

Global Thematic Funds Landscape

Morningstar Manager Research

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Executive Summary

Thematic funds have been one of the big winners to emerge from the global pandemic, with many posting eye-catching returns over the period. The global market for these funds, which attempt to harness secular growth themes ranging from artificial intelligence to cannabis, has expanded rapidly in size and breadth.

Since we published the first installment of this paper in early 2020, the supply of these niche and often gimmicky funds from asset managers has increased, as has the demand for clarity and guidance from investors.

In this report, we introduce an updated taxonomy for classifying these funds based on an enhanced global data set. Using this framework, we analyze key trends in the global thematic funds landscape. We finish by sharing best practices for choosing from this expansive universe.

Key Takeaways

- ▶ Investor interest in thematic funds has increased dramatically in recent years. Over the three years through March 2021, collective assets under management in these funds more than tripled to \$595 billion from \$174 billion worldwide. This represented 2.1% of all assets invested in equity funds globally, up from 0.6% 10 years ago.¹
- ▶ The menu of thematic funds has also grown. A record 237 new thematic funds debuted globally in 2020, up from 167 in 2019. As of the end of March 2021, there were 1,276 surviving funds in our global database that fit our definition of thematic.
- ▶ We have developed an updated three-tier taxonomy for classifying thematic funds to help investors make sense of this expansive and diverse universe.
- ▶ Europe is the largest market for thematic funds, accounting for 51% of global thematic fund assets.
- ▶ Actively managed funds account for the majority of assets invested in thematic funds.
- ▶ Funds tracking Energy Transition themes, with \$74 billion in combined assets, represent the most popular thematic grouping globally.
- ▶ More than two thirds of thematic funds globally survived and outperformed global equity markets (as proxied by the Morningstar Global Markets Index) in the year ended March 2021. However, this success rate drops to just 22% of thematic funds when we look at the trailing 15-year period, and 57% of the thematic funds were closed during the period.

¹ Note that all monetary figures in this report are shown in U.S. dollars, unless stated otherwise. All data is as of March 31, 2021.

- ▶ 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.
- ▶ Because of their narrower exposure and higher risk profile, thematic funds are best used to complement rather than replace existing core holdings.
- ▶ Thematic funds might be considered as single-stock substitutes for those investors looking to express a view on a theme but lacking the resources needed to conduct due diligence on individual companies.
- ▶ Liquidity is an ongoing concern, particularly for those funds tracking the narrowest of themes.
- ▶ As global thematic assets have grown, single-name holding concentrations have also risen. In some cases, a single thematic fund has been found to hold more than a fourth of the free float of a single stock.
- ▶ Investors in thematic funds are making a trifecta bet. They are betting that they are: 1) picking a winning theme; 2) selecting a fund that is well-placed to survive and harness that theme; and 3) making their wager when valuations show that the market hasn't already priced in the theme's potential. The odds of winning these bets are low, but the prospective payouts can be large.

Introduction

The global menu of thematic funds has expanded in number and breadth. These funds attempt to harness secular growth themes ranging from artificial intelligence to cannabis. The result has been a steady supply of greater complexity from asset managers and increased demand for greater clarity among investors. In this latest edition of our analysis, we introduce an updated taxonomy for classifying these funds. Using this framework, we analyze key trends in the global thematic funds landscape. We finish by sharing best practices for choosing from this ever-expanding universe.

Defining the Universe of Thematic Funds

For the purposes of this report, we have defined the universe of thematic funds as those that select holdings based on their exposure to one or more investment themes. These themes may pertain to macroeconomic or structural trends that transcend the traditional business cycle. Examples include demographic shifts or technological advances.

Our definition includes funds like cannabis exchange-traded funds, which hope to capitalize on the legalization and commercialization of cannabis globally. We exclude funds that might be useful for making tactical economic calls but lack a cohesive longer-term narrative, such as those that target Japanese exporters.

Although many active managers select investments based on exposure to a theme as part of their investment process, we have isolated a distinct subset of funds that explicitly target these themes. The purpose of this paper is to identify and analyze these funds to help investors better navigate this landscape.

Building a Framework

Our updated global taxonomy for thematic funds is based on intentionality rather than fund holdings. Building on the work done in our previous research on this topic, in this paper we present an enhanced global thematic fund data set. By using natural language processing technology to crawl Morningstar's comprehensive global fund database, we have been able to construct an even more complete picture of the global thematic fund market than was previously possible.

To identify intentionality, we have relied on a combination of fund names (a strong indicator of intentionality) and information gleaned from prospectuses, marketing materials, index methodologies (in the case of index funds), and Morningstar's own proprietary data points such as investment objective where possible.

What's In, What's Out?

Our definition of thematic funds is generally inclusive, but there are some important omissions. We have limited our universe to equity funds—both active and passive—mutual funds, and exchange-traded funds. We have excluded other asset classes, most notably fixed-income funds. This is because their investment profile is less suited to capturing the growth potential of emerging themes and consequently the market for these funds is largely nonexistent.

Sustainable funds are included, provided they seek to capture a specific theme. This means that alternative energy funds, which aim to capitalize on the transition to a low carbon economy, are included, but most broad-environmental, social, and governance funds, which select a diverse group of stocks based on ESG scores, fall out of scope. Funds like the Generali IS SRI Ageing Population Fund—which tracks a demographics theme but applies ESG screens—are included.

Others like the SPDR SSGA Gender Diversity ETF SHE, which at first glance appear thematic, are excluded on the grounds that they are designed to reward a broad set of companies with strong gender diversity metrics rather than attempt to track the trend toward a more equitable society.

A fund that uses artificial intelligence or machine learning in its stock-selection process will only be included if it also selects stocks connected with one or more themes. For example, the Xtrackers Artificial Intelligence & Big Data ETF XAIX uses artificial intelligence to select stocks that it deems well-positioned to harness its targeted theme.

Sector or Theme?

The line between sectors and themes can be blurry, especially as sectors' definitions have drifted through time. As a rule of thumb, we have excluded funds that too closely resemble mainline sector funds from our definition of thematic funds.

To help separate the two as cleanly as possible, we have referenced the Industry Classification Benchmark, The Global Industry Classification Standard, and Morningstar's own Global Equity Classification Structure.

Perhaps the most challenging distinction to make is between technology sector funds and those that track one or more technology-related themes. To be included in our taxonomy for thematic funds, broad technology funds must explicitly target one or more technology themes, such as disruptive or next-generation technologies.

Evolving Themes

What is considered a theme can change through time. For example, at its launch in 2009, the Pictet Agriculture fund focused on meeting the expected food needs of a growing global population. Since then, technological advances have helped boost global food production, and global food scarcity has become a less pressing issue. In response, the Pictet fund pivoted toward a broader "nutrition" theme and now targets companies that it deems key to improving nutrition profiles in addition to those improving efficiencies within the food value chain.

Some funds began as thematic before outgrowing the label. For example, the American Funds New Economy Fund, which launched in 1983, initially aimed to capitalize on the shift from a manufacturing-dominated economy to one based on services and information companies. The fund has subsequently broadened its remit and now resembles a more traditional growth fund. As such, it is outside the scope of our framework for classifying thematic funds.

Mapping the Universe

To make sense of the diverse universe of thematic funds offered to investors around the world, we have developed a three-tier taxonomy, visualized in Exhibit 1.

At first glance, it appears that thematic funds tend to resist rigid categorization. However, after assessing the global universe of these funds, we found that themes do cluster into distinct groups. For example, funds tracking Smart Car, Next Generation Automobile, Hybrid Car, and Automated Driving themes can all be comfortably collected under the umbrella of Future Mobility. This in turn can be grouped with other themes under a broader theme—in this case, Technology.

Broad Themes

Our framework first arranges the universe into four broad buckets: Technology, Physical World, Social, and Broad Thematic.

Technological themes, as their name suggests, target the disruptive growth potential of technological change. These include themes like Fintech, Robotics & Automation, and Battery Technology.

Physical World themes address the management of physical resources. Included in this bucket are funds that facilitate the transition to a low-carbon world, such as alternative energy funds.

Themes in the Social bucket deal with structural changes in society. These themes may be politically oriented or focus on demographic changes.

Finally, those funds that track multiple themes belonging to any of the above buckets are grouped under the Broad Thematic umbrella.

Themes

Collected under each of these broad themes are more granular theme groupings. For example, the Technology broad theme includes the Fintech theme, which brings together Fintech but also the more-specific Financial Innovation, Blockchain, and Digital Payments subthemes.

As a further example, the Social broad theme includes the Political theme, which in turn gathers funds targeting New Silk Road, Structural Reform, and even Korea Unification.

Exhibit 1 Thematic Fund Taxonomy**Technology****Artificial Intelligence + Big Data**

Artificial Intelligence
Deep Learning
Quant Computing
Machine Learning
Big Data

Battery Technology

Battery Value Chain
Secondary Battery Industry

Cloud Computing

Cloud Computing

Cyber Security

Cyber Security

Digital Economy

Connectivity
Convergence Technology
Data Economy
Digital Economy
Digitalisation
Disruptive Commerce
E-commerce
Information Revolution
Internet
Internet of Things
New Retail
Sharing Economy
Social Media
Web x.0

Digital Media

Advertising + Marketing Tech
Multimedia

Electronics

Innovative Electronics
Integrated circuits

Fintech

Blockchain
Digital Payments
Disruptive Fintech
ETF Industry
Financial Innovation
Fintech
Pay Infrastructure

Future Mobility

Automated Driving
Automobile Innovation
Electric Vehicle
Green Car
Hybrid Car

New Car Industry
New Energy Vehicles
Next Gen Auto
Smart Mobility
Smart Transport

Life Sciences

Alternative Medical Technology
Biotech Clinical Trials
Biotech Innovation
Biothreat
Brand Name Drugs
Cancer
Cardio Devices
Digital Health
Generic Pharma
Genomics
Health Innovation
Ophthalmology
Medical Breakthroughs
Patient Care Services
Treatments Test Advancements

Nano Tech + Smart Materials

Nano Tech
Smart Materials

Next Gen Communications

5G
Advanced Communications
Mobile Internet
Next Generation Communication
Smart Cities
Smart Grid
Telecoms Innovation
Wireless

Robotics + Automation

3D Printing
Automation
Drones
Manufacturing Revolt
Mechatronics
Robotics
Smart Industrial Technology

Space

Space

Virtual Reality and Gaming

ESports
Gaming
Virtual Reality

Multiple Technology Themes

4th Industrial Revolution
Disruptive Technology
Early Stage Innovation
Emerging Industry
Exponential Technology
Frontier Tech
Future Economy
IT Revolution
New Economic Engine
Next Generation Technology

Physical World**Energy Transition**

Alternative Energy
Carbon Transition
Clean Energy
Clean Tech
Climate Solutions
Decarb Enablers
Green Energy
Hydrogen Economy
New Energy
Nuclear
Renewable Energy
Renewable Infrastructure
Smart Energy
Solar
Wind

Food

AgriTech
Fishing
Food
Food Tech
Nutrition

Logistics + Transportation

E-Commerce Logistics
Jets
Logistics
Ship Building and Transportation
Shipping
Transport

Resource Management

Air
AquaBusiness
Circular Economy
Efficient Resources
Future Resources
New Resources

Rare Resources
Timber
Upstream Natural Resources
Uranium
Waste
Water

Broad Physical World

Multiple Physical World Themes

Social**Cannabis**

Cannabis

Consumer

Alcohol
Baby Boomers
Changing Lifestyles
Classic Cars
Consumer Joy
Cosmetics
EM Consumption
Kids
Luxury
Millennials
Organics
Pets
Sports
Subscription Economy

Demographics

Aging Population
Demographics
Future of Humans
Urbanisation

Political

Energy Independence
Infrastructure Spending
Korea New Deal
Korea Unification
New Silk Road
State-Owned Enterprise
Structural Reform
Trade War

Post-Corona

Post Corona
Work From Home

Security

General Security
National Defense
Safety

Wellness

Alternative Health
Culture
Education
Health + Weight Loss
Healthy Lifestyle
Obesity
Self Development/Fulfillment
Wellbeing

Other

Gig Economy
Holding Companies
Vice

Broad Social

Multiple Social Themes

Broad Thematic**Broad Thematic**

Future Life
Future Trends
Global Themes
MegaTrends
New Millenium
Secular Trends
Smart Future
Smart Industries
Transformational Changes

Through this framework, we hope to shine a light on the fast-growing world of thematic investing. By grouping them in this way, investors can more readily compare these funds.

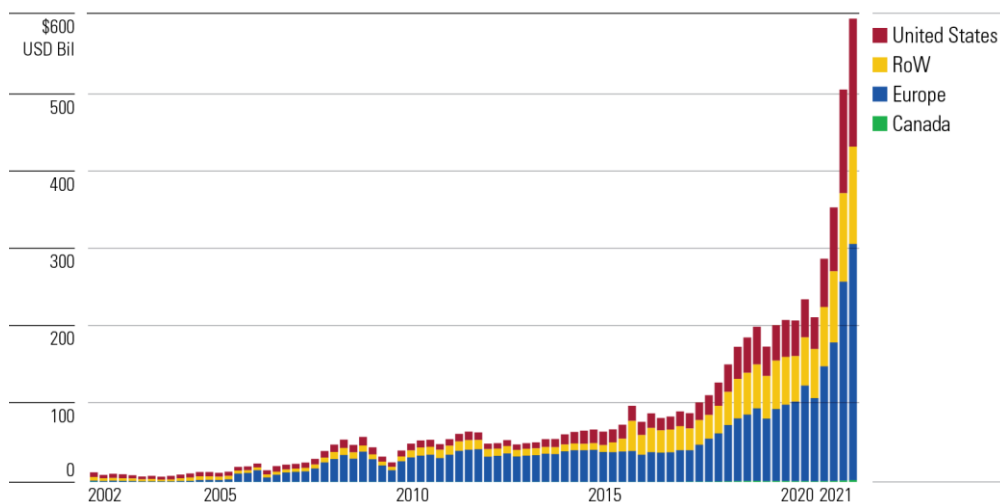
The Global Landscape

As of the end of March 2021, there were 1,349 surviving funds in our global database that fit our definition of thematic. Collectively, thematic funds emerged as big winners from the global pandemic.

Over the trailing three years, assets under management in these funds more than tripled to \$596 billion from \$174 billion worldwide. This represented 2.1% of all assets invested in equity funds globally, up from 0.6% 10 years ago.

As assets have poured into these funds, the menu of new thematic funds has broadened. A record 237 new thematic funds debuted globally in 2020, up from 167 in 2019.

Exhibit 2 Global Thematic AUM Growth by Region (USD Billion)



Source: Morningstar Research. Data as of 31 March 2021.

