time frame for both charts is set to one year. This can be changed in three ways:

- Selecting a different pre-set time period in the left hand corner (3m, 6m, YTD, 3y, 5y, 10y or All)
- Clicking and dragging on the line chart to zoom in on a specific time period
- Inputting a custom time range in the orange boxes on the righthand corner of the chart.

The **Volatility** and **Drawdown Line Charts** can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the **Volatility** and **Drawdown Line Charts** can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.
#### ETF Research Frames: Distributions



The **Distributions Research Frame** provides a closer look at the ETF's historical yield and distribution growth. There are three elements to the Distributions Frame:

1) <u>Historical Yield</u>: Overlays the ETF's distribution history on top of a chart of its historical yield. Average yield over the past five years is overlaid as a dotted line.

**By default, data is provided since the ETF's inception.** To select a shorter time frame, click and drag across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

The Historical Yield Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the Historical Yield Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

2) <u>YoY Dist. Growth (%)</u>: Displays quarterly distribution growth, as compared to the same period last year, over the past five years' worth of distributions. Values are expressed as percentages.

The YoY Dist. Growth Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the YoY Dist. Growth Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

*3) <u>Distributions Table</u>: Displays the stock's distribution history since IPO, including ex-date of the distribution and distribution amount. The table is sortable by column, but not yet exportable.* 



#### ETF Research Frames: Composition

The **Composition Research Frame** visualizes the composition of the equities within the ETF's portfolio in four **Breakdown Charts**:

- <u>Development (X)</u>: Illustrates the equities in the ETF according to their economic development exposure.
- <u>Region & Country (Y)</u>: Illustrates the equities in the ETF according to their regional and/or single country exposure. Defaults to Region, but can be changed to Single Country (see below).
- <u>Sector & Industry (Z)</u>: Illustrates the equities in the ETF according to their GICS Sector and/or Industry exposure. Defaults to Sector, but can be changed to Industry (see below)
- <u>Market Cap (AA)</u>: Illustrates equities in the ETF according to their average market capitalization. "Large cap" is defined as greater than \$10 B; "mid cap" is less than \$10 B but greater than \$2 B; and "small cap" is less than \$2 billion.

**Clicking on the Region & Country and Sector & Industry Charts allows for further breakdown by subgroupings**. To see equities within a Region grouped by their Single Country exposure; or within a Sector grouped by their Industry exposure, click on the desired Region/Sector to expand. Click the grey "Back" in the righthand corner of the chart to reset the chart.

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# How To Export Composition Breakdown Charts

The **Breakdown Charts**, as well as the data underpinning them, can be exported to a variety of file formats by clicking the three parallel lines in the top right corner of each chart.

Each chart can be viewed in full screen, printed, or exported to a .png, .jpeg, .pdf, or .svg file; while the data underpinning the bar chart can be exported to a .csv or .xls file.

Ownership Screener	SPY SP	DR S&P 500 ETF Trust					Portfolio	Look-Throug
ETF Overlap Analyzer	4							
Data Explorer	Price Change	Volume ADV						
	\$325.01 0.21%							
	Last Update july 21, 2020	Provided by IEX Group, Inc.						
	Outputers D	erformance & Flows Risk Stats	Distributions Compositi	n Top Holdings	Fundamentals Technical	Australia ETE Comer		
	Overview P	enomiance a riows rosk atala	onsenourions compositi	and study choroning a	Pundumentuis recrimcur	науза стехатра		
		BB					Search:	
	Ticker	Nome	Region	Country	Sector	© Industry	Mkt Cop (SMM)	Weight
	AAPL-US	Apple Inc.	North America	United Stotes	information Technology	Technology Hardware Storage & Peripherals	\$1,705,260	
	MSFT-US	Microsoft Corporation	North America	United States	Information Technology	Software	\$1,604,660	
	AMZN-US	Amozon.com, Inc.	North America	United Stotes	Consumer Discretionary	Internet & Direct Marketing Retail	\$1,594,510	4.64
	FB-US	Facebook, Inc. Class A	North America	United States	Communication Services	Interactive Medio & Services	\$699,779	
	GOOGL-US	Alphabet Inc. Class A	North America	United Stotes	Communication Services	Interactive Media & Services	\$1,067,510	1.70
	0000-US	Alphabet Inc. Class C	North America	United States	Communication Services	Interactive Medio & Services	\$1,068,790	1.66
	JNJ-US	Johnson & Johnson	North America	United Stotes	Health Core	Pharmaceuticals	\$394,135	1.47
	BRK.B-US	Berkshire Hothoway Inc. Class B	North America	United Stotes	Financials	Diversified Financial Services	\$462,874	
	V-US	Visa Inc. Class A	North America	United States	Information Technology	IT Services	\$422,546	
	PG-US	Procter & Gamble Company	North America	United Stotes	Consumer Stoples	Household Products	\$310,045	
	JPM-US	JPMorgan Chase & Co.	North America	United States	Financials	Bonks	\$296,476	1.12
	UNH-US	UnitedHealth Group Incorporated	North America	United Stotes	Health Core	Health Care Providers & Services	\$287,795	1.09
	HD-US	Home Depot, Inc.	North America	United Stotes	Consumer Discretionary	Specialty Retail	\$279.818	
	MA-US	Mastercord incorporated Class A	North America	United Stotes	Information Technology	IT Services	\$313,221	1.00
	INTC-US	Intel Corporation	North America	United Stotes	Information Technology	Semiconductors & Semiconductor Equipment	\$258,905	
	NVDA-US	NVIDIA Corporation	North America	United States	information Technology	Semiconductors & Semiconductor Equipment	\$258,564	
	VZ-US	Verizon Communications Inc.	North America	United Stotes	Communication Services	Diversified Telecommunication Services	\$231,190	
	NFLX-US	Netflix, Inc.	North America	United States	Communication Services	Entertainment	\$221,570	
	T-US	AT&T Inc.	North America	United Stotes	Communication Services	Diversified Telecommunication Services	\$212,681	
	DIS-US	Wolt Disney Company	North America	United Stotes	Communication Services	Entertainment	\$212.761	0.80

# ETF Research Frames: Top Holdings

The **Top Holdings Research Frame** shows data on the top 20 holdings in the ETF by portfolio weight. These holdings are sortable/searchable, just as in the **Portfolio Visualizer** tool.

The **Top Holdings Table (BB)** lists several data points about each ETF constituent holding, including:

- <u>Ticker:</u> The ticker of the equity, including listing exchange code
- <u>Name</u>: Full name of the equity
- <u>Region</u>: Geographic region in which the equity trades
- <u>Country:</u> Country in which the equity is listed
- <u>Sector</u>: The equity's GICS Sector designation
- Industry: The equity's GICS Industry designation
- Mkt. Cap (\$MM): The equity's market cap, in millions of dollars
- <u>Weight:</u> Percentage of the ETF's portfolio that the equity comprises
- *Last:* Last price traded. If after markets close, the closing price. All non-U.S.-listed securities are in U.S. dollars and as of the previous day's close
- <u>% Change:</u> Change in prices from the previous day's price.

The **Top Holdings Table** is not yet exportable or savable, but the same data is accessible in the **Portfolio Visualizer** (See: "<u>Portfolio Visualizer</u>").

# ETF Research Frames: Fundamentals

• 1

> ETF Terminal Stock Visualizer	Research » Compare » Security Lookup » Model Tracker »	User Guide 🛓
Ownership Screener	SPY SPOR S&P 500 ETF Trust	Portfolio Look-Through
ETF Overlap Analyzer	SPY SPURSer 500 ETF Inst	Equity Visualizer +
Data Explorer	Price Change Values ADV 253:08: 82:16: 93:06:13 94:2472.38 Lastiane.plo 12:1787 Ansatel 87:09aa Inc	Earnings Scorecord -
	Overview Performance & Plavis Risk Stats Distributions Composition Tog-Holdings Functionwritidi Technical Analysis ETF Comps	
	Kay Ratio Samings V (FF)	
	TTM - P/E (SPY)	≡
	" how we have the second secon	WW
	τα 18 <sup>13</sup> δομ <sup>1</sup> τα μούτα δομ <sup>1</sup> τα μούτα μούτα μούτα μούτα δομ <sup>1</sup> τα δομ <sup>1</sup> τα δομ <sup>1</sup> τα δομ <sup>1</sup> τα μούτα μούτα μούτα δομ <sup>1</sup> τα δομ <sup>1</sup> τα	Jan 20 May 20
	Earnings Growth (SPY) E Earnings Trends - 2020E (SPY)	-
	2015 2016 2017 2018 2019 2019 2019 2019 2019 2019 2019 2019	мну <sup>1</sup> 20 ди <sup>1</sup> 20

The Fundamentals Research frame provides dynamic, exportable charts of several key equity fundamentals on the fund level, including Earnings, Sales, Cash Flow, Book Value and Dividends.

Two important notes about the data underpinning the Fundamentals Research Frame:

- 1) Historical fundamental data is based on the ETF's current portfolio holdings, not point-in-time portfolio holdings.
- 2) Negative ratios are excluded from the valuation computations.

To switch between key fundamentals, select a new fundamental metric from the *Key Ratios* drop down menu at the top of the Research Frame:

Landsco	ape O F	lesearch 🧿	Compo	ire O Sec	urity Lookup	Model	Fracker 🔕			Refresh
\$425.10	 Change	45,110,108	ADV 59,163,5	55						Look-Through Visualizer » Scorecard »
Overview	v Performa	nce & Flows	Risk Stats	Distributions	Composition	Top Holdings	Fundamentals	Technical Analysis	ETF Comps	News
Key Ratio: E	arnings 👻	•								
35					TTM	- P/E (SPY)				=
30										mound
25 5 Yr A	werage: 20.60			-1					Mar	, Jun
20  15	~~~~			profession and and and and and and and and and an		hum	- marine	Winner		

Each Key Ratio selection provides three charts based on the selected fundamental:

1) <u>Trailing Twelve Month (TTM) (CC)</u>: Historical data for the relevant key ratio, with the 5-year average indicated as a dotted line on the chart. Ratios provided include: P/E, P/S, P/CF, P/B, or Dividend Yield.

**By default, data is provided for the past five years**. To select a shorter time frame, click and drag across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

The TTM Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the TTM Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

2) (*Fundamental*) *Per Share (DD):* Five years of growth rates for the selected fundamental, including forward-looking estimates for the years to come.

The (Fundamental) Per Share Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the (Fundamental) Per Share Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

*3)* (*Fundamental*) *Trends 2021E (EE):* Monthly analyst estimates for the selected fundamental over the past twelve months.

The (Fundamental) Trends 2021E Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the (Fundamental) Trends 2021E Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.



# ETF Research Frames: Technical Analysis

The **Technicals** frame provides dynamic, exportable historical charts of commonly used technical indicators, including moving averages, Bollinger bands, and RSI:

1) <u>Moving Averages (GG)</u>: Charts historical price action for the ETF over the selected time frame, with the 50day and 200-day moving average overlaid as grey and green solid lines, respectively.

**By default, the time frame is over one year (1y).** To change this, select one of the pre-set time frames in the top left corner (3m, 6m, YTD, 1 yr, 3y, 5y, 10y, All) or input a custom time range in the orange boxes in the top right corner. You can also zoom by clicking and dragging across the body of the chart. To reset the

timeframe, click the grey Reset Zoom box on the top right of the chart.

The Moving Averages Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the Moving Averages Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

2) <u>50 Day Bollinger Bands (HH):</u> Overlays 50-day Bollinger bands over the price action of the ETF. "B1" represents one standard deviation, while "B2" represents two standard deviations.

**By default, the time frame is over one year (1y).** To change this, select one of the pre-set time frames in the top left corner (3m, 6m, YTD, 1 yr, 3y, 5y, 10y, All) or input a custom time range in the orange boxes in the top right corner. You can also zoom by clicking and dragging across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

The Bollinger Bands Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the Bollinger Bands Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

*3)* <u>14 Day RSI (II)</u>: Displays the historical 14-day RSI for the ETF, indicating timeframes when the ETF's RSI indicated it may have been overbought (in red) or oversold (in green).

**By default, the time frame is one year.** To change this, select one of the pre-set time frames in the top left corner (3m, 6m, YTD, 1 yr, 3y, 5y, 10y, All) or input a custom time range in the orange boxes in the top right corner. You can also zoom by clicking and dragging across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

The 14 Day RSI Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the 14 Day RSI Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

4) <u>Holdings Above 50 DMA (JJ)</u>: Displays the percentage of the ETF's aggregated holdings (weighted accordingly) that are trading above their 50-day simple moving averages.

**By default, the time frame is one year.** To change this, select one of the pre-set time frames in the top left corner (3m, 6m, YTD, 1 yr, 3y, 5y, 10y, All) or input a custom time range in the orange boxes in the top right

corner. You can also zoom by clicking and dragging across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

The Holdings Above 50 DMA Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the Holdings Above 50 DMA Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

# ETF Research Frames: ETF Comps

re ADV 2854 106,308,023 Group Inc Tows Risk Stats Distributions	Composition Top Holdings	Fundamentals Technical Analy	sis ETF Comps Net	vs			
	Composition Top Holdings	Fundamentals Technical Analy	sis ETF Comps Ner	ws			
Fund Name							
Fund Name							
Fund Name							Search:
	4	Classification	\$	Inception 0	Exp. Ratio 🔶	Common Names	🗄 Overlap Weight 👻
				1993-01-22	0.09%	505	99.78%
lio S&P 500 ETF	Equity :	U.S. : Size & Style : Broad Market		2005-11-08	0.03%	505	99.43%
S&P 500 ETF	Equity :	U.S. : Size & Style : Broad Market		2000-05-15	0.03%	505	99.17%
ilot US Large Cap ETF	Equity :	U.S. : Size & Style : Broad Market		2015-06-11	0.60%	502	98.23%
P 500 ETF	Equity :	U.S.: Size & Style : Broad Market		2010-09-07	0.03%	505	97.55%
00 Fossil Fuel Reserves Free ETF	Equity :	U.S. : Size & Style : Broad Market		2015-11-30	0.20%	489	96.08%
&P 500 Ex-Energy ETF	Equity :	U.S. : Size & Style : Broad Market		2015-09-22	0.27%	468	96.01%
chs MarketBeta U.S. Equity ETF	Equity :	U.S. : Size & Style : Broad Market		2020-05-12	0.07%	432	94.27%
rge-Cap ETF	Equity :	U.S. : Size & Style : Broad Market		2004-01-27	0.04%	450	93.27%
etabuilders U.S. Equity ETF	Equity :	U.S. : Size & Style : Broad Market		2019-03-12	0.02%	470	93.13%
Beta MSCI USA ETF	Equity :	U.S. : Size & Style : Broad Market		2017-09-22	0.04%	471	92.57%
	00 ETF hut kis SAP 500 ETF SAP 500 ETF SAP 500 ETF SAP 500 ETF SAP 500 ETF SAP 500 ExFreq MarketBets U.S. Equity ETF says-Cop ETF Beto MSCI USA ETF Beto MSCI USA ETF	Isio SAP 500 ETF         Equity :           Sap 500 Energy ETF         Equity :           Sab MarketBels UJS Equity ETF         Equity :           etabulaters UJS Equity ETF         Equity :	Isio SAP 500 ETF         Equity: U.S.: Size & Sayle: Brood Moriest           SAP 500 ETF         Equity: U.S.: Size & Sayle: Brood Moriest           Iside US Large Cop ETF         Equity: U.S.: Size & Sayle: Brood Moriest           SAP 500 ETF         Equity: U.S.: Size & Sayle: Brood Moriest           SAP 500 ETF         Equity: U.S.: Size & Sayle: Brood Moriest           SAP 500 ETF         Equity: U.S.: Size & Sayle: Brood Moriest           SAP 500 ETF         Equity: U.S.: Size & Sayle: Brood Moriest           AP 500 Energy: ETF         Equity: U.S.: Size & Sayle: Brood Moriest           Charlen Verster         Equity: U.S.: Size & Sayle: Brood Moriest           Charlen US Equity: U.S.: Size & Sayle: Brood Moriest         Equity: U.S.: Size & Sayle: Brood Moriest           Charlen US Equity: ETF         Equity: U.S.: Size & Sayle: Brood Moriest           etabulders: U.S. Equity: ETF         Equity: U.S.: Size & Sayle: Brood Moriest	Isio S&P 500 ETF         Equity: U.S.: Size & Style: Brood Morket           S&P 500 ETF         Equity: U.S.: Size & Style: Brood Morket           Isid US Large Cop ETF         Equity: U.S.: Size & Style: Brood Morket           BY 500 ETF         Equity: U.S.: Size & Style: Brood Morket           BY 500 ETF         Equity: U.S.: Size & Style: Brood Morket           BY 500 ETF         Equity: U.S.: Size & Style: Brood Morket           BY 500 ETF         Equity: U.S.: Size & Style: Brood Morket           BY 500 Energy: TTF         Equity: U.S.: Size & Style: Brood Morket           CharketBets U.S. Equity: U.S.: Size & Style: Brood Morket         Equity: U.S.: Size & Style: Brood Morket           CharketBets U.S. Equity: U.S.: Size & Style: Brood Morket         Equity: U.S.: Size & Style: Brood Morket           Equity: U.S.: Size & Style: Brood Morket         Equity: U.S.: Size & Style: Brood Morket           Eduity: U.S.: Size & Style: Brood Morket         Equity: U.S.: Size & Style: Brood Morket           Eduity: U.S.: Size & Style: Brood Morket         Equity: U.S.: Size & Style: Brood Morket	iiio SAP 500 ETF         Equity: U.S.: Size & Style: Brood Morket         2005-11-08           SAP 500 ETF         Equity: U.S.: Size & Style: Brood Morket         2000-05-15           Sale Stop ETF         Equity: U.S.: Size & Style: Brood Morket         2010-06-17           Brood Explore         Equity: U.S.: Size & Style: Brood Morket         2010-06-07           Brood Explore         Equity: U.S.: Size & Style: Brood Morket         2015-06-11           Do Tossil Fluid Reserves Free ETFT         Equity: U.S.: Size & Style: Brood Morket         2015-06-12           AP 600 Explore         Equity: U.S.: Size & Style: Brood Morket         2015-06-12           CharketBlets U.S. Equity ETF         Equity: U.S.: Size & Style: Brood Morket         2020-06-12           CharketBlets U.S. Equity ETF         Equity: U.S.: Size & Style: Brood Morket         2020-06-12           etabulders U.S. Equity ETF         Equity: U.S.: Size & Style: Brood Morket         2020-06-12	iiio SAP 500 ETF         EquiPy: U.S.: Size & Style: Brood Market         2005 11-08         0.03%           SAP 500 ETF         EquiPy: U.S.: Size & Style: Brood Market         2006 -05-15         0.03%           shot S0 ETF         EquiPy: U.S.: Size & Style: Brood Market         2015 -06-11         0.60%           SAP 500 ETF         EquiPy: U.S.: Size & Style: Brood Market         2015 -06-11         0.60%           SAP 500 ETF         EquiPy: U.S.: Size & Style: Brood Market         2015 -06-11         0.60%           SAP 500 ETF         EquiPy: U.S.: Size & Style: Brood Market         2015 -06-11         0.20%           AP 500 Energy: ETF         EquiPy: U.S.: Size & Style: Brood Market         2015 -06-22         0.27%           AP 500 Energy: ETF         EquiPy: U.S.: Size & Style: Brood Market         2000 -05-22         0.07%           CharketBredt: U.S. EquiPy ETF         EquiPy: U.S.: Size & Style: Brood Market         2000 -05-22         0.07%           CharketBredt: U.S. EquiPy ETF         EquiPy: U.S.: Size & Style: Brood Market         2000 -05-22         0.07%           etablickers: U.S. EquiPy ETF         EquiPy: U.S.: Size & Style: Brood Market         2000 -05-22         0.07%           etablickers: U.S. EquiPy ETF         EquiPy: U.S.: Size & Style: Brood Market         2016 -02-22         0.02%           EquiPy: U.S.:	Isis B4 500 ETF         Equity: LS: Size & Style: Brood Market         2005 11-08         0.03%         505           S5P 500 ETF         Equity: LS: Size & Style: Brood Market         2000-07-19         0.03%         505           S101 SC DETF         Equity: LS: Size & Style: Brood Market         2015-06-10         0.05%         505           S101 SC DETF         Equity: LS: Size & Style: Brood Market         2015-06-10         0.05%         505           S102 ETF         Equity: LS: Size & Style: Brood Market         2015-01-01         0.05%         409           S103 Fland Reserves Free ETF         Equity: LS: Size & Style: Brood Market         2015-01-02         0.27%         408           AP 600 Energy: CTF         Equity: LS: Size & Style: Brood Market         2015-01-22         0.07%         408           AP 600 Energy: CTF         Equity: LS: Size & Style: Brood Market         2020-01-22         0.07%         408           Are MarketBreu LS: Equity ETF         Equity: LS: Size & Style: Brood Market         2020-01-22         0.07%         409           etabulaters: US: Equity ETF         Equity: LS: Size & Style: Brood Market         2016-01-22         0.07%         409           etabulaters: US: Equity ETF         Equity: LS: Size & Style: Brood Market         2016-01-22         0.04%         409           eta

The **ETF Comps Research Frame** provides a table of other equity ETFs with the highest overlap percentage, based on their underlying holdings. Only equity holdings are considered.

