The Theme of Our Time: Investing in Artificial Intelligence With Funds, EMEA

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Contents

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Key Takeaways

- Global assets in artificial intelligence + big data funds have surged more than sevenfold over the past five years, reaching USD 38.1 billion by the end of first-quarter 2025.
- Artificial intelligence + big data funds experienced record inflows globally in first-quarter 2025, underpinned by a surge in interest from Chinese investors buoyed by the success of domestic underdog DeepSeek.
- Reflecting the asset breakdown of the broader thematic fund universe, Europe is the largest market for artificial intelligence + big data funds globally, representing two-thirds of global assets.
- European AI fund assets have grown fivefold over the trailing five years, hovering near record highs of USD 22.7 billion by the end of May 2025.
- Underpinned by the most frequently held AI stocks, our consensus-based Morningstar Global Artificial Intelligence & Big Data Consensus has outperformed the Morningstar Global Target Market Exposure Index by 35% since the launch of ChatGPT 3.5 in November 2022. However, this outperformance has been accompanied by higher volatility and deeper drawdowns, reflecting the higher-risk nature of investing in emerging, high-growth technologies.
- The Magnificent Seven dominate the most frequently held stocks in artificial intelligence + big data funds, which causes a headache for fund managers tracking the theme and fund selectors integrating funds into broader investment portfolios.
- Nearly all the most frequently held artificial intelligence + big data stocks globally are US-listed and domiciled, underscoring the United States' leadership in the technology sector. There are no clear options for non-US focused exposure.
- The distinctive characteristics of thematic funds require a more tailored approach to due diligence. A winning thematic investment entails selecting the right investment, exposed to the right theme, and deploying it sensibly.
- Chasing the next hot investment theme has often led to disappointing outcomes for investors. However, adopting a contrarian, valuation-aware approach can help mitigate these risks.

Introduction

Artificial intelligence has become the defining investment theme of this era, already permeating nearly every aspect of our digital lives and fueling the growth of many of the world's most valuable companies. The public debut of ChatGPT in late 2022 marked a pivotal moment in AI adoption, introducing hundreds of millions of users to the technology's transformative potential and sparking a surge of investor interest.

This wave of enthusiasm helped catapult companies like Nvidia into the ranks of the world's largest corporations. Yet, AI-focused thematic funds have been around since 2016—with big data funds, which we also include in our dataset, emerging even earlier, reminding us that this is far from a passing fad.

Rather, it reflects a deep, long-term technological shift that has been unfolding for years and is set to continue shaping markets well into the future.

While the long-term impact of AI is widely acknowledged, the companies leading today may not necessarily dominate tomorrow. For instance, in early 2025, the stock price of AI poster child Nvidia tumbled when valuation assumptions were challenged following the breakthrough of Chinese startup DeepSeek, demonstrating how quickly the landscape can shift.

Investors seeking to profit from AI developments can choose to buy individual stocks. However, this approach not only involves making implicit bets on a specific segment of the AI value chain but also exposes them to significant idiosyncratic or stock-specific risk. A case in point is Tesla's abrupt stock price decline in 2025, which was influenced—at least in part—by the public actions and political stances of its high-profile founder, Elon Musk. This illustrates how market losses can stem from factors unrelated to a company's exposure to its core theme.

Given the high level of uncertainty, a more diversified approach is to invest in thematic funds. These funds can invest across the AI value chain and aim to capture structural alpha as the market evolves without relying on picking individual winners.

As global interest in artificial intelligence has surged, artificial intelligence + big data funds—designed to capitalize on advancements in the field—have expanded in both size and number. However, these funds differ widely in how they define and track the AI theme, resulting in diverse investment strategies and varying performance outcomes. This inconsistency presents a challenge for investors seeking precise and targeted exposure to AI.

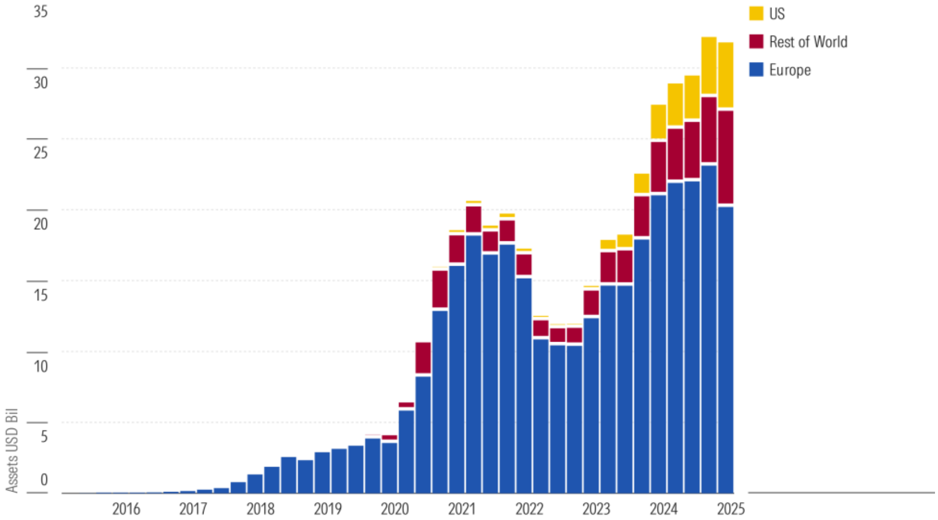
In this paper, we examine the evolving AI investment landscape, explore the spectrum of thematic fund options available, and introduce a practical framework for evaluating AI-focused funds, focusing on the theme, the investment, and implementation.

The funds included in this paper have been tagged as tracking the artificial intelligence + big data theme under the Morningstar Global Thematic Fund Classification System. These tags are based on intentionality, which is determined from key indicators such as fund name and investment objective. For more information about how we define thematic funds—please refer to the Appendix.

AI Fund Landscape

Global assets in artificial intelligence + big data funds have surged more than sevenfold over the past five years, reaching USD 38.1 billion by the end of first-quarter 2025.

Exhibit 1 Global AUM by Region



Source: Morningstar Direct. Data as of March 31, 2025.

