The Big Shortfall

Thematic investors lose lion's share of returns due to poor timing.

Morningstar Manager Research
Nov. 15, 2023

Contents

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Key Takeaways

- Investors in thematic funds lost more than two thirds of total returns because of poorly timed buys and sells.
- While thematic funds' average total return was 7.3% annualized over the five-year period through June 30, 2023, investors earned only a 2.4% return when the impact of cash inflows and outflows is considered. Thus, investors suffered a 4.9-percentage-point annual return shortfall, or gap, stemming from mistimed purchases and sales.
- Investors lost more value in focused funds such as those tracking Technology or Physical World broad themes compared with more diversified Broad Thematic peers.
- Return gaps were far wider in exchange-traded funds than in thematic mutual funds. ETFs tend to offer more concentrated bets and lend themselves to tactical usage.
- The largest return shortfalls occur across highly targeted funds, which posted eye-catching performance, attracting large net inflows before suffering a change of fortune.

Introduction

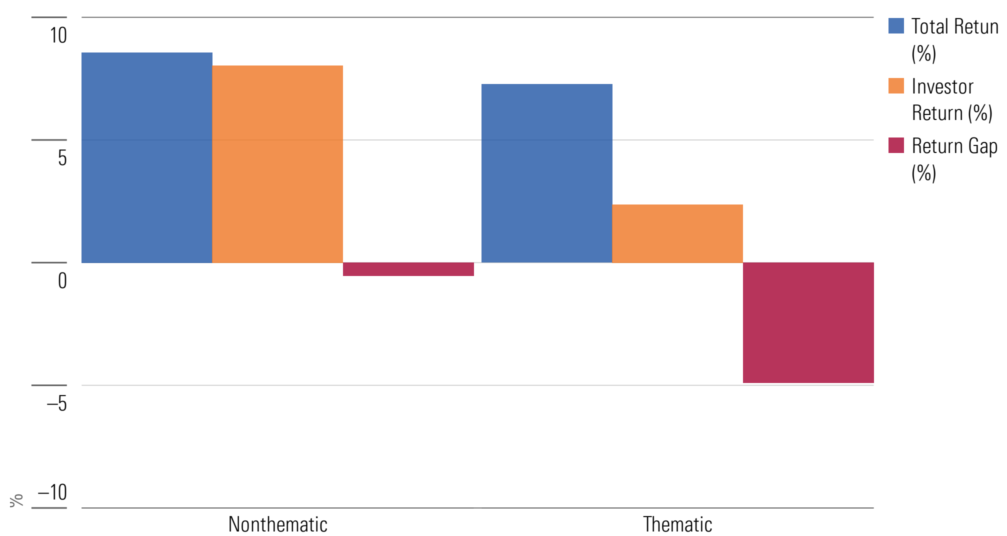
Thematic funds have risen in prominence globally since the coronavirus pandemic, grabbing headlines and growing market share while also raising concerns about how they are used.

This distinct grouping of funds, which attempt to harness one or more secular growth themes ranging from artificial intelligence to aging populations, has more than doubled its assets under management globally since 2018.

The narrative-driven investment style and prominence on retail brokerage platforms make thematic funds particularly attractive to portions of the retail investment community. The volatile return profiles of many thematic funds, coupled with low- or no-commission trading and the intraday trading capabilities of thematic ETFs, can encourage the worst type of investor behavior and ultimately result in poor investment outcomes.

Our findings show that, in aggregate, investor buying and selling habits connected with thematic funds over the last five years have destroyed considerable value.

Exhibit 1 Five-Year Total Returns, Investor Returns, and Return Gaps for Thematic and Nonthematic Funds



Source: Morningstar Direct. Data as of June 30, 2023. Domiciles included in this chart: Ireland, Luxembourg, United Kingdom, and the United States.