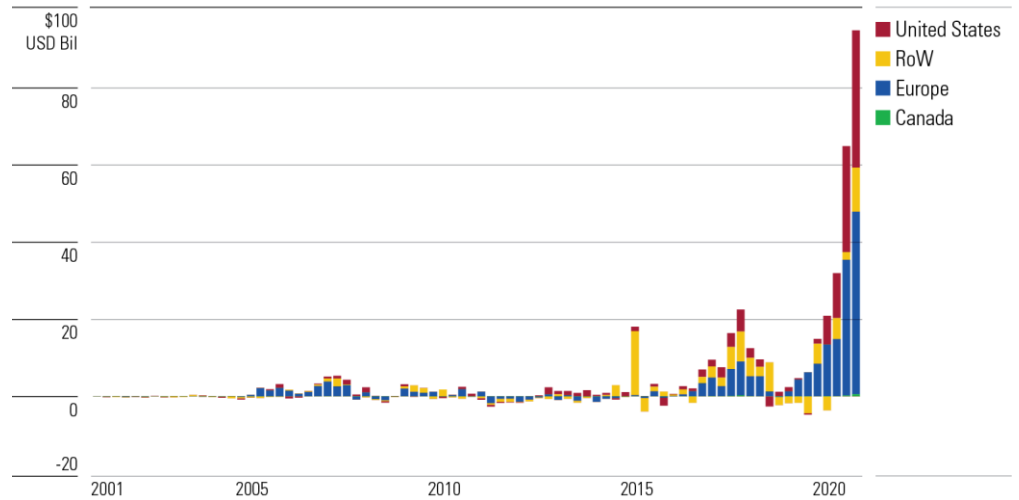
Europe Is the Largest Thematic Fund Market

Thematic funds' growth has been uneven across geographies. Europe-domiciled thematic funds' share of the global pie has expanded to 51% from 10% since 2001. Such is the pace of global growth in the market that, despite growing 28 times in size, the market share of thematic funds domiciled in the United States shrank to 28% from 49% over the same period.

While all regions have experienced net inflows over the trailing three years, Europe and the U.S. have been the main beneficiaries, netting \$141 billion and \$87 billion in new flows over the period, respectively.

Net inflows throughout the global pandemic have been particularly noteworthy. Over the trailing year to March 2021, global net inflows equaled \$207 billion, a figure that dwarfs the collective inflows (\$127 billion) for the preceding nine years.

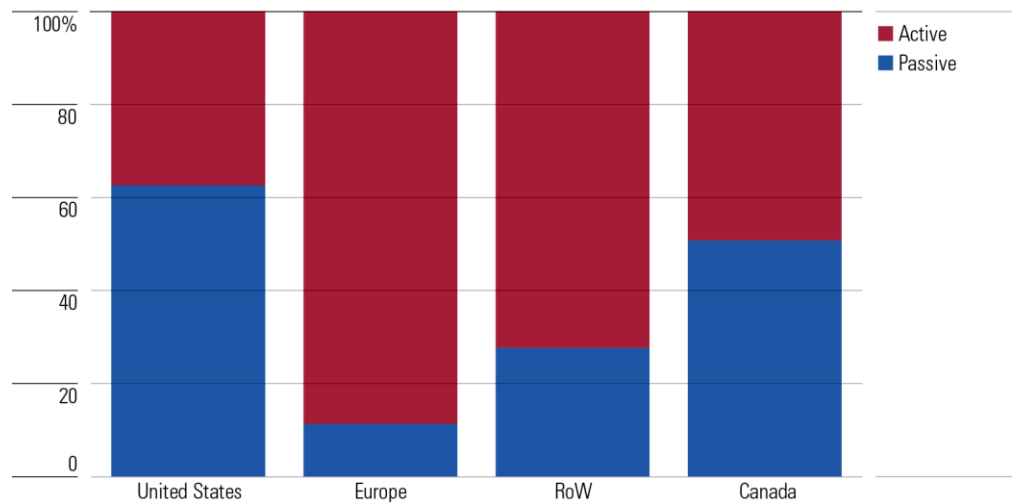
Exhibit 3 Global Net Asset Flows by Region (USD Billion)



Source: Morningstar Research. Data as of 31 March 2021.

Most assets invested in thematic funds globally are actively managed; this includes 89% of assets under management in Europe. Bucking the trend is the U.S., where 63% of thematic fund assets are passively managed. This reflects the success of thematic ETFs in the region.

Exhibit 4 Active vs. Passive Regional Thematic AUM



Source: Morningstar Research. Data as of 31 March 2021.

No Dominant Thematic Asset Manager Globally

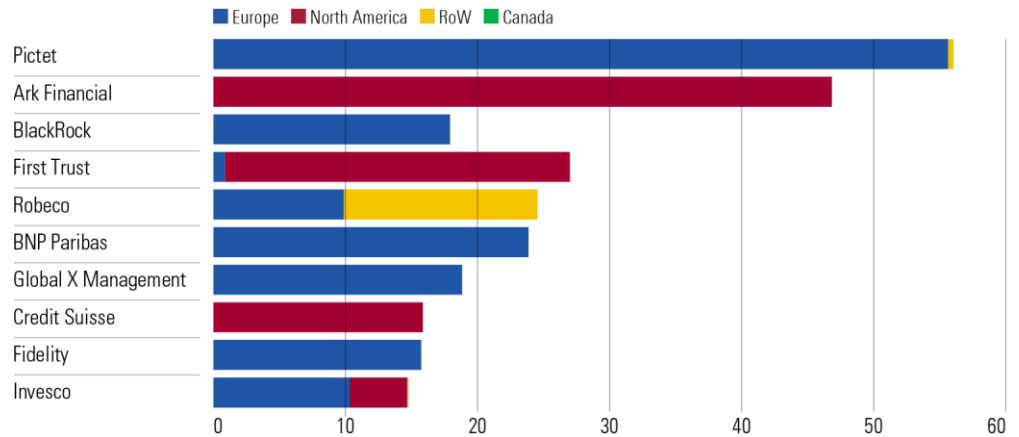
Exhibit 5 illustrates the regional nature of the global thematic fund market. No asset manager is dominant in all regions. Most are only major players in a single region.

Europe-focused thematic specialist Pictet Asset Management remains the largest thematic fund provider globally, with assets under management of \$55.6 billion. The firm's success has been built over many years and is founded on a measured approach to selecting and tracking long-term themes. In a market where both fund launch and closure rates run high, Pictet has scored reassuringly low on both counts.

The stratospheric success of ARK Financial's small range of actively managed ETFs has elevated the firm to near the summit of the global thematic provider leaderboard. Although we are unable to include assets invested in its strategies sold by different regional partners—for example, by Nikko AM in Europe and Emerge in Canada—the firm still snatches the second spot.

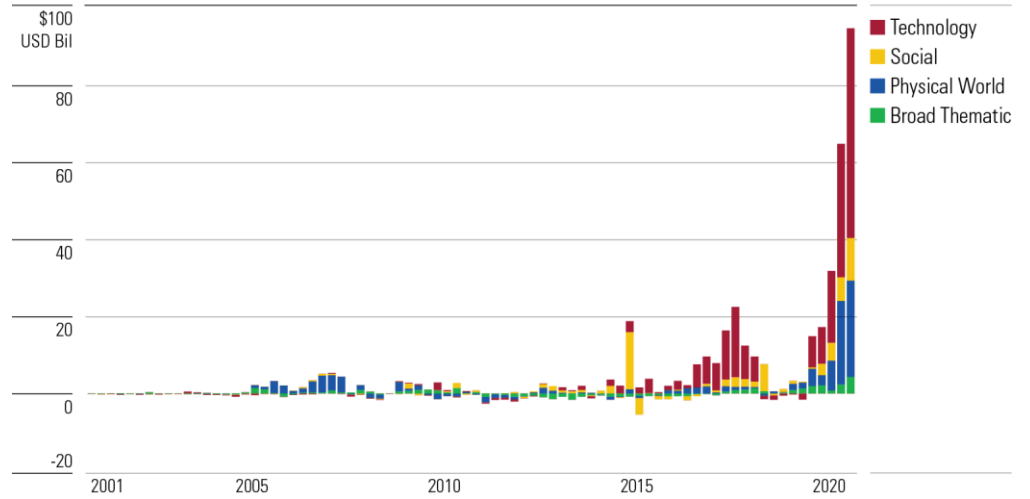
With a handful of sizable active thematic funds in Europe and a suite of passive iShares branded thematic ETFs in both the U.S. and Europe, fund giant BlackRock is the third-largest global thematic fund provider.

Exhibit 5 Global Thematic AUM by Provider (USD Billion)



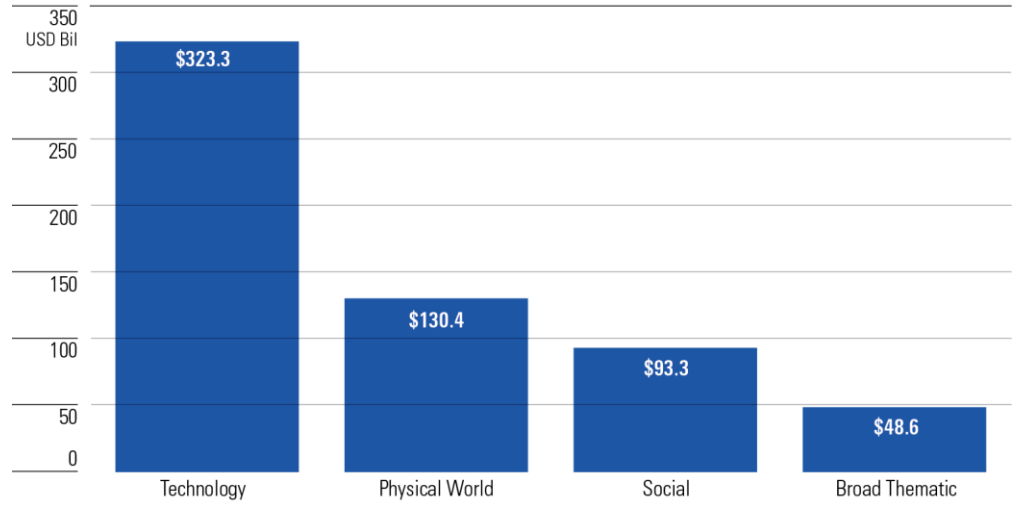
Source: Morningstar Research. Data as of 31 March 2021.

Exhibit 6 Global Thematic Flows by Broad Theme (USD Billion)



Source: Morningstar Research. Data as of 31 March 2021.

Exhibit 7 Global Thematic AUM by Broad Theme (USD Billion)



Source: Morningstar Research. Data as of 31 March 2021.

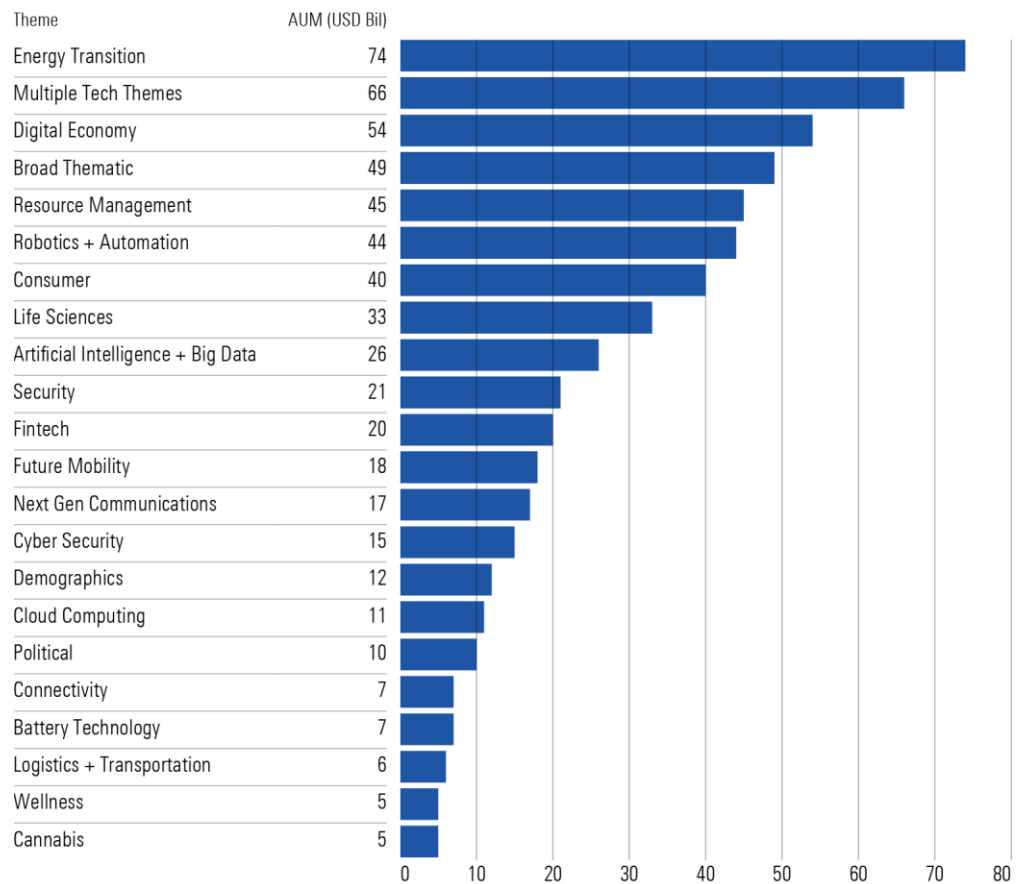
Technology Funds Capture Investors' Imagination; Energy Transition Claims Largest Single Theme
 Funds tracking technology themes secured the largest share of flows over the 12 months through March 2021, at which point they held half of assets in thematic funds globally.

With \$74 billion in assets tied to it, Energy Transition is the most popular theme globally. The grouping, which is largely populated by alternative energy funds, got a huge boost in late 2020 when newly elected U.S. President Joe Biden pledged billions of dollars of government support for green infrastructure.

Funds tracking Multiple Technology themes, with \$66 billion in assets, represent the second most popular thematic grouping globally. Funds in this cohort include the largest thematic fund globally: the ARK Innovation ETF ARKK. This dazzlingly popular actively managed ETF targets a range of technology themes including genomics, fintech, and next generation Internet.

Also popular are those funds with a Digital Economy theme. This cluster includes E-commerce, Social Media, and Internet subthemes and houses funds like the sizable U.S.-domiciled First Trust Dow Jones Internet ETF FDN.

Exhibit 8 Global Thematic AUM by Theme (USD Billion)



Source: Morningstar Research. Data as of 31 March 2021.

Most Thematic Funds Display a Growth Tilt

Exhibit 9 shows where the funds in the thematic universe plot on the Morningstar Style Box. In total, 49% of thematic funds with a style box placement globally exhibit a growth bias. This compares with just 15% that have a value tilt. This shouldn't be a surprise, as most thematic funds are seeking to tap emerging themes with large growth potential, such as technology themes.