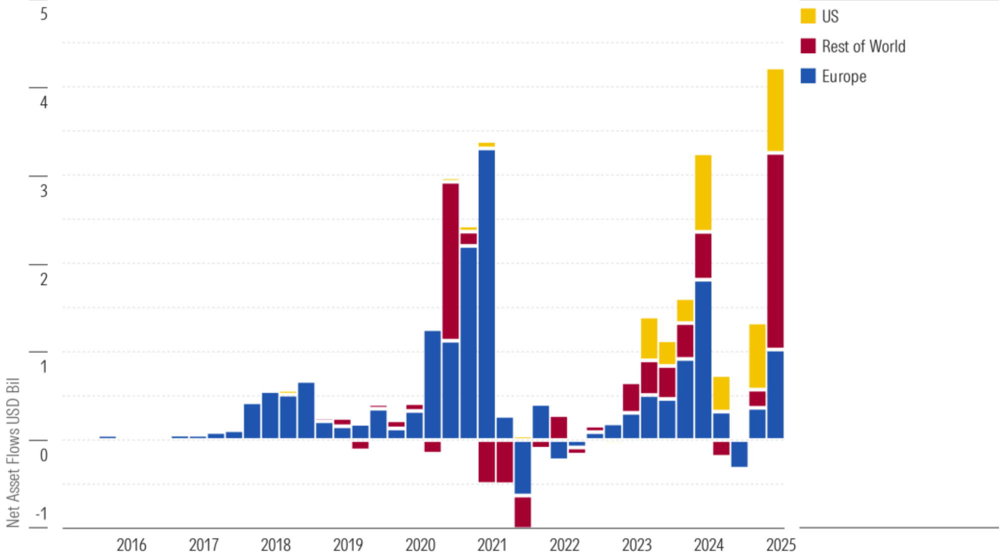
These funds were among the standout performers during the postcovid recovery, drawing substantial inflows, particularly in Europe. However, the subsequent "tech reckoning" hit these funds hard, and assets nearly halved over the following year.

The late-2022 launch of ChatGPT 3.5 reignited investor enthusiasm in the theme, pushing assets to record highs by the end of 2024.

In early 2025, AI equities faced two major shocks that highlighted both the technological and geopolitical risks inherent in the sector.

The first came from DeepSeek, a Chinese startup that showcased how advances in model efficiency could significantly improve AI performance while reducing dependency on high-powered computing hardware—undermining the valuations of leading chipmakers. This breakthrough clearly resonated with Chinese investors, who poured a record amount of money into China-domiciled AI-themed funds in first-quarter 2025.

Exhibit 2 Global Flows by Region

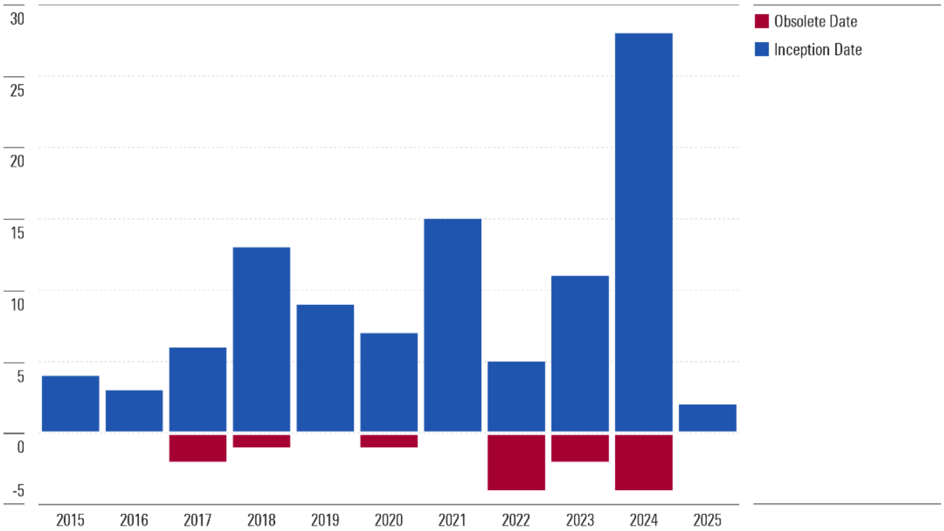


Source: Morningstar Direct. Data as of March 31, 2025.

The second shock came when the US government effectively halted sales of Nvidia's H20 chips to China and indicated its intention to use advanced semiconductors as leverage in trade negotiations. This move dealt a blow to Nvidia's stock and underscored the growing geopolitical significance of AI technology.

The growing popularity for the AI theme is reflected in the growing number of fund launches. The year 2024 saw a record 28 new AI funds launch globally.

Exhibit 3 Global Fund Launches and Closures



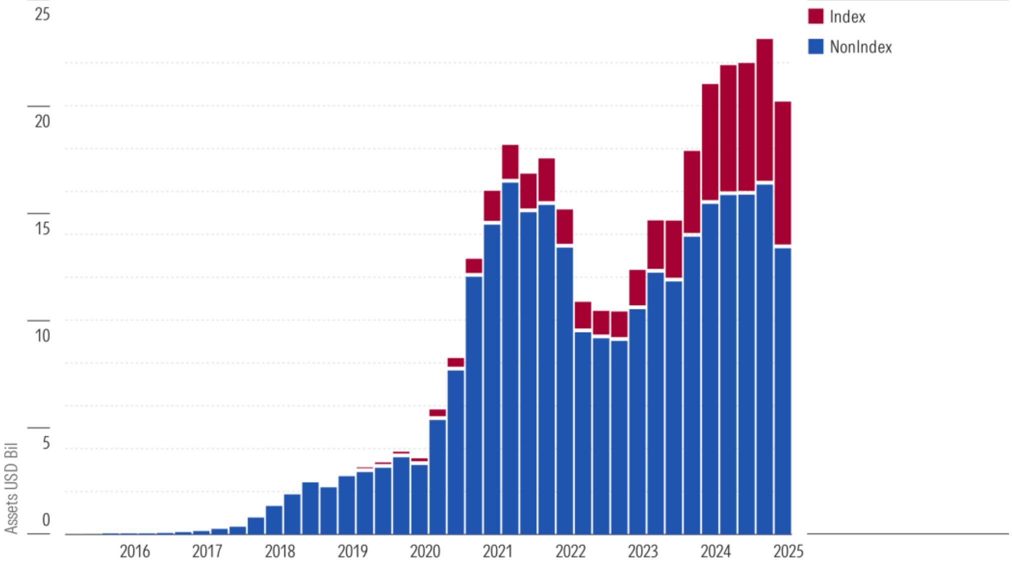
Source: Morningstar Direct. Data as of March 31, 2025.