The results support previous findings from our Mind the Gap studies that fund investors are collectively poor market-timers and they particularly struggle in more volatile and exotic funds compared with more diversified core building blocks. More volatile funds seem to induce more frequent trading and a tendency to buy high and sell low. Most investors would achieve better investment outcomes by adopting a more patient buy-and-hold approach.

This paper applies the same methodology to the thematic fund universe as our recent global Mind the Gap study[1]. Funds typically report total returns, which are time-weighted, meaning they assume a lump-sum investment made at the beginning of the measurement term that's held throughout the whole period. But investor returns can be a more telling measure because they include the impact of cash inflows and outflows from investors. Investor returns weight more heavily periods when investors have more dollars invested. Our Mind the Gap methodology compares these dollar-weighted return calculations with time-weighted total returns. The study includes both mutual funds and ETFs.

More Targeted Thematic Funds Suffer Larger Gaps

As a global cohort, thematic funds[2] have resulted in dismal investor returns over the trailing five years, when the investment gap for thematic funds has been a yawning 4.9%. This number is high in absolute terms (real dollars lost to investors in these funds) but also relative to the much smaller investment gap of 0.5% experienced by investors in all equity funds over the same period. Of the 7.3% average return on

1 https://www.morningstar.com/en-hk/lp/mind-the-gap

2 Data through June 30, 2023. The overall comparison includes equity mutual funds and ETFs domiciled in Ireland, Luxembourg, United Kingdom, and the United States only, while in the rest of the study, we have included all thematic funds in our database.

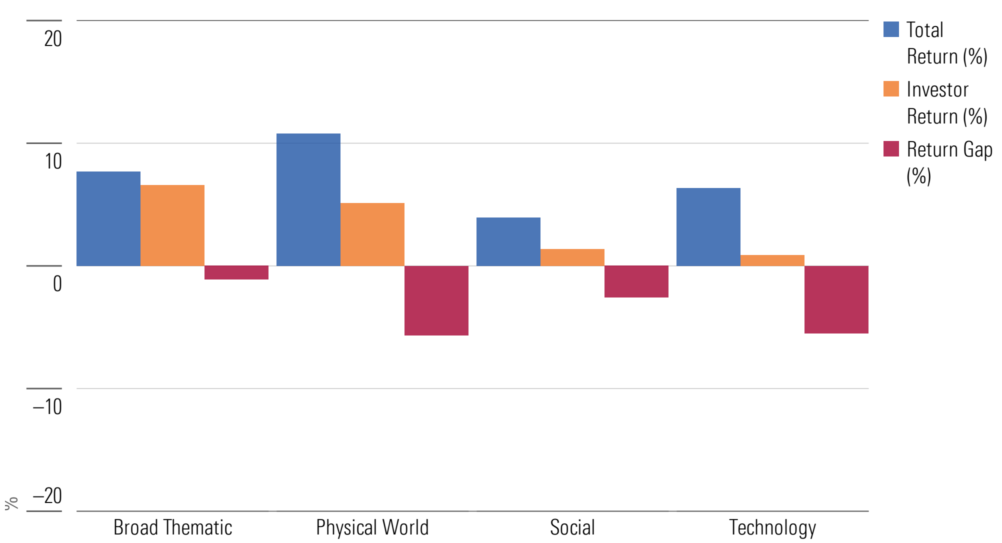
offer for a theoretical buy-and-hold investment over the period, investors brought home only 2.4% asset-weighted. More than two thirds of total returns were lost because of unfortunate timing.

By looking more closely at the investment gaps between funds tracking Morningstar broad themes, investors in funds tracking Technology or Physical World themes experienced investment gaps of over 500 basis points over the trailing five years, while investors in Broad Thematic funds posted a much smaller gap of 111 basis points over the same period.

Technology, Physical World, and Social themed funds tend to be centered around a single theme. They also hold fewer stocks and lend themselves to tactical investing. Broad Thematic funds, in contrast, tend to be more diversified, holding more stocks and investing across a range of themes. They are therefore more commonly used as core portfolio holdings. The average Broad Thematic fund has 30 more holdings than the average Technology themed fund.