Exhibit 9 Global Thematic Funds Style Box (% of funds)

	Value	Blend	Growth
Large	8	19	29
Mid	4	10	13
Small	3	5	7

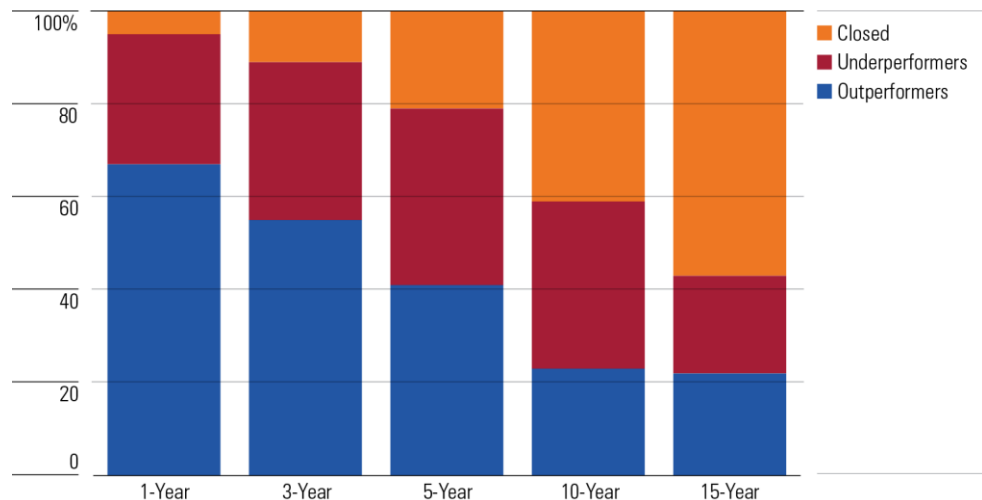
Source: Morningstar Research. Data as of 31 March 2021.

Most Thematic Funds Don't Beat Global Equities Over Longer Periods

Since the beginning of the global pandemic, many thematic funds have chalked up impressive returns. More than two thirds of thematic funds globally survived and outperformed global equity markets (as proxied by the Morningstar Global Markets Index) in the year ended March 2021.

This success quickly fades when we take a step back and survey performance over longer periods. For example, when stretching our observation window out to include the trailing five years, success rates drop to 43%. When viewing the trailing 15 years, more than half of thematic funds globally have shuttered and just 22% of thematic funds have survived and outperformed global equities.

Exhibit 10 Global Thematic Fund Survival and Success Rate



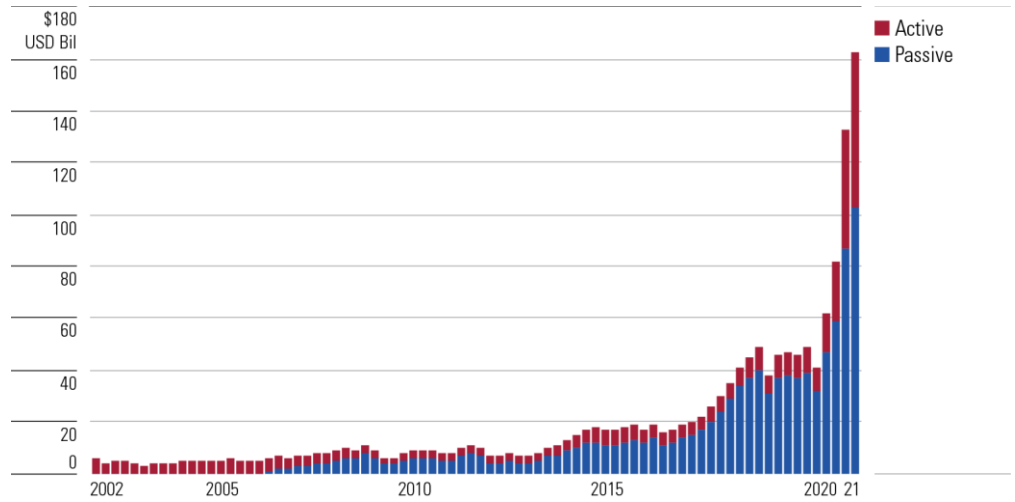
Source: Morningstar Research. Data as of 31 March 2021.

These figures paint a bleak picture for investors. They suggest that the odds of picking a thematic fund that survives and outperforms global equities over longer periods are firmly stacked against them.

United States

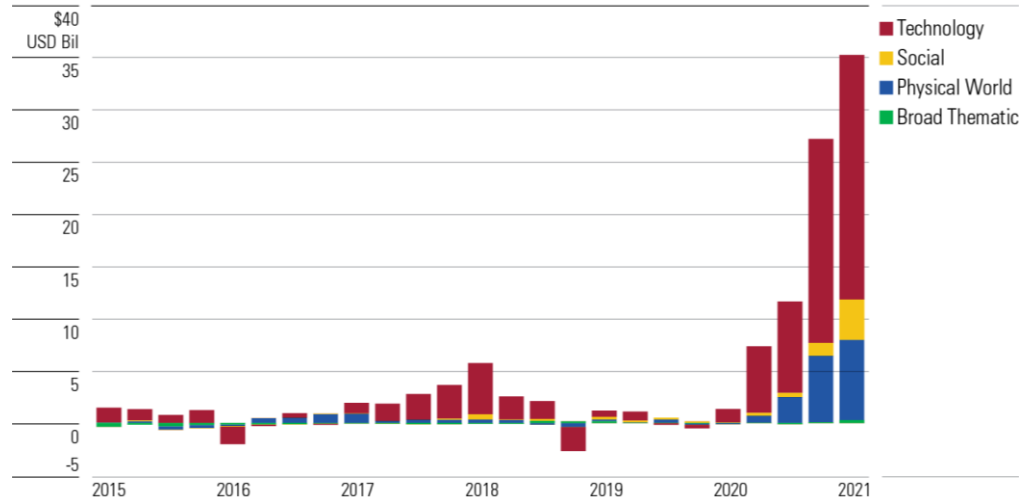
The growth of U.S. thematic funds in 2020 was nothing short of remarkable. Strong performance, persistently high inflows, and a bevy of new strategies combined to push the assets in these funds to heights never seen before. All told, more than \$81 billion flowed into U.S. thematic funds in the year to the end of March 2021. And the first quarter of 2021 was the strongest on record, with more than \$35 billion entering these niche strategies. The impact on asset growth was considerable. Collectively, thematic funds ballooned to more than \$160 billion by the end of March 2021 from about \$49 billion at the end of December 2019.

Exhibit 11 U.S. AUM Growth (USD Billion)



Source: Morningstar Research. Data as of 31 March 2021.

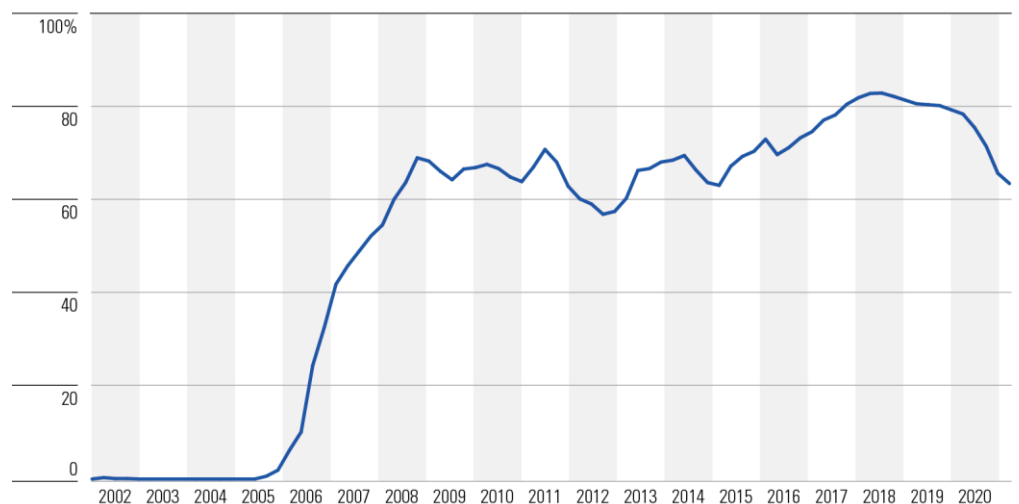
Exhibit 12 U.S. Thematic Flows by Broad Theme (USD Billion)



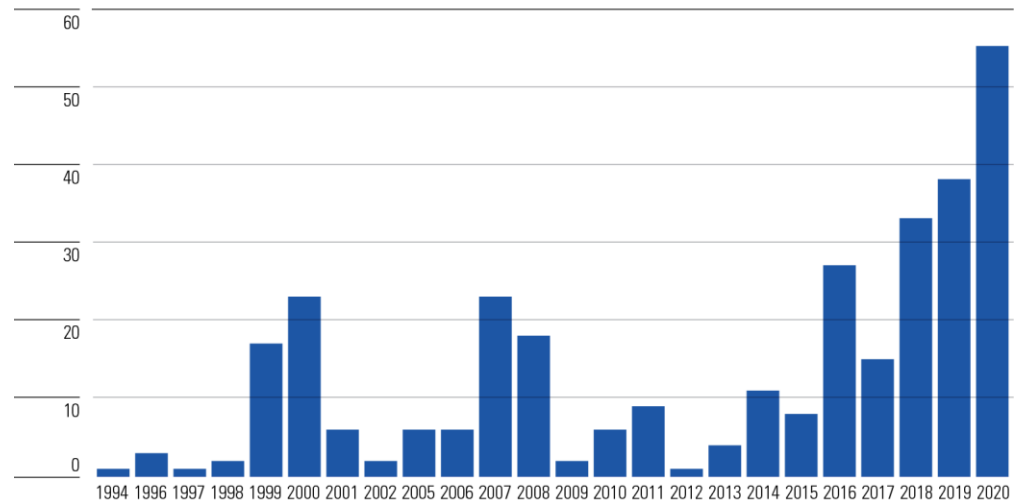
Source: Morningstar Research. Data as of 31 March 2021.

As of March 2021, passive funds controlled just over 60% of U.S.-domiciled thematic fund assets. Exhibit 13 shows that the rise to current levels came in one burst in the mid-2000s. Between January 2005 and June 2007, outflows from actively managed strategies that focused on Internet and e-commerce stocks overlapped with the launch of several passively managed funds from Invesco that quickly grabbed assets. Over that period, the market share of passive strategies surged from less than 1% of U.S. thematic assets to a little more than 80% by early 2018. Since then, actively managed strategies, notably those from ARK Invest, have seen massive inflows that shifted market share away from passive strategies.

Exhibit 13 Passive Market Share of U.S. Thematic Funds



Source: Morningstar Research. Data as of 31 March 2021.

Exhibit 14 U.S. Thematic Launches by Year

Source: Morningstar Research. Data as of 31 December 2020.

Historically, thematic fund launches have tended to move in cycles. New strategies are often introduced during periods of strong performance, like the new millennium and the mid-2000s. But they tend to wane during downturns, as Exhibit 14 illustrates. Those trends indicate that investors' appetites for these strategies and the desire for providers to offer them typically move in sync with the broader market.

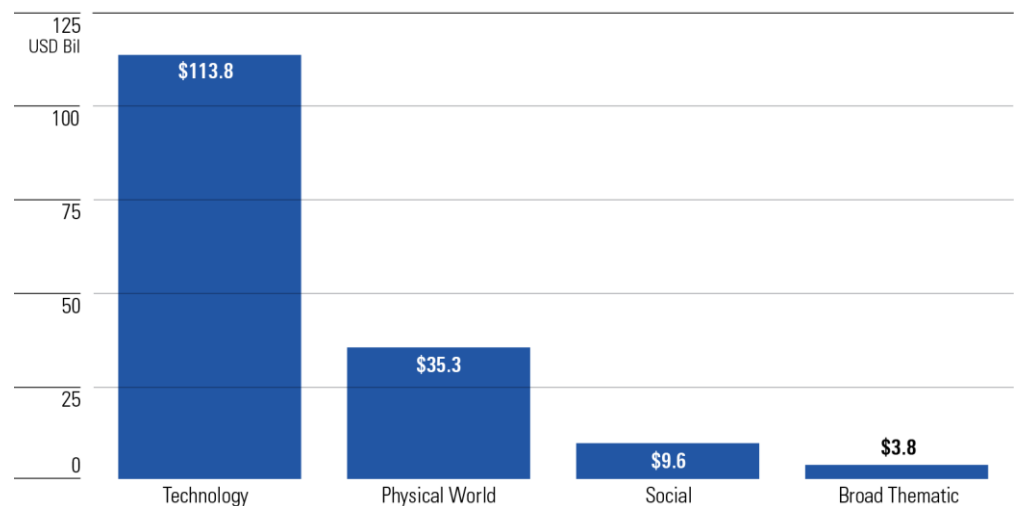
Thematic fund launches are a bull market phenomenon. The hoard of new thematic funds introduced over the last several years further supports the close connection between fund launches and bull markets. At the time, 2016, 2018, and 2019 were record-setting years for launches. That trend continued into 2020, with providers bringing 55 new thematic strategies to market.

Exhibit 15 Largest Thematic Funds in U.S.

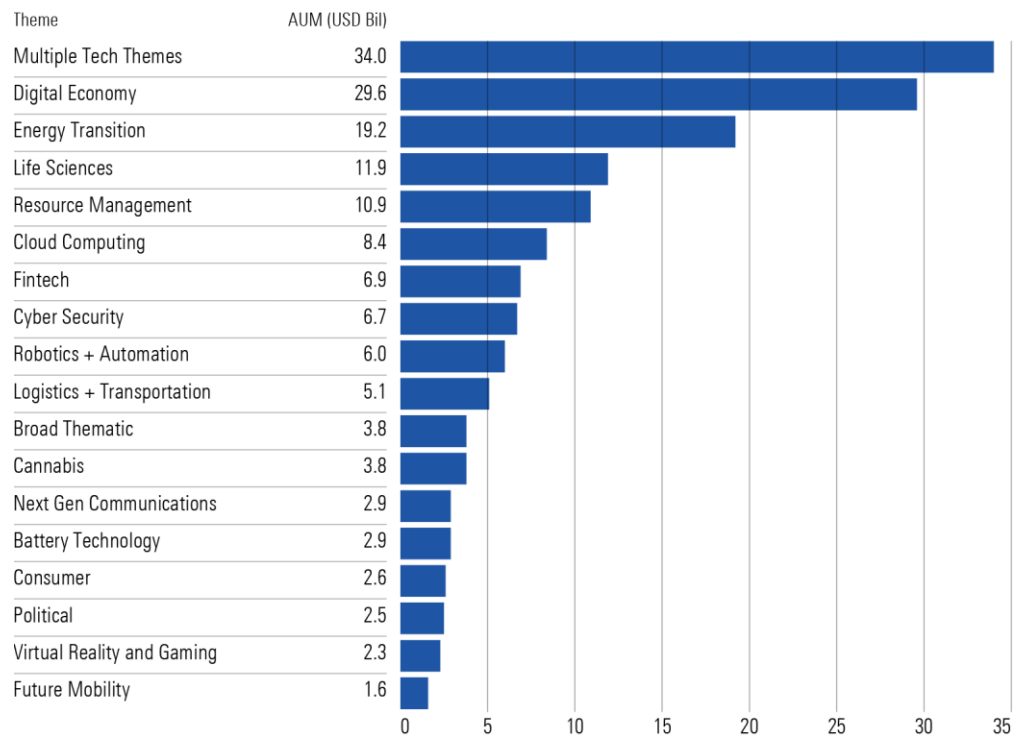
Name	Theme	Sub-Theme	Index Fund	Assets (\$Bil)
ARK Innovation ETF	Multiple Tech Themes	Innovative Tech	No	22.3
First Trust Dow Jones Internet ETF	Digital Economy	Internet	Yes	9.8
ARK Genomic Revolution ETF	Life Sciences	Genomics	No	9.4
ARK Next Generation Internet ETF	Digital Economy	Web x.0	No	6.9
First Trust Cloud Computing ETF	Cloud Computing	Cloud Computing	Yes	5.9
iShares Global Clean Energy ETF	Energy Transition	Alternative Energy	Yes	5.5
FlexShares Mstar Gbl Upstrm Nat Res ETF	Resource Management	Upstream Natural Resources	Yes	4.7
US Global Jets ETF	Logistics + Transportation	Jets	Yes	4.0
ARK Fintech Innovation ETF	Fintech	Fintech	No	4.0
KraneShares CSI China Internet ETF	Digital Economy	Internet	Yes	3.7

Source: Morningstar Research. Data as of 31 March 2021.

