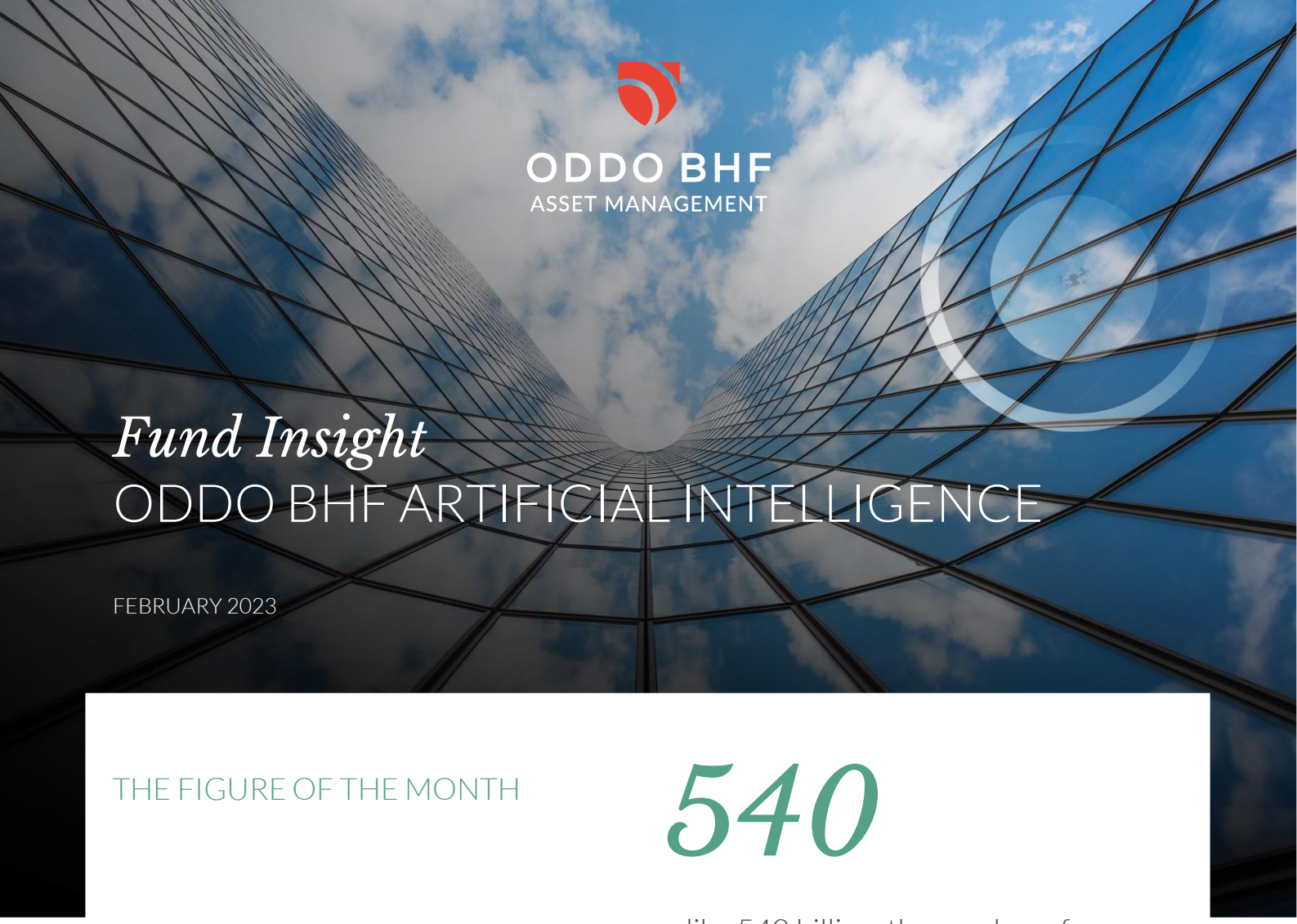

ODDO BHF
ASSET MANAGEMENT

Fund Insight
ODDO BHF ARTIFICIAL INTELLIGENCE

FEBRUARY 2023

THE FIGURE OF THE MONTH

540

... like 540 billion, the number of parameters used by PaLM, Google's future revolutionary AI

Assets under management
$ 257 M

PORTFOLIO SNAPSHOT

Access to the latest performance and factsheets	Risk profile [1]
VIEW	1 2 3 4 5 **6** 7

Past performance is not an indication of future results. Performance may vary over time.

