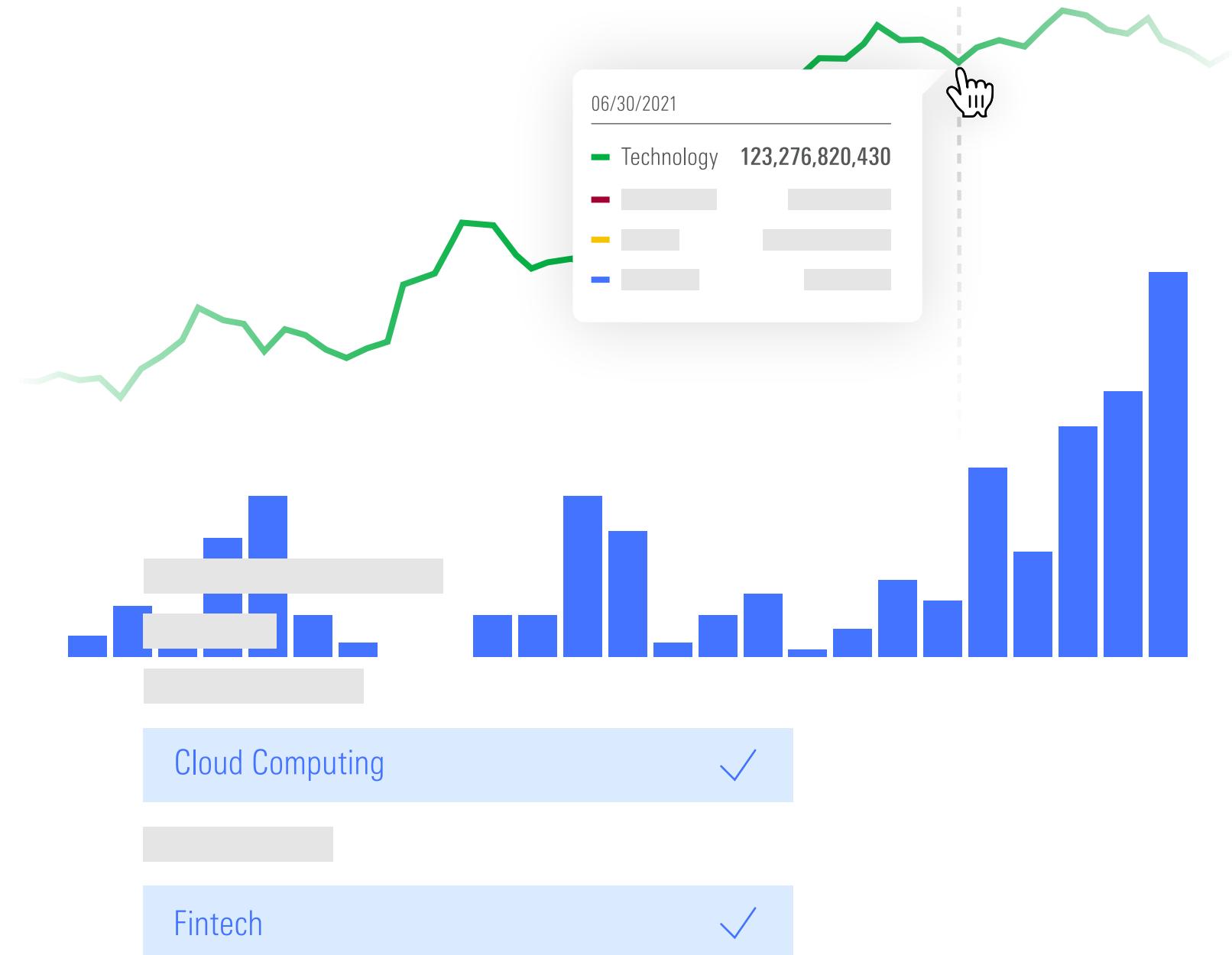


Morningstar's Guide to Thematic Funds



Making Sense of Rapidly Shifting Investment Trends

Thematic funds became all the rage with the onset of the coronavirus, with many posting eye-catching returns over the period. These investment vehicles attempt to harness various secular growth themes, from energy transition to connectivity to artificial intelligence to cannabis to disruptive healthcare technologies. The upsurge has been fueled in part by intense retail investor interest, with more people looking to invest while working at home. The inflows should also serve as a reminder to the phenomenon of chasing trends during a late-stage bull market.

