



Investor Action
on AMR

Investor Action on Antimicrobial Resistance

PROGRESS REPORT

Investor efforts, achievements
and opportunities ahead

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November 2022, Investor Action on AMR
Progress Report: investor efforts, achievements
and opportunities ahead. Published by [Investor
Action on AMR](#).

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ACKNOWLEDGEMENTS

A special thank you to the investors and investor representatives supporting the Investor Action on AMR and for their role in emphasising the materiality and risks associated with antimicrobial resistance. We would like to thank those who shared their time, insights and content for the development of this report.

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“Investors are well aware of the efforts to increase transparency and sustainability within the supply chain of other sectors, such as clothing and mining. It is time to expect the same for the pharmaceutical and food industries.”

Professor Dame Sally Davies
UK Special Envoy on AMR

Foreword

Antibiotics are essential infrastructure, which are the cornerstones of modern medicine for humans, animals, and crops. These global commons help us to manage infectious diseases, support food supply chains, and live productive lives.

But scientific evolution and economic market failures are against us. Antimicrobial Resistance (AMR) is a silent pandemic, which at best threatens the delivery of the UN Sustainable Development Goals, and at worst takes us back to an apocalyptic age where a simple cut becoming infected could kill.

We now have data which estimates almost 1.3 million people every year die from AMR – a number which rises to 5 million when AMR is considered as an underlying factor.* With health, food, and environmental sustainability and security at stake, the global investment community cannot afford to ignore this brewing crisis any longer.

AMR is not the only existential emergency facing our planet, but it is both exacerbated by and accelerates climate change and biodiversity loss. These linked issues demand unprecedented human action to over-turn decades of over-consumption and unsustainable use of our common resources, including antibiotics.

That is why the theme of this year's World Antimicrobial Awareness Week is 'Preventing antimicrobial resistance together'. This means *all* sectors playing their parts as antibiotic stewards, global advocates, and sustainable investors.

Every investment can be maximised to prepare for pandemics we can see coming, and for those we can't, through investing in innovation for novel antimicrobial treatments. From farm to fork, infection prevention and control can be at the heart of food supply chains, with immunisation and hygiene in place. And whilst international standards could guard our waterways from antibiotic effluent pollution, wastewater surveillance systems can also act as cost-effective eyes and ears for outbreaks of infection.

Tackling AMR creates economic productivity and growth, it does not compromise them.

Economics and sciences intertwine on AMR, but the economics of AMR are currently broken. A One Health approach can enable growth and financial stability; and science-based financial policies are an essential to mitigate AMR.

Investors are well aware of the efforts to increase transparency and sustainability within the supply chain of other sectors, such as clothing and mining. It is time to expect the same for the pharmaceutical and food industries.

At the start of this decade, the World Health Organization indicated that AMR would be a top threat facing humanity. Since 2020, I am proud that the *Investor Action on AMR* initiative has worked to galvanise some of the world's leading asset managers and development finance institutions to demonstrate that AMR does represent a material risk. There are now 16 investors working to shake the status quo, and I am delighted that this report spotlights the progress that they are making.

Based on the latest research from FAIRR, the Access to Medicine Foundation, and the UN Principles for Responsible Investment, the *Investor Action on AMR* initiative has grown in both number and influence. The Finance Ministers of the G7 recognised the efforts of the Investor Action on AMR initiative, and called on investors to continue in dialogue with them – which they have stepped up to.

We are already in a stronger position of action and coordination this year than ever before, with the developments globally. G7 Finance Ministers committed to address the market failure contributing to the lack of antibiotic development, whilst the AMR Action Fund has announced its first investments in innovative new treatments from biotech companies. Development banks are leading the way, with the World Bank supporting governments from low- and middle-income countries (and UN agencies) to design and implement interventions to address AMR, by providing financing and technical partnership. Furthermore, the European Bank for Reconstruction and Development has included AMR in its Environmental and Social Governance Policy to promote antibiotic stewardship in health services and for food-producing animals, whilst also providing training to their clients. With the formal integration of the United Nations Environment Programme into the 'Quadripartite' of UN organisations, global AMR policy-making is now more comprehensively tackling AMR across all its drivers in the human, animal, water and plant sectors.

This must be just the beginning of collaborative action. As we look ahead to the coming year, and towards the important High-Level Meeting on AMR at the UN in 2024, it is vital that investors play a leadership role in proactively and transparently mitigating AMR, lending their voices to global policy dialogues, and exemplifying their corporate responsibility on this global emergency. Investors can be the decisive force to turn the tide on AMR for our health, food and environment systems facing an inflection point.

For this inter-generational, insidious pandemic, we must all play our parts. I thank the *Investor Action on AMR* initiative for their contributions to date, and look forward to further progress together.

Professor Dame Sally Davies
UK Special Envoy on AMR

Acronyms and key terms

AMR	Antimicrobial resistance
CDC	Centers for Disease Control and Prevention
CIAs	Critically important antimicrobials
COVID-19	Coronavirus disease (caused by the SARS-CoV-2 virus)
DFI	Development Finance Institution
FAIRR	The Farm Animal Investment Risk and Return Initiative
ESG	Environmental, Social and Governance
GDP	Gross Domestic Product
IAAMR	Investor Action on Antimicrobial Resistance
IMF	International Monetary Fund
LMICs	Low- and middle-income countries
MIAs	Medically important antimicrobials
PPP	Public-private partnership
PRI	Principles for Responsible Investment
PSCI	Pharmaceutical Supply Chain Initiative
R&D	Research and Development
SMEs	Small-and medium-sized enterprises
UNEP	United Nations Environmental Programme
USDA	The United States Department of Agriculture
WHO	World Health Organization

Antibiotic (medicine): used to treat bacterial infections by directly targeting the bacteria that cause the infection or the disease process (as opposed to targeting the symptoms of the infection).¹

Antimicrobial (medicine): used to treat an infectious disease by directly targeting the bacteria, fungi, helminths, protozoa or viruses that cause the infection or the disease process (as opposed to targeting the symptoms of the infection). Antibiotics are an example of an antimicrobial.²

Antimicrobial resistance (AMR): the ability of microbes such as bacteria, viruses, fungi and parasites (protozoa or helminths) to grow in the presence of an antimicrobial substance (e.g. a medicine) that would normally kill them or limit their growth. Resistance is a consequence of evolution via natural or artificial selection.³

Antimicrobial stewardship: a systematic and comprehensive process that aims to ensure that all aspects of prescribing (e.g. drug, dose, duration), dispensing, and the use of antimicrobial medicines are consistent with the available evidence on how to minimise the emergence of AMR.⁴

Intensive animal farming: the globally adopted farming system that involves crowding large groups of livestock into confined indoor spaces, such as stalls or cages. The USDA defines any farm with more than 1,000 cattle, 2,500 pigs or 125,000 chickens as intensive.⁵ In the EU, officials have defined intensive farms as those that carry more than 40,000 chickens or 2,000 pigs.⁶

Medically important antimicrobials (MIAs): antimicrobials used in human medicine. Within this definition, antimicrobials are categorised as Critically Important Antimicrobials (CIAs), Highly Important, or Important by the World Health Organization.⁷

One Health: a "collaborative, multi-sectoral and transdisciplinary approach – working at the local, regional, national and global levels – with the aim of achieving optimal health outcomes recognising the interconnection between people, animals, plants and their shared environment".⁸

Prophylactic or non-therapeutic use: in the animal protein producing sector, the use of antibiotics to promote animal growth or to prevent (rather than treat) disease and infection in healthy animals.