The assets in these funds also grew substantially in 2020. At our last assessment, which ran through the end of December 2019, only eight strategies had more than \$1 billion in assets. The number of these funds had swelled to 41 by the end of March 2021. But the U.S. thematic fund landscape is still dominated by relatively few. The 10 largest, highlighted in Exhibit 15, account for just under half of all U.S. thematic fund assets.

Exhibit 16 U.S. Thematic AUM by Broad Theme (USD Billion)

Source: Morningstar Research. Data as of 31 March 2021.

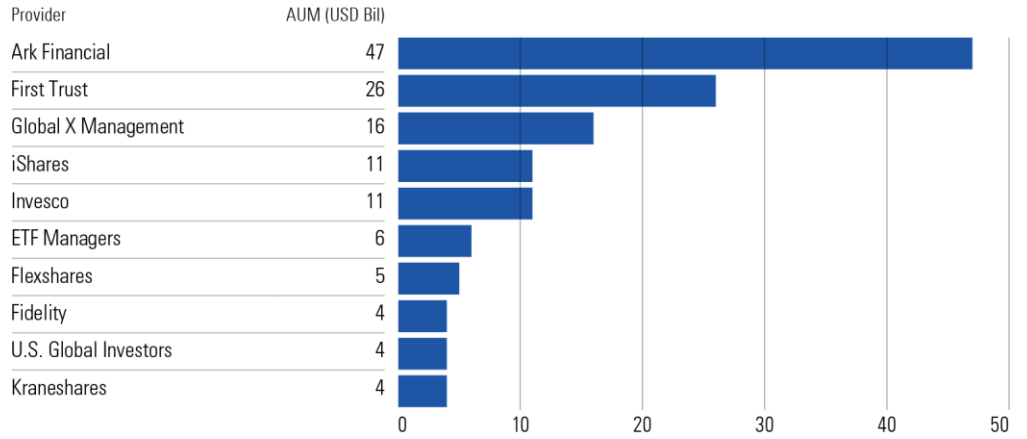
Exhibit 17 U.S. Thematic AUM by Theme (USD Billion)

Source: Morningstar Research. Data as of 31 March 2021.

The size of ARK Innovation ETF ARKK, fueled by remarkable net inflows in 2020, stands out. ARKK had about \$1.8 billion to its name at the end of December 2019. Exceptional performance attracted more than \$9.5 billion of fresh money over the course of 2020, including more than \$3 billion in December alone, making it the largest thematic ETF in the U.S. by a wide margin.

ARKK targets a range of technology themes including Genomics, Fintech, and Next Generation Internet, and therefore lands in the Multiple Technology Themes bucket of our taxonomy. Technology-oriented thematic funds are the largest U.S. cohort, representing almost 70% of thematic assets. Those with Multiple Technology Themes, like ARKK, typically claim the most assets. That bias toward innovative and disruptive technology companies influences where these funds land in the Morningstar Style Box. Just over half of U.S. thematic funds are classified as growth strategies, while only 14% landed on the value side of the style box.

Exhibit 18 U.S. Thematic AUM by Provider (USD Billion)



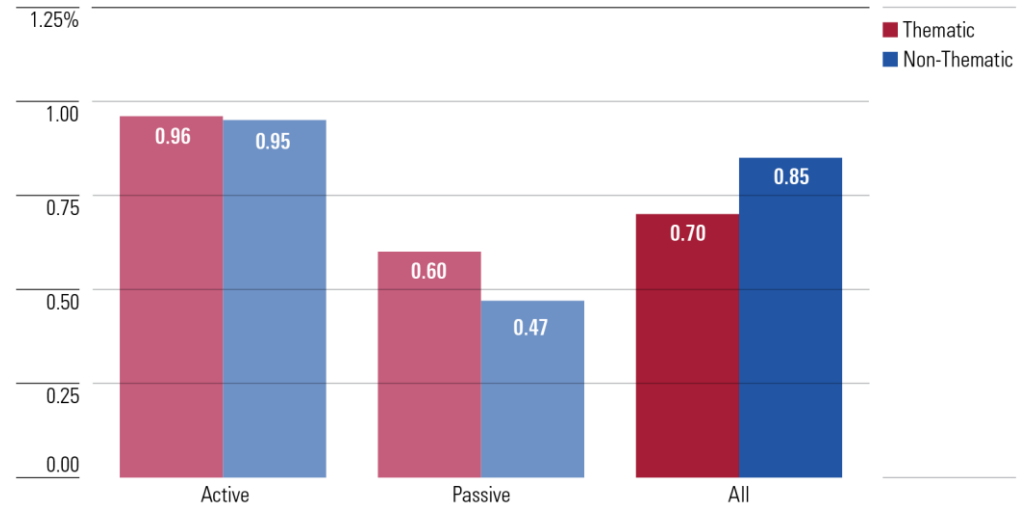
Source: Morningstar Research. Data as of 31 March 2021.

Exhibit 19 U.S. Thematic Funds Style Box

	Value	Blend	Growth
Large	7	15	24
Mid	4	10	16
Small	3	8	12

Source: Morningstar Research. Data as of 31 March 2021.

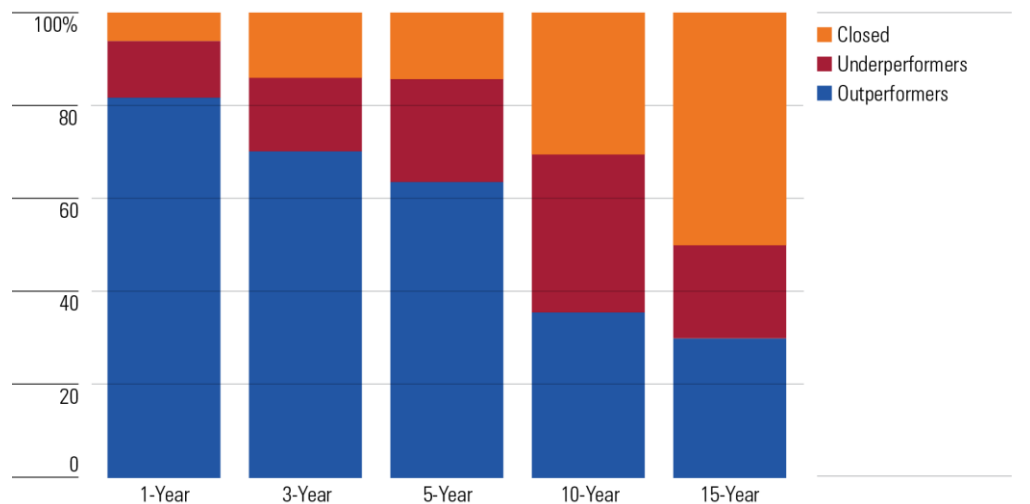
Exhibit 20 U.S. Average Fees



Source: Morningstar Research. Data as of 31 March 2021.

High fees charged by thematic funds have contributed to their relatively poor performance versus broad market indexes over longer periods. A supportive market for growth strategies has seen thematic funds perform well over the trailing five years, but this success rate tumbles when we look at longer periods. Over the 10 years through March 2021, 30% of U.S. thematic funds shuttered, while 36% went on to outperform the broad global equity benchmark (as proxied by the Morningstar Global Markets Index). Exhibit 21 details the challenges facing investors in selecting a thematic fund that will survive and outperform global equities over longer periods.

Exhibit 21 U.S. Thematic Fund Survival and Success Rates



Source: Morningstar Research. Data as of 31 March 2021.

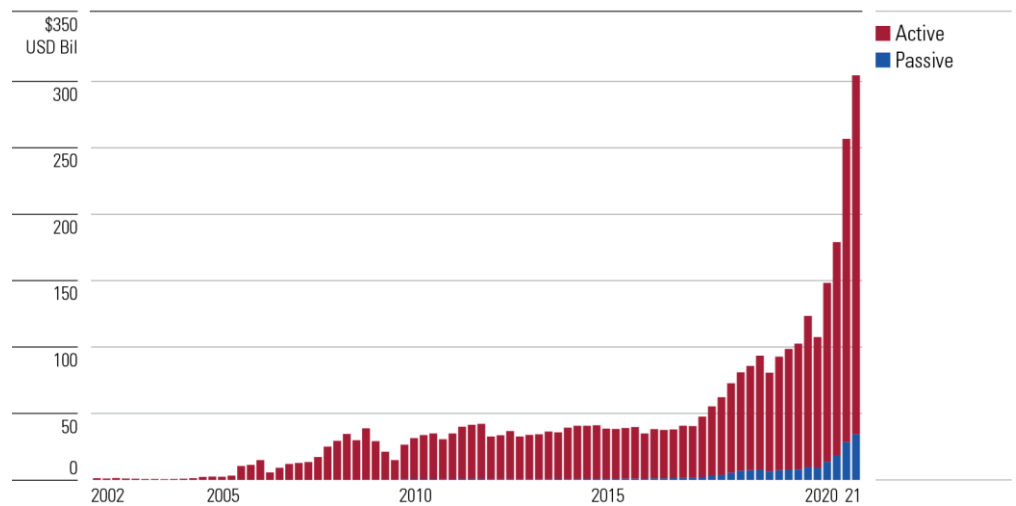
Europe

Europe is home to the largest market for thematic funds by assets. There are 400 thematic funds domiciled in the region, which together accounted for more than half (51%) of all assets in thematic funds globally as of the end of first-quarter 2021.

Assets in the region have more than tripled over the trailing three years to \$304 billion. This has been supported by a nearly unbroken streak of positive quarterly net inflows amounting to \$149 billion over the period.

Most thematic funds in Europe are actively managed. That said, passive funds have been gaining ground and now account for 12% of assets, up from 9% three years ago. In first-quarter 2021 alone, thematic funds attracted over \$45 billion in net flows.

Exhibit 22 Europe AUM Growth (USD Billion)



Source: Morningstar Research. Data as of 31 March 2021.

Exhibit 23 Europe Net Asset Flows by Region (USD Billion)

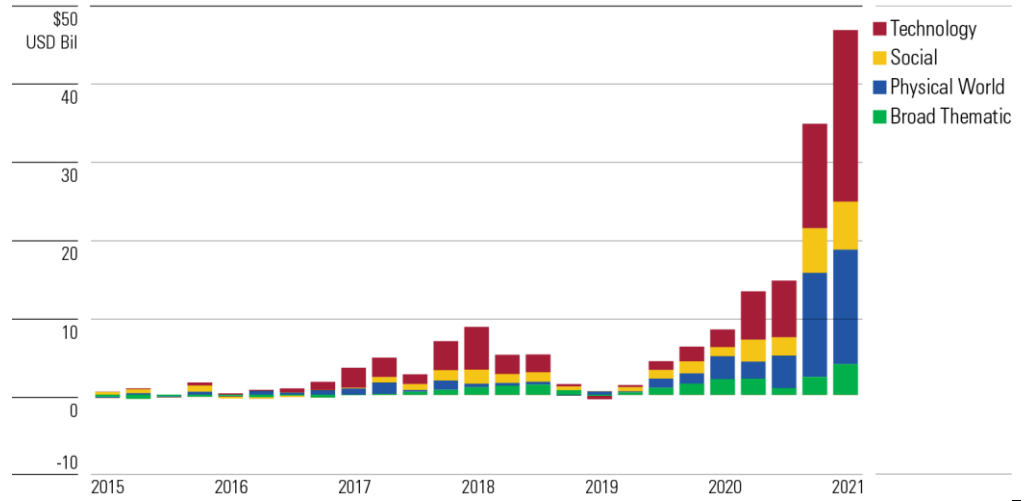
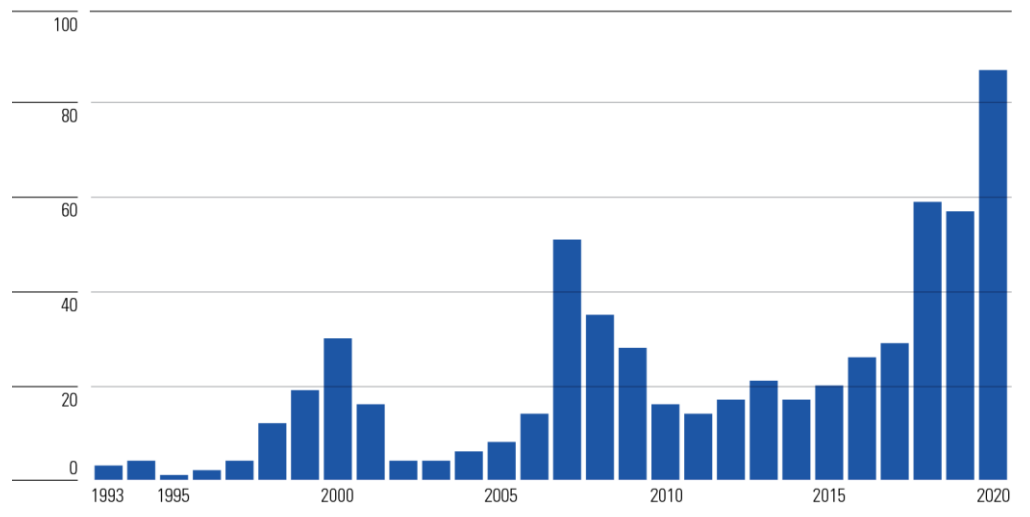
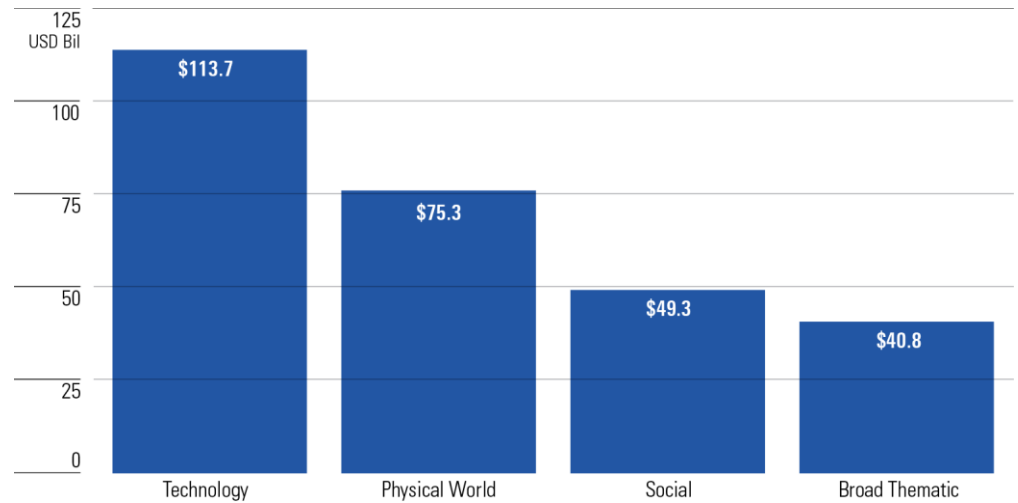