Meanwhile, high-profile asset management firms have fed the demand, coming up with new-fangled approaches in attempt to give investors new ways to capitalize on the secular trends. Often, recently opened funds attract flows very quickly. The most popular funds typically encompass themes with promising futures, such as cloud computing, disruptive innovation, robotics, cybersecurity, clean energy, genomics, and blockchain.

This guide is intended to introduce users to Morningstar's "Thematic Funds" data set, which launched in November 2021 to provide advisors, wealth managers and asset managers an effective way to evaluate all of the choices in the thematic universe and uncover investment opportunities.

The issue historically with thematic funds is the sheer volume of them. They come with all different types of themes, and sometimes have holdings that seem to stray from their said purpose. By giving a clear picture of asset flows, the data set will help Morningstar Direct users make a more informed decision on how and what thematic funds could serve as an addition to investment portfolios. Access to vast amounts of data, and the capability to analyze that data to produce actionable insights, will offer users another way to boost efficiency and distinguish themselves in the financial services industry.

An Introduction to Thematic Funds

Thematic funds are essentially exchange-traded funds and mutual funds that have exposure to one or more investment themes. These themes may pertain to structural or macroeconomic trends transcending the traditional business cycle. The intent is to offer investors a way to harness secular growth themes. Over time, the global menu of thematic funds has expanded in number and breadth, and quite rapidly in recent years. Yet the proliferation of funds has also added some confusion to the market, with investors having to sift through a fast-growing supply, some with greater complexity, and some with more refined niches. What had been lacking for investors, wealth managers and asset managers, is a systematic way to sort through all of the noise and see what's a prudent and timely choice in terms of adding specialized themes to an investment portfolio.

At a high level, Morningstar breaks down the funds into the following classifications:

1. Broad Thematic (includes wide-ranging topics such as Future Trends and Smart Industries)
2. Physical World (topics such as Green Energy and Logistics Transportation)
3. Social (topics such as Post-Corona, Wellness, and Political)
4. Technology (topics such as AI, Blockchain, and Battery Tech)

Interest in thematic funds was sparked by retail investors, advisors and wealth managers that have increasingly examined the category. Until now, there hasn't been a tool able to quickly sort through all the choices and allow investment professionals to present a list of possibilities to clients. Given that thematic funds are virtually the opposite of a diversified portfolio, they could serve as a complement rather than replacing existing core holdings. In fact, narrower exposures that express a view on a particular theme might be considered as single-stock substitutes.

Caveat Emptor

Despite all of the enthusiasm for thematic funds, it's important to keep things in perspective. Historically, thematic funds have underperformed their benchmarks, and the concentrated nature of these strategies tends to cause higher volatility returns. Investors need to be careful.

For a successful investment, holders of thematic funds need to accomplish three things:

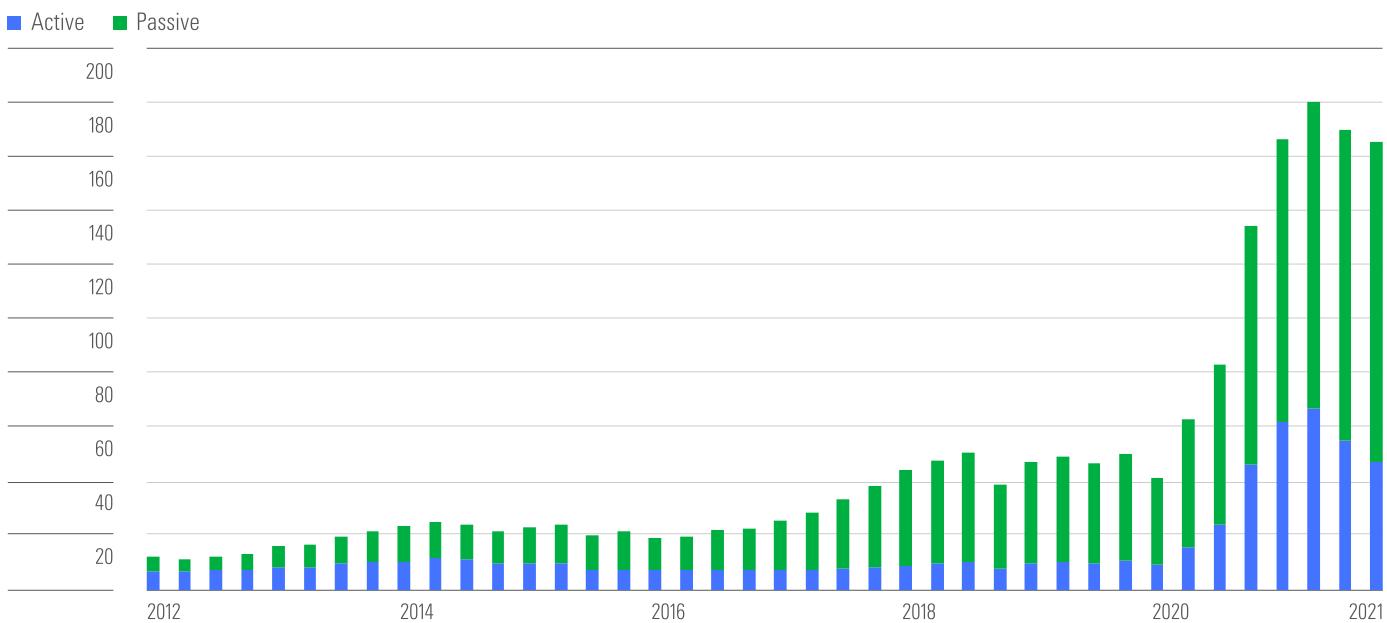
1. Pick a winning theme, one that is real and durable.
2. Select the right fund, one that owns stocks positioned to capitalize on the theme in a meaningful way.
3. Make sure the market hasn't already priced in the theme's potential.

The Evolution of the Global Thematic Funds Landscape

In recent years, thematic funds have grown tremendously. Since the end of Q1 2020, assets under management in these funds have more than tripled to \$800 billion from \$252 billion worldwide. This represented 2.7% of all assets invested in equity funds globally, up from 0.8% 10 years ago.

However, in the U.S., after an explosive 2020, assets in thematic funds stabilized in 2021 despite a record-breaking number of launches. As total assets under management reached levels previously unseen in mid-2021 at more than \$180 billion, net inflows had already begun to fall. Assets flowing into U.S. thematic funds increased dramatically throughout 2020 before peaking in the first quarter of 2021 at around \$36 billion but fell below \$5 billion in each subsequent quarter. This is still higher than the typical flow figures into thematic funds. All told, an impressive \$165 billion are allocated to these niche products by the end of 2021.

Exhibit 1 U.S. AUM Growth (USD Billion)