This diversification split is also reflected in the volatility of returns. Technology and Physical World funds have exhibited a considerably higher standard deviation over the trailing five years than their Broad Thematic peers. The finding that funds with higher volatility of returns exhibit larger investment gaps tallies with the results of previous Mind the Gap studies.

Exhibit 2 Five-Year Total Returns, Investor Returns, and Return Gaps for Thematic Funds by Broad Theme



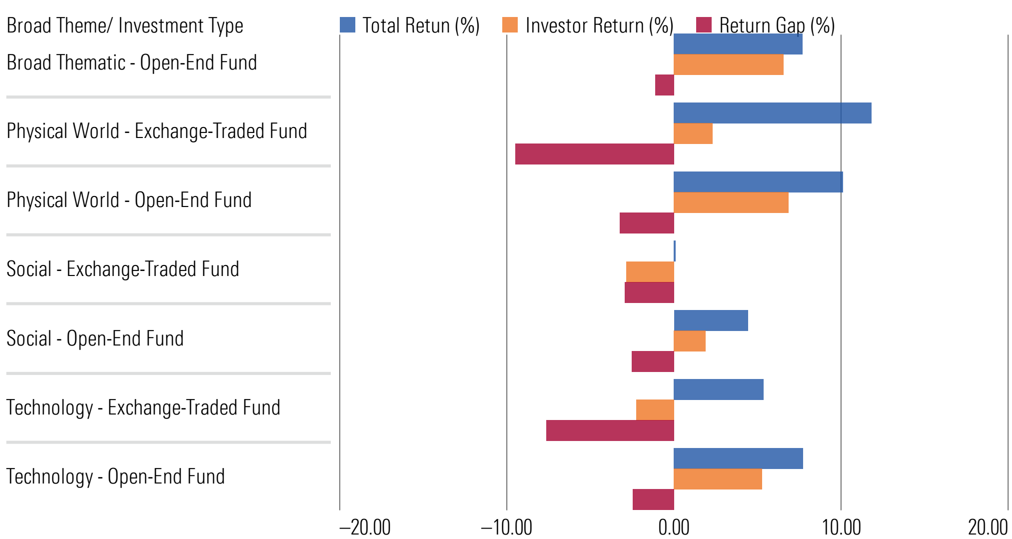
Source: Morningstar Direct. Data as of June 30, 2023.

Larger Gaps for ETFs

We can further illuminate the picture by looking at the gaps between the different investment vehicles shown in Exhibit 3. While the five-year gaps recorded by traditional open-end mutual funds are meaningful, they are considerably lower than those posted by their thematic ETF peers. This is most striking in the case of Technology and Physical World themed funds where ETFs have an investment gap 500-600 basis points higher than their traditional mutual funds peers.

This reflects differences in the exposures offered by the two vehicles. Thematic ETFs, which can be traded on exchange throughout the day and tend to invest in more focused baskets of stocks, are often favored as tools for making tactical bets and can attract large flows. ETFs' greater concentration also results in higher levels of volatility.

Exhibit 3 Five-Year Total Returns, Investor Returns, and Return Gaps for Thematic Funds by Investment Type