The **ETF Comps Table** lists names of funds, how many equity holdings are held in common, and what the overlap percentage is. For more in-depth analysis of portfolio overlap, refer to the **ETF Overlap Analyzer** (see "<u>ETF Overlap Analyzer</u>").

Fields in the ETF Comps Table include:

- <u>Ticker:</u> Ticker of the similar ETF
- Fund Name: Full fund name of the similar ETF
- <u>Classification</u>: The similar ETF's classification within the ETF Action Classification System
- Inception: Inception date for the similar ETF
- Exp. Ratio: Annual expense ratio for the similar ETF
- Common Names: How many portfolio holdings the similar ETF has in common with the selected ETF
- *Overlap Weight:* How much portfolio overlap there is, in percentage terms, between the similar ETF and the selected ETF.

45 © 2021 <u>ETF Action</u> For Personal Use Only. Do Not Redistribute. <u>Back to Table of Contents</u> NOTE: Overlap percentages may exceed 100% in certain cases, as other assets/liabilities, including cash, can cause individual ETF portfolio weights to exceed 100%. (e.g., master limited partnerships sometimes have deferred tax liabilities/assets, etc.)

#### Loading The ETF Comps Into Other Toolsets

It is possible to load the list of **ETF Comps** into the **ETF Navigator** and the **Compare Lens** by using the orange **Filter** and **Compare** buttons, respectively. These buttons are located on the top left-hand corner of the **ETF Comps Table**:

SPY	: SPDR S&P 500 ETF Trust					Portfolio	<u>Look-Throu</u> Visualizer »
26.45	Change Volume ADV -0.041% 23,467,218 59,378,69 50 PM. Provided by IEX Group, Inc.	55				Earnings -	
Overview	Performance & Flows Risk Stats	Distributions Composition	Top Holdings	Fundamentals	Technical Analy	r <b>sis</b> ETF Comps	News
Filter 🌵	Compare »						
						Search:	
Ticker 🍦	Fund Name	Classification	n 🄶	Inception 🍦	Exp. Ratio 🍦	Common Names 🍦	Overlap Weight
SPY	SPDR S&P 500 ETF Trust	Equity : U.S. : Size & Style : Bro	oad Market 1	993-01-22	0.09%	506	99.75%
SPLG	SPDR Portfolio S&P 500 ETF	Equity : U.S. : Size & Style : Bro	oad Market 2	005-11-08	0.03%	505	99.62%
OMRL	DeltaShares S&P 500 Managed Risk ETF	Equity : U.S. : Size & Style : Bro	and Market 2				00.000/
	Dentaenaree een eee managearnen Err		odd Market 2	017-07-31	0.35%	505	99.60%
vv	iShares Core S&P 500 ETF	Equity : U.S. : Size & Style : Bro		017-07-31 000-05-15	0.35%	505	99.60%
	5		oad Market 2				
PTLC	iShares Core S&P 500 ETF	Equity : U.S. : Size & Style : Bro	oad Market 2 oad Market 2	000-05-15	0.03%	505	99.32%
PTLC	iShares Core S&P 500 ETF Pacer Trendpilot US Large Cap ETF	Equity : U.S. : Size & Style : Bro Equity : U.S. : Size & Style : Bro	oad Market 2 oad Market 2 oad Market 2	000-05-15 015-06-11	0.03%	505	99.32% 99.24%
PTLC SPYX VOO	iShares Core S&P 500 ETF Pacer Trendpilot US Large Cap ETF SPDR S&P 500 Fossil Fuel Reserves Free ETF	Equity : U.S. : Size & Style : Bro Equity : U.S. : Size & Style : Bro Equity : U.S. : Size & Style : Bro	ooad Market 2 ooad Market 2 ooad Market 2 ooad Market 2	000-05-15 015-06-11 015-11-30	0.03% 0.60% 0.20%	505 505 493	99.32% 99.24% 97.63%
PTLC SPYX /00 SPXE	iShares Core S&P 500 ETF Pacer Trendpilot US Large Cap ETF SPDR S&P 500 Fossil Fuel Reserves Free ETF Vanguard S&P 500 ETF	Equity : U.S. : Size & Style : Bri Equity : U.S. : Size & Style : Bri	oad Market 2 oad Market 2 oad Market 2 oad Market 2 oad Market 2	000-05-15 015-06-11 015-11-30 010-09-07	0.03% 0.60% 0.20% 0.03%	505 505 493 504	99.32% 99.24% 97.63% 97.36%
VV PTLC SPYX VOO SPXE GSUS DNOF	iShares Core S&P 500 ETF Pacer Trendpilot US Large Cap ETF SPDR S&P 500 Fossil Fuel Reserves Free ETF Vanguard S&P 500 ETF ProShares S&P 500 Ex-Energy ETF	Equity : U.S. : Size & Style : Bro Equity : U.S. : Size & Style : Bro	ooad Market 2 ooad Market 2 ooad Market 2 ooad Market 2 ooad Market 2 ooad Market 2	000-05-15 015-06-11 015-11-30 010-09-07 015-09-22	0.03% 0.60% 0.20% 0.03% 0.27%	505 505 493 504 479	99.32% 99.24% 97.63% 97.36% 96.49%

To load the list of ETF Comps into the ETF Navigator, select the Filter button.

To load the list of ETF Comps into the Compare Lens, select the Compare button.

# ETF Research Frames: News

SPY         : SPDR S&P 500 ETF Trust           see         Change         Volume         ADV           93 23         0.10%         21,202,854         106,308,023           Update 112824 AM. Previded by EX. Group. Inc.			Portfolio Look-Throu Partfolio Visualizer » Earninge Scorecard »
Overview Performance & Flows Risk Stats Distributions Composition Top Holdings. Fundamentals Technical Analysis ETF Comps	News		
			Search:
Heodline	Source	¢ Release	*
Stimmy' Checks And The Stock Market: Will The Retail Trading Frenzy Continue?	Benzinga	Mon Mar 22 2021 17:45:08 GMT-0500 (Central Daylight Time)	
The QQQ Rallied Today. Here's Why.	Benzinga	Mon Mar 22 2021 15:40:43 GMT-0500 (Central Daylight Time)	
Vhat You Need To Know In Options This Week. SPY, GameStop, Teslo, Adobe, Blink, At Home, Bionano And More	Benzinga	Mon Mar 22 2021 10:01:13 GMT-0500 (Central Daylight Time)	
irst Trust Lists March Series of Target Outcome ETFs® Buffer Strategies Based on QQQ, EFA and SPY	Business Wire	Mon Mar 22 2021 08:13:00 GMT-0500 (Central Daylight Time)	
iroundhog Day: Instability; Illiquidity, & "Invincibility"	Zero Hedge	Mon Mar 22 2021 07:34:23 GMT-0500 (Central Daylight Time)	
ed Still Taking 'All-In' Approach To Economic Recovery: Powell	Benzingo	Fri Mar 19 2021 08:58:00 GMT-0500 (Central Daylight Time)	
You Invested \$1,000 In Ford Stock One Year Ago, Here's How Much You'd Have Now	Benzingo	Fri Mar 19 2021 03:25:00 GMT-0500 (Central Daylight Time)	
he SPY Was Down Today. Here's Why.	Benzingo	Thu Mar 18 2021 15:25:13 GMT-0500 (Central Daylight Time)	
Quad-Witch Cometh: Here Are The Stocks With The Biggest Call And Put Gamma Imbalance	Zero Hedge	Thu Mar 18 2021 07:54:58 GMT-0500 (Central Daylight Time)	
The Market Rallied This Afternoon. Here's Why.	Benzinga	Wed Mar 17 2021 15:15:42 GMT-0500 (Central Daylight Time)	
Here's How Much Investing \$1,000 In Royal Caribbean Stock One Year Ago World Be Worth Taday	Benzinga	Wed Mar 17 2021 03:45:00 GMT-0500 (Central Daylight Time)	
The Week In Cannabiz: Big Tobacco, MSO Goes To Europe, Mexico, DC, And More	Benzinga	Fri Mar 12 2021 15:48:13 GMT-0600 (Central Standard Time)	
Vhy Marathon Petroleum And Phillips 66 Are Top Oil Stock Picks	Benzinga	Thu Mar 11 2021 15:46:22 GMT-0600 (Central Standard Time)	
	Benzinga	Thu Mar 11 2021 09:39:17 GMT-0600 (Central Standard Time)	
Here's How Much Investing \$1,000 In Adobe Stock 5 Years Ago Would Be Worth Today			

In the **News Research Frame**, users will find an RSS feed of 15-20 of the most recent news stories tagged for that company. Clicking on a headline opens up a separate tab in the browser, so you won't lose your place in the ETF Action platform.

News stories are listed with three fields: a hyperlinked *Headline*, the *Source* media outlet of origin, and *Release* data, including date and time of first publication.

To search the feed, use the **Search Bar** in the upper righthand corner of the feed.

# Compare Lens

PP       SP05 M54 500 ETT Funt       Equity U5.1 Size & 50 ye I Brook Montel       2000 5-22       0.994       0.90       500       71.31.1         Wh       Brows Russel 200 ETF       Equity U5.1 Size & 50 ye I Brook Montel       2000 5-22       0.994       0.09       500       500.07         IP       Brows Coc SIAP Mol Cog ETF       Equity U5.1 Size & 50 ye I Brook Montel       2000 65-22       0.994       6.00       500.07         IP       Brows Coc SIAP Mol Cog ETF       Equity U5.1 Size & 50 ye I Brook Montel       2000 65-22       0.994       6.00       500.07         IP       IP       Status Coc	Ticker	v Name	0 Classification	♦ Inception ♦	Expense Ratio 🕴	Holdings 0	AUM (\$MM)	Remove
IPI         Ebrers Core S&P Mid-Cop ETF         Equily U.S.1 Size & Style I Breed Mentet         2000-05-22         0.05%         400         900.007           rrup to 12 ETFs. For additional overlegs and holdings analysis check out our ETF Overlags Analyser - sort Building is supported for up to 5 funds.	SPY	SPDR S&P 500 ETF Trust	Equity   U.S.   Size & Style   Broad Market	1993-01-22	0.09%	505	\$338,374	×
rup to 12 ETFs. For additional overfup and holdings analysis check out our ETF Overfup Analyzer - sort Bulking is supported for up to 5 funds. Total Return m 3 m 6 m YTD 1 y 3 y 10 y All Mar 22.2018 -	IWM	iShares Russell 2000 ETF	Equity   U.S.   Size & Style   Broad Market	2000-05-22	0.19%	2028	\$71,311	×
ert Hulding is supported for up to 5 Andi. Total Return m m m m m m YTD 1 y py sy 10 y All	IJН	iShares Core S&P Mid-Cap ETF	Equity   U.S.   Size & Style   Broad Market	2000-05-22	0.05%	400	\$60,627	×
extended is supported for up to 5 fund.								×
Total Return	ort Building is supported t	for up to 5 funds.						
n Im 6m VID 1y By 5y 10y All De22.2018 -	Performance & Flows I	Risk Stats Composition Fundamentals Holo	lings					Build Rep
			Total Return					
N*			Total Return					
N*	a 3m 6m YTD 1y	<b>3y</b> 5y 10y All	i Gar Acam				Mar 22, 2018	→ Mar 22, 2
	a 3m 6m YTD 1y	<b>3y</b> 5y 10y All				4 ~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	- Mar 22, 2
	3m 6m YTD 1y	<b>3γ</b> 5γ 10γ All		M	M	Mw	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	- Mar 22. :
ר ד אנן סד ישא פר א אין אין אין אין אין אין אין אין אין א	3 3m 6m YTD 1y	<b>By</b> 51 104 All			who have the		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	- Mar 22, :
	n 3m 6m VTD 1y	<b>3y</b> 5 <b>y</b> 10 <b>y</b> All			No Martin		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	- Mar 22. 2

The **Compare Lens** enables deep, comparative analysis of a list of up to 15 ETFs, including the ability to compare performance, risk statistics, composition, fundamentals, and holdings. It consists of two modules:

- 1) The Compare Lens Module, in which ETF tickers may be entered into the Tool
- 2) The **Comparative Research Frames**, which dynamically update as ETF tickers are updated into the **Compare** Lens Module

In the **Compare Lens**, Professional Level subscribers may also build comparative **Custom Reports**, which generate client-facing collateral bearing your firm's logos, disclosures, and more.

# How To Load ETFs Into The Compare Lens Module

To load ETFs directly into the **Compare Lens Module**, first select the **Compare** heading from the top of the ETF Action Platform:

Landscape	0	Research O	Compare 🕥	Security Lookup	Model	Tracker 🔘		F	Refresh
Ticker	¢	Name	∳ ci	assification 🔶	Inception 🖨	Expense Ratio	AHOIdings	.UM MM)	Remove
	]					-			×

.

Second, type individual ETF tickers into the orange **Ticker Boxes**. As valid ETF tickers are entered, data about those funds will automatically populate in the fields of the **Compare Lens**, including Fund Name, ETF Action Classification, Inception date, Expense Ratio, Number of Holdings, and Assets Under Management.

Up to 12 ETF tickers may be added. Attempting to add more will rewrite the fund associated with the selected ticker box.

To remove funds, click the "X" in the **Remove** column at the far right; or simply overwrite the fund's ticker in the **Ticker Box** with a new fund.

As valid ETF tickers are added, the **Comparative Research Frames** will automatically update with comparative data, as depicted below:

Ticker 🔻	Name	(Classification	♦ Inception ♦	Expense Ratio	Holdings	AUM (\$MM)	Remove
SPY	SPDR S&P 500 ETF Trust	Equity   U.S.   Size & Style   Broad Market	1993-01-22	0.09%	505	\$338,374	×
IWM	iShares Russell 2000 ETF	Equity   U.S.   Size & Style   Broad Market	2000-05-22	0.19%	2028	\$71,311	×
IJН	iShares Core S&P Mid-Cap ETF	Equity   U.S.   Size & Style   Broad Market	2000-05-22	0.05%	400	\$60,627	×
				-			×
erformance & Flows Risk	Stats Composition Fundamentals Holdi					l	Build Rej
		ngs Total Return					
						Mar 22, 2018 -	
						North Market	
					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	North Market	
			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	an Am	- Anger	North Market	
				w Marine State		North Market	
				w how have		North Market	
Yerformance & Flows         Risk           n 3m 6m YTD 1y         3			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Month and		North Market	

# How to Load ETFs Into The Compare Lens From The ETF Navigator

Lists of ETFs called up by the **ETF Navigator** can be loaded into the **Compare Lens** by clicking the orange **Compare** button next to the **ETF Navigational Bar:** 

Landsco	ape O Research	Compare C	Security	Lookup 💿	Model Track	er O				Refresh
Ticker										
nter ticker or	select fund below.									
	M (\$MM) Avg. Expense 558,090 0.32%	5 Day Net Flows (\$MM) \$4,962	30 Day Net Flows \$2,798	; (\$MM) 90 Day N \$8,834		YTD Net Flows (\$MM) \$4,175	1 Yr Net F \$15,51	lows (\$MM) 3		
Overview	~						Exc	clude: 🗆 Lever	aged   🗆 Inve	erse   🗆 ETNs
EEM, QQQ, S	SCZ, IWM, SPY, JIR				× D	Compare 🕆	-	-		
ETF Navigati	Or Export 🛓							Pi	imary Data So	ource: FactSet*
Show 100	✓ entries							Se	arch:	
Ticker 🔶	Fund Nan	ne 🔶	Brand 🔶	Classifie	cation	Inception 🕴 E	xpense 🔶	AUM (\$MM) 🔻	TTM Yield	YTD 🕴
	Reset Filte	ers	т	۲		-	T	<b>T</b>	т	Т
SPY	SPDR S&P 500 ETF Trust	SPI	DR I	quity : U.S. : Size & S Market	Style : Broad	1993-01-22	0.09%	\$369,141	1.31%	14.86%
QQQ	Invesco QQQ Trust	Inv	esco	equity : U.S. : Size & S	Style - Broad	1999-03-10	0.20%	\$172.225	0.50%	11.65%

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#### How to Load ETFs From the Compare Lens Into The ETF Overlap Analyzer

Likewise, ETFs inputted into the **Compare Lens Module** can be loaded into the **ETF Overlap Analyzer** by clicking on the orange **ETF Overlap Analyzer** link at the bottom of the **Compare Lens** module:



# **Comparative Research Frames**

The **Comparative Research Frames** are similar the **ETF Research Frames**; however, instead of looking at a single ETF, users can compare up to 12 ETFs at once.

#### Comparative Research Frame: Performance & Flows



The **Comparative Performance & Flows Research Frame** provides dynamic, exportable charts of the total return and monthly flows for all the ETFs loaded into the Compare Lens. There are three main visualizations:

- Total Return for the selected ETFs
- Annual Returns for the selected ETFs, dating back 10 years and year-to-date
- Monthly Flows for the selected ETFs, including the past 12 calendar months and month-to-date

**By default, the time frame for the Total Return chart is three years (3y).** To change this, select one of the pre-set time frames in the top left corner (3m, 6m, YTD, 1 yr, 3y, 5y, 10y, All); or input a custom time range in the orange boxes in the top right corner. You can also zoom by clicking and dragging across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

By default, the time frame for the Annual Returns chart is since inception or 10 years, whichever is shorter; as well as year-to-date data. This time range is not adjustable as the **Total Return** chart is; to see annual returns farther back than ten years, or in different frequencies (such as quarterly or daily), refer to the ETF Data Explorer (see: "ETF Data Explorer")

By default, the time frame for the Monthly Flows chart is since inception or the past 12 calendar months, whichever is shorter; as well as month-to-date data. This time range is not adjustable as the **Total Return** chart is; to see monthly flows dating farther back than 12 months, or in different frequencies (such as quarterly or daily), refer to the **ETF Data Explorer** (see: "<u>ETF Data Explorer</u>")

# All data is current as of the previous day's close.

The Total Return, Annual Returns, and Monthly Flows Charts can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the Total Return, Annual Returns, and Monthly Flows Charts can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.



### Comparative Research Frame: Risk Stats

The **Comparative Risk Stats Research Frame** provides risk and correlation statistics for ETFs with a track record of at least one year. (If the track record for one of the selected ETFs is less than one year, then that ETF will be marked with an asterisk [\*] and no statistics will be loaded.)

These risk metrics, which are calculated based on monthly returns and compared to a customizable benchmark ETF, are collated in the **Comparative Risk Stats Table**, as well as visualized in the **Comparative Volatility** and **Drawdowns Line Charts** (see "<u>Comparative Volatility And Drawdowns Line Charts</u>" below).

# Understanding the Comparative Risk Stats Table

The Comparative Risk Stats Table includes several fields of data, including:

- <u>Portfolio:</u> The name of the ETF (or the name of the designated benchmark ETF)
- <u>Annualized Return</u>: The annualized return of the fund over the specified time period
- <u>Std Dev:</u> Volatility of those returns, over the specified time period
- <u>Correlation</u>: Correlation of the ETF's returns to those of the designated benchmark ETF, over the specified time period
- Sharpe Ratio: The ETF's Sharpe ratio over the specified time period
- <u>Tracking error</u>: The ETF's tracking error relative to its designated benchmark ETF, over the specified time period

- Information Ratio: The ETF's information ratio, relative to its designated benchmark ETF, over the specified time period
- <u>Beta:</u> The ETF's measured beta, over the specified time period
- <u>Alpha (Ann.</u>): The ETF's measured annualized alpha, relative to its designated benchmark ETF, over the specified time period
- *Up Capture Ratio:* The ETF's measured up capture ratio, relative to its designated benchmark ETF, over the specified time period
- *Down Capture Ratio:* The ETF's measured down capture ratio, relative to its designated benchmark ETF, over the specified time period
- <u>R2:</u> The ETF's R<sup>2</sup>, relative to its designated benchmark ETF, over the specified time period

If there is not enough data for one or more of these metrics to be calculated over the selected time period, the metrics will be blank, and the fund marked with an asterisk (\*).