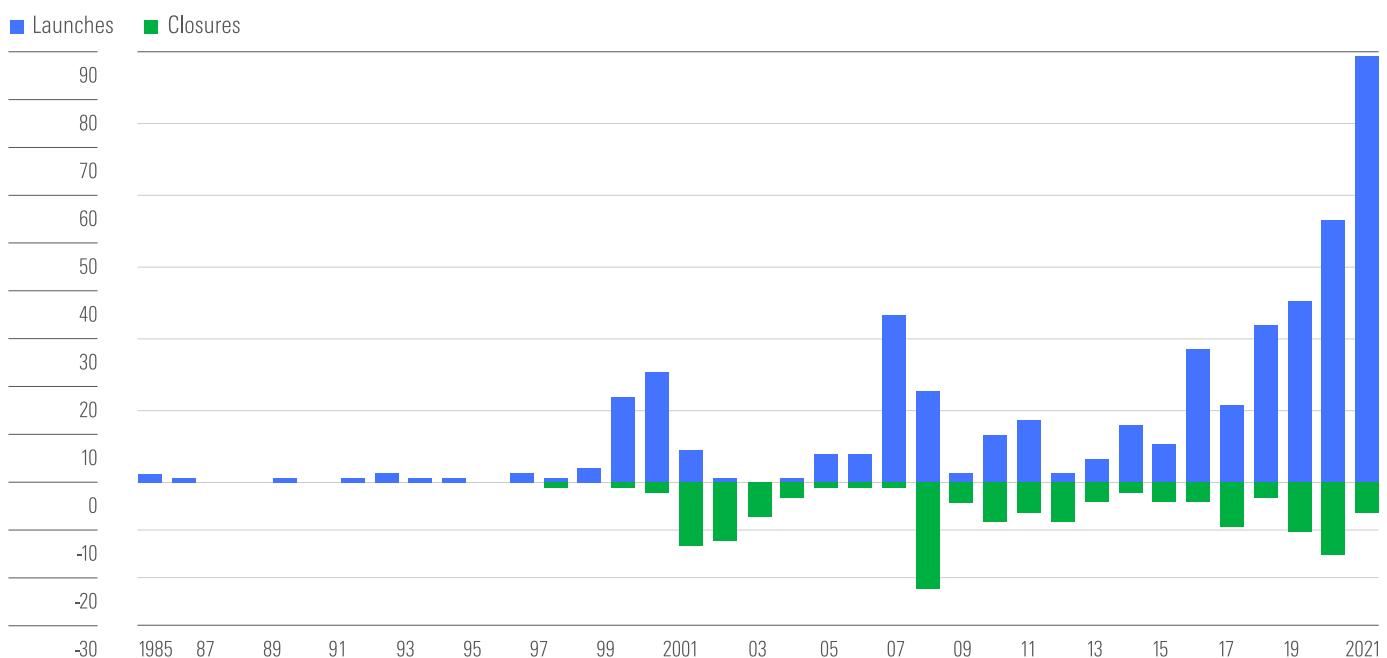
Source: Morningstar Research. Data as of December 31, 2021.

In this environment of increasing flows, we've seen some funds attract assets very quickly. For example, the Roundhill Ball Metaverse ETF (META), designed to follow an index built around companies focused on the next generation of the internet, debuted in June 2021. By early December, it had already amassed more than \$800 million in assets. ARK ETF Trust, a leader in the domain, launched ARK Space Exploration & Innovation ETF (ARKX) in March 2021, and compiled \$545 in six short months. But many thematic funds have gathered assets at precisely the wrong time—just as their performance is peaking. There is no more prominent example of this than ARK Innovation ETF (ARK). From the fund's October 2014 debut through December 2021, the fund brought in \$15.7 billion in net inflows. As of the end of 2021, its assets under management stood at \$16.2 billion. This indicates that most of the fund's eye-popping since-inception returns were enjoyed by a small minority of early investors. Most were late to jump on the bandwagon, and their investment in ARKK is underwater.

The menu of thematic funds has also grown. A record 589 new thematic funds debuted globally in 2021, more than double the previous record of 271 funds launched in 2020. As of the end of December 2021, there were 2,018 surviving funds in our global database that fit our definition of thematic.

Historically, asset managers have tended to launch funds in the late stages of a bull market, after various trends have taken hold. The pattern is clear in the chart below, which shows spikes in funds launched near previous market peaks.