Exhibit 24 European Thematic Launches by Year



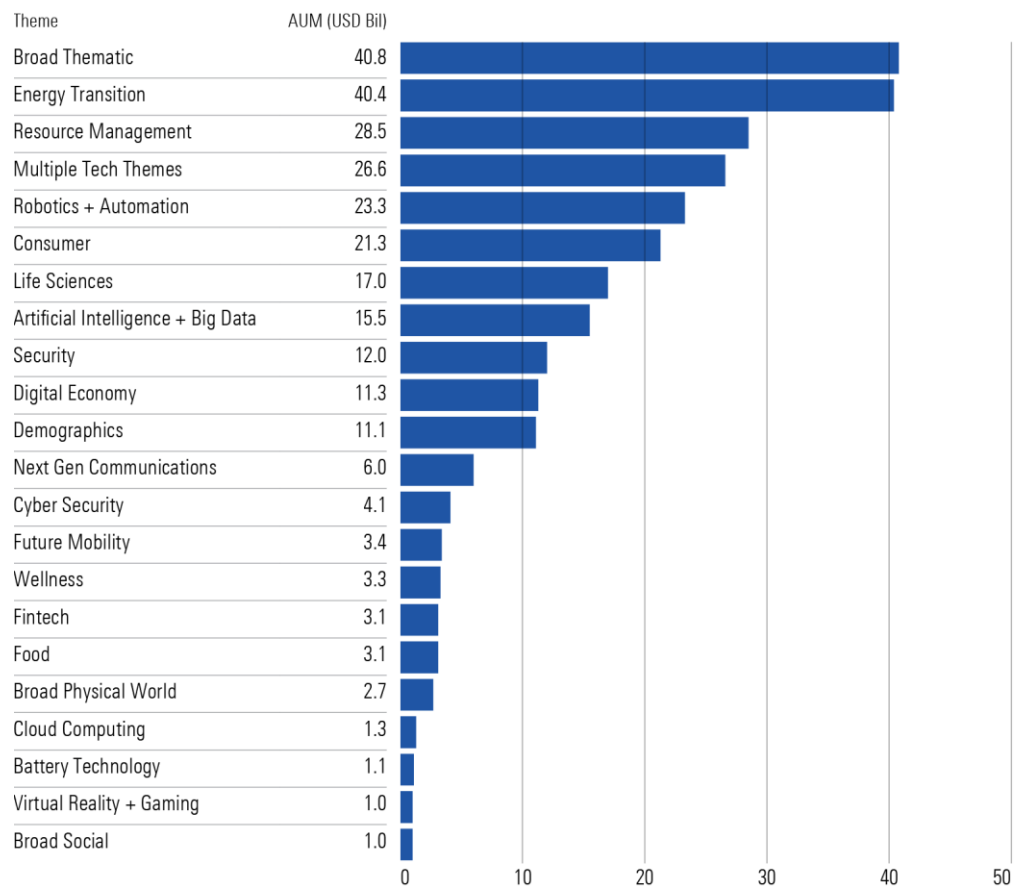
In Europe, 2020 was a record year for thematic launches, with 87 new entrants. Historically, the number of thematic fund launches has been positively correlated with the performance of the broader equity markets. The number of new thematic launches rose in the runup to, and peaked immediately prior to, both the dot-com bubble and the global financial crisis before trailing off in the subsequent years.

Exhibit 25 European Thematic AUM by Broad Theme (USD Billion)



Source: Morningstar Research. Data as of 31 March 2021.

Exhibit 26 European Thematic AUM by Theme (USD Billion)



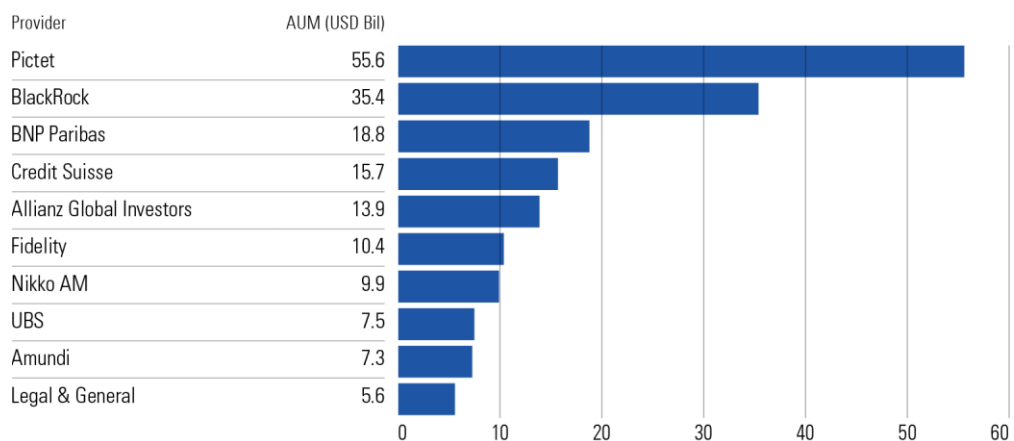
Source: Morningstar Research. Data as of 31 March 2021.

Broad Thematic funds make up the most popular grouping by assets in Europe and include in their ranks the largest thematic fund in the region: the Pictet Global Megatrend Selection fund.

The booming popularity of ESG funds in Europe has also spilled over into the world of thematic investing. Funds seeking to profit from the transition away from hydrocarbon-based energy sources, such as alternative energy funds, have risen to become the second-most popular in the region. In late 2020, the promise of huge government spending plans announced by the newly elected Biden administration in the U.S. prompted massive inflows into funds with an Energy Transition theme.

Resource Management funds, a grouping largely populated by water-focused strategies, takes third place, with \$29 billion in assets under management.

Exhibit 27 European Thematic AUM by Provider (USD Billion)



Source: Morningstar Research. Data as of 31 March 2021.

Thematic specialist Pictet Asset Management is the largest thematic fund provider in Europe. Pictet has a range of 12 actively managed thematic funds, four of which sit among the 10 largest thematic funds in Europe.

BlackRock takes second place in the European thematic provider league table. The small stable of actively managed funds, which include the sizable BlackRock Sustainable Energy and BlackRock Next Generation Technology funds, is complemented by the range of thematic ETFs marketed under the iShares brand.

The largest fund tracking a single theme in Europe is the actively managed Allianz Global Artificial Intelligence fund.

The huge growth of U.S.-based ARK Financial has also made its mark on the European marketplace. Investors have piled into the ARK Disruptive Innovation strategy via the firm's local partner Nikko AM, making it the third-largest thematic fund in Europe.

Exhibit 28 Largest Thematic Funds in Europe

Name	Theme	Sub-Theme	Index Fund	Fund Size (USD Bil)
Pictet-Global Megatrend Selection	Broad Thematic	Broad Thematic	No	13.6
Allianz Global Artificial Intelligence	Artificial Intelligence + Big Data	Artificial Intelligence	No	9.9
Nikko AM ARK Disruptive Innovation	Multiple Tech Themes	Disruptive Tech	No	9.9
Pictet-Robotics	Robotics + Automation	Robotics	No	9.3
Pictet-Water	Resource Management	Water	No	8.3
Pictet-Security	Security	Broad Security	No	8.0
CS (Lux) Digital Health Equity	Life Sciences	Digital Health	No	7.1
Fidelity China Consumer	Consumer	EM Consumption	No	6.3
BGF Sustainable Energy	Energy Transition	Alternative Energy	No	6.0
BGF Next Generation Technology	Multiple Tech Themes	Next Gen Tech	No	5.6

Source: Morningstar Research. Data as of 31 March 2021.

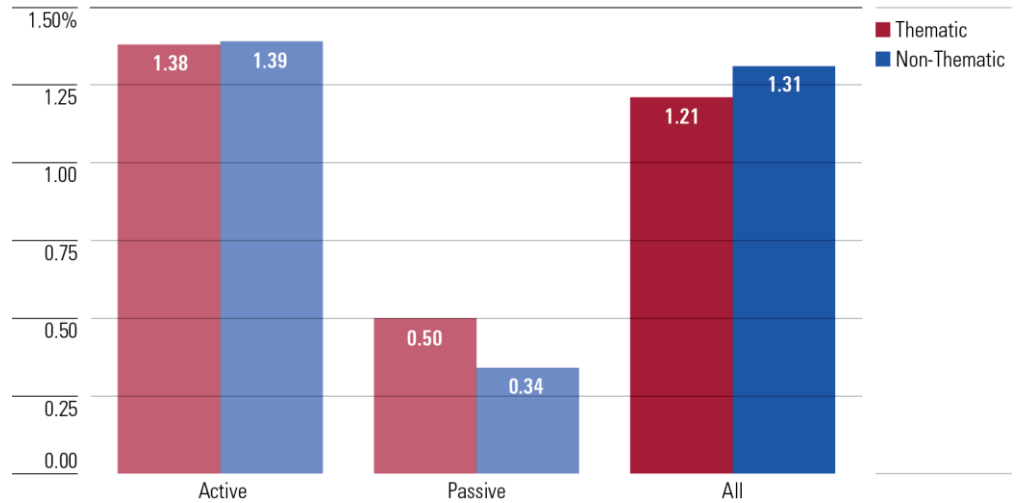
Exhibit 29 European Thematic Funds Style Box

	Value	Blend	Growth
Large	9	20	27
Mid	5	12	13
Small	3	5	6

Source: Morningstar Research. Data as of 31 March 2021.

The style and size breakdowns of European thematic funds resemble those of their global counterparts. Forty-six percent of funds with a style box placement have a growth tilt and just 17% have a value bias.

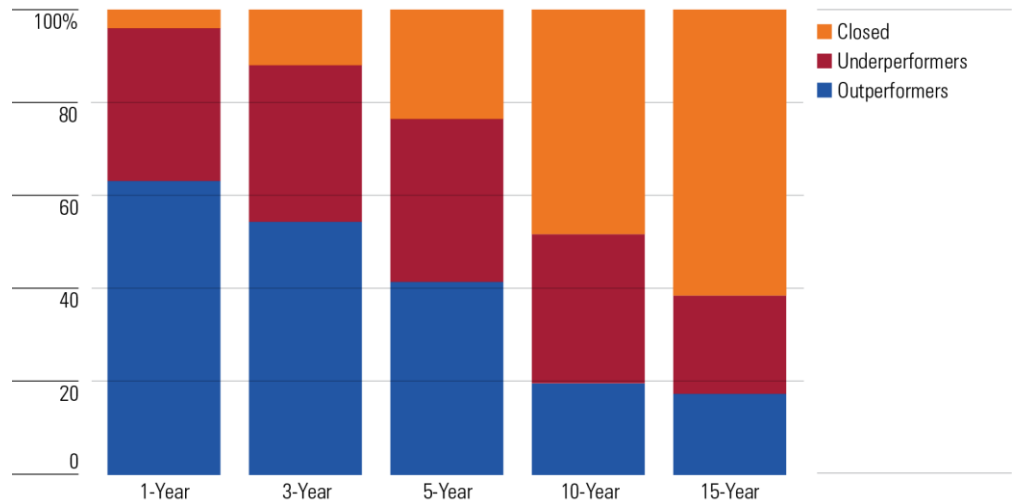
Exhibit 30 European Average Fees



Source: Morningstar Research. Data as of 31 March 2021.

Active European equity thematic funds charge similar management fees to their nonthematic counterparts. When it comes to passive, however, thematic funds charge a clear premium.

Exhibit 31 European Thematic Fund Survival and Success Rate



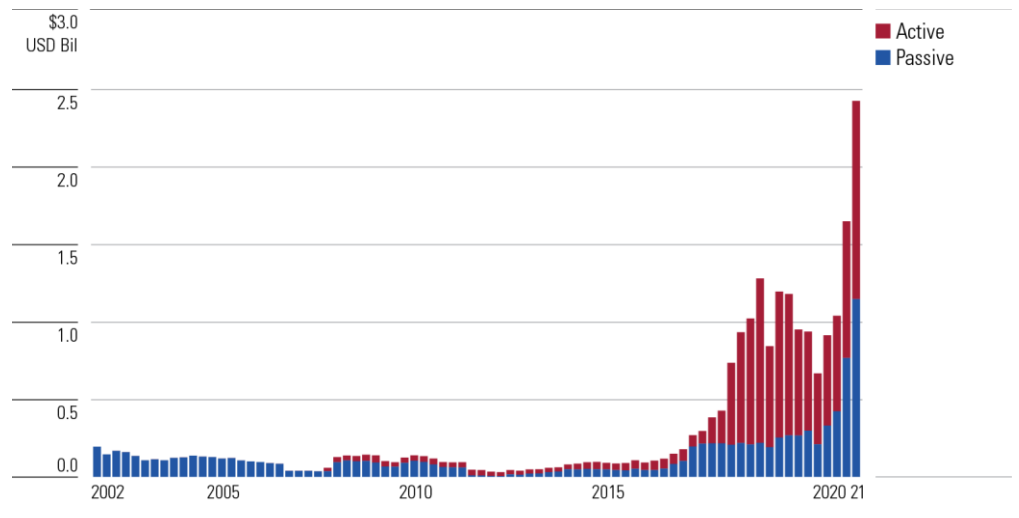
Source: Morningstar Research. Data as of 31 March 2021.

Exhibit 31 lays bare the challenge faced by investors in thematic funds. Although a favorable investment environment in 2020 helped two thirds of thematic funds in Europe survive and outperform the global equity market (as proxied by the Morningstar Global Markets Index), success rates dip rapidly over longer periods. Over five years, less than half of these funds survived and outperformed global equities, a number that plunges to just 17% over the trailing 15 years.

Canada

The 36 thematic funds domiciled in Canada represent a tiny but growing segment of the Canadian fund universe. As of March 2021, the cohort held close to \$2.5 billion, up from just \$52 million in March 2016. As seen in other regions, recent quarters have seen large inflows. The first quarter of 2021, when they collectively pulled in almost \$600 million, was their best quarter for inflows. That is twice the amount of net new money they grabbed in the first quarter of 2018, their previous best quarter.