# Customizing The Comparative Risk Stats Table

**By default, risk statistics in the table are calculated over a three-year time period.** To change this, select a different time frame from the *Time Period* drop down menu in the upper right corner. Available time frames include 1 Year, 3 Years, 5 Years, 10 Years, and Since Inception:

enchmark: SPY	S&P 500 E	TF							Time	e Period: 3 Y	'ear 🗸
Portfolio	Annualized Return	Std Dev	Correlation	Sharpe Ratio	Tracking Error	Information Ratio	Beta	Alpha (Ann.)	Up Capture Ratio	Down Capture Ratio	R2
SPDR S&P 500 ETF Trust	17.91%	18.40%	1.00	0.90	0.00%	0.00	1.00	0.00%	100.00%	100.00%	100.00%
iShares Russell 2000 ETF	12.94%	25.53%	0.92	0.48	11.15%	-0.45	1.28	-7.84%	106.48%	122.05%	85.30%
iShares Core S&P Mid-Cap ETF	13.66%	23.71%	0.95	0.54	8.33%	-0.51	1.23	-6.71%	107.83%	120.76%	91.00%
SPDR S&P 500 ETF Trust	17.91%	18.40%	1.00	0.90	0.00%	0.00	1.00	0.00%	100.00%	100.00%	100.00%

By default, a benchmark fund is assigned based on the ETF's categorization in the ETF Action Classification System. This can be changed by typing a new ticker in the **Ticker Entry Box** at the top of the **Risk Stats Table**:

Performance & Fl	lows Risk St	tats Co	omposition F	undamentals	Holdings					Buil	d Report
Benchmark: SPY	S&P 500 E	TF							Time	Period: 3 Y	lear 🗸
Portfolio	Annualized Return	Std Dev	Correlation	Sharpe Ratio	Tracking Error	Information Ratio	Beta	Alpha (Ann.)	Up Capture Ratio	Down Capture Ratio	R2
SPDR S&P 500 ETF Trust	17.91%	18.40%	1.00	0.90	0.00%	0.00	1.00	0.00%	100.00%	100.00%	100.00
iShares Russell 2000 ETF	12.94%	25.53%	0.92	0.48	11.15%	-0.45	1.28	-7.84%	106.48%	122.05%	85.30
iShares Core S&P Mid-Cap ETF	13.66%	23.71%	0.95	0.54	8.33%	-0.51	1.23	-6.71%	107.83%	120.76%	91.0
SPDR S&P 500 ETF Trust	17.91%	18.40%	1.00	0.90	0.00%	0.00	1.00	0.00%	100.00%	100.00%	100.00

Calculations based on monthly returns between 2018-06-29 and 2021-05-28.

\*Insufficient performance history for calculations.

#### Comparative Volatility And Drawdowns Line Charts

The **Comparative Risk Stats Frame** also includes two visualizations: a **Comparative Volatility Line Chart** and a **Comparative Drawdowns Chart.** 

- The **Comparative Volatility Line Chart**, titled **Std Dev (30 Day Annualized)**, plots volatility in the ETFs' returns over a dynamic time period.
- The **Comparative Drawdowns Chart** specifies drawdowns in the ETFs over a dynamic time period.

By default, the time frame for both charts is set to one year. This can be changed in three ways:

- Selecting a different pre-set time period in the left-hand corner (3m, 6m, YTD, 3y, 5y, 10y or All)
- Clicking and dragging on the line chart to zoom in on a specific time period
- Inputting a custom time range in the orange boxes on the righthand corner of the chart.

The **Comparative Volatility** and **Drawdown Line Charts** can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the **Comparative Volatility** and **Drawdown Line Charts** can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

#### Comparative Research Frame: Composition



The **Comparative Composition Research Frame** visualizes the composition of the equities within the ETFs' portfolios in four **Comparative Breakdown Charts**:

- <u>Market:</u> Illustrates how the equities in each ETF align with broad economic development exposure.
- <u>Region:</u> Illustrates the equities in the ETFs according to their regional and/or single country exposure. Defaults to Region, but can be changed to Single Country (see below).
- <u>Sector</u>: Illustrates the equities in the ETFs according to their GICS Sector and/or Industry exposure. Defaults to Sector, but can be changed to Industry (see below)
- <u>Size</u>: Illustrates equities in the ETFs according to their average market capitalization. "Large cap" is defined as greater than \$10 B; "mid cap" is less than \$10 B but greater than \$2 B; and "small cap" is less than \$2 billion.

**Clicking on the Region and Sector Charts allows for further breakdown by subgroupings**. To see ETFs' equities within a Region grouped by their Single Country exposure; or within a Sector grouped by their Industry exposure, click on the desired Region/Sector to expand. Click the grey "Back" in the righthand corner of the chart to reset the chart:





#### How To Export Comparative Composition Breakdown Charts

The **Comparative Composition Breakdown Charts,** as well as the data underpinning them, can be exported to a variety of file formats by clicking the three parallel lines in the top right corner of each chart.

Each chart can be viewed in full screen, printed, or exported to a .png, .jpeg, .pdf, or .svg file; while the data underpinning the bar chart can be exported to a .csv or .xls file.

#### Comparative Research Frame: Fundamentals



The **Comparative Fundamentals Research Frame** provides dynamic, exportable charts of several key equity fundamentals on the fund level for each of the ETFs in the set. These fundamental ratios include **Earnings, Sales, Cash Flow, Book Value** and **Dividends**.

Two important notes about the data underpinning the **Comparative Fundamentals Research Frame**:

- 3) Historical fundamental data is based on each ETF's current portfolio holdings, not point-in-time portfolio holdings.
- 4) Negative ratios are excluded from the valuation computations.

To switch between key fundamentals, select a new fundamental metric from the *Key Ratios* drop down menu at the top of the Research Frame:



Each Key Ratio selection provides three charts based on the selected fundamental:

4) <u>Trailing Twelve Month (TTM)</u>: Historical data for the relevant key ratio, with the 5-year average indicated as a dotted line on the chart. Ratios provided include: P/E, P/S, P/CF, P/B, or Dividend Yield.

**By default, data is provided for the past five years**. To select a shorter time frame, click and drag across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

The TTM Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the TTM Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

5) (*Fundamental*) *Growth*: Five years of growth rates for the selected fundamental, including forward-looking estimates for the years to come.

The (Fundamental) Growth Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the (Fundamental) Growth Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

*6)* (*Fundamental*) *Trends 2021E:* Monthly analyst estimates for the selected fundamental over the past twelve months.

The (Fundamental) Trends 2021E Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the (Fundamental) Trends 2021E Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

Comparative	Research	Frame:	Holdings

Performance & Flow	vs Risk Stats Composition Fundamentals	Holdings					Build Repo
Ticker		Name	¢ SPY ¢	IWM ¢	іјн 🕠	Avg Wt 💡	Count 0
APL-US	Apple Inc.		5.83%	-		1.94%	1
SFT-US	Microsoft Corporation		5.33%	-	-	1.78%	1
/ZN+US	Amazon.com, Inc.		3.98%	-	-	1.33%	1
I+US	Facebook, Inc. Class A		2.11%	-	-	0.70%	1
DOGL-US	Alphabet Inc. Class A		1.83%	-	-	0.61%	1
DOG-US	Alphabet Inc. Class C		1.76%	-	-	0.59%	1
iLA-US	Tesla Inc		1.54%	-	-	0.51%	1
R-US	Caesars Entertainment Inc		0.06%	0.57%	0.85%	0.49%	3
NN+US	Penn National Gaming, Inc.		0.05%	0.61%	0.79%	0.48%	3
K.B-US	Berkshire Hathaway Inc. Class B		1.43%	-		0.48%	1
/-US	JPMorgan Chase & Co.		1.38%	-	-	0.46%	1
-US	Johnson & Johnson		1.26%	-	-	0.42%	1
H-US	UnitedHealth Group Incorporated		1.04%	-	-	0.35%	1
JS	Visa Inc. Class A		1.06%	-	-	0.35%	1
-US	Walt Disney Company		1.05%			0.35%	1
DA-US	NVIDIA Corporation		0.98%			0.33%	1
-US	Procter & Gamble Company		0.96%	-	-	0.32%	1
R-US	Darling Ingredients Inc.			0.41%	0.52%	0.31%	2
A-US	Mastercard Incorporated Class A		0.94%	-	-	0.31%	1
)-US	Home Depot, Inc.		0.93%	-	-	0.31%	1
RC-US	Generac Holdings Inc.		0.06%		0.85%	0.30%	2
C-US	Bank of America Corp		0.86%			0.29%	1
PL-US	PayPal Holdings Inc		0.86%			0.29%	1
0.00	Little Materia las Class A			0.0770	0.450	0.000	

Showing 1 to 2,773 of 2,773 entries

The **Comparative Holdings Research Frame** provides a **Comparative Holdings Data Table** that lists all the securities held by all the ETFs in the selected set, as well as how much of each equity each fund holds.

Each stock entry in the Comparative Holdings Data Table provides several data fields, including:

- *Ticker:* Security ticker, including listing exchange code.
- Name: Security name, including whether the security is an ADR
- *Tickers 1-12:* The total percentage weight of the security in that ETF's portfolio. If the equity is not present in that ETF, then the entry is marked with a "-".
- Avg Wt: The average weight of that security across all the ETFs in the selected set
- *Count:* Number of ETFs in the set in which the security appears

**By default, all unique equities are loaded in the Comparative Holdings Data Table.** It is not possible at this time to change the number of entries displayed, but entries can be sorted by using the up/down arrows next to each column heading.

It is not possible at this time to save or export the data in the **Comparative Holdings Data Table.** For more capabilities, see the **ETF Overlap Analyzer** (see: "<u>ETF Overlap Analyzer</u>").

# Creating Custom Reports

In the **Compare Lens**, Professional Level subscribers have the ability to generate comparative **Custom Reports**, which collate a wealth of visualizations and analysis in one client-ready package.

These Custom Reports will bear your company logo and disclosures. (See: "<u>Adding Company Information To Your</u> <u>Account.</u>")

To generate a custom report, load up to five ETFs into the Compare Lens, then click the orange **Build Report** button in the headings bar of the **Compare Frames**:



This will bring up a dialogue box, in which the Custom Report can be named, a benchmark can be specified, a recipient can be specified, and a personal message of up to 250 characters can be added:

IJH	iShares Core S&P Mid- Cap ETF	Equity   U.S.   Size & Style   Broad Market	2000-05-22	0.05%	400	\$60,627	×
				-			×
*Enter up to 12 ETFs. For additio	nal overlap and holdings analysis chec	k out our ETF Overlap Analyzer »					
**Report Building is suppo	eport Builder			×			
Performance & Flows	nds PY,IWM,IJH		Report Name Sample Custom Report				Build Report
Ja	pared For ne Investor		Risk Benchmark VTI	Clear			=
Zoom 3m 6m YTD						Mar 22, 2018	8 → Mar 22, 2021
lt	ear Jane, was a pleasure chatting with you earlier ext week.	. As per our conversation, here's th	e report on U.S. equity ETFs we disc			- m	M MM
	Generate				a month	m www.	fm V www
-	Generate			have been a second s	, Marina	NAD	20%
www.	Manage your custom logo an	d disclosures in your My	Account page.		American	VMV	0%
		~~~ V		W. marker	n hana		-20%
				NA			
May '18 Jul '18	Sep '18 Nov '18 Jan '19	Mar '19 May '19	Jul 19 Sep 19 Nov 1	19 Jan '20 Mar '20 May '20	Jul '20 Sep '20	Nov '20 Jan	-40% n'21 Mar'21
1995	200 <u>0</u>		2005	2010	2015		2020

Clicking the orange **Generate** button starts the **Custom Report Builder**. A progress wheel will begin to spin, indicating that the Builder is working. <u>Please allow up to one minute to let the Builder generate the report</u>.

When the Builder is finished, a green **Download Report** button will appear. Clicking it will automatically download the report in a .PDF format.



For now, the **Build Report** function can handle up to five ETFs. If more than five ETFs have been loaded into the **Compare Lens**, the **Build Report** button will remain non-interactive (colored grey). To enable the **Build Report** functionality, remove ETFs from the **Compare Lens** until you have five or fewer.

# Inside The Custom Report

Each **Custom Report** is eight pages long, including data regarding the funds' comparative performance, trading and liquidity, flows, risk statistics, technical indicators, fundamental metrics, key equity ratios, constituent composition, and common holdings.

We include a sample page here:



#### Adding Company Information To Your Account

On your **User Profile** page, you can upload contact information, company logos, or standard disclosures to be automatically added to your Custom Reports.

To access your **User Profile**, click **My Account** at the top of the ETF Action Platform:

* ACTION	Admin Platform F	Research Mo	del Portfolios	Webinars	My Account
My Account		-	-		-
Jser Profile					Edit Profile »
	First Nan Last Nan Email: Compan Role: Phone: Account	ne: y:			
Dan ant Dana dina					
Company Logo	😂 Logo				
Company Logo					
Report Branding Company Logo Standard Disclosures Click here to create your custom standard For example:					

Here you can upload a personal photo, a company logo, and standard disclosures by clicking on the interactive light blue boxes. This will bring up either an upload dialogue box, where photos can be loaded from your device; or a text editor in which to copy-paste your standard disclosures.

You can also update your personal information, including email address, company, role, and phone number.

# Security Lookup

				Admi	n Plat	form	Re	sear	ch	Model Portfolios	Webinars	My A	Account
Dashboard > ETF Terminal	Landscape 🧿	Researc	h O	Compo	are 💿	Security	/ Loo	kup	•	Model Tracker 🧿		R	efresh
Portfolio Visualizer	Securities:						Г	FT	Fs:				
Earnings Scorecard	Securities.							<u> </u>	13.				
Ownership Screener					Mkt	%		0	HIPR	Direxion High Growth ETF	2	8.32%	\$0.70
ETF Overlap Analyzer	Ticker	Name 🍦	Funds 🔶	Avg Wt	Cap (\$MM)	Free Float	R	٥	SPMO	Invesco S&P 500 Momentum ETF	2	7.94%	\$6.71
ETF Data Explorer								0	AVDG	AVDR US LargeCap ESG ETF	1	7.49%	\$0.12
User Guide 🛓	NVDA-US	NVIDIA Corporation	282	2.05%	\$474,253	7.93%		0	HERO	Global X Video Games & Esports ETF	1	6.57%	\$42.01
		Advanced Micro						0	LIV	Emles (a)Home ETF	1	6.50%	\$0.46
	AMD-US	Devices, Inc.	211	0.79%	\$104,030	8.31%		0	KOIN	Capital Link NextGen Protocol ETF	2	6.44%	\$1.85
								0	FIVG	Defiance Next Gen Connectivity ETF	2	6.41%	\$80.80
								0	LRNZ	TrueShares Technology; Al & Deep Learning ETF	2	6.30%	\$1.87
								0	BUZZ	VanEck Vectors Social Sentiment ETF	2	6.15%	\$15.20
								0	XNTK	SPDR NYSE Technology ETF	2	6.04%	\$42.31
								0	XLK	Technology Select Sector SPDR Fund	2	5.89%	\$2,429.56

The **Security Lookup** Tool allows users to search for what ETFs own which individual companies. The tool can accommodate a list of up to 20 individual securities, providing aggregated ownership data that can be broken down into individual ETF ownership.

The Security Lookup tool consists of two modules:

- The **Ticker Entry Table**, which feeds a set of up to 20 individual securities into the **Security Lookup** Tool
- The Aggregate ETF Ownership Table, which displays the ETFs that own the set of ETFs, and in what amounts.

Each of these is described in more detail in the following sections.

# The Ticker Entry Table

Securities:						
Ticker	🔻 Name 🍦	Funds	Avg Wt ≑	Mkt Cap (\$MM) \$	% Free Float 🔶	Remove
						×
AAPL-US	Apple Inc.	289	4.89%	\$2,115,300	7.12%	×

The **Ticker Entry Table** feeds a set of up to 20 individual stocks into the Security Lookup Tool. But it also displays relevant ownership data about each security, including:

- *Name:* Name of the security.
- Funds: How many total ETFs own shares of this security.
- Avg Wt: The average portfolio weight this security is given across all ETFs that own it.
- *Mkt Cap (\$MM):* The total market capitalization of the security.
- % *Free Float:* The total percentage of free float shares of the security that are owned by ETFs.

# The Aggregate ETF Ownership Table

	Ticker	Name 🔶	# Held	Agg Weight 🚽	Mkt Val (\$MM)
0	VGT	Vanguard Information Technology ETF	1	21.76%	\$9,461.08
0	XLK	Technology Select Sector SPDR Fund	1	21.00%	\$8,271.19
0	FTEC	Fidelity MSCI Information Technology Index ETF	1	20.15%	\$1,133.61
0	IYW	iShares U.S. Technology ETF	1	18.79%	\$1,372.92
0	IXN	iShares Global Tech ETF	1	17.36%	\$915.42
0	HLAL	Wahed FTSE USA Shariah ETF	1	16.67%	\$14.05
0	TECL	Direxion Daily Technology Bull 3x Shares	1	16.64%	\$326.40
0	JKD	iShares Morningstar Large- Cap ETF	1	16.05%	\$138.65
0	JOYY	Infusive Compounding Global Equities ETF	1	14.68%	\$6.22
0	MGK	Vanguard Mega Cap Growth ETF	1	13.55%	\$1,390.38
0	IWY	iShares Russell Top 200 Growth ETF	1	13.54%	\$486.84
0	ROM	ProShares Ultra Technology	1	13.15%	\$102.14

The **Aggregate ETF Ownership Table** lists the results of the Security Lookup query, displaying the ETFs that own the specified stocks. By default, the results are listed in descending order of portfolio weight given; this can be changed by clicking the up and down arrows next to any column heading in the Aggregate ETF Ownership Table.

The Aggregate ETF Ownership Table provides several fields:

- *Ticker:* Ticker of the ETF that owns the security or securities
- *Name:* Full name of the ETF that owns the security or securities.
- # Held: How many of the specified stocks in the set the ETF holds
- *Agg Weight:* The total portfolio weight the ETF dedicates to all the securities in the set
- *Mkt Val (\$MM):* The total market value of the security or securities that the ETF holds.

The green pluses next to each ETF ticker indicate expandable entries. Click on them to see which stocks in the set a given ETF holds, and in what weights. <u>It is unlikely that all ETFs in the Aggregate ETF Ownership Table will hold all</u> <u>the stocks in the specified set.</u>

# How To Use The Security Lookup Tool

Typing a ticker into the **Ticker Entry Table** automatically populates data into the **Ticker Entry Table** and **Aggregate ETF Ownership Table**. You may type up to 20 stocks; any additional entries will overwrite that stock's entry in the Ticker Entry Table.

To remove a stock from the Ticker Entry Table, click the "X" in the "Remove" column. Its results will disappear from the Ticker Entry Table and Aggregate ETF Ownership Table simultaneously.

The green pluses next to each ETF in the Aggregate ETF Ownership Table indicate expandable entries. Click on them to see which stocks in the set a given ETF holds, and in what weights. <u>It is unlikely that all ETFs in the Aggregate ETF</u> <u>Ownership Table will hold all the stocks in the specified set.</u>

	* ETF		Admin Platform Research	Model Portfolio	s Webinars	My Account	t		
Dashboard Y ETF Terminal	Landscape   Research   Compo	are O Securi	ty Lookup 💿 Model Tracker 🕥					Refr	fresh
<ul> <li>ETF Action AIM Portfolios</li> <li>U.S. Factor AIM Portfolio »</li> <li>International Factor AIM Portfolio »</li> </ul>	U.S. Factor AIM Portfolio					Сору	New Model	Portfolio Visue	alizer
Global Thematic AIM Portfolio » U.S. Sector & Industry AIM Portfolio »	Benchmark: SPY SPDR S&P 500 ETF Tr				Total Weight 100%	ETFs Weight 6 100%	Stocks Weigh 0 0%		Yield 1.32%
International Region & Country AIM Portfolio » > ETF All-Stars Thematic Select Lists	Overview Performance Classification Ri	sk Stats Equity C	Composition Equity Holdings ETF Overlap (Equity					-	Filter 8
Equity Screens     Fixed Income Screens	Add: ETF V Ticker								
Commodity Screens Currency Screens	Name	¢ Ticker ¢	Classification	¢ Last	% Change	Exp Ratio 🔶	Yield 🔶	Target 🔶	
My Models	Equity					0.26%	1.32%	100.00%	
My Screens	IShares MSCI USA Value Factor ETF	VLUE	Equity   U.S.   Size & Style   Broad Market	\$96	67 -0.25%	0.15%	2.17%	20.00%	Remov
	iShares MSCI USA Quality Factor ETF	QUAL	Equity   U.S.   Size & Style   Broad Market	\$118	21 -0.04%	0.15%	1.36%	20.00%	Remov
ortfolio Visualizer	iShares MSCI USA Momentum Factor ETF	MTUM	Equity   U.S.   Size & Style   Broad Market	\$164	94 -2.04%	0.15%	0.77%	20.00%	Remov
arnings Scorecard	Fidelity Low Volatility Factor ETF	FDLO	Equity   U.S.   Size & Style   Broad Market	\$42	64 -0.26%	0.29%	1.37%	15.00%	Remov
wnership Screener								_	
TF Overlap Analyzer	Alpha Architect U.S. Quantitative Value ETF	QVAL	Equity   U.S.   Size & Style   Broad Market	\$30	24 -0.94%	0.49%	1.70%	15.00%	Remov
TF Data Explorer	Alpha Architect U.S. Quantitative Momentum ETF	QMOM	Equity   U.S.   Size & Style   Broad Market	\$57	98 -2.72%	0.49%	0.07%	10.00%	Remov
Jser Guide 🕹									
User Guide 📥									

Model Tracker

The **Model Tracker** tool allows users to build portfolios of ETFs and individual stocks to analyze performance, composition, and risk statistics.

There are two main modules to the Model Tracker:

- The Model Portfolio Summary Statistics Bar, which lists important data about the composition of the selected model, including a comparative benchmark that may be changed (See: "Model Portfolio: Summary Statistics Bar");
- 2. The **Model Portfolio Research Frames**, which allow deeper analysis into portfolio constituents. They are structured much like the **ETF Research Frames** (See: "ETF Terminal: Research Frames").

There are seven Research Frames, each discussed in more detail in the following sections. The selected Model Portfolio Research Frame will be highlighted in light blue. These frames are:

- 1) <u>Overview:</u> Provides overview information about the model portfolio's holdings, including their tickers, names, classifications, pricing information, expense ratio, yield, and weight in the portfolio.
- 2) <u>Performance</u>: Provides a dynamic, exportable chart and table of the historical return for each of the holdings in the model portfolio.
- 3) <u>Classification</u>: Visualizes the classification differences between holdings in the model.
- 4) <u>*Risk Stats:*</u> Provides an exportable table of relevant risk statistics across the full model portfolio.

- 5) *Equity Composition:* Provides dynamic, exportable charts of the overall market, region, sector and size exposures of the equities within the model portfolio, as compared to the benchmark
- 6) *Equity Holdings:* Provides an exportable, searchable table of all the equities held within the model portfolio, as well as in what amounts and by how many funds
- 7) <u>ETF Overlap (Equity)</u>: Like the **ETF Overlap Analyzer**, provides an exportable, searchable table of ETFs that own the same stocks as found in the model portfolio, ranked by weight and how many stocks they have in common.

# How To Use The Model Tracker

There are three primary ways to load model portfolios in the Model Tracker.

- 1. Create a new model portfolio, using the "New Model" button.
- 2. Launch a prebuilt, ETF Action model portfolio from the lefthand sidebar, including the ETF Action AIM Portfolios and the ETF All-Stars<sup>®</sup> Thematic Select Lists.
- 3. Launch a saved custom model portfolio from "My Models," on the lefthand sidebar.

Each of these methods will be discussed in the sections below.

# How To Create A New Model Portfolio

To create a new model portfolio, click the orange "**New Model**" button in the upper right corner of the Model Tracker screen.

Digital Payments S	Select Top	10			Cop	iy	New M	odel	Portfolio V	isualizer
Benchmark: IPAY Payments ETF	ETFMG Prime	Mobile	Total Weight 100%	ET t O	Fs We 0%		Stocks 10	Weight 100%	Exp. Ratio 0.00%	Yield 0.34%
Overview Performant	ce Classifica	tion Risk Stats	Equity Com	position E	uity Holdir	ngs l	ETF Overlag	o (Equity)		Filter ↓
Add: ETF 🗸	Ticker									
Add: ETF V	Ticker	Classifica	ation	🔶 Last	% Char	nge 🔶	Exp Ratio	Yield	Target	\$
Name		Classifice	ation	🔶 Last	¢ % Char	nge 🔶	Exp Ratio	Yield 0.34%	Target 100.00%	\$
Name		Classifico Netherlands: IT Servico		🔶 Last	Char	nge 🔶 -	Ratio			¢ Remo
Name ingle Stock adyen N.V. Unsponsored ADR	Ticker 🍦		es	Last	Char	nge 🔻	Ratio	0.34%	100.00%	
	Ticker	Netherlands: IT Service	es		Char	nge 👻	Ratio 0.00%	<b>0.34%</b> 0.00%	100.00%	Remo

That will launch a pop up window allowing you to rename your model, as well as designate the model as personal use ("My Models") or to be shared with your team ("Team Models"). Team Models require an Enterprise-level subscription.

		Admin Platform Research	Model Portfolios	Webinars	My Account				
									Refresh
Dummy ESG ETF Model							Сору	New Model	Portfolio Visualizer
Benchmark SPY SPDR S&P 500 ETF Trust New Model Overview Performance Class				×			Weight 100%	Stocks Weight 1 0%	Exp. Ratio 0.38% 1.31%
Add: ETF Ticker Model Name Nome Submit	~				nge ¢	Exp Ratio 🔅	Yield	¢ Target	•
Equity						0.47%	0.84%		_
Change Finance U.S. Large Cap Fassil Fuel Free ETF	CHGX	Equity   U.S.   Size & Style   Brood Market		\$29.53	1.97%	0.49%	0.58%		
Nuveen ESG International Developed Markets Equity ETF	NUDM	Equity   Dev Ex-U.S.   Size & Style   Broad Market		\$30.09	1.23%	0.40%	1.47%	15.009	Remove
Freedom 100 Emerging Markets ETF	FRDM	Equity   Emerging   Size & Style   Brood Morket		\$33.26	1.85%	0.49%	1.07%	5.00%	Remove
Fixed Income			_			0.24%	2.01%	40.009	•
Xtrackers J.P. Morgan ESG Emerging Markets Sovereign ETF	ESEB	Fixed Income   Emerging   Sovereign   Broad Market		\$20.98	0.73%	0.35%	3.42%	20.009	Remove
iShares ESG Advanced Total USD Bond Market ETF	EUSB	Fixed Income   U.S.   Multi-Sector   Broad Market		\$49.19	0.31%	0.12%	0.00%	15.009	Remove
Xtrackers BB Investment Grade Corporate ESG ETF	ESCR	Fixed Income   U.S.   Corporate   Broad Market		\$21.54	0.00%	0.15%	2.36%	5.00%	Remove
Single Stock						0.00%	0.00%	0.00%	
GameStop Corp. Class A	GME-US	United States: Specialty Retail		\$233.84	20.23%	0.00%	0.00%	0.00%	Remove

#### How to Launch A Prebuilt Model Portfolio

The ETF Action Platform comes loaded with several prebuilt **ETF Action Active Index Model (AIM) Portfolios** and **ETF All-Stars® Thematic Select Lists.** Each of these can be loaded into the Model Tracker.

To launch a prebuilt portfolio, click on either **ETF Action AIM Portfolios** or **ETF All-Stars® Thematic Select Lists** on the grey, left-hand side bar. Then click on the desired model.

Dashboard
←ETF Terminal
> ETF Action AIM Portfolios
✓ ETF All-Stars Thematic Select Lists
✓FinTech
Digital Payments Select Top 10 »
Blockchain Select Top 10 »
Broad FinTech Select Top 25 »
> Health Innovation
> Sustainability
> Evolving Consumer
> Disruptive Tech
<ul> <li>Industrial Revolution</li> </ul>
Equity Screens
> Fixed Income Screens
Commodity Screens
> Currency Screens
> My Models
> My Screens
Portfolio Visualizer
Earnings Scorecard
Ownership Screener
ETF Overlap Analyzer
ETF Data Explorer
User Guide 🛓

#### How To Launch A Saved Custom Model Portfolio

Saved model portfolios are accessible on the grey, left hand sidebar under "My Models." To load a saved model portfolio into the **Model Tracker**, select "My Models," then click on the desired model portfolio.



#### How To Copy A Model Portfolio

To make a duplicate copy of a model portfolio, click the orange "Copy" button in the upper right corner of the Model Tracker. Doing so will save the model portfolio under "My Models."

Digital Payments	Select Top	10		-	Сору	New N	lodel	Portfolio V	isualizer
Benchmark: IPAY Payments ETF	ETFMG Prime	Mobile	Total Weight 100%	ETFs 0	Weight 0%	Stocks 10	Weight 100%	Exp. Ratio 0.00%	Yield 0.34%
Overview Performan	ice Classifica	ition Risk Stats	Equity Composition	n Equity	Holdings	ETF Overla	p (Equity)		Filter 🌵
Add: ETF V	Ticker	Classifica	tion 🔶	Last 0	%	Exp	Yield	Target	¢
Name		Classificat	tion \$	Last 🍦	% Change <sup>‡</sup>	Exp Ratio	Yield 0.34%	Target 100.00%	¢
Name ingle Stock		Classificat Netherlands: IT Service		Last 🍦	% Change ÷				¢ Remov
Name ngle Stock dyen N.V. Unsponsored ADR	🍦 Ticker 🍦		s		Change 🌹	0.00%	0.34%	100.00%	
	Ticker	Netherlands: IT Service	s	-	Change *	0.00%	0.34% 0.00%	100.00%	Remov

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# How to Load Model Portfolios Into Other ETF Action Toolsets

Model Portfolios can be cross-loaded from the **Model Tracker** into the **Portfolio Visualizer** and the **ETF Terminal: Research Lens.** 

### How to Load Model Portfolios Into The Portfolio Visualizer

To load a model portfolio into the **Portfolio Visualizer**, click the green "Portfolio Visualizer" button in the upper right corner of the Model Tracker:

Dashboard	Landscape O	Research O	Compare O	Security Look	cup 💿	Model Tra	cker 💿			Refresh
<ul> <li>ETF Terminal</li> </ul>										ien esn
> ETF Action AIM Portfolios	Digital Payment	s Select Ton	10			Comu	New M		Portfolio V	loveliner
✓ ETF All-Stars Thematic Select Lists	Digital Payment	s select rop	10			Сору	New M	lodel	Portrollo V	Isudiizer
✓ FinTech	Benchmark: IPAY	ETFMG Prime	Mobile	Total	ETFs	Weight	Stocks	Weight	Exp.	Yield
Digital Payments Select Top 10 »	Payments ETF			Weight 100%		0%		100%	Ratio 0.00%	0.34%
Blockchain Select Top 10 »										
Broad FinTech Select Top 25 »	Overview Perform	mance Classifica	ition Risk Stats	Equity Composition	on Equity	Holdings	ETF Overlag	p (Equity)		Filter 🄱
> Health Innovation										
<ul> <li>Sustainability</li> </ul>	Add: ETF 💙	Ticker								
Evolving Consumer										
> Disruptive Tech	Name	Ticker	Classificat	ion 🔶	Last 🔶	% Change	Exp Ratio	Yield	Target	\$ \$
<ul> <li>Disruptive Tech</li> <li>Industrial Revolution</li> </ul>	Name Single Stock	∲ Ticker ¢	Classificat	ion \$	Last 🔶	% Change <sup>¢</sup>	Exp Ratio	Vield	Target 100.00%	
	Single Stock				Last 🔶	<sup>%</sup> Change <sup>∲</sup>	0.00%	0.34%	100.00%	
Industrial Revolution			Classificat		Last 🔶	% Change ♀				
Industrial Revolution     Equity Screens     Fixed Income Screens	Single Stock			5	Last \$	Change 🍸	0.00%	0.34%	100.00%	
Industrial Revolution     Equity Screens     Fixed Income Screens     Commodity Screens	Single Stock Adyen N.V. Unsponsored ADR Global Payments Inc.	ADYEY-US GPN-US	Netherlands: IT Service: United States: IT Servic	5	- \$190.10	Change	0.00% 0.00% 0.00%	0.34% 0.00% 0.41%	100.00% 10.00%	Remove Remove
Industrial Revolution     Equity Screens	Single Stock Adyen N.V. Unsponsored ADR	ADYEY-US	Netherlands: IT Service:	5		Change 👻	0.00%	0.34% 0.00%	100.00%	Remove

To return to the **Model Tracker**, simply select "**ETF Terminal**" from the grey, left hand navigational sidebar. This will automatically return you to the Model Tracker toolset.

# *How To Load ETF Model Portfolios Into The Research Lens*

ETFs in the selected model can be loaded into the **Research Lens** of the ETF Terminal by clicking the static orange **Filter** button in the upper right corner of the Summary Statistics Bar. <u>Individual stocks will not be loaded.</u>

Landscape 🧿 🛛 R	Research 🧿	Compare 🧿	Security I	Lookup 🧿	Model Tro	icker 🔍		F	Refresh
Digital Payments	Select Top	10			Сору	New I	Model	Portfolio V	isualizer
Benchmark: IPAY Payments ETF	ETFMG Prime	e Mobile	Total Weight 100%	ETFs 0	Weight 0%	Stocks 10	Weight 100%	Exp. Ratio 0.00%	Yield 0.34%
Overview Performa	nce Classifice	ation Risk Stats	Equity Comp	position Equit	y Holdings	ETF Overlo	ıp (Equity)		Filter ↓
Name	🍦 Ticker 🕴	Classific	ation	🔷 Last 🔶	% Change	Exp Ratio	Yield	Target	¢
Name		Classific	ation	Last 💠	% Change 🏺	Exp Ratio	Yield 0.34%	Target 100.00%	0
Name Single Stock		Classific Netherlands: IT Servia		\$ Last \$	% Change				¢ Remove
Name Single Stock Adyen N.V. Unsponsored ADR	🔷 Ticker 🌢		ces	Lost	Change	0.00%	0.34%	100.00%	
	Ticker	Netherlands: IT Servie	ces		Change 👻	0.00%	0.34% 0.00%	100.00%	Remove

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### The Model Portfolio: Summary Statistics Bar

At the top of the Model Tracker is a static **Summary Statistics Bar** that captures several important characteristics about the fund, including:

- *Benchmark:* The benchmark against which the selected model is measured. This is customizable (see: "How To Change The Benchmark in The Model Tracker").
- *Total Weight:* The aggregate portfolio weight of all securities inside the selected model.
- *ETFs:* The total number of ETFs inside the selected model.
- Weight (ETFs): The aggregate portfolio weight of all ETFs within the selected model.
- *Stocks:* The total number of stocks inside the selected model.
- *Weight (Stocks):* The aggregate portfolio weight of all stocks within the selected model.
- Exp. Ratio: The blended expense ratio of the selected model
- *Yield:* The average trailing twelve-month yield for all the securities in the model.

#### How To Change The Benchmark In The Model Tracker

To change the ETF used to benchmark the selected model portfolio, type any U.S.-listed ETF ticker into the orange ticker box at the top of the Model Tracker.

#### The Model Portfolio Research Frames

There are seven **Model Portfolio Research Frames**, each discussed in more detail in the following sections; the selected Model Portfolio Research Frame will be highlighted in light blue.