Public-private partnership (PPP): A PPP is a partnership between one or more public organisations and the private sector for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance.

* Murray, Christopher JL, et al. "Global Burden of Bacterial Antimicrobial Resistance in 2019: A Systematic Analysis." *The Lancet*, vol. 399, no. 10325, Feb. 2022, pp. 629–55.

Section 1 About AMR

The Investor Action on Antimicrobial Resistance (IAAMR) initiative was launched on 23 January 2020, at the World Economic Forum in Davos, by the Access to Medicine Foundation, the FAIRR Initiative, Principles for Responsible Investment (PRI) and the UK Government's Department of Health and Social Care. The focus is to galvanise investor efforts to address global antimicrobial resistance – an urgent public health challenge, associated with an estimated 4.95 million deaths globally in 2019 alone.⁹ These deaths often occur when infections become resistant to multiple medicines and cannot be effectively treated. AMR is a material issue for investors globally as it is set to have major financial consequences impacting all sectors and industries and is estimated to cost the world \$100 trillion in global economic losses by 2050.¹⁰ Since its inception in 2020, sixteen institutional investors and investor representatives have joined as investor partners.¹¹

The drivers of AMR are interlinked and complex, spanning human health, animal agriculture, and the wider environment. The development of new antibiotics is crucial for combatting rising AMR, yet challenging market conditions have resulted in vast funding gaps for new antibiotics and alternatives. In addition to engaging stakeholders on AMR, investor action is needed to help narrow the funding gap through investments in the space, while tackling the systemic risk of AMR. Investors can adapt to evolving risks and opportunities related to rising AMR, such as the need to diversify business models and product portfolios to safeguard future revenue generation for companies, especially in the food and pharmaceutical sectors.

AMR is an issue that impacts all sectors and industries on a global scale and requires a holistic and multi-sectoral approach, defined as “One Health” by the World Health Organization (WHO), involving the public health, veterinary, and environmental sectors to improve human health at the human-animal-environment interface.¹² Investors, as key players, have an opportunity to leverage their influence to safeguard society, economies and the long-term value of investment portfolios by formally assessing and integrating AMR risks, opportunities and impact in their engagements using the “One Health” approach.

This report aims to provide an overview from a “One Health” perspective of the drivers and implications of AMR as an environmental, social and governance (ESG) risk for investors, while showcasing the actions that investor partners are taking through initiatives like IAAMR, which serve as a platform for the collective voice of investors. It will introduce tools and collaborative mechanisms for investors to use in tackling this issue, spotlight learnings from investor partners and highlight upcoming opportunities for greater action from investors and other stakeholders. The next sections outline how human health, animal agriculture, the environment, and AMR are all interconnected, and what it means for investors.

The pharmaceutical sector is estimated to be worth \$1.7 trillion by 2025. However factors that contribute to this growth, such as increased life expectancy, are heavily dependent on the availability of effective antibiotics.

The “One Health” approach: Understanding the multi-sectoral impact of AMR

1. AMR and human health

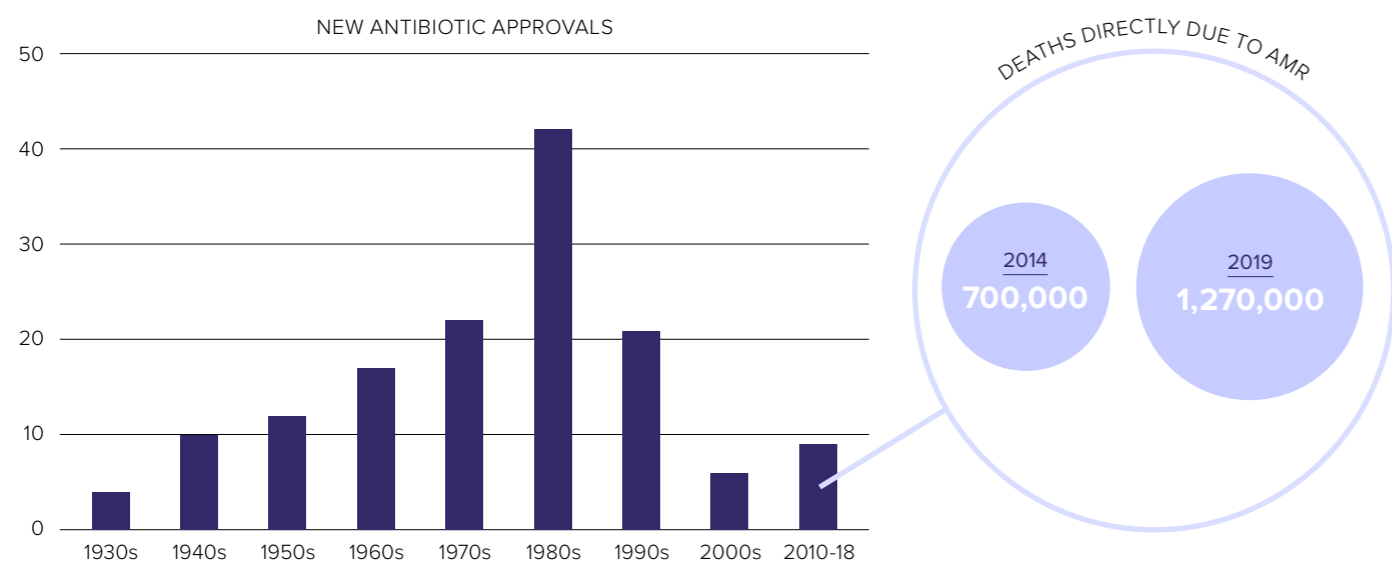
The global burden and cost of AMR is high, including not only a significant death toll, but also increasing medical costs for patients due to prolonged illness and hospitalisations, and the need for expensive medicines. As resistance rises and effective treatment options become limited, medical procedures that rely on antibiotics to prevent and treat infections during major surgery or cancer chemotherapy are presenting increasingly more risk.¹³ While antibiotics transformed modern medical systems for humans and animals, AMR could catalyse the end of modern medicine as we know it, if not promptly addressed.