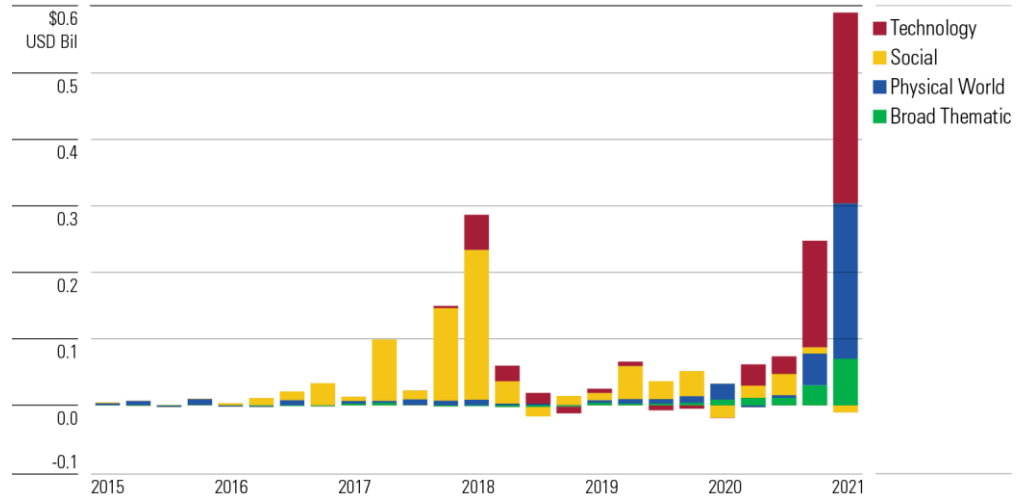
Exhibit 32 Canada Thematic Fund AUM Growth (USD Billion)



Source: Morningstar Research. Data as of 31 March 2021.

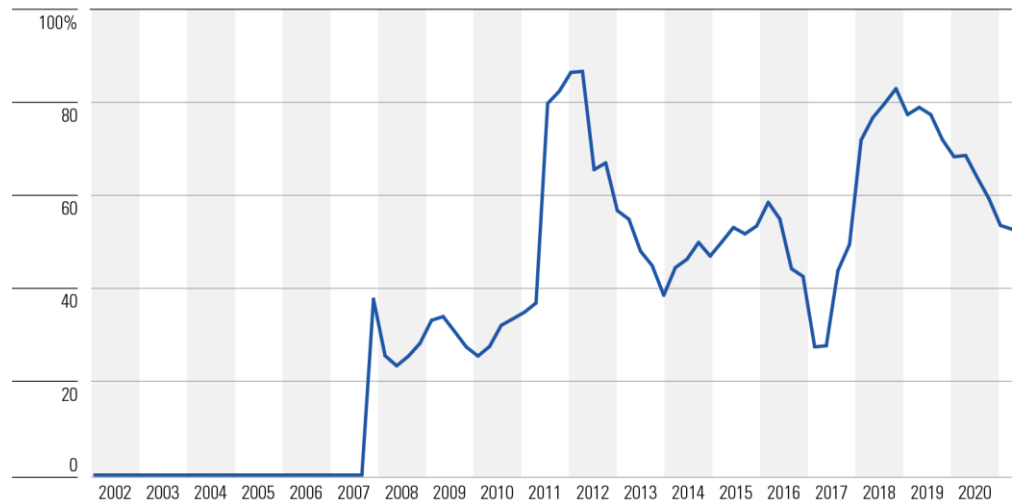
As of March 2021, market share was roughly split between active and passive strategies. Exhibit 34 shows the market share of passively managed Canadian thematic funds has fluctuated dramatically over the last two decades. Passive strategies accounted for almost 90% of thematic funds in late 2011 but only about one fourth of the market at the end of 2016.

Exhibit 33 Canada Thematic Fund Net Asset Flows by Broad Theme (USD Billion)



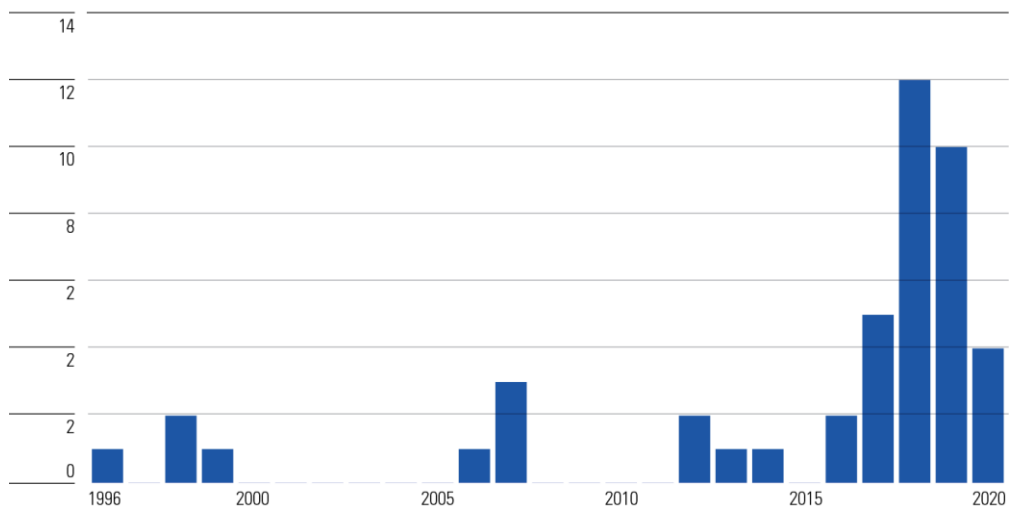
Source: Morningstar Research. Data as of 31 March 2021.

Exhibit 34 Passive Market Share of Canada Thematic Funds



Source: Morningstar Research. Data as of 31 March 2021.

As in other regions, thematic fund launches in Canada have tended to track the market cycle, indicating that investors' appetites for these strategies and the desire for providers to offer them typically move in sync with the broader market. Fund providers have historically brought new strategies to market during periods of strong performance, like the new millennium and mid-2000s. But launches typically dry up during downturns, as Exhibit 35 illustrates.

Exhibit 35 Canadian Thematic Launches by Year

Source: Morningstar Research. Data as of 31 December 2020.

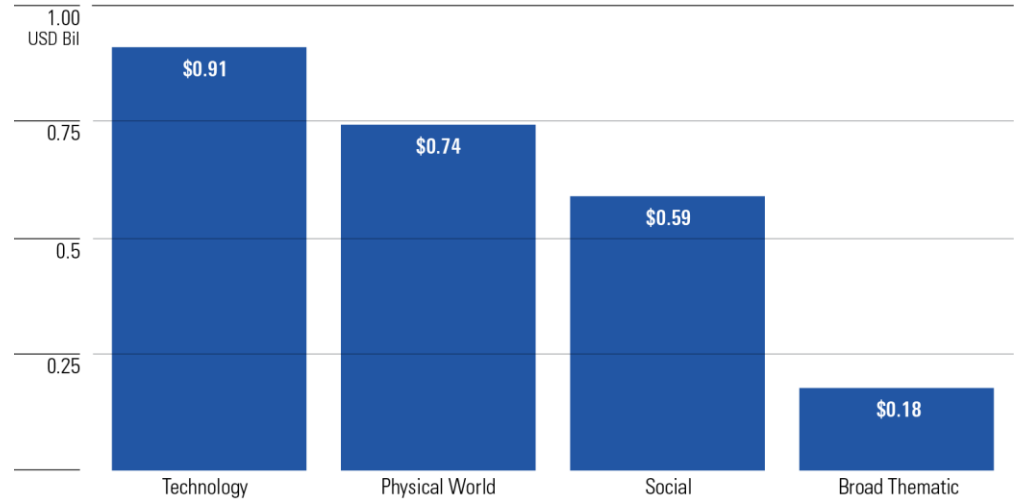
Along with assets and inflows, new fund launches increased considerably over the last five years. Canadian fund providers introduced 12 new thematic funds in 2018 and another 10 in 2019. Six more funds were launched in the first quarter of 2021 alone.

The largest funds in Canada target a diverse array of themes. With \$490 million in assets under management, the Horizons Marijuana Life Sciences ETF HMMJ dominates the Canadian thematic fund landscape, representing almost 20% of all Canadian thematic assets as of March 2021. Few others come close to it in terms of size, as the second- and third-largest funds had about \$200 million to their name.

Exhibit 36 Largest Thematic Funds in Canada

Name	Theme	Sub-Theme	Index Fund	Assets (\$Bil)
Horizons Marijuana Life Sciences ETF	Cannabis	Cannabis	Yes	0.49
iShares Global Water ETF	Resource Management	Water	Yes	0.21
Dynamic Energy Evolution	Energy Transition	Energy Transition	No	0.20
Ninepoint Silver Equities	Demographics	Aging Population	No	0.19
Evolve Cyber Security ETF	Cyber Security	Cyber Security	Yes	0.17
Emerge ARK Global Disruptive Innovation ETF	Multiple Tech Themes	Disruptive Tech	No	0.16
Desjardins SocieTerra Cleantech	Energy Transition	Clean Tech	No	0.12
Manulife Global Thematic Opportunites	Broad Thematic	Broad Thematic	No	0.11
Evolve Automobile Innovation ETF	Future Mobility	Automobile Innovation	Yes	0.09
Ninepoint UIT Alternative Health	Wellness	Alternative Health	No	0.07

Source: Morningstar Research. Data as of 31 March 2021.

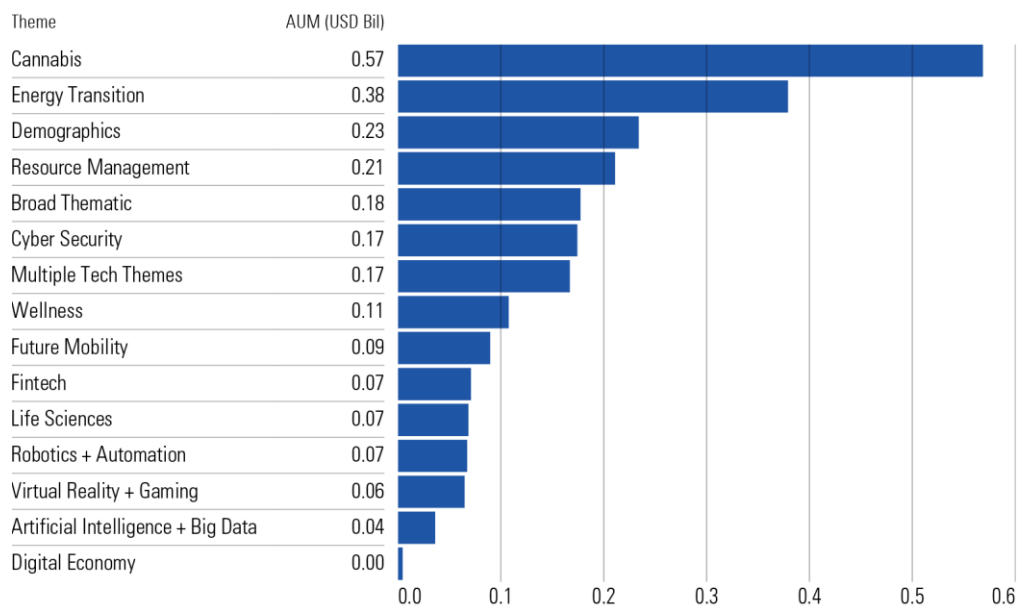
Exhibit 37 Canadian Thematic AUM by Broad Theme (USD Billion)

Source: Morningstar Research. Data as of 31 March 2021.

Running Canadian thematic funds through our taxonomy shows those in the Social broad theme capture the most assets, followed closely by those in the Physical World and Technology broad themes. This breakdown inverts the order of popularity seen in both the U.S. and Europe.

The popularity of Cannabis- and Demographics-related themes (such as an Aging Population) underpins the success of funds with a Social theme. Funds tapping the Energy Transition (largely Alternative Energy funds) and Resource Management (mostly Water funds) account for most of those in the Physical World group.

Exhibit 38 Canadian Thematic AUM by Theme (USD Billion)



Source: Morningstar Research. Data as of 31 March 2021.

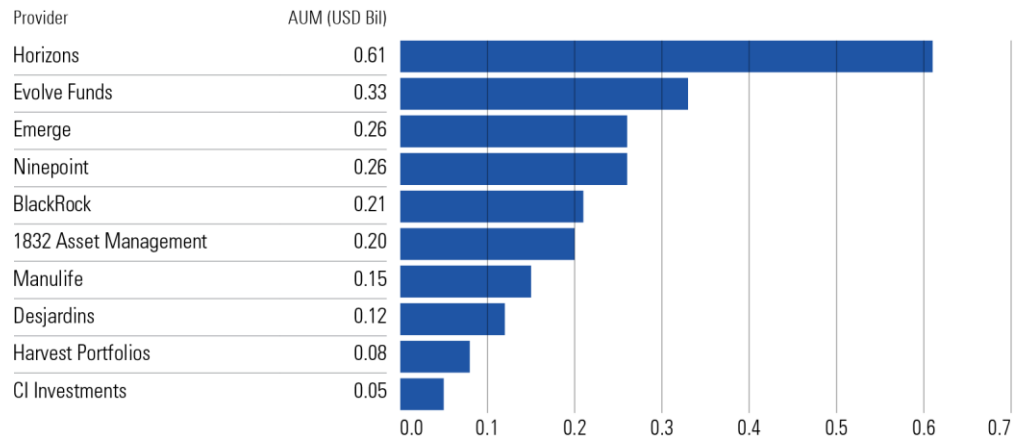
Many of these funds are hoping to profit from emerging trends that are expected to grow rapidly in the near future. As such, a little over half of Canadian thematic funds were classified as growth strategies, compared with only 15% for value. Exhibit 39 further details how Canadian thematic assets map to the Morningstar Style Box.

Exhibit 39 Canadian Thematic Funds Style Box (% of funds)

	Value	Blend	Growth
Large	8	18	27
Mid	3	9	15
Small	4	5	12

Source: Morningstar Research. Data as of 31 March 2021.

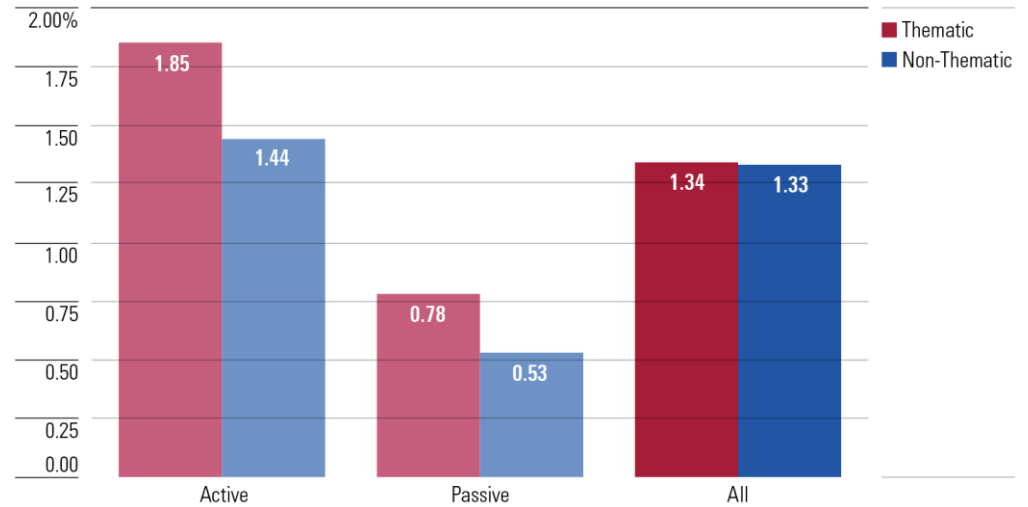
The largest funds shown in Exhibit 36 closely map to the largest fund providers. Horizons is the biggest in Canada because it oversees the largest strategy. Evolve Funds comes in second, which has two of the 10 largest funds.