#### & ETF Admin Platform Research Model Portfolios Webinars My Account ashboard e 🔍 Research 🔍 Compare 🔍 Security Lookup 🔍 Model Tracker 🖨 TF Ter on AIM Po TF All-Stars Thematic Select Lists Dummy ESG ETF Model quity Screens ixed Income Screens Total Weight ETFs 100% 6 ommodity Screens /y Models op 10 Cannabis Stocks on 10 Genomics Stocks a Add: ETF ✓ Ticker nmy ESG ETF Model » pace Copy » Ticker 0 Last % Change ≬ Exp Ratio apest ESG ETF Model » op 10 Game Stocks Change Finance U.S. Large Cap Fossil Fuel Free ETF CHGX Equity | U.S. | Size & Style | Broad Market \$29.69 0.99% 0.49% 0.56% y of Robotics List » /v Screens 15.00% Nuveen ESG International Developed Markets Equity ETF NUDM Equity | Dev Ex-U.S. | Size & Style | Broad Market \$29.80 -1.05% 0.40% 1.42% ortfolio Visualizer Freedom 100 Emerging Markets ETF Equity | Emerging | Size & Style | Broad Market \$33.10 -1.00% 0.49% 1.05% 5.00% Fixed Income Irnings Scorecard 0.24% 1.98% 40.00% (trackers J.P. Morgan ESG Emerging Markets Sovereign ETF vnership Screener ESEB Fixed Income | Emerging | Sovereign | Broad Market \$21.36 0.00% 0.35% 3.35% iShares ESG Advanced Total USD Bond Market ETF Fixed Income | U.S. | Multi-Sector | Broad Market F Overlap Analyzer EUSB \$49.33 0.15% 0.12% 0.00% F Data Explorer Xtrackers BB Investment Grade Corporate ESG ETF ESCR Fixed Income | U.S. | Corporate | Broad Market \$21.77 0.00% 0.15% 2.41% ser Guide 去

#### Model Portfolio Research Frame: Overview

The **Overview** Research Frame is where the model portfolio may be built. It also provides at-a-glance information about all the holdings inside the selected model portfolio, including:

- *Name:* The full name of the security
- *Ticker*: The ticker for the security
- Classification: The security's classification within the ETF Action Classification system
- *Last:* Last traded price for the security.
- *% Change:* Percentage change in price from previous quote.
- Exp Ratio: Expense ratio of the security
- *Yield:* The trailing twelve month yield for the security.
- *Target:* The weight given to that security in the model portfolio.

The colored subheadings separate the holdings out by asset class—blue for Equity, grey for Fixed Income, etc.—while also providing summary statistics about that asset class's holdings, including:

- Exp Ratio: Simple average expense ratio for the securities in that asset class
- Yield: Average trailing twelve month yield for the securities in that asset class
- Target: The total amount of the model portfolio comprised of securities in that asset class

#### How To Add And Remove Securities To Your Model Portfolio

To add securities to a model portfolio, first select whether you want to add an ETF or a Single Stock from the *Add* drop down menu:

Digital Paym	ents Select Top	o 10			Сору	New M	lodel	Portfolio \	/isualize
Benchmark: II Payments ETF	PAY ETFMG Prim	e Mobile	Total Weight 100%	ETFs 0	Weight 0%	Stocks 10	Weight 100%	Exp. Ratio 0.00%	Yield 0.34
Overview P	erformance Classific	ation Risk Stats	Equity Composition	Equity	/ Holdings	ETF Overla	p (Equity)		Filter

Then input the security ticker, and either select the security from the autocomplete list or click "Enter." This will automatically add the security to your portfolio.

To remove securities from a model portfolio, click "Remove" in the farthest-right column.

Digital Payments Select Top 10			Сору	New N	lodel	Portfolio V	isualizer
			copy				iou an 201
Benchmark: IPAY ETFMG Prime Mobile Payments ETF	Total Weight 100%	ETFs 0	Weight 0%	Stocks 10	Weight 100%	Exp. Ratio 0.00%	Yield 0.34%
Overview Performance Classification Risk Stats	Equity Composition	Equity	Holdings	ETF Overla	p (Equity)		Filter 🌡
Overview Performance Classification Risk Stats	Equity Composition	Equity	Holdings	ETF Overla	p (Equity)		Filter ↓
		Equity Last 🝦	Holdings % Change <sup>‡</sup>	ETF Overla Exp Ratio		🔷 Target	
Add: ETF V Ticker Name († Ticker († Classifi			%			Target 100.00%	¢ ¢
Add: ETF Ticker	ication 🔶		%	Exp Ratio	Yield		¢ ¢

#### How to Change Security Weights In Your Model Portfolio

**By default, a security's portfolio weight is set to 0.00% when it is added to a model portfolio.** To change a security's weight in the model portfolio, click on the orange button under "Target." Type in the desired security weight, then click the green check mark to enter.

Example						Сору	New Model	Portfolio	√isualizer
Benchmark: SPY SPDR S&P 500 ETF Trust						Weight 0%	Stocks Weig 0 0%	ht Exp. Ratio 0.00%	o Yield 0.00%
Overview Performance Classification Risk Stats	Equity Composition Equity Holdings	ETF Overlap (Equity)							Filter #
Add: ETF 🗸 Ticker								Weights do n	ot sum to 100%
Name	0 Ticker 0	Classification	Last 0	% Change	Exp Ratio 🛛 🕚	Yield	ф <b>То</b>	rget 🔅	
Equity					0.00%	0.00%	0.0	0096	
SPDR S&P 500 ETF Trust	SPY Equity   U.S.   Si	te & Style   Broad Market	\$388.98	1.90%	0.09%	1.48%	0.0		Remove

If all the security weights in the model portfolio do not sum to 100%, then a warning label will pop up indicating "Weights do not sum to 100%".

#### Model Portfolio Research Frame: Performance

	ACTION	Admin	Platform Research	Model Portfolios Webinars	My Account	
Dashboard • ETF Terminal	Landscape O Research O Compare O	Security Lookup O Model Traci	ker ©			Refresh
ETF Action AIM Portfolios ETF All-Stars Thematic Select Lists	Dummy ESG ETF Model				Сору	New Model Portfolio Visualizer
Equity Screens Fixed Income Screens Commodity Screens	Benchmark: SPY SPDR S&P 500 ETF Trust				Total Weight ETFs Weig 100% 6 100%	ht Stocks Weight Exp. Ratio Yield 5 1 0% 0.38% 1.28%
urrency Screens ly Models	Overview Performance Classification Risk Stats	Equity Composition Equity Holdings B	ETF Overlap (Equity)			Filer
op 10 Cannabis Stocks = op 10 Genomics Stocks = iummy ESG ETF Model =	3500%		Perform	nance		
pace Copy » heapest ESG ETF Model » ap 10 Game Stocks »	30005					
py of Robotics List » y Screens	2500N					
tfolio Visualizer	2000%					
nership Screener	3 1500% 9 1000%					
F Overlap Analyzer F Data Explorer	500%					
er Guide 🛓	0%	_		_	-	
	-500% 1 Day		סדי		3 Year 5 Year	10 Year
	Name	0 Ticker 0	CHEX INUDM FRDM E	SEB © EUSB © ESCR © CAME-US	0 1 Year 0 3-Year	r Ann. 🔱 5-Year Ann. 🕴 10-Year Ann
	Equity		60.00% -2.30%	7.17% 2.729	% 27.98% 13.3	7%
	Change Finance U.S. Large Cap Fossil Fuel Free ETF	CHGX	40.00% -2.57%	6.52% 2.359	N 29.63% 16.1	3%
	Nuveen ESG International Developed Markets Equity ETF	NUDM	15.00% -1.56%	6.63% 2.999	6.0	D%

The **Performance** Research Frame consists of two parts:

- A **Performance Bar Chart** which visualizes performance for each of the securities in the portfolio over multiple time frames, including one day, three months, year-to-date, one year, three years annualized, five years annualized, and ten years annualized.
- A **Performance Table** that lists performance for each of the securities in the portfolio over multiple time frames, including one day, three months, year-to-date, one year, three years annualized, five years annualized, and ten years annualized.

In the bar chart, securities are grouped by asset class and colored accordingly: All equity ETFs will have a blue shade; all fixed income ETFs will have a grey shade, all single securities will have an aqua shade, and so on.

In the table, securities are grouped by asset class. Average values for each asset class are displayed in the colored bars.

#### How To Export Model Portfolio Performance Data

The **Model Portfolio Performance Bar Chart**, as well as the data underpinning it, can be exported to a variety of file formats by clicking the three parallel lines in the top right corner of the chart.

The bar chart can be viewed in full screen, printed, or exported to a .png, .jpeg, .pdf, or .svg file; while the data underpinning the bar chart can be exported to a .csv or .xls file.

#### Model Portfolio Research Frame: Classification



The **Classification Research Frame** visualizes the securities in the model portfolio across various ETF Action Classification buckets, including:

- Development: NOTE: Corresponds to "Market" in the ETF Action Classification system. Indicates one of four major economic development categories: United States (U.S.), Developed Ex-U.S. (Dev Ex-U.S.), Emerging, and Frontier.
- *Region:* Indicates ETFs' geographic region, as specified in their primary investment objective. ETFs without a specified region maintain whatever classification they held in the "Development" field.
- Specific Geography: NOTE: Corresponds to "Country" in the ETF Action Classification system. Indicates the ETFs' specific country, as specified in their primary investment objective. ETFs without a specified country maintain whatever classification they held in the "Development" field.
- *Reach:* Indicates what type of securities the ETF holds (e.g, Large Cap, Floating Rate, Total Market, Physically Held, etc.)
- Segment: Indicates the general focus of the investment objective (e.g., Broad Market, Consumer Staples, Senior Loans, Coffee.)
- *Group:* Drills down further into the particular niche the investment objective covers (e.g., Food & Beverage, FANG +, Clean Energy: Wind, Streaming Services).

#### How To Export Model Portfolio Classification Data

The Model Portfolio **Classification Charts,** as well as the data underpinning them, can be exported to a variety of file formats by clicking the three parallel lines in the top right corner of each chart.

The chart can be viewed in full screen, printed, or exported to a .png, .jpeg, .pdf, or .svg file; while the data underpinning the bar chart can be exported to a .csv or .xls file.

#### Model Portfolio Research Frame: Risk Stats

Landscape O Research O Com	npare 🧿 Security Lo	ookup O Ma	odel Tracker 오										Refresh
Top 10 Genomics Stocks										Сору	New Model	Portfolio \	/isualizer
Benchmark: SPY SPDR S&P 500 ETF	Trust							Total Weigh 100%		Weight 0%	Stocks Weight 10 100%	Exp. Ratic 0.00%	Vield 0.00%
Overview Performance Classification	Risk Stats Equity Compo	sition Equity Hol	ldings ETF Overl	op (Equity)									Filter #
												Time Period: 3	Year 🗸
Name	0 Ticker 0	Weight \$	Annualized (	Std Dev 🌖	Correlation 👌	Sharpe Ratio ≬	Tracking Error	Information Ratio Bet	¢ ¢	Alpha (Ann.)	Op Capture Aratio	Down Capture Ratio	R2 (
Benchmark													
SPDR S&P 500 ETF Trust	SPY		14.00%	18.33%	1.00	0.72	0.00%	0.00 1.0		0.00%	100.00%	100.00%	100.00%
Single Stock		100.00%	68.95%	51.55%	0.68	1.04	41.37%	1.33 1.9		37.69%	675.84%	137.51%	47.50%
Intellia Therapeutics, Inc.	NTLA-US	11.11%	32.31%	73.17%	0.51	0.39	65.77%	0.28 2.0		22.76%	462.47%	168.17%	27.37%
Invitoe Corp.	NVTA-US	11.11%	82.61%	89.61%	0.45	0.69	83.02%	0.83 2.1		63.95%	993.44%	148.58%	21.85%
Sarepta Therapeutics, Inc.	SRPT-US	11.11%	11.52%	68.29%	0.43	0.16	62.61%	-0.04 1.6		11.25%	420.07%	190.43%	19.90%
NanoString Technologies, Inc.	NSTG-US	11.11%	121.64%	66.26%	0.52	1.24	58.90%	1.83 1.8		74.73%	1059.51%	91.62%	28.74%
Pacific Biosciences of California, Inc.	PACB-US	11.11%	134.19%	87.70%	0.26	1.01	84.79%	1.42 1.2	5	99.35%	806.92%	18.25%	8.97%
Editas Medicine, Inc.	EDIT-US	11.11%	6.18%	93.35%	0.37	0.06	88.23%	-0.09 1.8	8	8.33%	275.43%	180.76%	15.19%
CRISPR Therapeutics AG	CRSP-US	11.11%	37.40%	69.51%	0.59	0.46	60.53%	0.39 2.2		21.48%	458.80%	160.02%	36.18%
Cellectis SA Sponsored ADR	CLLS-US	11.11%	-11.69%	66.78%	0.71	-0.19	55.40%	-0.46 2.5		-30.14%	136.00%	181.80%	49.08%
Fate Therapeutics, Inc.	FATE-US	11.11%	99.73%	64.56%	0.44	1.10	58.93%	1.45 1.5	1	67.48%	703.15%	81.44%	21.08%
*Twist Bioscience Corp.	TWST-US	0.00%											

The **Risk Stats Frame** collects a variety of relevant risk statistics for the ETFs in the selected model portfolio into one **Risk Stats Table**.

**By default, the Risk Stats Table is populated with data for the past three years.** To change the time frame, click on the *Time Period* drop down menu in the upper right corner of the table, and select 1 Year, 3 Year, 5 Year, or 10 Year.

Risk data is calculated using monthly returns, with weights rebalanced back to target weights monthly. When a security does not have sufficient history to be included, it is removed entirely and its weight re-distributed across the remaining holdings proportionately.

#### Understanding The Risk Stats Table

Data in the **Risk Stats Table** is broken into several asset class related categories, separated by colored bars. At the top of the table is an orange bar, indicating data for the selected ETF benchmark (See: "<u>How To Change The Benchmark</u> <u>In The Model Tracker</u>.") A blue bar indicates data for all equity ETFs in the portfolio; grey indicates fixed income; and teal indicates single stocks.

Data entries recorded in each of these colored bars indicates average values across all the ETFs in that asset class.

For each security in the model portfolio, the Risk Stats Table records 14 data fields, including:

- Name: The full name of the ETF or stock
- *Ticker:* The ticker under which the security trades
- Weight: The amount of weight in the portfolio that the security possesses.
- Annualized Return: The annualized return over the selected Time Frame.
- *Std Dev:* The standard deviation of those returns from the benchmark, over the selected Time Frame.
- Correlation: The security's correlation to the benchmark, over the selected Time Frame.
- *Sharpe Ratio:* The security's Sharpe ratio, over the selected Time Frame.

- Tracking Error: The security's tracking error to the selected benchmark, over the selected Time Frame.
- *Information Ratio:* The security's information ratio, compared to the selected benchmark, over the selected Time Frame.
- Beta: The security's beta, compared to the selected benchmark, over the selected Time Frame.
- *Alpha (Ann.):* The security's annualized alpha, compared to the selected benchmark, over the selected Time Frame.
- *Up Capture Ratio:* The security's up capture ratio, compared to the selected benchmark, over the selected Time Frame.
- *Down Capture Ratio:* The security's down capture ratio, compared to the selected benchmark, over the selected Time Frame.
- *R2:* The security's R<sup>2</sup> value, compared to the selected benchmark, over the selected Time Frame.

It is not possible to export the data in the Risk Stats Table at this time.



#### Model Portfolio Research Frame: Equity Composition

The **Equity Composition Frame** allows the user to make comparisons much like those available in the **ETF Terminal**: **Composition Research Frame**, except against the selected benchmark. (See: "<u>How To Change The Benchmark In The</u> <u>Model Tracker</u>".)

There are four **Breakdown Bar Charts**, comparing the securities in the selected model portfolio against values for the chosen benchmark, indicated on each graph with an orange triangle. The four Breakdown Bar Charts are as follows:

- *Market Breakdown:* Illustrates ETFs in the portfolio according to their economic development exposure.
- Region Breakdown: Illustrates ETFs in the portfolio according to their regional exposure.
- Sector Breakdown: Illustrates ETFs in the portfolio according to their GICS sector exposure.
- *Size Breakdown:* Illustrates ETFs in the portfolio according to their average market capitalization.

**By default, there is no grouping applied to the data visualized in the Breakdown Bar Charts.** To apply a grouping, select from the *Group by* drop down menu in the upper left corner a new grouping category, including None, Security, Market, Country, Sector, and Size. This will automatically map the groupings onto the existing charts; to see which ETFs fall into which grouping, hover over the bars:



#### How To Export Model Portfolio Equity Composition Data

The Model Portfolio **Breakdown Bar Charts,** as well as the data underpinning them, can be exported to a variety of file formats by clicking the three parallel lines in the top right corner of each chart.

The chart can be viewed in full screen, printed, or exported to a .png, .jpeg, .pdf, or .svg file; while the data underpinning the bar chart can be exported to a .csv or .xls file.

#### Model Portfolio Research Frame: Equity Holdings

Dummy ESG E	TF Model								Сору	New Model	Portfolio V	isualizer
Benchmark: SP	Y SPDR S&P 500 ETF Trust						Total V 100%	Veight ETFs 6	Weight 100%	Stocks Weigh 1 0%	nt Exp. Ratio 0.38%	Yield 1.31%
Overview Per	formance Classification Risk St	ats Equity Composition E	Equity Holdings	ETF Overlap	Equity)							Filter
uity Holdings Expor	t											
now 100 v entries Ticker		Name		Region 0	Country 0	Sector 0	industry 0	Mkt Cap (\$MM)	●	Se Model Weight V	Bench Weight	+/- 0
COF-US	Capital One Financial Corporation			North America	United States	Financials	Consumer Finance	\$59,099	9 1	0.94%	0.18%	0.76%
LB-US	L Brands, Inc.			North America	United States	Consumer Discretionary	Specialty Retail	\$15,36	3 1	0.92%	0.04%	0.88%
LLY-US	Eli Lilly and Company			North America	United States	Health Care	Pharmaceuticals	\$198,42	3 1	0.91%	0.51%	0.40%
TWTR-US	Twitter, Inc.			North America	United States	Communication Services	Interactive Media & Services	\$50,663	7 1	0.91%	0.16%	0.75%
AMAT-US	Applied Materials, Inc.			North America	United States	Information Technology	Semiconductors & Semiconductor Equipment	\$96,97	3 1	0.86%	0.30%	0.57%
CZR-US	Caesars Entertainment Inc			North America	United States	Consumer Discretionary	Hotels Restaurants & Leisure	\$19,80	1 1	0.86%	0.00%	0.86%
HPQ-US	HP Inc.			North America	United States	Information Technology	Technology Hardware Storage & Peripherals	\$37,598	3 1	0.85%	0.13%	0.73%
SCHW-US	Charles Schwab Corporation			North America	United States	Financials	Capital Markets	\$115,84	3 1	0.85%	0.30%	0.55%
MGM-US	MGM Resorts International			North America	United States	Consumer Discretionary	Hotels Restaurants & Leisure	\$18,73	) 1	0.83%	0.05%	0.78%
PNC-US	PNC Financial Services Group, Inc.			North America	United States	Financials	Banks	\$75,82	3 1	0.82%	0.23%	0.58%
SNAP-US	Snap, Inc. Class A			North America	United States	Communication Services	Interactive Media & Services	\$79,77	1 1	0.81%	0.00%	0.81%

The **Equity Holdings Frame** provides an **Equity Holdings Data Table** that lists all the securities held by all the ETFs in the selected model portfolio, as well any single stocks within the selected model portfolio, as well as certain information about them, including classification data, prevalence in the portfolio, price changes and more.

Each stock entry in the Equity Holdings Data Table provides several data fields, including:

- *Ticker:* Security ticker, including listing exchange code.
- Name: Security name, including whether the security is an ADR
- Region: Region of domicile for the security
- *Country:* Country of domicile for the security
- Sector: GICS sector classification for the security
- Industry: GICS industry classification for the security
- Mkt Cap (\$MM): Market capitalization of the security
- *# Funds:* Number of ETFs in the set in which the security appears
- *Model Weight:* Total security weight in the ETFs in the model, divided by the **total number** of ETFs in the set (not just the ETFs in which the security appears)
- Bench Weight: Total security weight in the selected ETF benchmark
- +/-: Difference between the weight of the security in the model portfolio and the weight of the security in the selected ETF benchmark.

**By default, 100 securities are shown in the Equity Holdings Data Table.** To change the number of securities displayed, click on the *Show Entries* drop down menu to select 10, 25, 50, 100, or All.

#### Expanding Entries In The Equity Holdings Data Table

Each security listed in the **Equity Holdings Data Table** has a **green** plus sign "+" next to its ticker. Clicking that button expands the row, so that you can see in which ETFs the security appears, including the weight it is given and total market value held.

To close the expanded row, click the green plus sign "+" again.

#### Searching the Equity Holdings Data Table

By default, all securities listed in all ETFs in the model portfolio are displayed in the **Equity Holdings Data Table**. To search for a particular security's entry, or for a particular known data point, type a search field into the **Search Bar** at the top right corner of the Equity Holdings Data table.

#### Exporting the Equity Holdings Data Table

The Equity Holdings Data Table may be exported to a .csv file by clicking on the green "Export" button in the upper left corner of the Equity Holdings Data Table. A download window will pop up, indicating your data is ready to open or save.

#### Model Portfolio Research Frame: ETF Overlap (Equity)

Landscape	e O Research O Compare O Security Look	up 💿 Model Tracker 💿						Refresh
Dummy E	SG ETF Model				Сору	New Mode	Portfolio V	/isualizer
lenchmark:	SPY SPDR S&P 500 ETF Trust				ETFs Weight 6 100%	Stocks W 1 09		Yield 1.31%
Overview	Performance Classification Risk Stats Equity Compositio	n Equity Holdings ETF Overlap (Equity)						Filter #
Top ETF Overlap	ps							
Ticker	Fund Name	Classification	0 Inception 0	Exp. Ratio 💧	Common Nam		Search: Overlap Weight	•
CHGX	Change Finance U.S. Large Cap Fossil Fuel Free ETF	Equity : U.S. : Size & Style : Broad Market	2017-10-10	0.49%	100		67.02%	^
LOWC	SPDR MSCI ACWI Low Carbon Target ETF	Equity : Global : Size & Style : Broad Market	2014-11-25	0.20%	376		29.18%	
URTH	iShares MSCI World ETF	Equity : Global : Size & Style : Broad Market	2012-01-10	0.24%	336		28.99%	
CRBN	iShares MSCI ACWI Low Carbon Target ETF	Equity : Global : Size & Style : Broad Market	2014-12-09	0.20%	346		28.88%	
ток	iShares MSCI Kokusai ETF	Equity : Dev Ex-U.S. : Size & Style : Broad Market	2007-12-10	0.25%	334		28.68%	
KOKU	Xtrackers MSCI Kokusai Equity ETF	Equity : Global : Size & Style : Broad Market	2020-04-08	0.09%	333		28.41%	
CLRG	IQ Chaikin U.S. Large Cap ETF	Equity : U.S. : Size & Style : Broad Market	2017-12-13	0.25%	43		28.30%	
ACWI	iShares MSCI ACWI ETF	Equity : Global : Size & Style : Broad Market	2008-03-26	0.32%	473		27.90%	
BKLC	BNY Mellon US Large Cap Core Equity ETF	Equity : U.S. : Size & Style : Broad Market	2020-04-09	0.00%	71		27.84%	
JCTR	JPMorgan Carbon Transition U.S. Equity ETF	Equity : U.S. : Size & Style : Broad Market	2020-12-09	0.15%	66		27.50%	
SFY	SoFi Select 500 ETF	Equity : U.S. : Size & Style : Broad Market	2019-04-11	0.00%	92		27.30%	
ESGU	IShares ESG Aware MSCI USA ETF	Equity : U.S. : Size & Style : Broad Market	2016-12-01	0.15%	83		27.29%	
QWLD	SPDR MSCI World StrategicFactors ETF	Equity : Global : Size & Style : Broad Market	2014-05-04	0.30%	331		27.10%	