Europe Is the Largest AI Fund Market

Reflecting the asset breakdown of the broader thematic fund universe, Europe is the largest market for artificial intelligence + big data funds, representing two-thirds of global assets.

European AI fund assets have grown fivefold over the trailing five years, reaching a record USD 23.1 billion by the end of 2024. However, a turbulent beginning to 2025 saw AI stocks buffeted by the implications of DeepSeek's latest model and the deglobalizationary policies pursued by the US government including restrictions placed on the sale of chips to China. This has resulted in heightened levels of volatility for key AI stocks and contributed to asset levels falling to USD 22.7 billion in the first five months of 2025.

Exhibit 4 Europe AUM Index vs Active



Source: Morningstar Direct. Data as of March 31, 2025.

Unlike in the US, where AI funds are almost exclusively presented in an exchange-traded fund wrapper, most of the largest thematic funds in Europe are actively managed strategies in traditional mutual fund format.

Assets in artificial intelligence + big data ETFs (which house all indexed strategies in Europe) have nearly quadrupled over the trailing two years and reached a record USD 6.8 billion by the end of first-quarter 2025.

This growth reflects the rising popularity of the ETF wrapper, which promises lower cost, greater transparency, and trading flexibility.

Importantly, all thematic strategies should be viewed as taking active risk by nature—regardless of whether they track an index. The choices involved in defining and constructing a thematic index are inherently active and often result in significant deviations from the broader market.

Exhibit 5 Largest Funds in Europe

Fund Name	ISIN	Fund Size (USD Bil)	Index	Inception Date
Allianz Global Artificial Intelligence	LU1548499471	6.3	No	31/03/2017
Xtrackers AI & Big Data ETF	IE00BGV5VN51	4.3	Yes	29/01/2019
EdRF Big Data	LU1244894827	2.5	No	31/08/2015
Sanlam Global Artificial Intelligence	IE000I5D3NE3	1.6	No	29/07/2022
DWS Invest Artificial Intelligence	LU1863263932	1.4	No	01/10/2018
Echiquier Artificial Intelligence	LU1819479939	0.9	No	20/06/2018
Amundi MSCI Robotics & AI ETF	LU1861132840	0.9	Yes	04/09/2018
L&G Artificial Intelligence ETF	IE00BK5BCD43	0.7	Yes	26/06/2019
WisdomTree Art Intelligence ETF	IE00BDVPNG13	0.7	Yes	30/11/2018
SEB Artificial Intelligence*	LU0047324487	0.2	No	29/06/2023

Source: Morningstar Direct. Data as of March 31, 2025. *The SEB Artificial Intelligence Fund officially adopted its AI-focused investment strategy on June 29, 2023. Prior to this date, the fund operated under the name SEB Technology Fund, concentrating broadly on the technology sector.

The Allianz Global Artificial Intelligence fund is the largest AI fund in the world and one of the first AI-focused funds to launch globally.

The largest AI-themed ETF in Europe is the Xtrackers AI & Big Data ETF, which leverages patent data to provide a forward-looking investment exposure. Notably, all four of the largest AI ETFs in the region were launched before the covid-19 pandemic, underscoring the first-mover advantage commonly seen in the thematic ETF space. Since then, five additional AI ETFs have been introduced, though they have yet to match the asset levels of their more established peers.

Notably, pure AI funds in Europe were preceded by big data-focused strategies, such as the EdRF Big Data fund, the oldest fund in our peer group.

Most recently, iShares entered the AI race with a dual launch of European ETFs, marking a significant evolution in the space. The iShares AI Infrastructure ETF AINF is the first in Europe to target a specific segment of the AI value chain, while the iShares AI Innovation Active UCITS ETF IART is the first actively managed ETF to target the AI theme in Europe.

Mapping Artificial Intelligence

What Is an AI Stock?

As AI becomes increasingly embedded in every aspect of our lives, the question "What qualifies as an AI stock?" grows more complex.

While some mega-cap tech companies may immediately come to mind, the definition of an AI stock spans a wide spectrum. This includes leaders in generative AI software, as well as specialized providers like Vertiv, which supplies the power and cooling infrastructure essential for AI data centers. Even traditional businesses such as Walmart or Tesco, which leverage large datasets and stand to benefit from deploying AI tools, can be considered part of the broader AI investment theme.

How Do AI Funds Track the Theme?

There is no universal approach—each AI fund defines and tracks the theme differently. For example, as of the end of the first quarter of 2025, a comparison between the largest US and European AI funds reveals that they share just three holdings in their respective top 10, illustrating the range of interpretations of what constitutes an AI investment.

Exhibit 6 Global X vs. Allianz

Allianz Global AI Fund (Name)	Ticker	Portfolio Weighting %	I	Global X AI & Tech ETF (Name)	Ticker	Portfolio Weighting %
Nvidia Corp	NVDA	8.14	I	Tencent Holdings Ltd	00700	4.49
Broadcom Inc	AVGO	5.48	I	Alibaba Group Holding Ltd ADR	BABA	4.29
Eli Lilly and Co	LLY	5.23	I	Samsung Electronics Co Ltd	005930	3.54
Meta Platforms Inc Class A	META	3.99	I	Apple Inc	AAPL	3.35
Salesforce Inc	CRM	3.92	I	Cisco Systems Inc	CSCO	3.34
Microsoft Corp	MSFT	3.57	I	Netflix Inc	NFLX	3.18
Tesla Inc	TSLA	3.21	I	International Business Machines Corp	IBM	3.13
Apple Inc	AAPL	3.15	I	Meta Platforms Inc Class A	META	3.05
Alibaba Group Holding Ltd	09988	2.79	I	Accenture PLC Class A	ACN	2.90
Constellation Energy Corp	CEG	2.75	I	Microsoft Corp	MSFT	2.83

Source: Morningstar Direct. Data as of March 31, 2025.

The Morningstar Consensus-Based Approach

To help identify stocks exposed to the AI theme, we adopt a consensus holdings-based approach. Taking every fund tagged as an artificial intelligence + big data fund in our dataset (excluding Chinese funds), we can conduct a frequency analysis and determine which stocks are most commonly held.