Exhibit 2 U.S. Thematic Fund Launches & Closures by Year



Source: Morningstar Research. Data as of December 31, 2021.

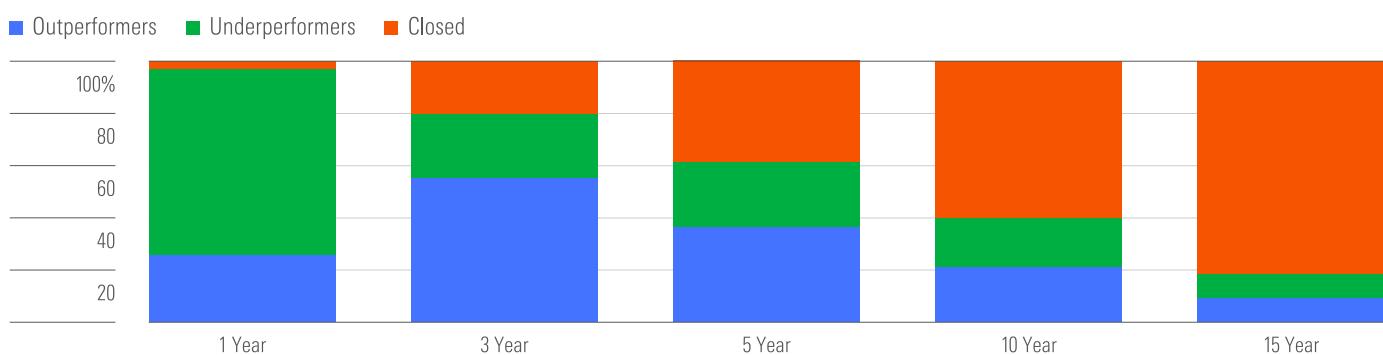
The large number of funds launched since 2014 stands out. Riding one of the longest bull markets in history, asset managers harnessed the structure of ETFs as a way to package these products.

Thematic funds are a way for asset managers to offer a differentiated product that can support high fees, rather than the highly-competitive, low-cost options indexed ETFs offer.

Performance: Nice Return, If You Can Get It

While investor interest in thematic funds has increased dramatically in recent years, the chances of beating market benchmarks are low. More than half of thematic funds globally survived and outperformed global equity markets (as proxied by the Morningstar Global Markets Index) in the three years to the end of 2021. However, this success rate drops to just one in ten thematic funds when we look at the trailing 15-year period. Over that time span, more than three-quarters of the thematic funds were closed. This lackluster long-term performance can be partly explained by the fact that thematic funds' fees tend to be higher than those levied by their nonthematic counterparts.

Exhibit 3 U.S. Thematic Fund Survival & Success Rates



Source: Morningstar Research. Data as of December 31, 2021.

The long-term performance of thematic funds has also significantly trailed benchmarks. Over the 10 years to the end of 2021, 59% of U.S. thematic funds went dark, while only 22% went on to outperform the broad global equity benchmark (as proxied by the Morningstar Global Markets Index).

A few factors underpin the lackluster results. Launching thematic funds in the final years of a bull market raises the odds of poor outcomes in the near future, in part because latecomers are chasing past performance. Many of these funds have loaded up on stocks with recent strong performance, those that are more likely to be trading at prices above their intrinsic values. Even if a thematic fund isn't holding the best stocks, it is still exposed to market risk. So, funds can get caught in the downdraft of a market correction or a bear market.

Liquidity for the fund is also an ongoing concern, particularly for those funds tracking the narrowest of themes. In some cases, a single thematic fund has been found to hold more than a fourth of the free float of a single stock. Also, the long-term poor performance can be partly explained by the fact that thematic funds' fees tend to be higher than those levied by their nonthematic counterparts. Many popular funds have expense ratios in the range of 0.75%, compared with 0.10% or less for mainstream index funds.