Direct costs through expensive and more intensive treatments will require more resourcing from healthcare systems, while the indirect costs to productivity and output are estimated to be even higher.¹⁴ For example, one study estimated the cost of AMR to be \$20 billion for healthcare and \$35 billion for loss of productivity in the US every year (2008 dollar).¹⁵ The pharmaceutical sector is estimated to be worth \$1.7 trillion by 2025. However factors that contribute to this growth, such as increased life expectancy, are heavily dependent on the availability of effective antibiotics.¹⁶

Misuse and overuse of antimicrobials

A significant driver of AMR is the misuse and overuse of antimicrobial medicines which leads to the survival of only resistant bacteria. Misuse occurs when antibiotics are not used as intended, for example when patients do not finish their full course of treatment after their symptoms improve. Overuse occurs when doctors prescribe – or patients use – antibiotics even though they are clinically unnecessary, for example for viral infections. Pharmaceutical companies play an important role when educating prescribers about AMR and the risks associated with over-prescribing their products, and they can limit overuse by removing sales-based incentives. The Access to Medicine Foundation's [2021 Antimicrobial Resistance Benchmark](#) report found that pharmaceutical companies are increasingly improving sales practices, with additional generic medicine manufacturers combating overselling, although significant progress is yet to be made.¹⁷

Figure 1: New antibiotic approvals since the 1930s and deaths from drug-resistant infections (2014-2019)



Sources: "The Antibiotic Industry Is Broken." *The Economist*, 8 May 2019, and Murray, Christopher JL, et al. "Global Burden of Bacterial Antimicrobial Resistance in 2019: A Systematic Analysis." *The Lancet*, vol. 399, no. 10325, Feb. 2022, pp. 629–55.

The need for new innovative products

As drug resistance rises, current medicines become less effective, increasing the need to develop new antimicrobial medicines and vaccines. Despite efforts by a few actors, such as the AMR Action Fund,¹⁸ the antibacterial and antifungal research and development (R&D) pipeline remains small compared to the scale of the AMR threat. The 2021 AMR Benchmark found that while the R&D pipeline has grown to 92 projects, only one-third of these target pathogens in the highest risk categories per WHO and CDC. This includes only eight clinical-stage antibacterial and antifungal R&D projects that aim to bring to market new chemical entities or new fixed-dose combinations. Further, only three meet some or all of the innovativeness criteria set by WHO to identify candidates with high value to combat resistance.¹⁹

Importantly, few new antimicrobial medicines have reached the market in recent decades, and no new class of antibiotics has been discovered since 1984.²⁰ With large manufacturers increasingly focusing on more profitable therapeutic areas, such as oncology, antibiotics are often developed by small and medium enterprises (SMEs), who depend on research funding to survive. Funding frequently runs out before financial returns can be made, leading to the loss of projects already in the pipeline.²¹

Lack of access to appropriate medicines

An estimated 5.7 million people, mainly living in low- and middle-income countries (LMICs), currently die each year from lack of access to antibiotics.²² Vital antibiotics and antifungals are not reaching the populations of these countries, even though they experience the greatest rates of infectious disease and the highest levels of AMR. This lack of access greatly increases the global spread of AMR,²³ with doctors often resorting to suboptimal antibiotic treatments when the right medicines are unavailable, hereby increasing resistance. Therefore, it is critical for pharmaceutical companies to plan for access during the R&D process, as this ensures appropriate use of products and access to all populations. As shown by the COVID-19 pandemic, in addressing viruses that rapidly spread across borders, it is fundamental that collaborative efforts at a global level are employed to ensure medicines are widely available.

There are a wide range of tools that pharmaceutical companies can utilise to increase access, such as registration (including older products that have not yet been marketed in LMICs), tiered pricing, voluntary licensing agreements, technology transfers and public-private partnerships (PPPs). As detailed in a [report](#) by the Access to Medicine Foundation, the pharmaceutical companies Sanofi, Cipla and Shionogi have recently implemented access strategies to expand access to antibiotics, e.g. Sanofi's technology transfer²⁴ and Shionogi's PPP.²⁵

Antimicrobial surveillance – monitoring infection rates and patients' resistance to treatment – is also vital in curbing AMR. Pharmaceutical companies can play a major part in boosting international surveillance efforts by providing data for estimating drug consumption and analysing resistance trends. In recent years, data-sharing has increased,²⁶ with companies sharing surveillance data in the [AMR register](#).²⁷

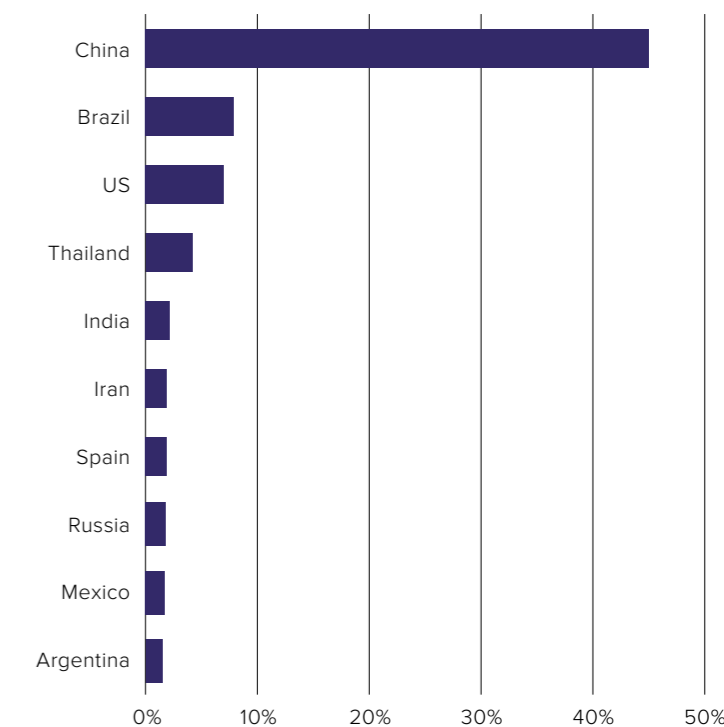
2. AMR and animal agriculture

With meat consumption and the demand for animal protein growing, and with the consequent development of more industrial animal agriculture, there is a higher demand for the use of antimicrobials in food-producing animals for growth promotion, which conversely compromises animal welfare and food chain sustainability – and this is expected to increase further. An estimated 70% of global antibiotic use occurs in animal agriculture, where antibiotics are deployed to prevent, treat and control bacterial infections in food-producing animals.²⁸ These infections are often caused by intensive livestock farming and aquaculture, particularly where there is overcrowding and a lack of hygiene measures. While it is necessary to treat animals therapeutically when disease is present, antibiotics are often misused in intensive animal farming for prophylactic use and growth promotion. Antibiotic overuse can lead to the development of antimicrobial-resistant bacteria in animals, which can then be transmitted to humans via food products, direct contact with animals, or pollutants in the environment.²⁹