Dominance of the Magnificent Seven

The first thing we notice when analyzing the results is the overwhelming presence of the so-called Magnificent Seven among the most widely held stocks. In fact, all were held by more than half of the artificial intelligence + big data portfolios. Meanwhile, chip giant Nvidia appeared in almost nine out of every 10 artificial intelligence + big data funds.

Exhibit 7 Most Frequently Held Stocks in Artificial Intelligence + Big Data Funds (Magnificent Seven)

Stock	Ticker	% AI + Big Data Funds	Economic Moat	Subindustry
Nvidia	NVDA	89	Wide	Semiconductor Design and Manufacturing
Microsoft	MSFT	84	Wide	Enterprise and Infrastructure Software
Alphabet	GOOGL	76	Wide	Internet Software and Services
Meta Platforms	META	70	Wide	Internet Software and Services
Amazon.com	AMZN	70	Wide	Online and Direct Marketing Retail
Tesla	TSLA	52	Narrow	Automobiles
Apple	AAPL	51	Wide	Technology Hardware

Source: Morningstar Research. Data as of May 31, 2025.

The rise of artificial intelligence has clearly been a major driver behind the recent success of the Magnificent Seven stocks. Whether it's Nvidia supplying the high-performance chips powering today's most advanced AI models, Microsoft investing heavily in leading generative AI platforms, or tech giants like Google and Amazon.com leveraging AI to monetize some of the world's most valuable datasets, the scale and technological capabilities of these companies place them firmly at the forefront of AI's commercial evolution.

The Magnificent Seven Dilemma

All seven companies are deeply and visibly involved in AI commercialization. As some of the largest and most liquid stocks globally, it's no surprise they feature prominently in AI-focused portfolios.

However, their dominance presents a structural challenge for those designing or managing AI thematic strategies. Their substantial weight in global equity indexes means that including them results in significant overlap with core equity exposures. This can reduce the appeal of AI funds as tactical, differentiated investments and makes it harder to justify an active management fee.

Conversely, excluding these names completely introduces a different kind of risk—underperformance relative to peers and broader equity benchmarks and failure to capture the AI theme.

Most strategies navigate this by maintaining a core allocation to the Magnificent Seven, while differentiating themselves through tilted exposure to less obvious, more specialized AI-related companies.

The iShares AI Adopters & Applications UCITS ETF notably swerves the Magnificent Seven, including only four of the seven at low weights, summing to just 8%. This highly differentiated approach makes it a strong complementary holding for portfolios that are already heavily weighted toward the Magnificent Seven.

Elsewhere, the DPAM L Equities Artificial Intelligence Fund allocates one-third of its assets to Magnificent Seven stocks, with five of them appearing in its top 10 holdings.

Beyond Magnificent Seven

Looking beyond the Magnificent Seven, other consensus AI stocks emerge. These include chipmakers like AMD, Broadcom, and Taiwan Semiconductor but also those companies placing AI at the center of their software solutions such as ServiceNow and Oracle.

Exhibit 8 Most Frequently Held Stocks in Artificial Intelligence + Big Data Funds (Ex-Magnificent Seven)

Stock	Ticker	% AI + Big Data Funds	Economic Moat	Subindustry
Broadcom	AVGO	65	Wide	Semiconductor Design and Manufacturing
ServiceNow	NOW	61	Wide	Enterprise and Infrastructure Software
Oracle	ORCL	60	Wide	Enterprise and Infrastructure Software
Advanced Micro Devices	AMD	57	Narrow	Semiconductor Design and Manufacturing
Salesforce	CRM	56	Wide	Enterprise and Infrastructure Software
Marvell Technology	MRVL	52	Narrow	Semiconductor Design and Manufacturing
Snowflake	SNOW	49	None	Enterprise and Infrastructure Software
Arista Networks	ANET	49	Wide	Communications Equipment
Micron Technology	MU	45	None	Semiconductor Design and Manufacturing
Palantir Technologies	PLTR	44	Narrow	Enterprise and Infrastructure Software

Source: Morningstar Research. Data as of May 31, 2025.

Beyond the US

The lists in Exhibits 7 and 8 highlight that nearly all of the most frequently held artificial intelligence + big data stocks globally are US-listed and domiciled, underscoring the United States' leadership in the technology sector.

Despite Europe being the largest market for thematic AI funds, the number of frequently held European stocks—outlined in Exhibit 9—is notably limited. Beyond ASML, the Dutch company known for its lithography machines essential to advanced chip production, European representation drops off quickly.

This scarcity of major players reflects Europe's secondary role in the global AI landscape and highlights the limited investment options for those looking to capitalize on any potential European push to reduce dependency on US technology.

Exhibit 9 Most Frequently Held Stocks in AI + Big Data Funds (European Companies)

Stock	Ticker	% AI + Big Data Funds	Economic Moat	Subindustry
ASML Holding	ASML	37	Wide	Semiconductor Equipment
SAP	SAP	29	Wide	Enterprise and Infrastructure Software
Elastic	ESTC	25	Narrow	Enterprise and Infrastructure Software
Spotify	SPOT	23	Narrow	Internet Software and Services
Accenture PLC Class A	ACN	19	Wide	IT Consulting
Infineon Technologies	IFNNY	16	Narrow	Semiconductor Design and Manufacturing
Seagate Tech Hldgs	STX	15	None	Technology Hardware
ASM International	ASMIY	14	Wide	Semiconductor Equipment
ABB	ABBN	11	Wide	Electrical Equipment
AstraZeneca	AZN	8	Wide	Pharmaceuticals

Source: Morningstar Research. Data as of May 31, 2025.

In fact, there are currently no fund options for European investors looking to diversify away from the US. Pure AI-focused funds with the lowest exposure, such as the Polar Capital Artificial Intelligence fund, still have almost 60% allocated to US stocks at the time of writing.

Measuring AI

We can adopt this crowdsourcing approach as the primary input for scoring AI-related stocks, forming the basis of an index that helps define the theme more broadly.[1]

Using the backtested performance of this index as a proxy for AI performance, we observe that the theme has delivered exceptional returns. Since the launch of ChatGPT 3.5 in November 2022, the Morningstar Global Artificial Intelligence + Big Data Consensus Index has outperformed the Morningstar TME Index by 35%.