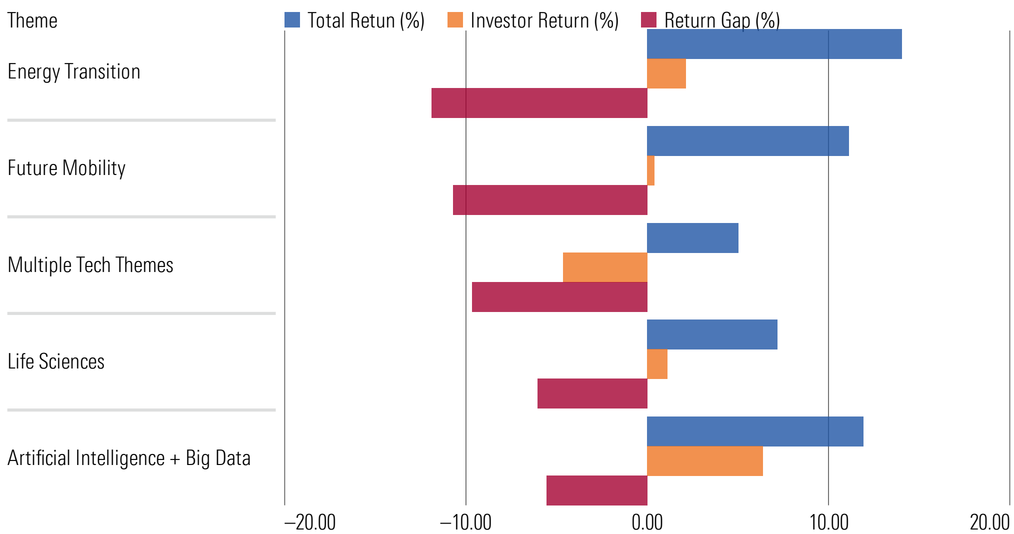
Source: Morningstar Direct. Data as of June 30, 2023.

Energy Transition Funds Post Widest Gaps

To better understand the drivers of these gaps, we can look at the more granular Theme rather than Broad Theme groupings.

Funds tracking all eligible Themes had a negative investment gap, but some have been more negative than others. Energy Transition tops the class, with an eye-watering 11.9% gap. This means that the average Energy Transition fund returned 14%, while the average dollar invested in those funds gained just 2.1% over the same period, an astonishingly poor result for investors. This is followed closely by Future Mobility and Multiple Technology Themed funds (a grouping that includes the hefty ARK Innovation ETF ARKK).

Exhibit 4 Five-Year Total Returns, Investor Returns, and Return Gaps for Thematic Funds by Subtheme (Largest Gaps)



Source: Morningstar Direct. Data as of June 30, 2023.

Exhibit 4 signposts the dismal outcomes experienced by many thematic investors over recent years in some of the largest thematic funds globally, including ARKK and iShares energy transition ETFs.

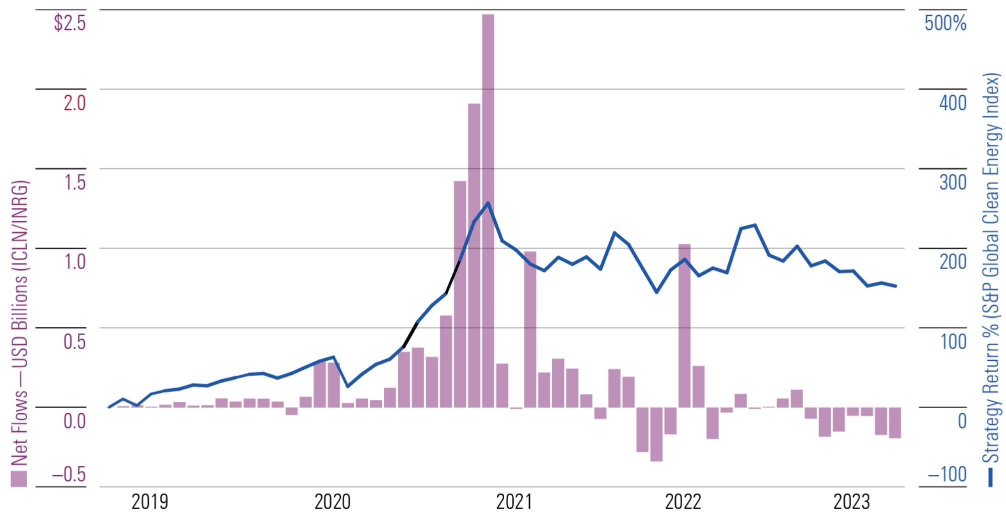
A Closer Look at iShares Clean Energy ETFs