Countries in which the fund is authorized for marketing to clients: **Austria, France, Italy, Germany, Switzerland, Spain, Luxembourg, Sweden, Norway, Finland, Belgium and Portugal.**

[1] Risk/return scale in a range from 1 (lowest risk) to 7 (highest risk). This indicator is not constant and is updated if the risk/reward profile of the fund changes over time. The lowest category does not mean a risk-free investment. Historical data, such as is used to calculate the risk/return ratio, may not be a reliable indication of the future risk profile of the Fund. There is no guarantee that the management objectives in terms of risk and return will actually be met.

Data as of 31/01/2023 | Source: ODDO BHF AM SAS

Story OF THE MONTH

The arrival of ChatGPT at the end of 2022 has turned the generation of content by Artificial Intelligence ("Generative AI") upside down and brutally revived the rivalry between Google and Microsoft in this field. In this month's Fund Insight, we would like to take a closer look at the state of the two tech giants in this battle of the titans.

MICROSOFT VS. GOOGLE: THE BATTLE FOR GENERATIVE AI LEADERSHIP IS ON

"Artificial intelligence is the most powerful technology we are working on today. [...] It's been more than six years since I said that Google was an "AI First" company. Since then, we have been leaders in the development of artificial intelligence [...]" These were the words said by Sundar Pichai (CEO of Google) to the analysts during his quarterly conference on February 2nd. This is a thinly veiled response to the words of Satya Nadella (CEO of Microsoft), who told the same analysts the previous week: *"We will dominate the age of artificial intelligence. [...] The age of artificial intelligence is upon us and we are going to be the company that makes it possible. We have the most powerful infrastructure in the market today in terms of computing capacity related to artificial intelligence. [...]. "*

This joust is far from being all words and no action. It testifies to the very high ambitions of the two players and their real desire to dominate a key area of technology. Moreover, the time factor is key: the two companies know how important it is to occupy new territories as soon as possible in terms of emerging technology, in order to better shape the world. It is therefore a question of both overtaking and anticipating the other on key issues:

- The leadership of applications based on Generative AI, applied to content search on the Internet. Google's search engine currently enjoys an ultra-dominant market share. Generative AI can completely reshuffle the deck. Microsoft therefore wants to position itself to reverse the situation to its advantage. Such a battle will be merciless as the aim is to build (for Microsoft) or maintain (for Google) a quasi-monopolistic position. We could therefore see, once again, a "winner takes all" situation.
- Maximize the traffic of Internet users to monetize via advertising revenue. The market is colossal: Google has generated advertising revenue of more than $224 billion in 2022 across its different supports such as Search, YouTube and Network.
- Capture data processing volumes for the benefit of their respective public clouds (Azure at Microsoft, GCP at Google). This enables the databases to be enriched both in terms of algorithm 'training' (to train the algorithms, initially) and inference (with each query on a generative AI tool such as ChatGPT).

MICROSOFT VERSUS GOOGLE: A BATTLE WITH AN UNCERTAIN OUTCOME

After $1 billion at launch, Microsoft will reinvest $10 billion in Open AI (the company that founded ChatGPT) in the coming weeks. Thus, Microsoft has clearly taken the lead. Benefiting from the "first mover advantage", it should be able to deploy the following strategy:

- Integrate ChatGPT into its Bing search engine
- Offer a service based on ChatGPT to all its large enterprise customers (over 200 large enterprises already use it)
- Capitalise on its Azure public cloud infrastructure, the most powerful on the market in terms of computation. Thus offering to all its customers (and Open AI in the first place) algorithm training capabilities to generate content, directly or indirectly linked to ChatGPT. Azure's Machine Learning branch has therefore been growing by more than 100% over each of the last 5 quarters.

However, it would be premature today to conclude that Google has lost its leadership in the field of Internet search. Indeed, the next few months will be full of announcements from Mountain View, Google's headquarters, to respond quickly to those of Microsoft. The company has already promised to reinvent the way we search and interact with information. Google aims to promote the most intuitive and natural formulas. This will include:

None of the aforementioned companies constitutes an investment recommendation.
Past performance is not a reliable indication of future return and is not constant over time.