However, this outperformance has been accompanied by higher volatility and deeper drawdowns, reflecting the higher-risk nature of investing in emerging, high-growth technologies.

1 https://assets.contentstack.io/v3/assets/bltabf2a7413d5a8f05/blt36d76f1c7f5549a9/66a93bc7c56a1031583c177c/Morningstar-Thematic-Consensus-Indexes-V3.pdf

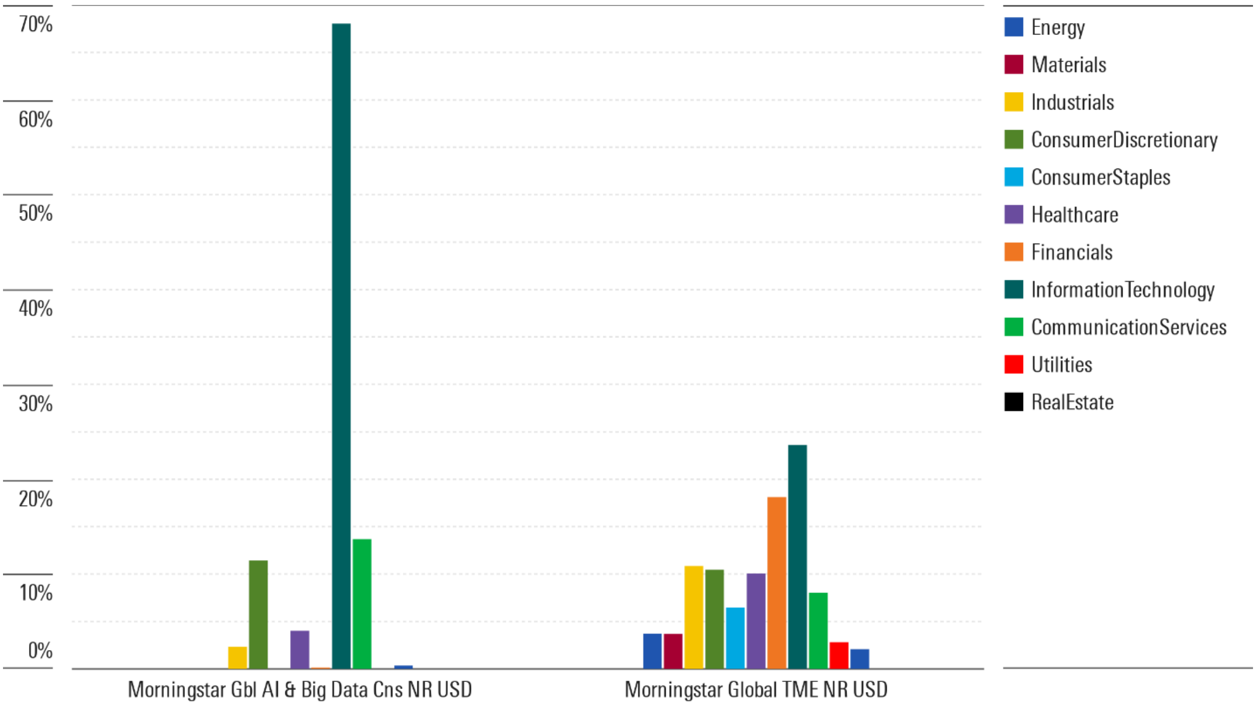
Exhibit 10 Artificial Intelligence + Big Data Theme Performance

Source: Morningstar Direct. Data as of March 31, 2025.

We can also observe that artificial intelligence and big data funds are heavily concentrated in information technology stocks and exhibit a notable overweighting in communication services relative to the broader equity market.

The high-tech focus of the theme results in a clear growth tilt. Eighty-eight percent of artificial intelligence + big data funds in our peer grouping sit in a growth segment of the Morningstar Style Box and 83% sit in the large-growth grouping.

Exhibit 11 Artificial Intelligence + Big Data Theme Sector Exposures



Source: Morningstar Direct. Data as of March 31, 2025.

Assessing AI Funds With Our Thematic Fund Evaluation Framework

When running the rule over artificial intelligence and big data funds, the fundamentals still apply. Low fees, a seasoned management team, and a trusted parent organization should form the foundation of any evaluation.

That said, the distinctive characteristics of thematic funds require a more tailored approach to due diligence. A winning thematic investment entails selecting the right investment, exposed to the right theme, and deploying it sensibly.

To support this process, we have developed a thematic fund evaluation framework. It breaks down the investment into three key components:

1. The Theme
2. The Investment
3. The Implementation

Below, we apply this framework to evaluate opportunities within the AI investment landscape.

- The Theme

The first port of call when evaluating a thematic fund is the theme itself. Some points to consider when evaluating a theme are:

- Can it be defined/is it investable?

Yes. A thematic investment should be well-defined—meaning that it identifies distinct risk and return drivers and that it is investable. As we showed with our holdings frequency analysis earlier in the paper, there is a consensus of core AI holdings among AI and big data funds, indicating that the core theme is well-defined, although there remain myriad interpretations within the theme.

The reliance on huge datasets and colossal computing power mean that the AI theme is investable through some of the largest, most liquid companies in the world. Ninety-four percent of artificial intelligence + big data funds globally sit in a large-cap segment of the Morningstar Style Box.

- Has it performed as we would expect?

Yes. Looking to the performance of the Morningstar Global Artificial Intelligence + Big Data Consensus Index as a proxy of theme performance, we can see that it has performed as expected. For example, following the launch of ChatGPT 3.5 in late 2022, the index surged, while the index tumbled when the news of the success of DeepSeek's model hit Western news outlets in early 2025.

This is important because it demonstrates the theme is connected with distinct risk and return divers, in some ways validating the existence of AI funds.

- Theme Longevity

Despite AI funds' recent popularity, AI and big data funds have been live since 2015, making this one of the oldest investable technology themes, and AI technology has been around for decades more. This is a green flag and can be contrasted with the rapid rise and fall of the Metaverse theme, which we discuss below.

- Does it have a compelling growth story?

Few still need convincing of the world-changing potential of artificial intelligence. From productivity-boosting software used to automate mundane tasks through to advanced algorithms used to predict protein folding and accelerate drug discovery, the economic impact is already being felt. The implementations are so numerous and affect almost every corner of the economic universe, so the question becomes which part of the AI value chain has the most convincing growth story.