To understand what is going on here, we need to look deeper. The performance of the world's flagship Energy Transition ETFs, the U.S.- and Europe-domiciled iShares Global Clean Energy ETFs (ICLN/INRG), can help explain much of the issue highlighted above. While the index tracked by ICLN/INRG returned 17.6% annualized over the trailing five years through June 30, 2023, the annualized investor return for those who bought the funds over same period was a negative 5.5%, creating a colossal 23% investment gap between what the fund returned and what investors got!

As shown in Exhibit 5, during a period of strong performance around the time of Joe Biden's U.S. election victory in third-quarter 2020, investors enthusiastically piled into iShares Global Clean Energy ETFs. The strategy has since lost close to half its value, leaving those who bought in this period with heavy losses. In the peak three months between November 2020 and January 2021, the iShares Global Clean Energy ETFs raked in $5.8 billion, more than all the other months in the trailing five-year period combined. These investments didn't benefit from the large performance gains registered in the preceding months and were exposed to the subsequent 40% drop in value since inflows peaked in January 2021.[3]

3 The S&P Clean Energy Index has fallen a further 26% since the end of our observation period.

Exhibit 5 Net Estimated Flows (Left-Hand Y-Axis) and Cumulative Returns (Right-Hand Y-Axis) of iShares Clean Energy Strategies (ICLN/INRG) for 2018-23



Source: Morningstar Direct. Data as of Sept. 30. 2023.

We can see a similar story repeat itself for many thematic funds, including the spectacular rise and fall of the once largest thematic fund in the world, ARKK.

Mitigating Factors?

To some extent, the huge investment gaps seen within thematics are a function of the period selected for this study. Although longer periods are often better, a five-year time horizon allowed us to include a large enough dataset. (Most thematic funds have been launched in the last five years.)

The period under study covers a time of exceptional growth for the global thematic fund market, followed by a significant tumble. A significant rally for technology and growth stocks would likely shrink the return gaps going forward.

The large return gap seen across the thematic fund universe years can broadly be characterized as one large binary bet that went wrong.

Appendix

Total returns, also known as *time-weighted returns,* are the returns typically reported by funds in their fact sheets or websites. The total returns used in this study are based on a monthly time series and are reported after fees of each share class. Investor returns, also called *money-weighted returns,* reflect not just the return of the underlying assets but also the flows in and out of the fund.

Put simply, investor returns reveal the return of each dollar in the fund. It is calculated with the standard internal rate-of-return formula of:

$$IRR_{monthly} = Total\ Net\ Assets_{t=0} + \sum_{t=1}^{T-1} Net\ Flow_t + (Net\ Flow_T - Total\ Net\ Assets_T)$$

IRR number is then annualized through the formula

$$\mathrm{IRR}_{Annual} = (1 + IRR_{Monthly})^{12} - 1$$

We have calculated averages of these returns with multiple methods to understand the nuances in the data, but the standard way to report results in this study is asset-weighted average at the share-class level. The weight used is the average USD assets in the share class over the period. Morningstar does not collect actual flows from fund companies, but flows can be estimated as the change in assets that is not explained by returns.

$$Net\ Flow\ (period) = Total\ Net\ Assets_T - Total\ Net\ Assets_t * (1 + Period\ Return)$$

With this formula, we are also able to handle distributions from funds. They are considered as outflows. The *behavior gap* is calculated as the difference between the investor return and total return averages within a group. Both open-end funds and exchange-traded funds are included in this study. There's often active daily trading in ETFs, but our method does capture it. This approach gives us a more uniform dataset and focuses on the behavior of long-term investors in both vehicle types.