WHO is increasingly concerned about the misuse and overuse of antimicrobials to produce large quantities of animal-sourced foods, and it recommends an urgent reduction in the use of all classes of medically important antimicrobials in food-producing animals.³⁰ This concern and suggested actions to address the challenge of AMR are also supported by The Food and Agriculture Organization of the United Nations (FAO), the World Organization for Animal Health (OIE) and the United Nations Environment Programme (UNEP).³¹ According to FAIRR's Protein Producer Index, the sector has seen a modest reduction in antibiotics use over the last three years, one-quarter of companies now ban the routine use of certain classes of antibiotics.³² However, disclosure remains poor, and 62% of companies are still categorised as "high risk", while only 12% of companies have committed to ending the routine use of all antibiotics for all the animal species they process.³³

Figure 2: The top ten consumers of veterinary antibiotics

Together, the countries below account for 75% of the antimicrobials used in animal production, but only 50% of the world's human population.



Source: Tiseo, Katie, et al. "Global Trends in Antimicrobial Use in Food Animals From 2017 to 2030." *Antibiotics*, vol. 9, no. 12, MDPI AG, Dec. 2020, p. 918. <https://doi.org/10.3390/antibiotics9120918>.

Governments around the world are introducing regulations to restrict the irresponsible use of antibiotics in animal agriculture. However, despite progress in some high-income countries in the past ten years, antibiotic use in emerging markets is increasing.³⁴ The expansion of intensive animal farming in emerging markets has resulted in a corresponding increase in the share of global antimicrobial consumption in animal agriculture.³⁵ This creates the urgent need for more international cooperation and alignment of regulations to limit the misuse and overuse of antibiotics in food-producing animals across countries. More details on this are found in Section 3 of the Report.

3. AMR and the environment

This section summarises the evidence of the environmental impacts of AMR and the causes of the development and spread of resistance in the environment. There is also increasing concern about the links between antibiotic effluent pollution, biodiversity loss and negative impacts to ecosystems, particularly of waterways.³⁶ The UNEP identified the most significant pollutant sources contributing to AMR in the environment,³⁷ as well as possible actions to mitigate this.

Poor sanitation and sewage and waste effluent: 56% of industrial wastewater globally is released into the environment with little or no treatment. Recent studies have identified excessive levels of antimicrobials in rivers, which is only exacerbated by a lack of wastewater infrastructure. In one such study, water samples from 1052 sites across 258 rivers in 104 countries found that more than one-quarter of the water samples contained harmful concentrations of active pharmaceutical ingredients.³⁸ Water utilities and wastewater management companies need to improve reporting, surveillance and monitoring of AMR risks.

Effluent and waste from pharmaceutical manufacturing: Pharmaceutical companies can take steps to ensure the level of antibacterial residues present in wastewater do not exceed limits that are considered safe. The AMR Industry Alliance recently introduced the Antibiotic Manufacturing Standard³⁹ to provide voluntary guidance for manufacturers, but there remains an important role for mandatory national and international regulations to improve the environmental monitoring of antimicrobial waste.⁴⁰ Pharmaceutical companies are developing practices to limit the threat of AMR, notably in curbing the release of antibiotic waste into the environment.

Releases, effluents and waste in animal production:

Many animal protein producers and processes lack manure management procedures, resulting in active antimicrobials excreted from animals polluting the surrounding ecosystem. This is particularly alarming when it concerns antimicrobials that are of critical importance to human medicine.

Climate change and biodiversity loss: Climate change also affects the distribution and incidence of many infectious diseases,⁴¹ and evidence suggests that higher temperatures are associated with greater levels of antibiotic resistance in the pathogens that cause those diseases.⁴² Emerging evidence is showing that antibiotic effluents can cause substantial environmental disturbance, including soil biodiversity loss.

The management of human and animal excrements, effluents from pharmaceutical manufacturing and healthcare facilities, and the use of antimicrobials in crop production must all be targeted. To ensure a “One Health” approach to AMR that guarantees a holistic and multi-sectoral impact, there is a need to develop a better understanding of the risks associated with rising AMR in the environment.

4. Cross-sectoral investment risks and opportunities

AMR as a systemic portfolio risk

If left unchecked, AMR will substantially undermine the global economy’s financial recovery and outlook, negatively impacting investors’ portfolios. The World Bank estimates that the economic costs of AMR will amount to a loss of up to 3.8% in Gross Domestic Product (GDP) by 2050, with a greater impact on the global economy than the 2007-08 financial crisis.⁴³ This section addresses the risks to which all portfolios will be exposed.

The COVID-19 pandemic has shown the severe economic consequences that a global health crisis can have, with the International Monetary Fund (IMF) estimating that the cost of COVID-19 will rise beyond \$12.5 trillion by 2024.⁴⁴ Similarly, AMR is likely to impact investment portfolios significantly, particularly in sectors such as healthcare, food and utilities. Investors who have acknowledged the systemic risk that AMR poses – and are prepared to integrate AMR as a vital ESG issue – will be better prepared to face these scenarios.

Regulatory developments: risks and opportunities

AMR is gaining prominence on multilateral and national agendas. Regulations impacting business practices, such as the use of antibiotics in agriculture or the management of manufacturing waste by pharmaceutical or water utilities sectors, now present key supply chain concerns.

With increasing international pressure on countries to adopt “best practice” regulations to limit the spread of AMR, the food sector faces reduced profit margins for companies that produce or buy industrial meat products, as their business models rely on the overuse of antibiotics. This applies particularly to intensive farming operations where the routine use of antibiotics compensates for poor hygiene and welfare conditions.⁴⁵

The introduction of regulations spearheading new incentives for antibiotic R&D may provide more opportunities for pharmaceutical companies entering or remaining in the antibiotic market (see Section 3 for further details).