Inhibitors to Growth

While it's easy to envision a future where AI capabilities evolve rapidly and the technology becomes deeply integrated into our daily lives, it's equally important to recognize the potential inhibitors to its growth. Two of the most pressing challenges are energy consumption and the political and regulatory environment.

Energy

Energy consumption is emerging as a major constraint on the continued expansion of AI. As models grow larger and more computationally intensive, the electricity required to train and operate them has surged. This escalating demand raises serious concerns about how such power needs can be met sustainably.

In regions with limited energy infrastructure or strict climate targets, the power requirements of large-scale AI could become politically and economically untenable. Without breakthroughs in energy efficiency or significantly expanded access to clean, scalable power sources, the industry's rapid trajectory may face considerable headwinds.

Political and Regulatory Landscape

The global growth of AI is also being shaped—and potentially limited—by a fragmented and increasingly contentious political and regulatory landscape. The geopolitical stakes of AI were underscored in early 2025 when the Donald Trump administration imposed new restrictions on the sale of Nvidia's most advanced chips to China. As global tensions rise and deglobalization trends continue, nations are likely to accelerate efforts to build domestic AI capabilities, aiming to reduce strategic dependencies but ultimately inhibiting collaboration and the global scalability of AI technologies.

Moreover, the social implications of AI, including the potential for widespread job displacement, may provoke public backlash and political intervention. Governments around the world are already racing to implement new rules covering data privacy, algorithmic transparency, ethical AI use, and national security, often with conflicting priorities and standards. Political and regulatory intervention are likely to increase compliance costs and have the potential to slow growth.

Metaverse: The Theme That Never Was

To illustrate what makes a technology theme robust, we can contrast it with one that proved less convincing: the Metaverse.

In October 2021, Facebook—one of the world's largest companies—rebranded itself as Meta Platforms, signaling a high-profile commitment to the emerging concept of the metaverse. Just months earlier, the first thematic Metaverse fund had launched. Within a year, over 50 such funds had sprung up globally. Yet by the end of 2022, only one additional Metaverse fund had launched.

The red flags were clear from the start. Most notably, the theme was poorly defined. This lack of clarity led to confusion around what constituted a true "pure play" Metaverse stock. As a result, fund holdings varied widely, making it difficult to draw meaningful conclusions or identify a consistent investment narrative.

For example, the L&G Metaverse ETF, domiciled in Europe, has roughly tracked the Morningstar Global Technology Index since its inception in September 2022. This raises serious doubts about whether the fund offers any differentiated exposure or risk/return profile beyond broader tech equities.

In contrast, the US-based ProShares Metaverse ETF underperformed the same index by 51% over the same period[2]—underscoring just how inconsistent the outcomes have been for funds targeting a nominally similar theme.

2 Sept. 22, 2022–May 30, 2025.

While one could argue that virtual worlds have existed for decades, the concept of the metaverse only entered the mainstream around 2017—as evidenced by a notable spike in references in published books during that year.[3]

Even if the theme had been more clearly articulated, it still lacked investability. When these funds launched, there were very few companies that could be considered “pure play” metaverse stocks. Consequently, fund managers were forced to include companies with only tangential exposure, which diluted the thematic purity and undermined the investment case.

- The Investment

Every fund tracking the artificial intelligence + big data theme defines and tracks its theme differently. But before diving into the specifics of these funds, it's worth considering when it makes sense to invest in a thematic fund versus buying a single stock.

Thematic Fund vs. Single Stock

Many investors express thematic views by purchasing individual stocks. This approach allows for precise exposure and eliminates management fees. However, there are several compelling reasons why a fund may be the more appropriate vehicle:

Stock-Specific Risk

Buying one or two stocks exposes you to risks unique to those companies, which may have little to do with the broader theme. For example, CEO Elon Musk’s controversial political activity contributed to Tesla’s stock falling over 50% from its peak in early 2025. A well-constructed thematic fund diversifies away some of that idiosyncratic risk, while still maintaining exposure to the overall theme.

Winner-Take-All Dynamics

In technology themes driven by scale—such as artificial intelligence + big data—we often see winner-take-all outcomes. Google’s dominance in web search is a prime example. By investing in a basket of thematic stocks, you ensure exposure to any potential “shooting stars.”

Value Chain Tilts

Actively managed funds can tilt toward the parts of the value chain with the greatest return potential. This flexibility is particularly valuable in fast-moving markets where certain segments may become overhyped or overcrowded.

High Uncertainty

Investing in cutting-edge, potentially transformative technologies like AI involves significant uncertainty. The market landscape evolves rapidly, and today’s leaders may not be tomorrow’s winners. Diversification across a theme helps manage this inherent unpredictability.

Given the relatively short track record of thematic investing, it’s helpful to consider a hypothetical historical example to understand how themes can unfold in unexpected ways. For example, in early

3 Google Ngram Viewer

2007, investors looking to capitalize on mobile computing likely chose dominant handset-makers like Nokia, Motorola, and RIM—only to see the landscape upended by the iPhone's launch. This illustrates the risks of thematic investing and the value of using adaptable, actively managed thematic funds to navigate evolving trends.

Selecting the Right Fund

A compelling narrative should not distract investors from carefully assessing how well a fund tracks its stated theme. There is no industry standard for defining or implementing thematic strategies, and each thematic fund applies its own methodology. Even funds that appear to follow the same theme can differ significantly, resulting in markedly different investment outcomes.

To illustrate this, we've examined the two largest Europe-domiciled thematic funds focused on the artificial intelligence + big data theme: the Xtrackers Artificial Intelligence & Big Data UCITS ETF and the Allianz Global Artificial Intelligence fund.

Exhibit 12 Fund Comparison: Xtrackers AI & Big Data ETF vs. Allianz Global Artificial Intelligence Fund

Fund name	Allianz Global Artificial Intelligence Fund	Xtrackers Artificial Intelligence & Big Data UCITS ETF
ISIN	LU1548499471	IE00BGV5VN51
Inception date	March 31, 2017	Jan. 29, 2019
Fund Size USD **	7.2 Bil	4.7 Bil
Fee (%)	0.74 ***	0.35
Parent Pillar Rating	Average	Average
Index Fund	No	Yes
Style Box Segment	Large Growth	Large Blend
Number of Holdings *	52	92
3-year Tracking Error vs Morningstar Global Technology Index **	15	6
Magnificent Seven (%) *	23	25
Active Share vs Morningstar Global AI + Big Data Consensus Index (%) *	60%	55%
Standout Bets vs Morningstar Global AI + Big Data Consensus Index *	+5.2% LLY, -3.3% UNH	+4.5% BAC, -3.6% AVGO

Source: Morningstar Direct. *Data as of March 31, 2025. ** Data as of May 30, 2025, *** This is the clean institutional share class.