IWL	iShares Russell Top 200 ETF	Equity : U.S. : Size & Style : Broad Market	2009-09-22	0.15%	66		27.06%	
SPGM	SPDR Portfolio MSCI Global Stock Market ETF	Equity : Global : Size & Style : Broad Market	2012-02-27	0.09%	215		27.04%	
MGC	Vanguard Mega Cap ETF	Equity : U.S. : Size & Style : Broad Market	2007-12-24	0.07%	72		26.96%	

The **ETF Overlap (Equity) Frame** provides a list, in descending order, of the top 20 existing ETFs ("comp ETFs") whose holdings most closely match the holdings and weights of the selected model portfolio. This information is collected in the **ETF Overlap (Equity) Data Table**, which includes the following fields:

- *Ticker:* The comp ETF's ticker, including listing exchange code.
- Fund Name: The comp ETF's full fund name, including whether the security is an ADR
- Classification: The comp ETF's classification within the ETF Action Classification System
- Inception: The date on which the comp ETF first began trading.
- *Exp. Ratio:* The annual expense ratio for the comp ETF.

- *Common Names:* How many names are held in common between the comp ETF and the selected model portfolio.
- *Overlap Weight:* The overlapping portfolio weight of the names held in common between the comp ETF and the selected model portfolio.

The data in the ETF Overlap (Equity) Data Table is not exportable at this time.

#### Searching the ETF Overlap (Equity) Data Table

To search for a particular comp ETF, or for a particular known data point, type a search field into the **Search Bar** at the top right corner of the ETF Overlap (Equity) Data Table.

## Portfolio Visualizer

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			ACN-US C	DRCL-US NOW-	US AMD-US	INTU-US	ABEV-US 18.97%	CILD-US VI	11.3 BAX- E H	0.	NKE-US 40.38X	-8	The Land	DIS-US 33.61%	T-85 -17.05X	TWT	GS-US 35.12X -6.52X	FIT	
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		QCOM-US 65.61%	38.6.7	NPS MCH CTS 8.7_51.1_13.	CD. APH	HP_ XI_ 21_ 56.	MMM2	1.02% 14.6	US NSC-US FDX- 0X 23.12X 65.8	X 8.22% 24.8	18.8 -18.	PM-US	MO-US MDLZ-U	S CL-US EL-US KM.	-10	91_17_ D_A_B_	SLE_PSX_MP	1.69% 28.2	34_4
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The **Portfolio Visualizer** enables deep, look-through research and analysis into individual ETFs and stocks. It comprises two main Tools:

1. The **Summary Stats** Tool (also known as the **Stock Visualizer)** collects and visualizes equity-level data on the holdings within a given ETF, including exposures, performance, technical indicators, growth estimates, and key equity ratios.

## <u>NOTE: When Portfolio Visualizer is selected from the left sidebar of the ETF Action platform, the Summary</u> <u>Stats Tool loads by default.</u>

2. The **Single Stock** Tools: Similar to the Research Lens in the **ETF Terminal**, the **Single Stock** Tool enables research into dozens of data points and metrics, including price info, classification information, historical returns, technical indicators, distribution history, fundamental ratios, ETF ownership, and recent headlines.

These two Toolsets are described individually in the sections to follow.

## Summary Stats (Stock Visualizer) Tool



The **Summary Stats (A)** Tool (also known as the **Stock Visualizer)** collects and visualizes equity-level data on the holdings within a given ETF, including exposures, performance, technical indicators, growth estimates, and key equity ratios.

After an ETF is selected, summary information about it will appear at the top of the Summary Stats Tool in the **Portfolio Visualizer Summary Statistics Bar (B)**, which lists several data points about the ETF, including:

- # Stocks: Total number of stocks in the ETF (or model)
- *Total Weight:* Total amount of portfolio weight for which the stocks account.
- *Agg. Market Cap (\$MM):* The sum total of all the market capitalizations of all the stocks within the portfolio, in millions of dollars.
- *Wt. Avg Market Cap (\$MM):* The weighted average market capitalization of all the stocks within the portfolio, in millions of dollars.
- *Min. Market Cap (\$MM):* The smallest market capitalization in the ETF's portfolio, in millions of dollars.
- Max Market Cap (\$MM): The largest market capitalization in the ETF's portfolio, in millions of dollars.

Much like other toolsets on the ETF Action Platform, the Summary Stats Tool also consists of two modules, which are described in more detail in the following sections:

- 1. The **Dynamic Portfolio Charting (C)** module that displays selected data graphically via heatmaps, histograms, or scatter plots of data, which can then be exported to various file formats (See: "Dynamic Portfolio Charting Module")
- 2. The **Company Navigator Table** module, which displays equity-level data in a table format. (See: "Company Navigator Table")

#### How To Use The Summary Stats Tool

To use the Summary Stats Tool, enter a ticker into the orange Ticker Box at the top of the screen. The Dynamic Portfolio Charting module and Company Navigator Table will automatically populate with data about the specified ETF.

#### Dynamic Portfolio Charting Module

The **Dynamic Portfolio Charting** module provides visualization of various key metrics about a given ETF. There are several interactive elements in the module allowing customization of the data:

- *Chart Type:* Dropdown menu that allows you to select the type of visualization depicted, from **Heatmap**, **Histogram**, or **Scatter Plot**.
- *Group By (Heatmap and Scatter Plot Only):* Dropdown menu that allows you to determine how securities are grouped within the heatmap, including by **Sector, Industry, Region,** or **Country.**
- Data Point: Dropdown menu of 38 different metrics to visualize, including weight, market cap, historical performance (over several time frames), technical indicators, fundamental growth estimates, and various key equity ratios.
- *X-Axis and Y-Axis (Scatter Plot Only):* Assigns Data Points (see above) for each axis of the scatter plot visualization.

# Note (D): For faster loading times, the Heatmap is limited to 1,000 securities. However, all companies are listed in the Company Navigator Table (see: "<u>Company Navigator Table</u>" below).

The visualization in the Dynamic Portfolio Charting module can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the visualization in the Dynamic Portfolio Charting module can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

#### How To Drill Deeper Into Stocks Depicted On The Heatmap

Clicking on an individual stock's square on the heatmap depicted in the **Dynamic Portfolio Charting** module will call up that stock's entry in the **Single Stock.** (See "<u>Single Stock Tool</u>" for more information.)

To return to the heatmap, click the red circle with the minus sign next to "Single Stock" at the top of the screen.

#### Company Navigator Table

The **Company Navigator Table (E)** provides statistics on the ETFs' stocks in a table format. Like other **Navigator Tables** in the ETF Action Platform, the **Company Navigator Table** is searchable and customizable through the use of Filters.

The Company Navigator Table can be set according to the broad headings that appear in the *Data Point* drop down menu in the **Dynamic Portfolio Charting** module above. By default, the table is set to "Overview." This can be changed by selecting a category from the drop down menu in the top left corner of the table.

Available categories include:

- 1) <u>Overview:</u> Provides data on each stock's portfolio weight, market capitalization, region and country of domicile, and GICS classification (sector and industry).
- 2) *Performance:* Provides performance data for each stock on time frames ranging from one day to 10 years.
- 3) <u>Technicals</u>: Provides technical indicators for each stock, including % away from 52-week high/low; % above/below the 50-day and 200-day moving averages, and 14-day RSI.
- 4) <u>Growth Estimates:</u> Growth estimates for fundamentals for each stock, including earnings, sales, cash flow, book value, and dividends.
- 5) <u>Key Ratios:</u> Displays 12 key equity ratios for each stock, including: Yield, Gross Margin, Net Margin, ROE, ROA, P/E, P/S, P/CF, P/BK, Interest Coverage, D/E, and Payout Ratio.

#### How To Drill Deeper Into Stocks Listed in the Company Navigator Table

Clicking on an individual stock's fund name in the **Company Navigator Table** will call up that stock's entry in the **Single Stock.** (See "<u>Single Stock Tool</u>" for more information.)

To return to the Company Navigator Table, click the red circle with the minus sign next to "Single Stock" at the top of the screen.

#### Organizing Entries In The Company Navigator Table

**By default, the Company Navigator Table is set to display 100 entries.** To change this, select 10, 25, 50, 100, or All from the *Show Entries* drop down menu at the top left corner of the table.

To search for a specific keyword, such as an investment theme or brand name, type a keyword into the **Search Bar** (as indicated above), then click Enter. Search results will automatically populate in the **Company Navigator Table**.

To organize the **Company Navigator Table** in ascending or descending order, click the small up and down arrows at next to the heading of each column.

#### Using Filters On The Company Navigator Table

The powerful ETF Action filters can be used to narrow down the Company Navigator Table as well. Filters can be set by clicking the grey **Filter button**, located above each column in the **Company Navigator Table**. This will open a Filter menu, where you can then select checkboxes to specify classification categories or set a specific numerical range for the data, as appropriate. Click the Filter button again to close and apply the specified settings.

Results will automatically populate in the **Company Navigator Table**, as Filters are applied. <u>They will also change the</u> <u>visualization depicted in the Dynamic Portfolio Charting module</u>.

To reset filters, click the grey Reset Filters button at the top of the table under the "Name" heading.

Filter categories include:

- Overview
  - Weight: Set a minimum and/or maximum range for weight in the ETF portfolio.
  - *Market Cap (\$MM):* Set a minimum and/or maximum range for market capitalization
  - *Region:* Specify a region of domicile for stocks.
  - *Country:* Specify a country of domicile for stocks.
  - Sector: Specify a GICS sector classification.
  - Industry: Select a GICS industry classification.
- Performance
  - 1 Day: Set a minimum and/or maximum range for one day performance.
  - Week to Date: Set a minimum and/or maximum range for week-to-date performance.
  - 1 Month: Set a minimum and/or maximum range for one month performance.
  - 3 Day: Set a minimum and/or maximum range for three-month performance.
  - *YTD:* Set a minimum and/or maximum range for YTD performance.
  - 1 Year: Set a minimum and/or maximum range for one year performance.
  - *3-Year Ann.*: Set a minimum and/or maximum range for three-year (annualized) performance.
  - 5-Year Ann.: Set a minimum and/or maximum range for five-year (annualized) performance.
  - 10-Year Ann.: Set a minimum and/or maximum range for ten-year (annualized) performance.
- Technicals
  - *% from 52W High:* Set a minimum and/or maximum range for the stock's percentage away from the previous 52-week high.
  - % from 52W Low: : Set a minimum and/or maximum range for the stock's percentage away from the previous 52-week low
  - % Abv/Below 50 SMA: Set a minimum and/or maximum range for the stock's percentage above or below its 50-day simple moving average.
  - *% Abv/Below 200 SMA:* Set a minimum and/or maximum range for the stock's percentage above or below its 200-day simple moving average.
  - RSI (14-Day): Set a minimum and/or maximum range for the stock's 14-day RSI.
- Growth Estimates
  - 2020E EPS: Set a minimum and/or maximum range for the stock's estimated 2020 earnings per share.
  - 2021E EPS: Set a minimum and/or maximum range for the stock's estimated 2021 earnings per share.
  - o 2020E SPS: Set a minimum and/or maximum range for the stock's estimated 2020 sales per share.
  - o 2021E SPS: Set a minimum and/or maximum range for the stock's estimated 2021 sales per share.
  - 2020E CFPS: Set a minimum and/or maximum range for the stock's estimated 2020 cash flow per share.
  - 2021E CFPS: Set a minimum and/or maximum range for the stock's estimated 2021 cash flow per share.

- 2020E BVPS: Set a minimum and/or maximum range for the stock's estimated 2020 book value per share.
- 2021E BVPS: Set a minimum and/or maximum range for the stock's estimated 2021 book value per share.
- 2020E DPS: Set a minimum and/or maximum range for the stock's estimated 2020 dividend per share.
- 2021E DPS: Set a minimum and/or maximum range for the stock's estimated 2021 dividend per share.
- Key Ratios
  - Yield: Set a minimum and/or maximum range for the stock's yield.
  - Gross Margin: Set a minimum and/or maximum range for the stock's gross margin.
  - Net Margin: Set a minimum and/or maximum range for the stock's net margin.
  - ROE: Set a minimum and/or maximum range for the stock's return on equity (ROE).
  - ROA: Set a minimum and/or maximum range for the stock's return on assets (ROA).
  - *P/E:* Set a minimum and/or maximum range for the stock's P/E ratio.
  - *P/S*: Set a minimum and/or maximum range for the stock's P/S ratio.
  - *P/CF:* Set a minimum and/or maximum range for the stock's P/CF ratio.
  - *P/BK:* Set a minimum and/or maximum range for the stock's P/BK ratio.
  - Interest Coverage: Set a minimum and/or maximum range for the stock's interest coverage.
  - D/E: Set a minimum and/or maximum range for the stock's D/E ratio.
  - Payout Ratio: Set a minimum and/or maximum range for the stock's payout ratio.

#### Loading Individual ETFs And Models In The Portfolio Visualizer Tool

It is also possible to visualize individual ETFs (see: "<u>Research Lens</u>") and model portfolios (see: "<u>Model Tracker</u>") in the **Portfolio Visualizer Summary Stats Tool.** 

## Loading ETFs/Models From The Research Lens

To visualize individual ETFs in the Portfolio Visualizer tool, first call up an ETF's individual page in the **ETF Terminal: Research Lens.** This can be done in a variety of ways:

- Typing a ticker into the orange Ticker Box at the top of the page in the ETF Terminal: Research Lens
- Clicking on an ETF from the Navigator Table in the ETF Terminal: Research Lens
- Clicking on an ETF's ticker/box in the Landscape Heatmap

Once the ETF's individual page has been accessed, click on the orange text that reads "Portfolio Visualizer >>" in the upper right corner of the page, under "Portfolio Look-Through":

<b>ETF</b>	Admin Platform Research Model Portfolios Webinars My Account
Dashboard <ul> <li>ETF Terminal</li> </ul>	Landscape 💿 Research 💿 Compare 💿 Security Lookup 💿 Model Tracker 💿 Refresh
Portfolio Visualizer	SPY : SPDR S&P 500 ETF Trust Portfolio Look-Through
Earnings Scorecard	SPY : SPDR S&P 500 ETF Trust
Ownership Screener	Price Change Volume ADV Earnings Scorecard »
ETF Overlap Analyzer	\$426.74 0.03% 27,272,183 59,378,655 Last Update:2:32:33 PM. Provided by IEX Group, Inc.
ETF Data Explorer	Overview Performance & Flows Risk Stats Distributions Composition Top Holdings Fundamentals Technical Analysis
User Guide 🛓	ETF Comps News

This will load the selected ETF into the **Summary Stats Tool**, automatically populating the **Dynamic Portfolio Charting Module** and **Company Navigator Table** with the ETF's portfolio data.

To return to the Research Lens, click on **ETF Terminal** in the left-hand sidebar.

#### Loading ETFs/Models From the Model Tracker

To visualize model portfolios in the Portfolio Visualizer tool, first load the desired model in the **Model Tracker**; this can be one of the pre-built AIM Portfolios or **ETF All-Stars® Thematic Select Lists**, or a Saved Model of the user's choice.

Then click the **"Portfolio Visualizer"** button in the top right corner of the screen:

Dashboard	Landscape O	Research O	Compare O	Security Look		Model Tra	cker 🔍		_	
✓ ETF Terminal			company @							Refresh
> ETF Action AIM Portfolios	Digital Payment	s Select Ton	10			Come	News		Portfolio V	
✓ ETF All-Stars Thematic Select Lists	Digital i dyment	s select rop	10			Сору	New M	lodel	Portfolio V	isualizer
✓ FinTech	Benchmark: IPAY	ETFMG Prime	Mobile	Total	ETFs	Weight	Stocks	Weight	Exp.	Yield
Digital Payments Select Top 10 »	Payments ETF			Weight 100%	0	0%	10	100%	Ratio 0.00%	0.34%
Blockchain Select Top 10 »										
Broad FinTech Select Top 25 »	Overview Perform	nance Classifico	ation Risk Stats	Equity Composition	equity	/ Holdings	ETF Overla	p (Equity)		Filter \downarrow
> Health Innovation										
<ul> <li>Sustainability</li> </ul>	Add: ETF 🗸	Ticker								
<ul> <li>Evolving Consumer</li> </ul>							_			
<ul> <li>Disruptive Tech</li> </ul>	Name	Ticker 🔶	Classificati	on 🔶	Last 🔶	% Change	Exp Ratio	Yield	Target	\$ \$
Industrial Revolution	Claude Charle						0.00%	0.34%	100.00%	
	Single Stock						0.0070			
Equity Screens		10/0/110								
<ul> <li>Equity Screens</li> <li>Fixed Income Screens</li> </ul>	Adyen N.V. Unsponsored ADR	ADYEY-US	Netherlands: IT Services	:	-	-	0.00%	0.00%	10.00%	Remove
Fixed Income Screens		ADYEY-US GPN-US	Netherlands: IT Services United States: IT Service		- \$190.10	-1.11%				Remove
	Adyen N.V. Unsponsored ADR Global Payments Inc.	GPN-US	United States: IT Service				0.00%	0.00%	10.00% 10.00%	Remove
<ul> <li>Fixed Income Screens</li> <li>Commodity Screens</li> </ul>	Adyen N.V. Unsponsored ADR				- \$190.10 \$8.63	- -1.11% 3.04%	0.00%	0.00%	10.00%	

This will load the selected model into the **Summary Stats Tool**, automatically populating the **Dynamic Portfolio Charting Module** and **Company Navigator Table** with the model portfolio's data.

To return to the Model Tracker, click on **ETF Terminal** in the lefthand sidebar; then once the ETF Terminal loads, click "Model Tracker" at the top of the screen.

#### Loading Equities From The Ownership Screener In The Summary Stats Tool

It is also possible to visualize equity results from the **Ownership Screener** in the **Summary Stats Tool.** (See: "Launching the Stock Ownership Table In the Stock Visualizer.")

To do so while in the **Ownership Screener**, click the green **"Launch Stock Visualizer"** button on the right corner of the Stock Ownership module. Doing so will launch the Stock Ownership Table entries as a market-cap weight portfolio (display is limited to 500 stocks or fewer).

To return to the Ownership Screener from the Stock Visualizer, simply click "Ownership Screener" on the grey (static) sidebar of the left side ETF Action platform.

## Single Stock Tool

> ETF Terminal Stock Visualizer	Summary Stats	» Single S	Stock »	
Ownership Screener ETF Overlap Analyzer	AAPL-US : Apple	Inc. 🥫		
Data Explorer	Price Change \$437.35 -3.01% Lost Update August 11, 2020.	46,738,152 3		
	G Overview Perfo	rmance Tect	inicals Distributions Fundamentals	ETF Ownership []
	computers, tablets, weara operates through the follo japan, and Rest of Asia Po The Europe segment cons Africa. The Greater China of Asia Pacific segment in include iPhone, Mac, iPad, iCloud, digital content stor	bles and accessori wing geographical acific. The America ists of European co segment comprise cludes Australia ar AirPods, Apple TV es, streaming, and bs, Ronald Gerald	re, and sole of smartphanes, personal es, and other variety of related services. It segments: Americas, Europe, Greater China, segments: Andreise Horth and South America and Samerica (Tables Horth and South America and China, Hong Kong, and Taiwan, The Rest Alamo cuntres: Its products and services (Apple Watch, Beats products, Apple Care, Ilcensing services: The company was Wayne, and Stephen G. Wazniak on April 1.	Price (AAPL-US)
	Region: North America		Country: United States	and a start of the
	Sector: Information Technology		Industry: Technology Hardware Storage & Peripherals	and and a second s
	Website: Link =	# Employees: 137,000	IPO: 12.12.1900	
	Market Cap (\$MM): \$1,927,920.00	YTD: 54.61%	TTM Yeld 0.6996	Victor         Junitis         Junitis <thjunitis< th=""> <thjunitis< th=""> <thjuni< td=""></thjuni<></thjunitis<></thjunitis<>
	Overview			*Add filters to dynamically update the above charts

The **Single Stock Tool** provides detailed data and dynamic charts for individual U.S. and international equities, including summary information, historical performance and price, technical indicators, distribution history, fundamental metrics, ETF ownership, and relevant news headlines. It consists of two main modules:

- 1) The Company Summary Bar (F), which lists several key facts about the company, and
- Single Stock: Research Frames (G), which are structured much like the ETF Research Frames in the ETF Terminal (See: "ETF Terminal: Research Frames").

#### How To Use The Single Stock Tool

To use the **Single Stock Tool**, enter a ticker in the orange **Ticker Entry Box** at the top of the screen. The Single Stock Tool will dynamically update with several results.

GME-US	: GameS	top Corp. Clas	s A	
	hange <b>19.11%</b> 10 AM. Provide	Volume 8,322,309 d by IEX Group, Inc.	ADV 41,183,988	

**The Company Summary Bar,** which lists several key facts about the company, including: the full name of the stock; its most recent price; daily price change (in %); daily trading volume (in shares traded); and 3-Day average trading volume (in shares traded).

Trading information in the Company Summary Bar, which is provided by IEX Group, is updated throughout the trading day on a 15-minute delay.

Overview Performance Technicals	Distributions Fundamentals ETF Owners	hip News
Description: GameStop Corp. engages in the retail of multich wireless services. It operates through the follow and Europe. The United States segment includes websites www.gamestop.com and www.thinkg Konaregate. The Canada segment comprises of	ng segments: United States, Canada, Australia, the retail operations and electronic commerce eek.com, Game Informer magazine, and	Price (GME-US) =
Kongregate. In the Canada segment comprises or segment refers to the retail and e-commerce ope Europe segment pertains to the retail and e-com company was founded by Daniel A. DeMatteo in TX.	rations in Australia and New Zealand. The merce operations in the European countries. The	500