Consumer demand and civil society pressure: reputational risks and opportunities

Consumers have become aware of the growing link between animal antibiotic use and the impact of AMR on humans. In 2022, the Bureau of Investigative Journalism published an article exposing companies such as McDonald’s, Whole Foods and Walmart for selling chicken contaminated with multidrug resistant bacteria.⁴⁶ Such scandals present reputational risks which can affect companies’ bottom line. Increased public concern regarding antibiotic use in animals has resulted in a fast-growing market for meat products labelled “free of antibiotics” or “raised without antibiotics”. In the US, 35% of consumers said that being able to identify products that are free of antibiotics is important when shopping for meat products.⁴⁷ The global antibiotic-free meat market is expected to continue growing steadily, especially in North America and Asia. Experts have encouraged agencies such as the USDA to establish a rigorous verification system to ensure that claims are truthful, otherwise companies need to cease using these labels.⁴⁸

Increased public concern regarding antibiotic use in animals has resulted in a fast-growing market for meat products labelled “free of antibiotics” or “raised without antibiotics”

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Reputation is also a significant factor for the pharmaceutical sector. For example, a 2021 Gallup Survey found that less than one-third of Americans view the industry positively.⁴⁹ Pharmaceutical companies need to be able to demonstrate tangible efforts to reduce their impact on rising AMR. By investing in much-needed antibiotic R&D, they will not only be protecting the sustainability of profitable business lines and blockbuster medicines that are dependent on effective antibiotics, but they will also benefit from an improved reputation and greater public trust in the industry. Reputation is especially important for companies wishing to enter emerging markets, which are predicted to be a significant source of revenue for pharmaceutical companies in the coming years.⁵⁰

Investing in innovations and alternatives: opportunities for investors

Given the above-mentioned risks and opportunities, diversifying business models and product portfolios will also be essential to safeguard future revenue generation for companies in the food and pharmaceutical sectors. From a human health perspective, the demand for new and advanced antimicrobial therapies is growing globally, and technologies such as 3D printing and artificial intelligence may play a crucial role in this development.⁵¹

From an animal health perspective, innovative treatments and tools that focus on prevention, and present an alternative to antibiotics, will be critical. These include vaccines and pre- and probiotics, as well as innovative diagnostic tools and novel treatments such as phage therapy, antimicrobial peptides, phytochemicals and immune modulators. These products can boost productivity for farmers and food companies, exerting a positive impact on feed absorption, gut health and general immunity of livestock.⁵² Investors will be instrumental in incentivising large companies to invest more in R&D for these treatments and tools, and in providing smaller biotech companies with long-term capital to encourage the development of new antimicrobial products.

Tools and collaborative opportunities for investors

To tackle rising AMR effectively, all stakeholders and investors will have distinct roles to play. There are a number of tools, best practice policies and collaborative engagements available to support their efforts.

BENCHMARKING TOOLS AND BEST PRACTICE POLICIES

Access to Medicine Foundation

► [2021 Antimicrobial Resistance Benchmark](#)⁵³

- A benchmarking tool for investors wishing to engage pharmaceutical companies.
- Evaluates 17 companies with a major stake in the anti-infectives space and tracks the progress and gaps in their efforts to keep medicines and vaccines available, despite the rise of drug resistance.
- Compares company performance and highlights best practice.
- Company report cards provide the necessary details to support investors in addressing key concerns and opportunities with companies and other stakeholders.

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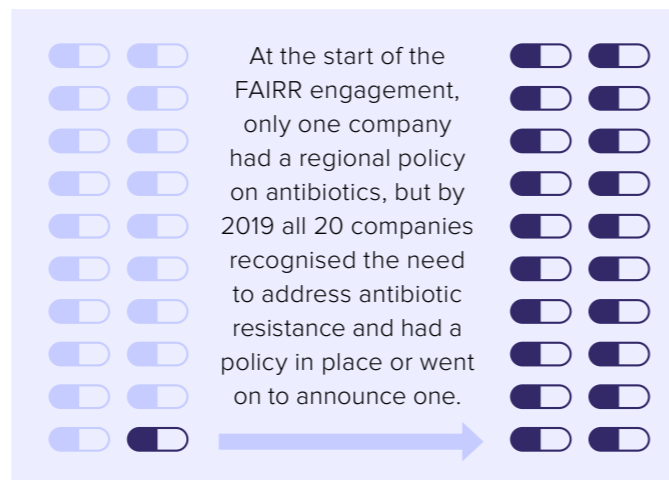
► [Protein Producer Index](#)⁵⁴

- A benchmarking tool that provides investors with a comprehensive assessment of the 60 largest animal protein producers on critical ESG issues in the sector, including antibiotic use.
- The Index allows investors to identify the companies that are low, medium or high risk according to the strength of their antibiotics policy and antibiotics disclosure.

Coller FAIRR

► [Best Practice Policy on Antibiotic Stewardship](#)⁵⁵

- A publicly available best practice policy on antibiotics stewardship, providing guidance for food companies, including manufacturers, retailers and restaurants, on the development of their individual policies.



Collaborative engagements and shareholder resolutions

Collaborative engagements are an effective tool for driving change in corporate practices. For example, from 2016 to 2019, FAIRR conducted a [collaborative investor engagement](#) on antibiotic stewardship and usage with the UK and US casual dining and fast-food sector.⁵⁶ There was a total of 20 target companies and 74 supporting investors representing \$4.9 trillion in combined assets. At the start of the engagement only one company had a regional policy on antibiotics, but by 2019 all 20 companies recognised the need to address antibiotic resistance and had a policy in place or went on to announce one.⁵⁷ However, these investors must continue to encourage companies to establish specific time-bound commitments to free their supply chain from the routine use of medically important antibiotics.

In 2021, the FAIRR Initiative carried out research into the animal pharmaceutical industry, culminating in [a report](#), *Feeding Resistance: Antimicrobial Stewardship in the Animal Health Industry*, which highlighted how the reliance on revenue from antibiotics leaves companies exposed to material risks, such as more stringent regulation.⁵⁸ FAIRR's work has since evolved into a collaborative engagement focused on seven of the world's largest animal pharmaceutical companies, encouraging them to diversify their portfolios and provide greater disclosure over how they are addressing the risk of AMR throughout their value chain.

Shareholder resolutions are also an essential instrument for investors to set out the changes they expect to see in companies' policies and behaviour. During the last three years there have been several resolutions focused on AMR, targeting protein producers, manufacturers and restaurant chains as well as pharmaceutical companies, for example in the past year, those at [McDonald's](#),⁵⁹ [Costco Wholesale Corporation](#),⁶⁰ [Yum! Brands, Inc.](#)⁶¹ and [Abbott Laboratories](#).⁶²

Section 2 Policy developments

Globally, governments are collaborating to curb AMR, and although it was already on the political agenda before the COVID-19 pandemic, national, international and multilateral action is growing in prominence and urgency as the systemic risk of AMR is increasingly recognised. However, government action alone will not halt one of the world's biggest health threats. Investors have a critical role to play by engaging policymakers and helping companies recognise long-term risks and trends, seizing the opportunities to introduce incentives, innovations and best practices in order to tackle AMR.

The trickle-down of multilateral commitments toward company activity

At the multilateral level, G7 leaders have committed to “spare no efforts” in tackling AMR⁶³ and, following the Health Ministers’ May 2022 meeting in Berlin, they issued a further mandate for action from all sectors to address the drivers of AMR.⁶⁴ G20 health ministers also brought AMR to their agenda in September 2021, calling for a “One Health” approach to tackle rising resistance.⁶⁵ Investors, too, can respond to these calls, and shape further momentum, by learning from their own experience of COVID-19 to commit to building sustainable and resilient health systems.