Allianz Global Artificial Intelligence Fund

The Allianz fund is the largest and oldest AI-dedicated fund in Europe, and it adopts a structured, actively managed approach to capturing opportunities in the AI space.

Defining the Theme

The strategy divides its exposure across three core segments:
AI Infrastructure (32%): including data centers and semiconductor companies,
AI Applications (27%): such as intelligent software firms,

AI-Enabled Industries (37%): companies in areas like drug discovery that are positioned to benefit meaningfully from AI integration.

Tracking the Theme

The portfolio management team conducts bottom-up fundamental research to identify companies with the greatest exposure to these segments. Selection is further refined using growth, quality, and valuation criteria.

This approach provides the manager with flexibility to seek the most attractive opportunities while maintaining diversified exposure across the AI value chain.

Xtrackers Artificial Intelligence & Big Data ETF

Defining the Theme

The broader scope of this ETF is evident from its name and further clarified through its selection criteria. The index tracked by the fund includes companies exposed to core AI technologies—such as deep learning and natural language processing—but also extends to cloud computing and cybersecurity, which are less directly associated with AI.

Tracking the Theme

While the fund makes significant active allocations relative to the broader market, its methodology is codified within a rules-based index, rather than driven by discretionary stock selection.

This has both strengths and weaknesses:

- Advantages include lower fees and greater transparency (in principle).
- Disadvantages include reduced flexibility. Stocks are generally added or removed at scheduled review points, limiting the fund's ability to respond dynamically to changing market conditions or long-term thematic evolution.
- Additionally, the number of data sources index-based strategies can incorporate are limited and static.
- This is particularly challenging for AI exposure, which is difficult to capture using traditional revenue-based methods. Many AI innovations reduce costs or enhance productivity—impacts not reflected in revenue figures.
- Moreover, leading-edge AI companies often generate little direct AI revenue, especially in early phases of commercialization.

To address this, the Xtrackers ETF uses patent data to gauge exposure. This is a forward-looking and differentiated approach but is not without drawbacks:

- Companies using AI to improve internal processes may not file AI-specific patents and are likely underrepresented.
- Transparency suffers, as patent data is not publicly available, making it difficult to evaluate why certain stocks are included or excluded.

Portfolio Impacts

These methodological differences result in two very distinct investment propositions.

The Xtrackers fund's broader theme definition and patent-led focus on technology stocks yield a larger number of holdings and a lower tracking error relative to the broader tech sector (proxied by the Morningstar Global Technology Index). Its inclusion of out-of-favor sectors such as telecom giants places it in the large-blend segment of the Morningstar Style Box.

In contrast, the Allianz fund's tighter focus on AI-specific growth stocks positions it firmly in the large-growth segment.

Sector Allocations

The Xtrackers strategy heavily weights technology (73%) and communication services (16%), reflecting a bias toward companies filing AI-related patents.

Allianz offers more diversified sector exposure, including allocations to healthcare (10%) and financial services (11%), aligned with its broader AI value chain thesis.

Exposure to the Magnificent Seven

Both funds currently hold approximately 25% exposure to the Magnificent Seven stocks, considerably lower than the 45% weighting in the Morningstar Global Artificial Intelligence + Big Data Consensus Index. This suggests both managers maintain core exposure to large-cap tech but seek differentiation by allocating to more-specialized, less obvious AI-related companies. Notably, the Xtrackers fund excludes Tesla.

Differentiated Bets

Both strategies exhibit significant active share relative to the consensus index. Beyond a general underweighting to the Magnificent Seven, each fund expresses high-conviction positions.
The Allianz fund demonstrates flexibility in selecting preferred names within a given sector. This is evident in its healthcare exposure: While both Eli Lilly and UnitedHealth Group fall within the sector and are associated with AI-enabled industries, their treatment within the fund differs markedly. Eli Lilly, which is absent from the consensus index, receives a notable 5.2% allocation. In contrast, UnitedHealth—despite representing 3.3% of the consensus index—is excluded entirely.

Although not traditionally viewed as an AI stock, Eli Lilly is a recognized leader in AI-driven drug discovery, highlighted by its 2023 partnership with XtalPi. This forward-looking capability aligns with the portfolio management team's strategic priorities.

On the other hand, the decision to divest from UnitedHealth was driven by broader investment concerns rather than AI exposure alone. Disappointing first-quarter earnings, leadership transition uncertainties, and ongoing issues related to Medicare fraud weighed heavily on sentiment and ultimately led to its exclusion.

The Xtrackers fund also makes distinct calls, including Bank of America at a 4.5% weight despite the company not being present in the consensus index. While not a pure-play AI stock, B of A's scale, rich data assets, and automation potential make it a compelling, if unconventional, AI play.

Conversely, Broadcom—typically considered a staple in AI portfolios and weighted at 3.6% in the consensus index—is notably absent from the Xtrackers portfolio. Its absence from the ETF's universe is likely due to low patent activity in AI; however, the black-box nature of the strategy means it isn't easy to confirm exactly why it has been excluded.

In summary, the Allianz fund's strengths lie in its diversified exposure across the AI value chain and the flexibility to select high-conviction ideas within those segments. However, its more concentrated approach increases the risk of missing key outperformers—such as Palantir, which delivered a 63% return in the first five months of the year. Additionally, its active management comes with higher fees, which will ultimately weigh on long-term returns.

The Xtrackers fund benefits from a lower cost structure but faces notable drawbacks like its inclusion of less directly AI-related tech companies, limited transparency (at least for an ETF), and reliance on a patent-based methodology, which causes it to miss some key AI players like Broadcom.

Ultimately, these differences highlight the importance of looking beyond a fund's name when selecting a thematic strategy—approaches can vary significantly, with meaningful implications for performance and risk.

- The Implementation

Even if you select the right fund tracking the right theme, misusing it can still lead to poor outcomes. Below are key considerations when deploying a thematic fund.