How Morningstar Can Help Identify Investment Opportunities

The Thematic Funds data set allows users to easily track assets and asset flows, and analyze fund details for one or more investment themes. We went through our universe of roughly 114,000 mutual funds and ETFs, tagging ones that specialize to give users near-instant results from searching via different attributes.

Funds that qualify as thematic get tagged with broad classifications:

1. Broad Thematic
2. Physical World
3. Social
4. Technology

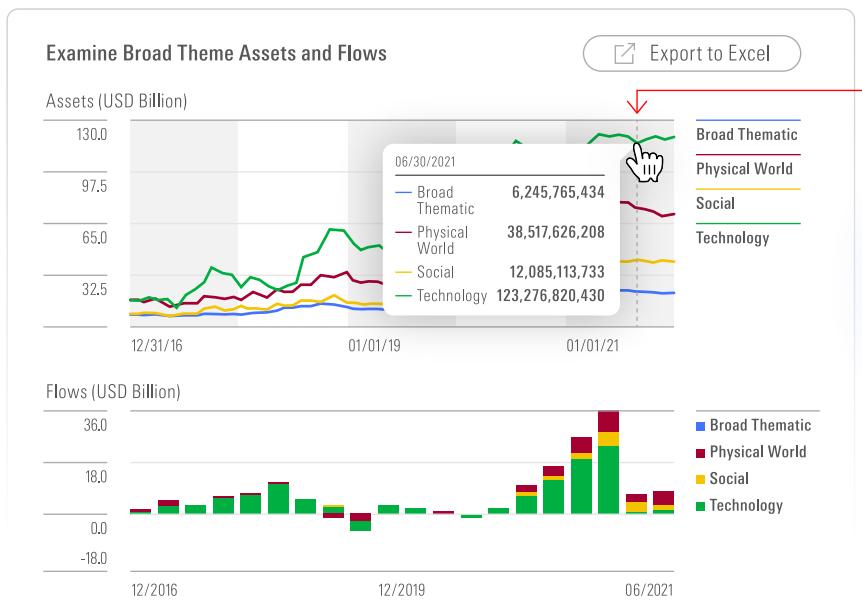
They also get tagged for any subthemes they fall under in each broad classification.

The data set is part of a series of similar tools powered by a new analytics capability within Morningstar Direct, called “Analytics Lab.” The lab is a workspace that scales analysis, visualizes results, and documents methodology so users can automate processes that were previously cumbersome or impossible to accomplish. The custom-built analytical flows are powered by open source Jupyter notebook technology to automate the research and analytics.

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Using the Thematic Funds data set, you can:

1. Understand the Morningstar thematic funds' landscape; what investments are classified as thematic funds, and where do they fall in the thematic taxonomy.
2. Analyze the asset growth for specific investment themes and highlight which have caught on as being most popular with investors.
3. Identify which open-end funds and ETFs are classified to a specific theme.



Largest Thematic Funds

Select a Date

2021-09-30

Export to Excel

| Fund Name | Fund ID | Bread Theme | Theme | Sub-Theme | Net Assets USD |
|---|------------|-------------|-------------|-------------------|----------------|
| AdvisorShares Hotel ETF | FS0000GLRW | Social | Post-Corona | Hotel | 10032881 |
| AdvisorShares Restaurant ETF | FS0000GLRX | Social | Post-Corona | Restaurant | |
| Drexion Work From Home ETF | FS0000GOKE | Social | Post-Corona | Work From Home | |
| Emles @Home ETF | FS0000G25D | Social | Post-Corona | Work From Home | 3352354 |
| Global X Health & Wellness Thematic ETF | FS0000CFTH | Social | Wellness | Health + Wellness | 39756287 |
| IQ Healthy Hearts ETF | FS0000GB75 | Social | Wellness | Wellness | 6813343 |

Click a column header to sort data

Morningstar Direct enables one of the most comprehensive fund data sets in the industry to be incorporated into research, investment analysis, portfolio construction, strategy analytics, and reporting, creating quality portfolios and products that empower investor success.

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