WHO’s 194 Member States are currently developing and negotiating a legally binding international instrument on pandemic prevention that would prevent, prepare for, and respond to pandemic threats such as AMR.⁶⁶ As this process unfolds between now and May 2024, it will be important for all stakeholders, including investors, to participate and share their views on what the instrument should include, including through public consultations and hearings.

During the High-Level Meeting on AMR in 2016, the UN General Assembly produced a landmark [Political Declaration](#),⁶⁷ which committed countries to developing National Action Plans on AMR, mobilising funding and working in partnership with the private sector. In March 2022, the UN adopted [a resolution](#)⁶⁸ that invites a second AMR High-Level Meeting to take place in 2024. This presents an important opportunity for all stakeholders to convene and chart an AMR roadmap that builds on lessons and actionable plans from the COVID-19 pandemic, climate change, and other threats to global health and food and environmental security.

It will be a moment for all sectors to focus on measuring progress to date and to call for new commitments to guide future action across all sectors. To engage UN Member States, investors can exert their collective influence by, for example, issuing joint communiqués calling for Member State action or voicing support for best practice for countries to adopt, such as investors’ joint statement ahead of the 2016 UN High-Level Meeting on AMR.⁶⁹ The Business Council for the UN is another forum through which investors can engage collectively on this issue.⁷⁰ It is evident that investors would welcome the opportunity to participate in some of the dialogues and discussions surrounding the High-Level Meetings on AMR.

In March 2022, the UN adopted a resolution that invites a second AMR High-Level Meeting to take place in 2024

As this process unfolds between now and May 2024, it will be important for all stakeholders, including investors, to participate and share their views on what the instrument should include, including through public consultations and hearings.

Increasing national regulation that impacts business models

There are a growing number of regulatory developments at the national level, particularly regarding AMR’s impact on the environment and animal agriculture. These new regulations will have a material impact on companies and a knock-on effect for investors. Investors who engage on AMR now will contribute to future-proofing sustainable and profitable business lines in the medium to long term.

Impact on animal agriculture sector

According to WHO, there are four main uses of antimicrobials in animal agriculture,⁷¹ two of which are considered as unnecessary – growth promotion and prophylaxis. As the section below shows, these two uses are increasingly being regulated, given their role in driving higher rates of antibiotic use in animals:

1. Growth-promotion antimicrobials

Practice: Small doses are administered to animals to increase the speed and efficiency of their growth.

Regulations: Although this use of antimicrobials was banned as early as 2006 in Europe and the UK, this practice remains unregulated in other geographies. In many countries, bans only cover medically important antibiotics (i.e. those antibiotics that are important for treating human diseases).

2. Prophylactic antimicrobials

Practice: Group treatment of animals with antimicrobials to *prevent* illness or infection. Prophylactic use can also include giving all animals low doses of antimicrobials to ensure they do not become ill, even when they exhibit no signs of illness or infection.

Regulations: In 2022, the EU’s 2019/6 regulation came into effect, banning the prophylactic use of antimicrobials in livestock across all EU countries.⁷² It also extends to imports, making antimicrobial regulation in other countries subject to trade negotiations. The implication of this progressive regulation is not only financially material for both companies and investors operating in the EU, but has a global impact: some of the world’s largest exporters of animal products may no longer meet the standards for export to the EU.

3. Metaphylactic & therapeutic use of antimicrobials

Practice: Metaphylactic use occurs when one animal is exhibiting signs of illness and animals in proximity are also given antibiotics, even when they exhibit no signs of illness or infection themselves. Therapeutic use occurs when a specific animal that exhibit signs of illness is treated after a confirmed diagnosis of infection or illness. Both metaphylaxis and treatment are considered necessary and appropriate uses of antibiotics.

Responsible use: Responsible use policies and directives can ensure that antimicrobials are administered for appropriate therapeutic use. Such veterinary medical directives have been introduced in Denmark, India, Switzerland, the EU and the US for certain antimicrobials.⁷³ The introduction of mandatory e-prescriptions has been shown to reduce sales of antimicrobials, ensuring that those prescriptions are used for proven metaphylactic and therapeutic purposes.⁷⁴

In light of the changing regulatory context, investors have a role to play in pushing companies to adopt better policies and practices relating to antibiotics in order to ensure companies are not negatively financially impacted in the short-term, and also to protect future revenues. It is critical that investors apply pressure to companies who have operations in countries where there is limited or non-existent regulation on antimicrobial use in livestock, encouraging them to operate in line with the recent EU regulation, which reflects current best practice.

Environmental regulations

There are an increasing number of incentives for suppliers to meet higher environmental standards. For example, Sweden⁷⁵ and Norway⁷⁶ have both been using environmental criteria to procure pharmaceutical products,⁷⁷ giving responsible manufacturers the chance to win larger contracts.

In 2019, building on its National Action Plan to combat AMR, India consulted on ground-breaking draft legislation to regulate antibiotic waste from manufacturing.⁷⁸ As the world’s largest manufacturer of generic drugs, the country can play a leadership role in developing and passing important environmental regulations aimed at mitigating risks associated with antibiotic manufacturing. However, the success of Indian pharmaceutical companies has also caused an increase in the amount of antimicrobial waste generated within the country.⁷⁹ India’s G20 presidency in 2022 presents an opportunity for the nation to champion standards on limiting antibiotic pollution from manufacturing, backed by the G20’s multilateral support.

The [2021 Antimicrobial Resistance Benchmark](#)⁸⁰ found that pharma companies are starting to take steps to limit the release of active pharmaceutical ingredients into the environment by setting and enforcing discharge limits on wastewater from manufacturing sites. However, a huge gap remains in ensuring that the same standards apply at manufacturing sites operated by pharmaceutical companies’ third-party suppliers.⁸¹ Investors can ensure that investee companies are ahead of the curve by stewarding them to examine their business models, adjust current environmental practices, and oblige third parties to apply the same standards.

Policy updates signifying changing market conditions

In December 2021, following recognition of the Investor Action on AMR (IAAMR) initiative in the [G7 Finance Ministers’ Statement](#),⁸² investor partners co-signed a letter to G7 finance ministers.⁸³ They welcomed the G7 commitments to AMR and highlighted actions considered essential for investors to play an impactful role, such as market incentives and policies to address agricultural production and manufacturing. They [stated](#):⁸⁴

“Addressing AMR will require coordinated and consistent policy action from multiple stakeholders in a multi-year effort, to not only address some of the real economic causes of AMR but, importantly, to send the right signals to the market to catalyse greater action and investment from corporates, investors and other stakeholders.”