Story OF THE MONTH

- Making LaMDA ("Language Model Dialogue Application") available in the very next few weeks. This is obviously a direct counter-attack on the success of ChatGPT. LaMDA is an NLP (Natural Language Processing) oriented technology, i.e. an AI designed to hold a conversation. LaMDA seems capable of passing the famous Turing test: pretending to be a human to a human. LaMDA would notably be able to initiate and maintain fluent conversations on an almost infinite number of topics. Like NLP models such as Bert or GPT-3, LaMDA is based on a neural network architecture of the Transformer type, an open technology (in open source), published by Google in 2017.
- Next to be released, i.e. in the coming months, is PaLM (Pathways Language Model), which is based on 540 Billion parameters (much more than GPT 3.5, the natural language underlying Chat GPT which uses 175 Billion parameters). The PLM approach is an AI that can be described as revolutionary because it is getting closer and closer (and faster) to the way the human brain works, with several tasks being solved at the same time. These dazzling advances make it easy to understand why Sundar Pichai spoke on February 2nd about the need for ethical and responsible AI: this crucial question can no longer be evaded.

AND ELSEWHERE IN THE WORLD?

In this new advance in artificial intelligence, it seems that we are currently witnessing a new episode in the "domination of the American empire". Europe has been more discreet so far. Let's bet that it will engage much more in this battle when the time comes for regulation. In addition, two Generative AI initiatives in Asia are worth noting:

- **Baidu**, the Chinese search engine giant, indicated last week that it is preparing a chatbot-like artificial intelligence, comparable to ChatGPT. It could be deployed next month. The move was welcomed by the Chinese stock market on the day it was announced;
- **Naver**, the South Korean Internet leader, is preparing for a first-half release of Naver Search GPT, a service focused on everyday concerns. It will answer questions such as "What are the Seoul underground fares?", "Where can I buy a cheap computer?

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IN ODDO BHF ARTIFICIAL INTELLIGENCE

A NEW WAY OF MANAGING INVESTMENTS: The power of artificial intelligence (AI) combined with a proven quantitative model that captures the performance of the best global listed Artificial Intelligence companies.

A ROBUST THEME: With its structural growth engines, we expect AI to grow faster than other economic sectors. Companies able to seize the opportunity are likely to create value in the long run.

INTEGRATION OF ARTIFICIAL INTELLIGENCE IN THE INVESTMENT PROCESS: This unique approach allows us to analyse more than 4 m pieces of data each day and to quickly detect new trends in the theme and shifts in market sentiment, while capturing the growth of under-the-radar small and mid caps on a global scale.

AN EXPERIENCED TEAM WHOSE TALENTS PLAY OFF ONE ANOTHER: Brice Prunas, a manager with more than 20 years of experience as a financial analyst specialising in technologies. Maxence Radjabi, a manager with three years of experience in investing with a bent towards quantitative analysis.

INVESTMENT TEAM

BRICE PRUNAS
Global thematic Equity
Portfolio manager
ODDO BHF
Asset Management SAS

MAXENCE RADJABI
Global thematic Equity
Portfolio manager
ODDO BHF
Asset Management SAS

RISKS

The fund is exposed to the following risks: **capital loss risk, equity risk, mid-cap holding risk, interest rate risk, credit risk, discretionary management risk, volatility risk, counterparty risk, liquidity risk of underlying assets, modelling risk, risk related to commitments on forward financial instruments, currency risk, currency risk, emerging market risk, investment in China, Stock Connect, Bond Connect, sustainability risk.**

ISIN codes of the fund					
CIw-USD Share Class	**CI-EUR Share Class**	**CI-USD Share Class**	**CI-EUR [H] Share Class**	**CR-EUR Share Class**	**CR-USD Share Class**
LU1833933325	LU1833932434	LU1833932517	LU1833933242	LU1919842267	LU1833932780
ODAICIW LX	ODAIECI LX	ODAICIU LX	OBHCIEH LX	ODAICIE LX	ODAICRU LX
Equity	Equity	Equity	Equity	Equity	Equity

Source: ODDO BHF AM SAS

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