We include only share classes that have been alive for the full research period. Excluding share classes that were merged or liquidated during the period gives the dataset a survivorship bias. This choice has a notable effect in areas of the market where fund lineup turnover is rampant. In those areas, our dataset is likely to show higher returns than a survivorship-bias-free one would. Funds that were created during the period aren't included either. To be consistent, we also exclude funds involved in mergers during the research period. A merger causes a movement of assets into a fund without the active decisions of investors—the core subject matter of our study.

Because investor returns are not meaningful over short periods, we focus on the trailing five-year period. Longer periods would have suffered from fund lineup turnover that causes the samples to shrink considerably. Feeder funds are excluded from the study to limit double-counting of assets.

Exhibit 6 Five-Year Total Returns, Investor Returns, and Return Gaps for Thematic and Nonthematic Funds (Results)

Fund Type	Share Class Count	Total Return (%)	Investor Return (%)	Gap (%)
Nonthematic	28,361	8.6	8.0	-0.5
Thematic	1,211	7.3	2.4	-4.9

Source: Morningstar Direct. Data as of June 30, 2023. Domiciles included in this chart: Ireland, Luxembourg, United Kingdom, and the United States.

Exhibit 7 Five-Year Total Returns, Investor Returns, and Return Gaps for Thematic Funds by Broad Theme (Results)

Investment Type	Share Class Count	Total Return (%)	Investor Return (%)	Gap (%)
Broad Thematic	257	7.7	6.6	-1.1
Physical World	412	10.8	5.1	-5.7
Social	408	3.9	1.4	-2.6
Technology	526	6.4	0.9	-5.5

Source: Morningstar Direct. Data as of June 30, 2023.

Exhibit 8 Five-Year Total Returns, Investor Returns, and Return Gaps for Thematic Funds by Investment Type (Results)

Broad Theme	Investment Type	Share Class Count	Total Return (%)	Investor Return (%)	Gap (%)
Broad Thematic	Open-End Fund	257	6.6	7.7	-1.1
Physical World	Exchange-Traded Fund	39	2.3	11.8	-9.5
Physical World	Open-End Fund	373	6.9	10.1	-3.3
Social	Exchange-Traded Fund	22	-2.8	0.1	-3.0
Social	Open-End Fund	386	1.9	4.4	-2.5
Technology	Exchange-Traded Fund	84	-2.3	5.4	-7.6
Technology	Open-End Fund	442	5.3	7.7	-2.5

Source: Morningstar Direct. Data as of June 30, 2023.

Exhibit 9 Five-Year Total Returns, Investor Returns, and Return Gaps for Thematic Funds by Theme (Results)

Broad Theme	Theme	Share Class Count	Total Return (%)	Investor Return (%)	Gap (%)
Broad Thematic	Broad Thematic	257	7.7	6.6	-1.1
Physical World	Energy Transition	166	14.0	2.1	-11.9
Physical World	Food	52	4.0	0.7	-3.3
Physical World	Multiple Physical World Themes	57	9.7	7.3	-2.4
Physical World	Resource Management	130	9.5	7.8	-1.7
Social	Consumer	229	2.6	-0.9	-3.6
Social	Demographics	104	5.9	4.1	-1.8
Social	Security	37	6.6	5.3	-1.3
Technology	Artificial Intelligence + Big Data	38	11.9	6.4	-5.6
Technology	Digital Economy	89	0.9	-3.3	-4.1
Technology	Fintech	54	2.7	-0.9	-3.6
Technology	Future Mobility	19	11.1	0.4	-10.7
Technology	Life Sciences	61	7.2	1.1	-6.1
Technology	Multiple Tech Themes	105	5.0	-4.6	-9.7
Technology	Next Gen Communications + Digital Infrastructure	43	5.5	4.0	-1.5
Technology	Robotics + Automation	101	10.2	7.9	-2.3

Source: Morningstar Direct. Data as of June 30, 2023. Theme groupings with 10 or fewer funds have been excluded from this analysis.

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