G7 Finance Ministers’ Statement December 2021

During Germany's G7 presidency in 2022, AMR was once again prioritised across a number of ministerial tracks. Finance ministers reaffirmed their commitment to creating the right market conditions to strengthen antibiotic product R&D, particularly focusing on pull incentives to encourage sustainable markets. G7 health and finance ministers have requested a progress update in 2023, which means investors can expect this momentum to continue. Investors can continue to play an important role by advocating for shifts in market-incentive policies to start accelerating, particularly in the countries where they operate.⁸⁵ In 2023, Japan will hold the G7 presidency and – as stated above – India will hold the G20 presidency, creating an opportunity for Japanese and Indian investors to lead actionable steps towards combating AMR.

Investor partners will be exploring opportunities for collaborative investor engagement with policymakers in 2023 and beyond. We welcome investors to contact the IAAMR initiative if they wish to participate.

New incentives signalling business opportunities

A key challenge is that more and more pharmaceutical companies are stepping away from critically important antibiotic R&D. Drugmakers – especially SMEs, who currently account for 75% of all late-stage antibiotics in the R&D pipeline – must navigate tough market conditions.⁸⁶ However, the increasing introduction of push-and-pull incentives can create an environment that fosters R&D and the promotion of drugs to market. Push incentives focus on strategies that provide funding for R&D and include grants, hybrid capital and tax incentives. Pull incentives aim to reward developers of approved products by making sustainable innovation more profitable, as can be seen in the following examples from the UK, the US and the EU.

The UK

In order to incentivise innovation that can generate a pipeline of new antibiotics for National Health Service patients, the UK is rolling out a world-first scheme for pharmaceutical companies to receive fixed yearly payments after marketing a novel antimicrobial.⁸⁷ This deal, initially for two antimicrobial drugs, means patients with serious infections that have evolved such that antibiotics and other current treatments are no longer effective, can access a potentially life-saving treatment option. The payments are based on the assessed economic value of the treatments to society.

The US

The PASTEUR Act⁸⁸ is currently a Bill in Congress that enjoys bipartisan, bicameral support to establish a subscription mechanism for developing antimicrobial innovations that target the most challenging pathogens and infections. It aims to do so by investing \$11 billion over ten years, based on the assessed value of drugs to patients. Crucially, this mechanism would ensure that patients covered by federal insurance programmes can access novel antimicrobial treatments at no cost to themselves, while guaranteeing revenue for the pharmaceutical companies.

The EU

From 2018-2022, the Public Health Agency of Sweden (PHAS) has been piloting a new reimbursement model whereby PHAS sets a minimum guaranteed annual revenue for selected originator antibiotics, in return for a guaranteed supply volume. This model serves as an incentive to bring new antibiotics to market.⁸⁹ The EU as a whole recently committed to introduce a pull incentive in a revision of EU pharmaceutical strategy,⁹⁰ and we hope to see the EU deliver on its recent commitment to introduce an effective pull incentive for antibiotics.

Innovative finance initiatives

There is a trend of coalitions between development banks, government departments, pharmaceutical companies and institutional investors to “blend” different sources of capital, mitigating risks and creating improved incentives for developing new antibiotics. However, more is still to be done on ensuring these work toward driving access for LMICs.

Some examples include the AMR Action Fund, which comprises 20 pharmaceutical companies and was formed by the International Federation of Pharmaceutical Manufacturers and Associations, with support from WHO, the European Investment Bank and the Wellcome Trust. The fund will invest \$1 billion in strengthening and accelerating antibiotics R&D and encouraging governments to create favourable market conditions for sustainable investment into alternative antibiotics. This show of confidence is a strong signal that it is not too late to re-enter the antibiotics field and is an example of a strong push mechanism, while governments take the time to implement pull mechanism policies.

Other initiatives and PPPs working towards innovative finance solutions to curb the threat of AMR include CARB-X, The Global Health Investor Fund, the Biomedical Advanced Research and Development Authority, and The Repair Impact Fund established by Novo Holdings. While most of these funds have had initial funding from the public sector, private finance and collaboration with institutional investors is needed in order to push the agenda forward and increase the success rates.

The funding gap for new antibiotics and alternatives is still substantial and expected to grow in the coming years. There is a need for more innovative finance initiatives which aim to reduce the funding gap for antibiotics, especially those that address access to antibiotics in LMICs, where the burden of antimicrobial resistant infections are often highest. In light of these new innovative finance incentives and PPPs, investors have a timely opportunity to support and contribute to these mechanisms and help narrow the funding, while tackling the systemic risk of AMR.

Section 3

Investor case studies

Investors are increasingly engaging a wide range of stakeholders on AMR, with promising corporate engagement dialogues taking place with companies across the food, pharmaceutical and water sectors, as well as within the policy space. In using their influence to encourage antimicrobial stewardship to reduce the risks related to AMR, investor efforts have led to more commitments from companies to adopt best practice policies and increasing awareness on the issue. Many investors use tools such as the Antimicrobial Benchmark and the Collier FAIRR Protein Producer Index to inform their engagements with companies on AMR. The next section focuses on the efforts by investor partners of the IAAMR initiative to date in addressing AMR, showcasing concrete impact achieved by investors. The case studies also identify obstacles to further advance their effort and highlight possible solutions to overcome them. It is important to continue further long-term engagement to ensure that commitments materialise into impactful change in long-term policies. Investor partners have demonstrated their commitment to preserving the efficacy of antibiotics for human and animal health, and we are grateful for their time, insights and efforts to bring AMR up the investor agenda.

Sumitomo Mitsui Trust Group (SuMiTAM)

Building bridges to combat AMR in Japan and worldwide

Investor category: **Asset manager**

Headquarters: **Tokyo, Japan**

IAAMR 'Challenge' undertaken

SuMiTAM committed to work proactively to build bridges with pharmaceutical companies, both globally and domestically. Through this initiative and its convening power as the largest asset manager in Asia, SuMiTAM has sought to promote a framework through which multiple stakeholders, including industry and governments, particularly in Japan, can participate.

Achievements

SuMiTAM has sought to raise awareness of AMR in Japan by publishing a number of opinion pieces, [blogs](#)⁹¹ and [interviews](#)⁹² and by highlighting AMR at events such as the Nikkei Communicable Diseases conference. SuMiTAM has engaged with six leading Japanese companies – Astellas, Daiichi-Sankyo, Eisai, Otsuka, Shionogi and Takeda – about AMR at CEO level, and has made it a key factor in its decision-making process when assessing Japanese pharmaceutical company business models. To do so, it benefits from the expertise of an ESG analyst with over 30 years' experience in this field.