Portfolio Integration

It's important to recognize that thematic investments are risky by design. While thematic funds often exhibit lower volatility than some of the individual stocks they hold, they remain volatile by traditional fund standards. As such, they are typically best used as noncore or tactical allocations within a well-diversified portfolio.

When incorporating AI and big data funds, it's essential to assess how the fund fits within your existing holdings. For instance, as mentioned earlier, Magnificent Seven stocks are heavily represented in many AI-themed funds—and they are also common in broad-market equity portfolios. This creates potential for overlap and concentration risk, which should be carefully monitored.

Additionally, AI funds tend to have a growth bias and a high beta, meaning they are especially sensitive to broader market movements. Understanding both their factor exposures and correlation with existing holdings is key to ensuring they enhance rather than destabilize your overall portfolio strategy.

Timing

Unfortunately, investors have historically struggled with timing their investments—and this challenge is even more pronounced with thematic funds. These strategies often come with compelling narratives that can trigger some of investors' worst behavioral biases: chasing past performance, getting caught up in hype cycles, and prematurely selling during volatile markets.

In a previous paper, The Big Shortfall,[4] we demonstrated that the combination of high volatility and the intraday tradability of ETFs has amplified these tendencies, leading to suboptimal investor outcomes on average. These findings reinforce the case for a long-term, buy-and-hold approach versus attempting to time market moves.

Valuations

Chasing the next hot investment theme has often led to disappointing outcomes for investors. However, adopting a contrarian, valuation-aware approach can help mitigate these risks.

By using a price/fair value framework, we can track the valuations of the AI theme over time. As illustrated in Exhibit 12, these valuations tend to be highly cyclical, offering investors opportunities to enter the theme at points where the potential for long-term upside is maximized.

Exhibit 12 Artificial Intelligence + Big Data Theme Price/Fair Value

Source: Morningstar Direct. Data as of March 31, 2025.

4 https://www.morningstar.com/business/lp/thematic-mind-the-gap

For instance, purchasing the constituents of the Morningstar Global Artificial Intelligence & Big Data Consensus Index at its lowest price/fair value point in September 2022 would have yielded exceptional returns. This timing is particularly fortuitous because this low point for valuations was followed quickly by the launch of ChatGPT 3.5, a major technological inflection point that boosted the theme performance.

However, timings are not always so neat. For example, despite price/fair value ratios peaking in August 2020, global AI and big data fund assets continued to rise, nearly doubling before eventually peaking and sharply declining in mid-2021. This emphasizes that, while valuations can serve as a helpful guide, they are not foolproof buy or sell signals.

Appendix: Defining Artificial Intelligence

Morningstar AI Fund Definition

Artificial intelligence and big data funds are defined as those that invest in companies whose business is related to the evolution of artificial intelligence and/or big data analytics. This may include companies that are positioned to gain from the implementation of artificial intelligence or big data technologies in their own businesses and also those engaged in the production of artificial intelligence products and services, which enable third parties to more efficiently deliver their own products and services. It also includes companies involved in the production of the hardware and digital infrastructure needed to support the immense computational requirements of AI, such as chip manufacturers and those owning and operating data centers.

Notable Exclusions

Funds that use artificial intelligence or big data analytics in the stock-selection process but do not select stocks for their exposure to these technologies are excluded from this taxonomy.

For example, funds like AI-Enhanced Eurozone Equities UCITS ETF EUAI or Amplify Ai Powered Equity ETF AIEQ use AI as a core part of their investment process but do not attempt to profit from the development of the AI theme.

Semiconductor funds, despite their potential as thematic plays, have also been excluded because "semiconductors" is an existing Global Industry Classification Standard industry and therefore is considered to be a sector rather than a thematic fund.

Exhibit 13 Europe-Domiciled Artificial Intelligence + Big Data Funds

Fund Legal Name	ISIN
Afer Generation Big Data	FR001400U8G9
AI Leaders	DE000A2PF0M4
Allianz Global Investors Fund - Allianz Global Artificial Intelligence	LU1548499471
Amundi MSCI Robotics & AI UCITS ETF	LU1861132840
Artificial Intelligence Technology Fund	LI0351137794
Bellevue Funds (Lux) - Bellevue AI Health	LU2721086929
BlackRock Global Funds - AI Innovation Fund	LU2877908488
CPR Invest Artificial Intelligence	LU2860963441
DPAM L Equities Artificial Intelligence	LU2799769596
DWS Artificial Intelligence	DE0008474149
DWS Invest - Artificial Intelligence	LU1863263932
Echiquier Artificial Intelligence	LU1819479939
Big Data Fund	LU1244894827
Fineco AM MarketVector Artificial Intelligence Sustainable UCITS ETF	IE000QU8JEH5
Franklin Intelligent Machines Fund	LU2387455434
Global X Artificial Intelligence UCITS ETF	IE0000XTDDA8
IAM Artificial Intelligence	FR001400SC42
Invesco Markets II plc - Invesco Artificial Intelligence Enablers UCITS ETF	IE000LGWDNE5
iShares AI Adopters & Applications UCITS ETF	IE000Q9W2IR3
iShares AI Infrastructure UCITS ETF	IE000X59ZHE2
iShares AI Innovation Active UCITS ETF	IE000G0E83X3
L&G Artificial Intelligence UCITS ETF	IE00BK5BCD43
LUX IM AI & Data	LU2344410191
M&G (Lux) Investment Funds 1 - M&G (Lux) Global Artificial Intelligence Fund	LU2694842332
M&G Global AI Themes Fund	GB00BPSN8S91
ODDO BHF Artificial Intelligence	LU1833933325
Polar Capital Funds PLC - Artificial Intelligence Fund I Acc	IE00BF0GL659
Sanlam Global Artificial Intelligence Fund	IE000I5D3NE3
SEB Artificial Intelligence Fund	LU0047324487
Symphonia Lux SICAV – Artificial Intelligence	LU0247031429
TCW Funds - TCW Global Artificial Intelligence Equity Fund	LU1848748734
WisdomTree Artificial Intelligence UCITS ETF	IE00BDVPNG13
Xtrackers Artificial Intelligence & Big Data UCITS ETF	IE00BGV5VN51

Source: Morningstar Direct. Data as of June 2, 2025.

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