Exhibit 40 Canadian Thematic AUM by Provider (USD Billion)

Source: Morningstar Research. Data as of 31 March 2021.

Outside of the largest funds, most have small asset bases. As of March 2021, the median thematic fund in Canada had about \$45 million in assets. Only eight of the 10 largest thematic funds had more than \$100 million in assets. Funds with smaller asset bases, meaning those with less than \$100 million, indicate that a strategy or theme has not gained (and may not ever gain) traction. Caution is warranted with these smaller funds as they could potentially liquidate because of a lack of interest.

Fees are an important consideration for any investment strategy as they directly impact performance. Exhibit 41 shows that Canadian thematic funds, on average, have a similar management expense ratio as their nonthematic counterparts. But that doesn't tell the whole story. A large number of relatively cheaper index-tracking funds in the thematic cohort keeps the average fee low. Splitting funds into active and passive groups shows that the average thematic fund expense ratio is higher for both active and passive strategies.

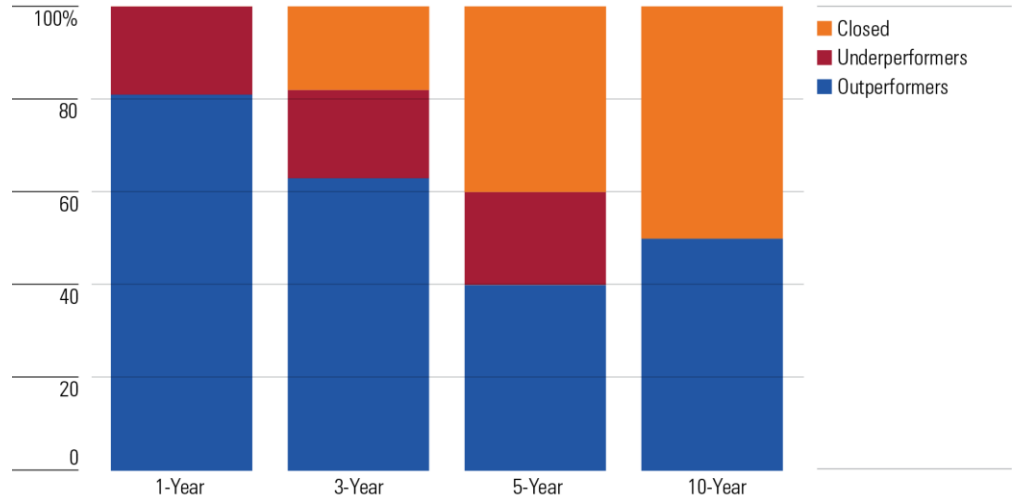
Exhibit 41 Canadian Average Fees

Source: Morningstar Research. Data as of 31 March 2021.

Higher fees charged by thematic funds have contributed to their relatively poor performance over longer periods. Their ability to outperform the global stock market tends to be low over periods longer than one year and declines as strategies age. For example, over 80% of Canadian thematic funds survived and outperformed global equities (as proxied by the Morningstar Global Markets Index) over the trailing year through March 2021. The success rate drops to two in five funds over five years. Neither of the two thematic funds with a 10-year track record has survived and outperformed over the trailing 10 years.

Exhibit 42 details the formidable challenges facing investors in selecting a thematic fund that will survive and outperform global equities over longer periods.

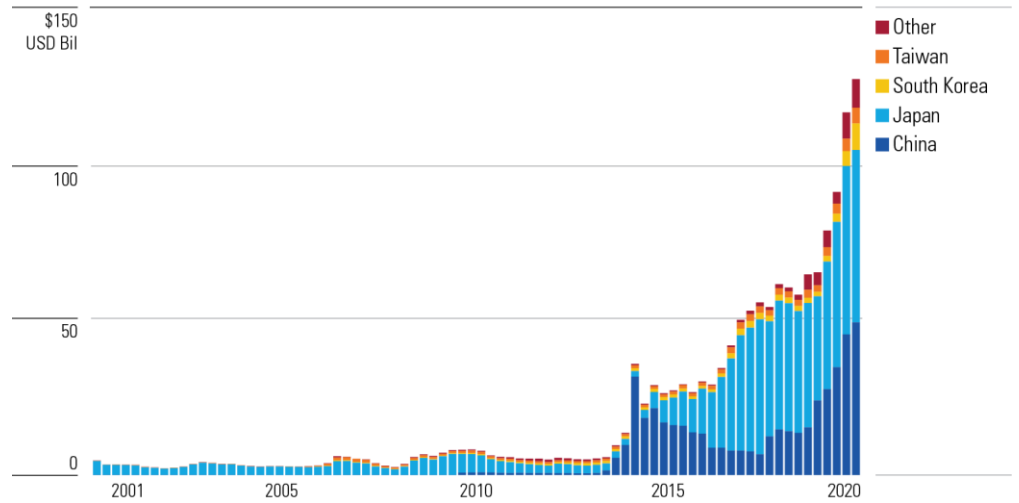
Exhibit 42 Canadian Thematic Fund Survival and Success Rate



Source: Morningstar Research. Data as of 31 March 2021.

Rest of World

Exhibit 43 Rest of World AUM Growth by Region (USD Billion)



Source: Morningstar Research. Data as of 31 March 2021.

Assets in thematic funds domiciled outside of the North America and Europe have also been soaring, reaching a record \$128 billion at the end of first-quarter 2021.

Japan

Japan forms the largest thematic fund market outside of North America and Europe, with total assets of \$56 billion, up from just \$7 billion five years earlier².

Over the trailing three years, Technology funds have attracted more than half of the net inflows into thematic funds, and it remains the most popular grouping. The set includes the huge Goldman Sachs netWIN Technology Equity fund, which targets the Digital Economy, and the SMTAM Next Generation Communications Related World Equity Strategy Fund; both top the list of largest funds in the Rest of World shown in Exhibit 44. Robotics and Artificial Intelligence funds also feature prominently.

China

Over the past decade, China has risen from nothing to become the second-largest thematic fund market outside of the North America and Europe. Assets domiciled in the country totaled \$49 billion as of March 2021.

There are now 170 thematic funds domiciled in China. In first-quarter 2021 alone, 18 new thematic funds came to market.

Social themes have proved popular among Chinese investors. Both Security and Political themes have attracted assets. The groupings are dominated by National Defense and Structural Reform subthemes, respectively. As elsewhere, Energy Transition funds find a place among the largest themes.

Exhibit 44 Rest of World Largest Thematic Funds

Name	Theme	Sub-Theme	Domicile	Index Fund	Assets (USD Billion)
GS netWIN GS Tech Eq Fund B Unhedged	Digital Economy	Internet	Japan	No	6.0
SMTAM Next Generation Communications Related World Equity Strategy Fund	Connectivity	Next Generation Comm.	Japan	No	5.9
GF High-End Manufacturing Equity Fund A	Robotics + Automation	Hi-Tech Manufacturing	China	No	3.9
Nikko Global Robotics Equity Fund D2Y	Robotics + Automation	Robotics	Japan	No	3.5
SMDS Global AI Fund	Artificial Intel + Big Data	Artificial Intelligence	Japan	No	3.4
Nikko Global Robotics Equity Fund D1Y	Robotics + Automation	Robotics	Japan	No	3.1
ChinaAMC CSI 5G Communication ETF	Next Gen Communications	5G	China	Yes	2.8
Nikko Global Fintech Equity Fund	Fintech	Fintech	Japan	No	2.6
MUKAM Cyber Security Eq Open Unhedged	Cyber Security	Cyber Security	Japan	No	2.6
ChinaAMC Energy Innovation Equity Fund	Energy Transition	Energy Tech	China	No	2.5

Source: Morningstar Research. Data as of 31 March 2021.

² Although the issue of double-counting cannot be eliminated, we include Japan-domiciled funds of funds and feeder funds in this review to better reflect the actual flow situation in the Japanese fund market, as many Japanese funds of funds are invested in European funds.

South Korea

Trailing some way behind in terms of size, but also growing fast, is the South Korean thematic fund market. The market size has ballooned from \$1.5 billion to \$8.5 billion in the 12 months to the end of March 2021.

This growth in assets has been supported by a raft of new launches. More than a third of surviving funds were launched in the trailing year to end first-quarter 2021.

Many of the new launches explicitly or implicitly seek to benefit from the Korean New Deal announced by the Korean president in the summer of 2020. The deal involves large government investment in the domestic green and digital sectors. Existing domestically focused Battery Technology and Future Mobility themed funds, which are among the largest in the region, have also benefited from the associated flows.

Taiwan

Taiwanese investors have demonstrated their appetite for thematic funds. The market more than doubled in size to \$5.1 billion over the year to the end of first-quarter 2021.

Funds in the Next Generation Communications theme account for more than half of the thematic fund market. This set includes the Cathay Taiwan 5G Plus ETF 00881, which is the largest thematic fund in Taiwan.

Analyzing Thematic Funds

A Trifecta Bet

Before getting into specifics with respect to best practices for thematic fund due diligence, selection, and implementation, a bit of framing is in order.

Investors in thematic funds are making a trifecta bet (a term from the racetrack). Specifically, they are implicitly betting that they are:

- 1) Picking a winning theme.
- 2) Selecting a fund that is well-placed to harness that theme.
- 3) Making their wager when valuations show that the market hasn't already priced in the theme's potential. The odds of winning these bets are low, but the payouts can be meaningful.

The long-term performance figures for thematic funds are not flattering. They suggest that investors' odds of selecting a fund that will survive and outperform over the long run are slim.

For those intrepid investors looking to choose a thematic fund from the menu, the following section summarizes our thoughts regarding best practices when analyzing, selecting, and allocating to these funds.

Analyzing the Theme

The first port of call when evaluating a thematic fund is the theme itself. First and foremost, a robust theme should be logical. Is the narrative convincing? Is there a coherent and compelling growth story behind the strategy? Is there data to back it up?

A robust strategy should be loose enough to adapt as the specifics of the chosen theme inevitably evolve through time. As timely as they may seem now, some themes will age poorly. Investors must ask themselves: Will that work-from-home ETF still be relevant in three years' time? On the other hand, it shouldn't be so loose that it dilutes any potential gains or becomes too similar to often-cheaper, more-vanilla existing sector or broad equity strategies. How different is an innovative healthcare ETF from a vanilla GICS healthcare strategy?

Over what time frame is the theme expected to play out? How will you know when to exit? Having preset exit criteria based on robust metrics such as valuation ratios will help protect against poor investment decisions. These should be monitored regularly.

It is also important to understand the key risk and return drivers embedded in the theme. For example, when investing in a cannabis fund, it would be important to look beyond the growth projections and to fully understand the regulatory risks associated with that theme.

Once isolated, it should be determined whether the risk and return drivers of the fund in question are either complementary or redundant when framed within an investor's portfolio.

Implementation

A strong narrative should not distract us from looking more closely at how well a fund tracks its theme.

While at face value the theme in question may be intuitive and appear to have durable investment merit, it might not be possible to capitalize on it via publicly traded stocks. This is because there are often few firms that represent pure plays on any given theme. Even when there are pure-play companies, there is no guarantee that they stand positioned to profit directly from a given theme. And even if they are, their growth might already be priced into their shares.

Also, there tend to be several different approaches to harnessing any given theme, Funds tracking a similar theme can end up being very different from one another. This creates an additional due diligence and ongoing monitoring burden for investors.

Active or Passive?

There are pros and cons to active and passive approaches to managing thematic funds.

The Pros of an Active Approach

- ▶ The pros of an active approach generally pertain to having greater flexibility than an index strategy.
- ▶ Managers can constantly monitor exposure to the theme as it evolves and can overweight better holdings and/or exclude poorly run businesses.
- ▶ Managers can incorporate a broader variety of data sources and analytical tools to inform their security selection and weighting decisions.
- ▶ Managers can invest in less liquid, less seasoned securities than most passive peers. This might allow them broader and/or earlier access to companies positioned to capitalize on the theme relative to indexed peers.

The Cons of an Active Approach:

- ▶ Active thematic funds are more expensive than their passive peers.
- ▶ There is scant evidence that, as a group, active managers use their flexibility to great effect.

The Pros of a Passive Approach

- ▶ The pros of a passive approach generally tie back to their rigidity. Tracking an index results in relatively lower fees and greater transparency than an active strategy.

The Cons of a Passive Approach

- ▶ Rigidity can also be a disadvantage. Thematic indexes rely on fixed rules to select and weight stocks. As themes and data sets evolve, an index approach may be at risk of being caught flat-footed.

Thematic Index Selection Criteria

Most passive thematic strategies use one or more of the below approaches to select stocks.

Revenue

The majority of thematic ETFs select stocks based on the revenues that companies derive from a defined set of activities. For example, an alternative energy fund may select constituents based on the percentage of revenues tied to solar, wind, or wave power.

This approach is logical, and the data are readily available.

A potential downside of a strictly revenue-based approach is that it is primarily backward-looking. This can leave investors gazing in the rearview mirror, which may be particularly problematic in rapidly developing areas such as technology.

Committee

In some cases, a committee of experts meets regularly to decide which stocks align with the desired theme, usually supplementing quantitative inputs like revenue sources with a more qualitative assessment. The committee can offer a "soft touch" approach, which allows the strategy to adapt to meet changes in the investment landscape. On the other hand, it means the strategy is reliant on the judgment of the committee and is therefore opaque. The committee is often lent credibility by being overseen by specialist organizations (like a trade association) or well-known experts in their fields.

Other

Some modern index/data providers use cutting-edge technology to scrape data from more obscure sources such as academic papers and patent submissions. The advantage of this approach, particularly in the fast-moving world of technology, is that it is forward-looking (patents signal intention). There are also claims that this approach can help generate an informational edge. A downside is the black-box nature of these strategies.

Thematic Index Weighting Criteria

After selecting stocks, an index must choose how to weight them. Given the narrow nature of most thematic funds' selection universes, a standard market-cap-weighting approach will often result in large weightings in a small handful of stocks. To correct for this, most indexes have single stock, sector, or geographic weighting caps and/or floors. Another popular solution to this single-stock concentration problem is to equally weight constituents. Both approaches balance the influence of larger companies and result in a small-cap bias.