Region: North America	Country: United States	300
Sector: Consumer Discretionary	Industry: Specialty Retail	
Website: # Employees: Link > 14,000	IPO: 2.13.2002	
\$12,676.50 864.70%	0.00%	Apr 18         Jul 18         Oct 18         Jan 19         Apr 19         Jul 19         Oct 19         Jan 20         Apr 20         Jul 20         Oct 20         Jan 21           2004         2005         2006         2012         2014         2016         2018         2020         wither

In addition, seven **Single Stock Research Frames** will update. These frames are each discussed in more detail in the following sections. The selected Single Stock Research Frame will be highlighted in light blue.

These frames are:

- 1) <u>Overview</u>: Provides overview information about the stock, including company description & facts; domicile and classification info; website link; and dynamic, exportable historical daily price and volume charts.
- 2) <u>Performance:</u> Provides a dynamic, exportable chart of historical return
- 3) <u>Technicals</u>: Provides dynamic, exportable charts of 50-day and 200-day moving averages, Bollinger bands, and RSI.

- 4) <u>Distributions</u>: Provides dynamic, exportable charts of historical yield and year-over-year distribution growth, as well as a table of distribution amounts and ex-dates.
- 5) *Fundamentals:* Provides dynamic, exportable charts of several key equity ratios, including earnings, sales, cash flow, book value and dividends.
- 6) <u>ETF Ownership</u>: Provides a searchable table of the ETFs that own the stock, and in what amounts, ranked by portfolio weight.
- 7) <u>News:</u> Provides recent news headlines about the security from trusted news sources worldwide.

#### Single Stock Research Frame: Overview

A \_\_\_\_

	4	ACTIO	N	Admin Platform Research Model Portfolios Webinars My Account
Dashboard > ETF Terminal	Summary Stats O	Single Stock	•	
Portfolio Visualizer Earnings Scorecard	AAPL-US : Apple In			
Ownership Screener ETF Overlap Analyzer	Price Change V \$129.73 0.01% 6 Last Update: 20209 PM. Provided		DV 00,617,218	
ETF Data Explorer	Overview Performa		Distributions Fundamentals ETF-Ownersh	hiji Neva
	tablets, wearables and acce following geographical segm Pacific. The Americas segm of European countries, as we comprises of Chino, Hong Ko and Asian countries. Its prod Apple Watch, Beats product	sories, and other va ents: Americas, Euro nt includes North an ill as India, the Middl ng, and Taiwan. The ucts and services in s, Apple Care, iClouc jounded by Steven P	nd sole of immorphones, personal computers, intry of instand services. It operates through the go Capital Chair, japon, and Reid Akaa the services of the service of the service of the service fract of Akaa Prodit: segment in duck a Audio fract of Akaa Prodit: segment in duck a Audio duck to chair stress, stressing, and Reisning out jobs. Reinded Geneda Wayne, and Shephen G. marks County - Lourden Storage A Persphered 11.12.1980 The Instant 0.6.296	

#### The **Overview Research Frame** provides a wealth of company data, including:

- *Description:* Brief description of the company, including its main products or services, regions of operation, founders, start date, and headquarters location.
- *Region:* Region in which the company is headquartered.
- *Country:* Country in which the company is listed.
- Sector: GICS sector under which the company is classified.
- Industry: GICS industry under which the company is classified.
- Website: Link to the company's website. Clicking it will open a new browser.
- # of Employees: Current number of employees worldwide.
- *IPO:* Date of the company's IPO.
- Market Cap (\$MM): The company's current market capitalization
- YTD: The company's year-to-date performance
- TTM Yield: The company's trailing twelve-month yield

The Overview Frame also provides a dynamic, exportable chart of the company's historical price and volume. Price is depicted as line graph, while volume is displayed as a bar chart underneath.

By default, the time frame of the Price Chart is three years (3y), with each data point equal to one week's average price. To change this, select one of the pre-set time frames in the top left corner (3m, 6m, YTD, 1 yr, 3y, 5y, 10y, All); or input a custom time range in the orange boxes in the top right corner. Longer time frames change each data point to monthly, while shorter time frames change each data point to daily.

You can also zoom in on a custom time range by clicking and dragging across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

The Price Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the Price Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.



#### Single Stock Research Frame: Performance

The **Performance Research Frame** provides a dynamic, exportable chart of total return for the stock.

**By default, the time frame is over three years (3y).** To change this, select one of the pre-set time frames in the top left corner (3m, 6m, YTD, 1 yr, 3y, 5y, 10y, All); or input a custom time range in the orange boxes in the top right corner.

You can also zoom by clicking and dragging across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

The Total Return Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the Total Return Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.





The **Technicals Research Frame** provides dynamic, exportable historical charts of three commonly used technical indicators: moving averages, Bollinger bands, and RSI:

<u>1)</u> <u>Moving Averages</u>: Charts historical price action for the stock over the selected time frame, with the 50-day and 200-day moving average overlaid as grey and green solid lines, respectively.

**By default, the time frame is over one year (1y).** To change this, select one of the pre-set time frames in the top left corner (3m, 6m, YTD, 1 yr, 3y, 5y, 10y, All) or input a custom time range in the orange boxes in the top right corner. You can also zoom by clicking and dragging across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

The Moving Averages Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the Moving Averages Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

<u>2)</u> <u>50 Day Bollinger Bands:</u> Overlays 50-day Bollinger bands over the price action of the stock. "B1" represents one standard deviation, while "B2" represents two standard deviations.

**By default, the time frame is over one year (1y).** To change this, select one of the pre-set time frames in the top left corner (3m, 6m, YTD, 1 yr, 3y, 5y, 10y, All) or input a custom time range in the orange boxes in the

top right corner. You can also zoom by clicking and dragging across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

The Bollinger Bands Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the Bollinger Bands Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

<u>3)</u> <u>14 Day RSI:</u> Displays the historical 14-day RSI for the stock, indicating timeframes when the stock's RSI indicated it may have been overbought (in red) or oversold (in green).

**By default, the time frame is one year.** To change this, select one of the pre-set time frames in the top left corner (3m, 6m, YTD, 1 yr, 3y, 5y, 10y, All) or input a custom time range in the orange boxes in the top right corner. You can also zoom by clicking and dragging across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

The RSI Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the RSI Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.



#### Single Stock Research Frame: Distributions

The **Distributions Research Frame** provides a closer look at the stock's historical yield and distribution growth. There are three elements to the Distributions Frame:

<u>1</u>) <u>Historical Yield</u>: Overlays the stock's distribution history on top of a chart of its historical yield. Average yield over the past five years is overlaid as a dotted line.

**By default, data is provided since the stock's IPO.** To select a shorter time frame, click and drag across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

The Historical Yield Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the Historical Yield Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

2) <u>YoY Dist. Growth (%)</u>: Displays quarterly distribution growth, as compared to the same period last year, over the past five years' worth of distributions. Values are expressed as percentages.

The YoY Dist. Growth Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the YoY Dist. Growth Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

*3)* <u>Distributions Table</u>: Displays the stock's distribution history since IPO, including ex-date of the distribution and distribution amount. The table is sortable by column, but not yet exportable.

#### Single Stock Research Frame: Fundamentals

	Admin Platform Research Model Portfolios Webinars My Account
ashboard	- Summary Stats O Single Stack O
ETF Terminal	Summary study of Single stock of
ortfolio Visualizer	AAPL-US : Apple Inc.
arnings Scorecard	
wnership Screener	Price Change Volume ADV \$129.38 •0.28** 49,898,224 100,617,218
TF Overlap Analyzer	\$1.52.30 43.250,27.4 10.0017.410 Lon tyddir 10.0017 M Rodold yr Groga te
TF Data Explorer	Overview Pierformance Technicals Distributions Fundamientals ETF-Ownership News
Iser Guide 🛓	Key Role     Emmings       50     ITM - P/E (AAPL-US)       60     Itm - P/E (AAPL-US)       70     Str. Average: 10.14       70     Str. Average: 10.14
	0 May'16 Sep'16 Jun'17 May'17 Sep'17 Jun'18 May'18 Sep'18 Jun'19 May'19 Sep'19 Jun'20 May'20 Sep'20 Jun'21 Earnings Growth (AAPL-US)  Earnings per Share (AAPL-US)

The **Fundamentals Research Frame** provides dynamic, exportable charts of several key equity fundamentals, including **Earnings, Sales, Cash Flow, Book Value** and **Dividends**. To switch between key fundamentals, select a new fundamental metric from the *Key Ratios* drop down menu at the top of the frame.

Each Key Ratio selection provides three charts based on the selected fundamental:

<u>1)</u> <u>Trailing Twelve Month (TTM)</u>: Historical data for the relevant key ratio, with the 5-year average indicated as a dotted line on the chart. Ratios provided include: P/E, P/S, P/CF, P/B, or Dividend Yield.

**By default, data is provided for the past five years**. To select a shorter time frame, click and drag across the body of the chart. To reset the timeframe, click the grey *Reset Zoom* box on the top right of the chart.

The TTM Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the TTM Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.

<u>2)</u> (*Fundamental*) *Growth*: Annual growth rates for the selected fundamental, including forward-looking estimates for the years to come.

The Growth Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the Growth Chart can be exported to a .csv or .xls file by clicking on the three lines at

the top right corner of the chart.

<u>3)</u> <u>Values per Share:</u> Annual average per-share figures for the selected fundamental, including forward-looking estimates for the years to come.

The Values Per Share Chart can be exported to a variety of file formats, including .png, .jpeg, .pdf, and .svg, by clicking on the three lines at the top right corner of the chart.

The data underpinning the Values Per Share Chart can be exported to a .csv or .xls file by clicking on the three lines at the top right corner of the chart.



Single Stock Research Frame: ETF Ownership

In the **ETF Ownership Research Frame**, users will find a searchable **ETF Ownership Table** of all the ETFs owning the selected stock and in what amounts. This table includes several fields:

- Ticker: Ticker of the ETF
- Fund Name: Full name of the ETF
- Weight: The stock's current weight in that ETF portfolio
- Market Value (\$MM): The total market value of the stock owned by the ETF, in millions of dollars
- Shares: The total outstanding shares of the stock owned by the ETF (NOTE: NOT in millions)

To sort the ETF Ownership Table by column, click the up or down arrows by a column's header.

To search the ETF Ownership Table, e.g. for a particular ticker or value, type a query into the Search box at the top of the table.

## To see aggregated statistics of how many ETFs in total own the security, please refer to the **Security Lookup** in the **ETF Terminal.** (See: "Security Lookup")

#### Single Stock Research Frame: News



In the **News** Research Frame, users will find an RSS feed of 20 of the most recent news stories tagged for that company. Clicking on a headline opens up a separate tab in the browser, so you won't lose your place in the ETF Action platform.

News stories are listed with three fields: a hyperlinked *Headline*, the *Source* media outlet of origin, and *Release* data, including date and time of first publication.

To search the feed, use the **Search Bar** in the upper righthand corner of the feed.

## Earnings Scorecard



The **Earnings Scorecard** allows users to see at a glance how the reported earnings per share and sales figures for the securities within a specified ETF's portfolio stack up against analyst estimates.

When an ETF is entered in the **Ticker Selection Box**, the Earnings Scorecard returns:

- An Earnings Scorecard Summary Bar, which lists several relevant statistics about the specified ETF;
- The **Earnings Scorecard Bar Chart**, which illustrates results from the companies that have reported their earnings for the specified time period;
- The Earnings Scorecard Data Table, which lists all securities within the specified ETF's portfolio, as well as information about each security's earnings estimates and reports (See: "<u>The Earnings Scorecard Data</u> <u>Table</u>.")

## How To Use The Earnings Scorecard

To use the Earnings Scorecard, input the ticker of any U.S.-listed equity ETF into the Ticker Selection Box at the top of the screen. Results will automatically populate in the modules below.



Results are displayed in a bar chart that is segmented into three categories: **Above** estimates, **Below** estimates, and **In Line** with estimates. Hovering over each category reveals the percentage of companies within the ETF's portfolio in that category.

**By default, earnings estimates are displayed for the current quarter,** but future estimates and historical data can be loaded by selecting a different time frame in the *Quarter* drop down menu. Next quarter's estimates can be searched, as well as up to one year's worth of quarterly historical data.

The results of the Earnings Scorecard are detailed in the sections that follow.

#### The Earnings Scorecard Summary Bar

The Earnings Scorecard Summary Bar lists several statistics about the specified ETF, including:

- *# Holdings:* The total number of securities held by the ETF.
- *# Reported:* The total number of companies held by the ETF that have reported their earnings & sales for the specified time period.
- *Fund Wt. Reported:* The percentage of the ETF portfolio (by weight, not by number of names) that have reported their earnings.
- % EPS Beat: The percentage of securities in the ETF's portfolio whose reported earnings per share have exceeded analyst estimates.
- Avg EPS Beat: The (simple) average amount by which those securities in the ETF's portfolio that have exceeded estimates have done so.
- % Sales Beat: The percentage of securities in the ETF's portfolio whose reported sales have exceeded analyst estimates.

• Avg Sales Beat: The (simple) average amount by which those securities in the ETF's portfolio that have exceeded estimates have done so.

#### The Earnings Scorecard Bar Chart

Earnings results are visualized in the **Earnings Scorecard Bar Chart.** Each bar is segmented into three categories: **Above** estimates (green), **Below** estimates (red), and **In Line** with estimates (grey). Hovering over each category reveals the percentage of companies within the ETF's portfolio in that category. (NOTE: Few securities report figures exactly in line with their estimates, so this segment will likely appear small or non-existent on most charts.)

**By default, earnings estimates are displayed for the current quarter,** but future estimates and historical data can be loaded by selecting a different time frame in the *Quarter* drop down menu. Next quarter's estimates can be searched, as well as up to one year's worth of quarterly historical data.

**By default, earnings estimates are grouped by sector.** To change the grouping, select **Sector, Industry** or **Country** from the *Group By* drop down menu.

Show 100 ~	r entries										Se	arch:	
Ticker	Name	♦ Country ♦	Sector	Industry	Weight 🚽	Report Date   🍦	# Analysts	EPS Estimate	EPS Actual	Act. v Est. ♦	Sales Estimate	Sales Actual 🔶	Act. v Est. ♦
ZS-US	Zscaler, Inc.	United States	Information Technology	Software	5%	2021-02-26	25	0.08	-	-	147	-	- ^
FSLY-US	Fastly, Inc. Class A	United States	Information Technology	IT Services	4.92%	2021-02-18	10	-0.11	-		82	-	
SHOP-US	Shopify, Inc. Class A	Canada	Information Technology	IT Services	4.75%	2021-02-17	28	1.26	-		913	-	
TWI O-US	Twilin Inc Class &	United States	Information	IT Services	4 74%	2021-02-18	23	-0.08	-	-	455	-	

#### The Earnings Scorecard Data Table

The **Earnings Scorecard Data Table**, which lists all securities in the specified ETF portfolio, as well as data about each security's classification and its earnings estimates and reports.

Data in the Earnings Scorecard Data Table includes:

- *Ticker:* Security ticker, including listing exchange code.
- Name: Security name, including whether the security is an ADR
- *Country:* Country of domicile for the security
- Sector: GICS sector classification for the security
- Industry: GICS industry classification for the security.
- Weight: The security's weight in the ETF portfolio.
- *Report Date:* Date on which the security is scheduled to report earnings for the current specified quarter.
- # Analysts: Number of individual analyst calls aggregated into "Estimates."
- *EPS Estimate:* Average estimated earnings per share for the security over the current specified quarter.
- *EPS Actual:* The actual reported earnings per share that the security reported for the current specified quarter.
- *Act. v Est.:* The difference between the reported and estimated earnings per share for the security for the current specified quarter.

- Sales Estimate: Average estimated sales for the security over the current specified quarter.
- Sales Actual: The actual reported sales that the security reported for the current specified quarter.
- *Act. v Est.:* The difference between the reported and estimated sales for the security for the current specified quarter.

By default, 100 securities listed in all ETFs in the set are displayed in the **Earnings Scorecard Data Table.** To select a different figure, select 10, 25, 50, or 100 from the *Show Entries* drop down menu.

#### Searching The Earnings Scorecard Data Table

To search for a specific keyword, such as a company name or sector type, type a keyword into the **Search Bar** in the top right of the **Earnings Scorecard Data Table** (as indicated above), then click Enter. Search results will automatically populate in the Earnings Scorecard Data Table.

To organize the **Earnings Scorecard Data Table** results in ascending or descending order, click the small up and down arrows at next to the heading of each column.

#### How To Load The Earnings Scorecard From The Research Lens

It is also possible to directly access the Earnings Scorecard from the pages of individual ETFs in the **Research Lens** (see: "<u>Research Lens</u>"). To do so, first call up an ETF's individual page in the **ETF Terminal: Research Lens.** This can be done in a variety of ways:

- Typing a ticker into the orange Ticker Box at the top of the page in the ETF Terminal: Research Lens
- Clicking on an ETF from the Navigator Table in the ETF Terminal: Research Lens
- Clicking on an ETF's ticker/box in the Landscape Heatmap

Once the ETF's individual page has been accessed, click on the orange text that reads "Earnings Scorecard >>" in the upper right corner of the page, under "Portfolio Look-Through":

<b>ETF</b>	Admin Platform Research Model Portfolios	Webinars My Account
Dashboard <ul> <li>ETF Terminal</li> </ul>	Landscape  Research  Compare  Kockup  Kockup	Refresh
Portfolio Visualizer	SPY : SPDR S&P 500 ETF Trust	Portfolio Look-Through
Earnings Scorecard	SFT . SFUN SQF SUU EIF HUSL	Portfolio Visualizer »
Ownership Screener	Price Change Volume ADV	Earnings Scorecard »
ETF Overlap Analyzer	\$426.74 0.03% 27,272,183 59,378,655 Last Update:2:32:33 PM. Provided by IEX Group, Inc.	
ETF Data Explorer	Overview Performance & Flows Risk Stats Distributions Composition Top Holdings Fundamentals	Technical Analysis
User Guide 🛓	ETF Comps News	

This will load the selected ETF into the **Earnings Scorecard**, automatically populating the **Earnings Scorecard Summary Bar**, **Bar Chart**, and **Data Table**, with the relevant information.

To return to the Research Lens, click on **ETF Terminal** in the left-hand sidebar.

## **Ownership Screener**

The **Ownership Screener** allows you to find which stocks are most commonly owned by a set of ETFs, and/or across specific market segments. Parameters are set in the **ETF Classification** module, and ownership results are returned in the **Stock Ownership** module.

These results then can be analyzed further in the **Stock Visualizer** tool, by pressing the green "**Launch Stock Visualizer**" button on the right corner of the **Stock Ownership** module. Please refer to the "<u>Portfolio Visualizer</u>" section for more information.



## How To Use The Ownership Screener

The Ownership Screener is a two-step process.

- 1. Set your ETF universe in the ETF Classification module. (See "Setting Your ETF Universe" below.)
- 2. Click the green "Load Ownership Data" button in the top right corner of the ETF Classification module.

This will return a table of commonly held securities across the ETF universe specified in the ETF Classification module. These results can be narrowed down further by setting filters. (See "<u>Interpreting Ownership Screener Results</u>" below.) The results may also be loaded into the **Stock Visualizer** tool by clicking the green **"Launch Stock Visualizer**" button on the right corner of the Stock Ownership module. Doing so will launch the Stock Ownership Table entries as a market-cap weight portfolio (display is limited to 500 stocks or fewer).

## Setting Your ETF Universe

There are three ways to set a list of ETFs to feed into the Ownership Screener:

- 1) Enter a list of individual tickers.
- 2) Use the filters to narrow by classification.
- 3) Use the Search Bar.

These three options are described in more detail in the sections below.

#### How To Enter Individual ETF Tickers



To search a list of known ETFs, enter their tickers into the **ETF Ticker Search Bar** (the orange navigational field pictured above). As you type the ticker, the funds will automatically populate the **ETF Summary Table** in the ETF Classification module. Be sure to separate each entry with a comma.

When your list is complete, click the green "Load Ownership Data" button at the top right corner of the screen.

## How To Use Filters To Narrow By Classification.

Dashboard	Owner	ship Screen	ər									
> ETF Terminal	owner	ship Screen										
Portfolio Visualizer	► ETF CI	assification								Load	l Ownership Do	ita 🌵
Earnings Scorecard	Total Funds	Total AUM (\$MM)	Avg AUM (\$	Min MM) AUI	M (\$MM) AU	M (\$MM)						
Ownership Screener	1,421	\$5,063,42	6 \$3,5	63	\$3	369,141						
ETF Overlap Analyzer	Enter Tick	kers (Comma Separa	ted)				×					
ETF Data Explorer	Show 10	✓ entries								Search	:	
User Guide 🛓	Ticker	Name 🔶 Reset Filters	Inception 🖗	AUM (\$MM)	Composite	Market	Region	T	Segment	Group	Reach	Stra
	SPY	SPDR S&P 500 ETF Trust	1993-01-22	\$369,141	Size & Style	U.S.	N ☑Asia-I A ☑Dev E	Pacific x-U.S.	Broad Market	Broad- based	Large Cap	Beta
	IVV	iShares Core S&P 500 ETF	2000-05-15	\$284,353	Size & Style	U.S.	N ZEurop A Fronti	e er	Broad Market	Broad- based	Large Cap	Beta
	VTI	Vanguard Total Stock Market	2001-05-24	\$250,716	Size & Style	U.S.	N Globa	I I Ex-U.S. America e East & Africa	Broad Market	Broad- based	Total Market	
	VII	ETF										Beta
	VOO	ETF Vanguard S&P 500 ETF	2010-09-07	\$231,070	Size & Style	U.S.		America U.S.	Broad Market	Broad- based	Large Cap	Beta

The powerful ETF Action filters can be used to narrow down entries, as well. Filters can be set by clicking the grey **Filter button**, located above each column in the **ETF Summary Table** in the ETF Classification module. This will open a Filter menu, where you can then select checkboxes to specify classification categories or set a specific numerical range for the data, as appropriate. Click the Filter button again to close and apply the specified settings. Results will automatically populate in the **ETF Summary Table** as Filters are applied.

To reset filters, click the Reset Filters button at the top of the table under the "Name" heading.

Filter categories include:

- AUM (\$MM): Assets under management, in millions of dollars.
- Composite: Sorts ETFs by one of three categories: Sector & Industry, Size & Style, or Thematic.
- *Market:* Sorts ETFs by their broad regional exposure: **Dev Ex-U.S., Emerging, Frontier, Global, Global Ex-U.S.,** or **U.S.**
- *Region:* Sorts ETFs by more discrete regional exposures, introducing the Asia-Pacific, Europe, Latin America, Middle East & Africa, and North America categories, in addition to the above broad regional categories.
- *Country:* Sorts ETFs by single country exposure (e.g.: **Argentina** or **China**) or by narrower groupings of countries than *Region* (e.g.: **Asia-Pacific ex-Japan** or **China & India**).
- Segment: Sorts ETFs by their ETF Action Classification\* Sector or Thematic exposure, as appropriate.
- *Group:* Sorts ETFs by their ETF Action Classification\* Industry or Thematic Sub-category exposure, as appropriate.
- *Reach:* Sorts ETFs by market capitalization exposure: **Extended Market, Large Cap, Mid Cap, Small Cap, Micro Cap** and **Total Market.**

- *Strategy:* Sorts ETFs by their ETF Action Classification\* Strategy, including sub-categories for **Beta, ESG**, **Factor, Specialty, Tactical** and **Custom** strategies.
- *Implementation:* Sorts ETFs by weighting methodology, including categories and sub-categories for Alt-Weighted, Equal Weighted, Market Cap, Scored, and Tiered methodologies.
- Discipline: Sorts ETFs by whether they are Active or Passive.

\*To learn more about the ETF Action Classification system, please refer to the **ETF Action Classification System Guide** (forthcoming).

To organize the **ETF Summary Table** results in ascending or descending order, click the small up and down arrows at next to the heading of each column.

**By default, the ETF Summary Table is set to display 10 entries at once.** To display more, select 10, 25, 50, 100, or All from the *Show Entries* drop down menu.

When your list is complete, click the green "Load Ownership Data" button at the top right corner of the screen.

## How To Use The Search Bar

Dashboard	Ov	vnershi	p Screene	r									
> ETF Terminal		viieroni	poercerie										
Portfolio Visualizer	<b>~</b> E	✓ ETF Classification     Load Ownership Data ↓											
Earnings Scorecard	Tot		Total AUM (\$MM)	Avg AUM (\$MI	Min M) AUM (\$	Max MM) AUM	(\$MM)						
Ownership Screener	1,	421	\$5,063,426	\$3,56	3	\$36	69,141						
ETF Overlap Analyzer	1=			>	<b>‹</b>								
ETF Data Explorer								Search: (					
User Guide 去	n 🔶	AUM (\$MM)	🔻 Composite 🍦	Market 🍦	Region	Country 🍦	Segment 🝦	Group	Reach 🍦	Strategy 🔶	Implementation 🝦	Discipline	
		T	T	T	T	T	T	T	T	T	Т	T	
	22	\$369,141	Size & Style	U.S.	North America	U.S.	Broad Market	Broad- based	Large Cap	Beta	Market Cap	Passive	
	15	\$284,353	Size & Style	U.S.	North America	U.S.	Broad Market	Broad- based	Large Cap	Beta	Market Cap	Passive	
	24	\$250,716	Size & Style	U.S.	North America	U.S.	Broad Market	Broad- based	Total Market	Beta	Market Cap	Passive	
	07	\$231,070	Size & Style	U.S.	North America	U.S.	Broad Market	Broad- based	Large Cap	Beta	Market Cap	Passive	
	10	\$172,225	Size & Style	U.S.	North America	U.S.	Broad Market	Broad- based	Large Cap	Beta	Market Cap	Passive	

To search for a specific keyword, such as an investment theme or brand name, type a keyword into the **Search Bar** (as indicated above), then click Enter. Search results will automatically populate in the **ETF Summary Table** in the ETF Classification module.

To organize the **ETF Summary Table** results in ascending or descending order, click the small up and down arrows at next to the heading of each column.

**By default, the ETF Summary Table is set to display 10 entries at once.** To display more, select 10, 25, 50, 100, or All from the Show Entries drop down menu.

When your list is complete, click the green "Load Ownership Data" button at the top right corner of the screen.

#### Why Some ETFs Do Not Appear In The Ownership Screener

Currently, the Ownership Screener is limited to all **U.S.-listed equity ETFs** (specifically, those with the ETF Action Classification system marked "Sub-Asset: Equity"). That is to say, equity ownership can only be determined for pure equity ETFs.

As a result, several exchange-traded product categories lacking 100% equity portfolios are excluded from the Screener, including leveraged/inverse ETFs, fixed income and multi-asset ETFs, physical commodity ETFs, and ETNs.

#### The ETF Universe Summary Statistics Bar

After an ETF Universe is set, summary information about the ETF Universe will appear in the ETF Universe Summary Statistics Bar, including:

- Total Funds: Total number of ETFs specified in the ETF Universe.
- Total AUM (\$MM): Total assets under management invested in the ETFs in the ETF Universe.
- Avg AUM (\$MM): Simple average of the assets under management per ETF in the ETF Universe.
- Min AUM (\$MM): The current assets under management of the smallest ETF in the ETF Universe.
- *Max AUM (\$MM):* The current assets under management of the largest ETF in the ETF Universe.

## Interpreting Ownership Screener Results



Once the ETF Universe has been set and the **Load Ownership Data** button has been pressed, the results of the Ownership Screener query will appear in the **Stock Ownership** module. This includes:

- 1. The Stock Universe Summary Statistics Bar (N), which describes the results at a glance.
- 2. Individual entries in the Stock Ownership Table (O).

### Stock Universe Summary Statistics Bar

The **Stock Universe Summary Statistics Bar** summarizes several metrics about the stock ownership of the set of funds specified in the ETF Universe, including:

- Total Stocks: Number of unique stocks held among all ETFs in the ETF Universe.
- *Ownership %:* Percentage of the total market of the included companies that are owned by the ETF Universe. This is equal to: **Total Market Value of Stocks Owned/Total Market Capitalization of the Stocks.**
- *Ownership (\$MM):* Total aggregated market value for the stocks owned. Equal to the assets under management of the ETF Universe (within rounding error).
- *Total Mkt Cap (\$MM):* Sum of all the market capitalizations of the underlying companies (in millions of dollars).
- Avg. Mkt Cap (\$MM): Simple average of all the market capitalizations of the underlying companies (in millions of dollars).

#### Stock Ownership Table

The **Stock Ownership Table** lists all the securities held by the ET Universe, as well as information about each security's classification and the amounts in which they are held. (See: "<u>Expanding Entries In The Stock Ownership Table.</u>")

Similar to other data tables on the ETF Action Platform, users can navigate and screen the underlying stocks by searching using the Search Bar at the top right corner of the Stock Ownership Table; or by using the Filter buttons. Filter Buttons only display categories relevant to the query results (i.e.: "Asia Pacific" would not appear as an eligible *Region* for an ETF Universe of S&P 500 index ETFs.)

Data in the Stock Ownership Table includes:

- *Ticker:* Security ticker, including listing exchange code.
- Name: Security name, including whether the security is an ADR.
- *Avg. Weight:* **Not the same as Ownership Weight.** Equal to the total security weight in the ETFs divided by the total number of ETFs in the set (not just the ETFs in which the security appears).
- *# Funds:* Number ETFs in the ETF Universe in which the security appears.
- *Ownership (\$MM):* Total market value of the security owned by the ETF Universe.
- *Ownership Weight:* Not the same as Avg. Weight. Equal to the total market value of the security owned by the ETF Universe divided by the total assets invested in the ETFs in the ETF Universe.
- Mkt Cap (\$MM): Market capitalization of the security
- Size: The size classification for the security.
- *Region:* Region of domicile for the security.
- *Country:* Country of domicile for the security.
- Sector: GICS sector classification for the security.
- Industry: GICS industry classification for the security.

By default, the Stock Ownership Table is set to display 25 entries at once. To display a different amount, select 10,

25, 50, 100, or All from the Show Entries drop down menu.

### Searching the Stock Ownership Table

To search for a specific keyword, such as an investment theme or brand name, type a keyword into the **Search Bar** in the top right of the **Stock Ownership Table** (as indicated above), then click Enter. Search results will automatically populate in the Stock Ownership Table in the Stock Ownership module.

To organize the **Stock Ownership Table** results in ascending or descending order, click the small up and down arrows at next to the heading of each column.

#### Launching The Stock Ownership Table In The Stock Visualizer

The results displayed in the **Stock Ownership Table** may also be loaded into the **Stock Visualizer (P)** tool by clicking the green **"Launch Stock Visualizer"** button on the right corner of the Stock Ownership module. Doing so will launch the Stock Ownership Table entries as a market-cap weight portfolio (display is limited to 500 stocks or fewer). (See "<u>Portfolio Visualizer</u>" section for more information.)

To return to the Ownership Screener from the Stock Visualizer, simply click "Ownership Screener" on the grey (static) sidebar of the left side ETF Action platform.

## ETF Overlap Analyzer



The **ETF Overlap Analyzer** allows users to understand how much portfolio overlap exists at the security level within a set of ETFs.

"Portfolio overlap" is determined by both the percentage weights of securities held in both ETFs, as well as the market value held. That is to say: ETF ABC, DEF, and GHI may all share the same 10 stocks in common across their portfolios; but the portfolio overlap among the three funds may differ, depending on how much weight those 10 stocks have been allotted inside each portfolio, and how much in market value of each stock each ETF holds.

When tickers are entered, the ETF Overlap Analyzer returns:

- A **Summary Bar**, which lists total assets invested in the set of ETFs (in millions), the average number of holdings per ETF, and the number of unique securities in the set.
- An ETF Overlap Matrix that depicts how much portfolio overlap exists between any two ETFs in the set;
- The **Common Stocks Bar Chart**, which illustrates how many securities are held in common among the set of ETFs. "1" represents unique names held by only one ETF; "2" represents securities held by two ETFs; and so on. It is possible that there will be no securities held in common by all the ETFs in the set.
- The **Stock Navigator Data Table**, which lists all securities held by the set of ETFs, as well as information about the amounts in which they are held (See: "<u>Expanding Entries In The Stock Navigator Data Table</u>.")

## How To Use The ETF Overlap Analyzer

To find the portfolio overlap between a set of ETFs, type each ETF's ticker into the orange Ticker Boxes (R).

k Visualizer	-	-											Clear A	II Export
ership Screener <mark>Overlap Analyzer</mark> Explorer	Total AUM (\$M \$326,4	Avg # M) Holdir 93 252	Unique ngs Holding 552	s Q									Clear A	U
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	SF	Y		SPDR S&P Trust	500 ETF Eq	uity: U.S Large Cap	Vanilla	1993-01-22		0.09	76	506	\$296,592	×
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								Edai						

You must type in at least 2 ETFs, but you may add up to 10 ETFs. When ETFs are added, several data points will populate the **Ticker Box Table**, including each ETF's ticker, full fund name, ETF Action classification, inception date, expense ratio, number of holdings, and current assets under management (in millions of dollars).

**NOTE: The ETF Overlap Analyzer can handle up to 10 ETFs at once.** If you attempt to add more than 10 ETFs, the ETF Overlap Analyzer will overwrite the ETF in the selected box with the additional ticker, so that the total number of funds remains at 10.

To remove an ETF from the list, click the "X" in the **Remove** column in the Ticker Box Table.

To remove all ETFs and start over, click the orange Clear All button in the right-hand corner of the screen.

Interpreting ETF Overlap Analyzer Results

A query in the ETF Overlap Analyzer returns several results, including:

The **ETF Overlap Matrix (S)**, which quantifies portfolio overlap between any two ETFs in the set, in terms of percentage overlap and total number of in common between the two funds.

The **Common Stocks Bar Chart (T)**, which illustrates how many securities are held in common among the set of ETFs. "1" represents the securities held by only one ETF; "2" represents securities held by two ETFs; and so on. <u>It is possible that there will be no securities held in common by all the ETFs in the set</u>. Hover over the bars to see the total number of securities in each category.

The **Stock Navigator Data Table (V)**, which lists all securities held by the set of ETFs, as well as data about the security's classification and the amounts in which they are held (See: "<u>Expanding Entries In The Stock</u> <u>Navigator Data Table</u>.")

Data in the Stock Navigator Data Table includes:

- *Ticker:* Security ticker, including listing exchange code.
- Name: Security name, including whether the security is an ADR
- *Region:* Region of domicile for the security
- *Country:* Country of domicile for the security
- Sector: GICS sector classification for the security
- Industry: GICS industry classification for the security
- *Mkt Cap (\$MM):* Market capitalization of the security
- *# Funds:* Number of ETFs in the set in which the security appears
- *Avg. Weight:* Total security weight in the ETFs divided by the **total number** of ETFs in the set (not just the ETFs in which the security appears)
- *Mkt Val Held (\$MM):* Total market value of the ETF held by ETFs in the set.

#### Expanding Entries In The Stock Navigator Data Table

Each security listed in the **Stock Navigator Data Table** has a **green** plus sign "+" next to its ticker. Clicking that button expands the row, so that you can see in which ETFs the security appears, including the weight it is given and total market value held.

To close the expanded row, click the green plus sign "+" again.

#### Searching the Stock Navigator Data Table

By default, all securities listed in all ETFs in the set are displayed in the **Stock Navigator Data Table**. To search for a particular security's entry, or for a particular known data point, type a search field into the **Search Bar** at the top right corner of the Stock Navigator Data table.

#### Exporting the Stock Navigator Data Table

The Data Table may be exported to a .csv file by clicking on the orange "Export" button in the right-hand corner of the **Summary Bar (U)**. A download window will pop up, indicating your data is ready to open or save.

## ETF Data Explorer



The **ETF Data Explorer** provides a deep dive into historical data for a single ETF, including its returns, premium/discount information, and flows over several pre-set timeframes.

When a ticker is entered, the ETF Data Explorer provides:

- The **Bar Graph**, which visualizes the data set specified by the *Chart* drop down menu, at the frequency set by the *Frequency* drop down menu. By default, the x axis spans the lifetime of the fund.
- The Data Table, which consists of several elements:
  - Date: Date on which the data was recorded.
  - *Price:* Last closing price recorded on that date.
  - Volume: Volume in shares traded on that date.
  - Avg Volume (30D): Average 30-day volume in shares traded, as calculated for that date.
  - *Total Return:* Total return of the ETF, as recorded for that frequency and on that date.
  - NAV: Net asset value of the ETF as of the close of trading on that date.
  - *Premium/Discount:* The premium or discount to NAV at which the ETF traded as of the close of trading on that date.
  - Flows (\$MM): The amount of new assets entering the ETF on that date.
  - o *30D Volatility (Ann.):* 30-day annualized volatility, as calculated for that date.

#### Note About Frequency's Impact On The Data Table

Data Table entries also change depending on the *Frequency* specified for the Bar Graph. By default, *Frequency* is set to Daily, meaning the data depicted in the Data Table span one day. Data Table entries for frequencies longer than

one day are calculated by averaging daily values across that time frame: Weekly entries are averaged across the past week; monthly across the past month; and so on.

## Interpreting ETF Data Explorer Results

> ETF Terminal	ETF Data I	Explorer							
Stock Visualizer									
Ownership Screener	Ticker	: SPDR S&P 500	) ETF Trust 🔀						CC Export 🛓
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	<ul> <li>Show 100 ✓ en</li> </ul>	tries BI				1			Search:
	Date v	Price	Volume 🖕	Avg Volume (30D)	Total Return 🔶	NAV 👙	Premium/Discount 🔶	Flows (\$MM)	30D Volatility (Ann.)
	2020-08-12	\$337.44	53,826,129	61,324,623	1.39%	\$337.49	-0.01%	\$17	12.20%
	2020-08-11	\$332.80	69,601,086	61,943,637	-0.83%	\$332.79	0.00%	\$1,510	11.80%
	2020-08-10	\$335.57	44,282,090	63,403,427	0.30%	\$335.46	0.03%	\$-585	11.70%
	2020-08-07	\$334.57	57,308,273	64,586,466	0.07%	\$334.54	0.01%	\$-267	12.16%
	2020-08-06	\$334.33	43.679.449	66.941.557	0.67%	\$334.26	0.02%	\$598	14.53%

There are several interactive elements in the ETF Data Explorer, which are labeled below:

*Ticker box (X):* Type in the ticker of any U.S.-listed ETF to call up its entry in the ETF Data Explorer, and/or select the ticker from the list of suggested tickers.

*Frequency (Y):* The frequency over which individual data points in the Bar Graph and Data Table are represented. Frequency can be set to Daily, Weekly, Monthly, Quarterly, and Annually.

*Chart (Z):* The metric visualized in the Bar Graph. Chart can be set to Period Returns, Premium/Discount, and Period Flows.

*X-Axis (AA):* The timeframe on which the Bar Graph is displayed. By default, it is set to the total lifetime of the fund. Custom time frames may be specified. (See: "Changing the X-Axis of the Bar Chart.")

Show X entries (BB): By default, the Data Table displays 100 entries. This can be set to 10, 25, 50, or 100.

Sort By Arrows (BB): Allows users to sort Data Table entries in ascending or descending order, by the selected column.

Search: Allows users to search the Data Table for a particular entry.

#### Viewing the Bar Chart in Full Screen

To view the Bar Chart in full screen, click on the graphic of three lines in the upper right corner of the chart: Select "View in Full Screen." The Bar Chart will then move into Full Screen mode, which may be exited by pushing the Esc button.

#### Changing the X-Axis of the Bar Chart

y default, the x axis is set to the full lifetime of the ETF. This can be changed by clicking and dragging across the Bar Chart. The gray area will set the new time range.

#### Exporting the Bar Graph

The Bar Graph may be exported to several file formats, including .png, .jpeg, .pdf, and .svg. The data underlying the chart may also be exported to either .csv or .xls format.

To export the Bar Chart, click on the graphic of three lines in the upper right corner of the chart: E Select the desired file format. A download window will pop up, indicating your data is ready to open or save.

#### Exporting the Data Table

The Data Table may be exported to a .csv file by clicking on the orange "Export" button in the right hand corner of the screen. A download window will pop up, indicating your data is ready to open or save.

#### Disclaimers

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