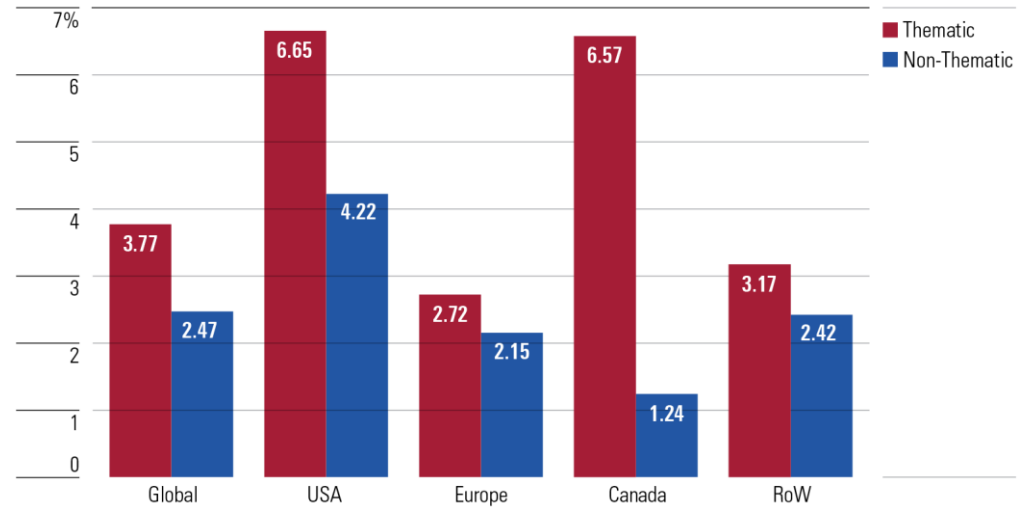
Some funds implement more complex tiered or graded weighting approaches that prioritize firms that offer greater exposure to the underlying theme. For example, a specialized robotics company like U.S.-based iRobot IRBT would be given a higher weighting than a huge conglomerate like Siemens SIEGY, for which robotics forms a smaller part of overall operations.

Liquidity

In their search of companies with the highest exposure to emerging themes and those with the highest growth potential, thematic funds often invest in the smaller, less liquid stocks.

In Exhibit 45, we can see that in every region, thematic funds have a higher average exposure to micro-cap stocks than their nonthematic counterparts. Micro-cap stocks can offer large upside potential, but a lack of liquidity means trading in and out at short notice can be costly.

Exhibit 45 Average Global Micro-Cap Exposure Thematic vs. Nonthematic Funds

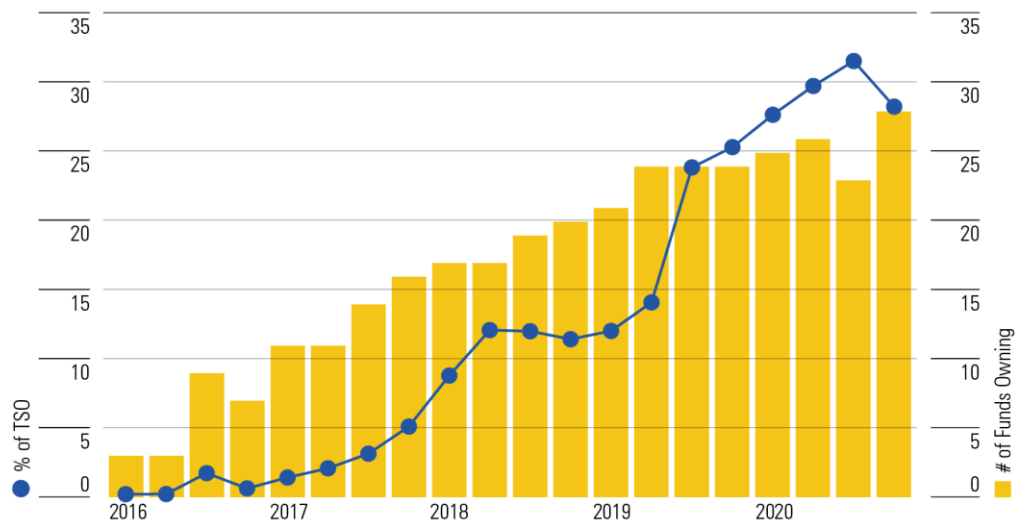


Source: Morningstar Research. Data as of 31 March 2021.

The surge in popularity of thematic funds — and thematic ETFs, which tend to have narrow exposures and (when passively managed) are compelled to buy and sell in line with index rules — has raised questions surrounding stocks' liquidity.

As the thematic market has grown, the concentration of thematic funds' holdings also spiked. These funds tend to gravitate toward similar names. For example, 28 thematic funds globally combine to own one fourth of the total shares outstanding of 3D printing firm Stratasys. This is shown in Exhibit 46.

Exhibit 46 Increasing Thematic Ownership of 3D Printing Stock Stratasys Through Time



Source: Morningstar Research. Data as of 31 December 2020.

The stratospheric growth of the ARK Financial range of actively managed ETFs has seen the firm build huge stakes in smaller companies. In the case of Stratasy, the ARK Innovation ETF alone holds 22% of the stock's available free float. Exhibit 47 shows the extent to which ARK funds own some portfolio companies.

Exhibit 47 Largest Stock Holdings as % of Free Float Stock

Stock Name	# of Thematic Funds Invested	% of Free Float Owned by All Thematic Funds	Single Largest Owner	% Free Float Owned by Largest Owner
AquaBounty Technologies	2	27.9	ARK Genomic Revolution ETF	27.8
Personalis	13	26.0	ARK Genomic Revolution ETF	25.2
Stratasy	28	50.4	ARK Innovation ETF	22.1
Proto Labs	31	34.0	ARK Innovation ETF	20.1
Arcturus Therapeutics Holdings	9	20.0	ARK Genomic Revolution ETF	19.2
Compugen	10	39.4	ARK Innovation ETF	18.6
LendingTree	21	38.3	ARK Innovation ETF	18.6
Infrastructure and Energy Alternatives	2	19.0	Invesco WilderHill Clean Energy ETF	18.4
Pluristem Therapeutics	3	19.0	ARK Genomic Revolution ETF	18.2
SecureWorks Corp A	4	16.6	ETFMG Prime Cyber Security ETF	15.8
Seres Therapeutics	9	32.3	ARK Innovation ETF	15.6
Syros Pharmaceuticals	9	36.5	ARK Innovation ETF	15.4

Source: Morningstar Research. Data as of 31 December 2020.

The Ark Genomic Revolution ETF ARKG owns more than a fourth of the free float of both Personalis PSNL and AquaBounty Technologies AQB. The liquidity promised by the ETF structure means investments can be pulled out on a whim. Should this ETF suffer large outflows, it may struggle to find buyers for such a large holding in a small-cap company. To further complicate the liquidity position of these high-profile funds, at the time of this writing, some ARK ETFs have taken large positions in other ARK ETFs³.

Although ARK funds dominate the largest owners table in Exhibit 47, they are not the only ones with concentrated holdings. Alternative Energy funds' recent growth spurt has also seen them build large stakes in smaller firms. For example, at the time of writing, the Invesco WilderHill Clean Energy ETF PBW holds 18% of the free float of the micro-cap Infrastructure and Energy Alternatives IEA.

In fact, the runaway success of some Alternative Energy ETFs caused their own growing pains in late 2020. The combined assets of iShares Europe- and U.S.-domiciled alternative energy ETFs⁴ catapulted to USD \$10.7 billion by the end of first-quarter 2021 from \$0.8 billion at the beginning of 2020. With so much money gushing into such a narrow portfolio of small- and mid-cap stocks and amid questions about liquidity, the S&P Global Clean Energy Index has been forcibly broadened. Any additional trading costs associated with this switch were absorbed by fund investors.

³ At the time of writing, ARKX is the largest owner of The 3D Printing ETF PRNT. The 6.3% stake represents more than the next 20 shareholders combined.

⁴ iShares Global Clean Energy ETF ICLN and iShares Global Clean Energy ETF USD Dist INRG.

In the case of ETFs, should the liquidity dry up in a portfolio stock, the increased trading costs will be passed on to the ETF investor through larger spreads, and tracking error versus the underlying benchmark will increase. In a similar circumstance, active managers can choose which holdings to sell first. This in itself may result in suboptimal outcomes, but consequences may be greater if, faced with prolonged selling, the fund is forced to divest to meet redemptions⁵.

Like all investors, thematic investors are prone to reflexivity trades⁶—that is, they invest in themes because they have been performing well and scramble to divest when the tide turns. This strategy will have paid off for many investors in 2020, as thematic funds climbed to new heights, but some of the same individuals will likely get burnt when the fortunes of the more popular themes inevitably wane and investors swarm for the exits.

When evaluating the liquidity of a thematic fund, investors should look directly at fund holdings (and, in the case of passive funds, the index methodology). Metrics like market capitalization of the stocks and average daily traded volume can be used to estimate how difficult it would be to sell holdings at short notice. A fund with large exposure to small- and micro-cap stocks is worth further scrutiny.

Understanding Thematic Funds' Biases

As always, it is crucial that investors understand what they own, but this is particularly true when picking thematic funds, which come in a variety of flavors. Below, we examine these funds' holdings and make some observations.

Size

At the time of writing, over 75% of thematic funds globally had a smaller size profile than the Morningstar Global Markets Index, a proxy for global equities. This is important because smaller stocks tend to have elevated risk profiles relative to their larger brethren.

Style

By their nature, thematic funds are trying to profit from areas of anticipated growth. It should therefore come as no surprise that more than 45% of these funds globally have a growth bias. This number rises to over 80% for technology-themed funds. Only 15% of all thematic funds had a value tilt at the time of writing.

Sectors and Geography

One hallmark of thematic investing is a disregard for traditional sectors or geographies. Depending on the themes tracked, investment footprints can be strikingly different from broad global benchmarks like the Morningstar Global Markets Index.

⁵ See the fate of star manager Neil Woodford in the United Kingdom.

⁶ A term popularized by George Soros.

Almost 86% of thematic funds globally offer diversified exposure spanning traditional market sectors. The remaining 14% of funds offer more concentrated sector exposure by selecting stocks largely within the confines of a single GICS sector⁷.

Often, these focused subsector themes underpin passive vehicles, particularly ETFs.

We see a similar story with geographic exposures. Seventy percent of thematic funds globally are geographically diversified (no country takes up more than 75% of the portfolio). Those that do focus on one country tend to isolate large markets like the U.S., China, Japan, or South Korea.

As themes are constantly evolving, and many funds don't include explicit constraints, geographic and sector exposures can and will change over time and must be monitored regularly.

Fees

It is hard to overstate the importance of compounded fees on long-term fund performance. Indeed, fees have been shown to be the most reliable indicator of future fund performance.

As shown in Exhibits 20, 30, and 41, thematic funds tend to be more expensive than their nonthematic counterparts. These higher fees should be scrutinized closely. Are they justified?

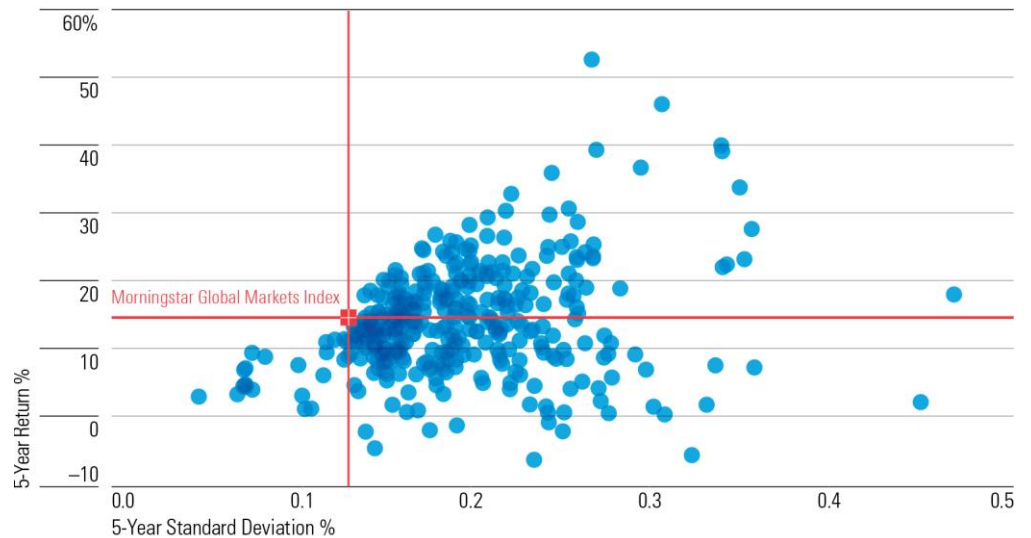
Assessing Performance

The odds of picking a thematic fund that outperforms a low-cost global equity index fund over long time horizons are stacked firmly against the investor in all regions.

Globally, just 58% of all thematic funds launched prior to 2011 were still trading by the end of first-quarter 2021. Of these, only 39% managed to beat the Morningstar Global Markets Index.

That said, those that do win can win big. For example, those who invested in the Invesco WilderHill Clean Energy ETF *PBW* back at the beginning of 2018 would have raked in annualized returns of 60% through the end of first-quarter 2021—5 times the return of the Morningstar Global Markets Index over the same period.

⁷ Number of funds with more than 75% exposure to a single sector.

Exhibit 48 Global Thematic Fund 5-Year Excess Risk and Return

Source: Morningstar Research. Data as of 31 March 2021.

In Exhibit 48, we can see that more than 80% of all surviving thematic funds registered a higher standard deviation than the Morningstar Global Markets Index over the five years to March 31, 2021. For some, like the ETFMG Alternative Harvest ETF MJ, which gained 39.9% in 2017 only to lose 28.5% in 2019, the volatility has been stomach-churning.

Some extra risk is to be expected given the speculative nature and the narrow remit of many thematic strategies, but it also means they miss out on the risk-dampening diversification benefits of broader equity holdings.

Fitting Thematic Funds Into Your Portfolio

Because of their narrow exposure and higher risk profile, thematic funds are best used to complement rather than replace existing core holdings. Some, like Pictet-Global Megatrend Selection Fund, may be used as part of a core allocation, as they are broadly diversified and retain some of the characteristics of a broad global benchmark. Narrower exposures might be considered as single-stock substitutes for those investors looking to express a view on a particular theme but lacking the time, tools, and inclination to conduct due diligence on individual companies.

The best themes are expected to play out over many years. This means that they are most suitably deployed over longer investment horizons.

Return Booster or Risk Reducer?

Most thematic funds will be used with the hope of boosting returns over the investment period, but some can be specifically used to reduce portfolio risk. For example, alternative energy funds can be substituted for core energy holdings to reduce carbon risk. They fit especially well with "ex-energy" exposures.

Even if we set aside the claims of prospective outperformance from asset managers, if a thematic fund has drivers of risk and return that are distinct from other portfolio holdings, adding it around the margins of a core portfolio might yield diversification benefits.

Ultimately, the risk and return drivers should be well-understood before any attempt is made to blend them into a broader portfolio. Equally, portfolio overlap and potential style drift should be monitored carefully through time. ■■

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