Challenges/roadblocks ahead

As the first Japanese investor partner, SuMiTAM plays an important role in raising awareness of the materiality of AMR in Japan. Although AMR's impact there is already significant – it is currently [estimated](#)⁹³ that 8,000 people a year die from AMR-related causes in Japan – SuMiTAM has difficulty in obtaining the attention needed for the issue. While awareness of the pharmaceutical sector's responsibility for addressing AMR is increasing, there is limited understanding or interest in the impact of other sectors – such as the food sector – on the rising levels of resistance.

Learnings/Solutions

One possible solution is for more Japanese investors to participate and engage in tackling AMR – bilaterally or through collective engagement with companies and wider stakeholders. The Japanese G7 presidency in 2023 also offers a promising opportunity for Japanese investors to take an active role in engaging with the G7 members about this topic.

Vancity Investment Management

Exploring AMR from a "stranded assets" perspective

Investor category: **Asset manager**

Headquarters: **Vancouver, Canada**

IAAMR 'Challenge' undertaken

Soon after joining as an investor partner in 2020, VCIM raised AMR awareness by hosting a webinar for the Responsible Investment Association (RIA) Canada exploring access to medicines and AMR.

Achievements

Since hosting the webinar, VCIM has continued to drive AMR awareness and has committed to exploring how the concept of "stranded assets" applies to AMR. Prior to this, VCIM published an [article](#)⁹⁴ in the RIA Canada magazine entitled *Anti-Microbial Resistance: An Underestimated Threat to Global Health*, discussing its "potential for harm as great as climate change". VCIM has undertaken further engagements with pharmaceutical and healthcare companies (including CSL, Gilead Sciences, Novo Nordisk, Royal DSM and Shire) and with food companies (such as Costco, Restaurant Brands International and Starbucks) on steps they are taking to address AMR.

Challenges/roadblocks ahead

Companies' and investors' limited awareness of AMR makes it difficult to advance the conversation on this urgent issue. VCIM acknowledges the need to find another approach to explain the risks and impacts of AMR, because several companies still struggle to understand why it is financially material to them.

Learnings/Solutions

VCIM has decided to incorporate the concept of stranded assets into its company engagements as a more effective way of communicating the urgency of tackling AMR. In the upcoming year, VCIM plans to engage with the pharmaceutical and broader healthcare sector (for example, medical device companies) to explore the significance of rising resistance for existing products and future R&D projects – such as its impact on healthcare portfolios. VCIM has also committed to publishing a paper on its learnings from company engagements about stranded assets and the materiality of AMR.

British International Investment (BII)

Identifying sectoral entry points and providing guidance on AMR risks

Mirova

Viewing equity and active investment strategies through an AMR lens

Investor category: **Development Finance Institution (DFI)**
Headquarters: **London, United Kingdom**

Investor category: **Investment manager**
Headquarters: **Paris, France**

IAAMR ‘Challenge’ undertaken

British International Investment (BII), the UK’s DFI, formerly known as CDC Group, has undertaken the challenge of amplifying the importance of AMR to other DFIs, investors and companies, with a focus on emerging markets. It is sharing general guidance as well as specific sectoral entry points through its publicly available ESG Toolkits for [Fund Managers](#)⁹⁵ and [Financial Institutions](#).⁹⁶

Achievements

DFIs have a key role to play in ensuring high ESG standards in emerging markets in order to deliver their mandate of achieving positive economic, environmental and social outcomes. Leading by example, BII has sought to raise awareness and amplify the importance of AMR by including it as a topic in its ESG toolkits. The toolkits provide practical guidance for fund managers, financial institutions, and companies in emerging markets to help identify ESG risks and develop management systems to mitigate them, while AMR is presented as a risk area for investors to incorporate into their assessments where relevant.

The toolkits underscore AMR’s impact on business and the various measures that can be implemented to reduce this risk – in sectors such as agriculture and aquaculture, healthcare, and pharmaceuticals. Going beyond its initial commitment of information sharing, and relevant to its role as an impact investor, BII has also included AMR as an emerging risk in its [Policy on Responsible Investing](#)⁹⁷ launched in April 2022.

Challenges/roadblocks ahead

AMR is not currently a priority topic in emerging markets, partly because there are so many competing ESG risk factors to consider, including ones that are often perceived as more immediate.

Learnings/Solutions

AMR is becoming more of a mainstream topic for international financing institutions, other DFIs, and private investors. While BII’s exposure to AMR through direct investments in primary agriculture, pharmaceuticals and healthcare is limited, it has observed increasing awareness of AMR, especially in the food and agriculture sector, through its intermediated investments. The next step is to continue to raise awareness of AMR among investees and emerging market investors.

IAAMR ‘Challenge’ undertaken

Mirova has committed to developing step-by-step guidance on how investors can adopt an AMR lens through which to view the equity market and integrate AMR into its active investment strategies.

Achievements

Mirova is developing step-by-step guidance that teaches investors how to view equities through an AMR lens and absorb AMR into their approach to investment, as well as providing more evidence supporting the relevance of AMR to investors. The overall aim of the guidance – and the evidence informing it – is to encourage investors to approach AMR from both an opportunity and a risk perspective. From an opportunity perspective, this includes investing in solutions that reduce AMR, such as using innovative approaches to limit the use of antimicrobials in agriculture and aquaculture, and the development of new medicines, vaccines and water filtration technologies.

In terms of risk management, this includes ensuring companies are taking steps such as conducting research on the impact of pharmaceuticals in the environment and adopting sound environmental monitoring practices. Mirova included AMR in its 2021 sustainable development healthcare sector analysis [framework](#),⁹⁸ and also plans to highlight AMR-related KPIs and explain their importance from a long-term risk management perspective.

Challenges/roadblocks ahead

Despite rising awareness, there is still a lack of urgency around AMR among relevant stakeholders, and therefore companies see little incentive to prioritise the issue.

Learnings/Solutions

As part of the guidance development process, Mirova has also been exploring the types of products that are directly or indirectly impacted by AMR, as well as how investors can look to invest in practical solutions to tackle rising AMR. For example, it has invested in technologies that help remove micropollutants – such as antibiotics – from polluted water, demonstrating how investors can contribute to reducing AMR.

Columbia Threadneedle Investments

Testing the waters and changing the course of investment

EdenTree Investment Management

Making AMR an important engagement topic

Investor category: **Asset manager**
Headquarters: **London, United Kingdom**

Investor Category: **Investment manager**
Headquarters: **London, United Kingdom**

IAAMR ‘Challenge’ undertaken

Columbia Threadneedle Investments has held engagements with pharmaceutical companies, protein producers and restaurant chains on AMR topics. It has also conducted open dialogues with water utilities and diagnostic healthcare companies on the risks of AMR.

Achievements

Columbia Threadneedle Investments has taken a cross-sector approach to its AMR engagements, embracing companies in the food production, restaurant, pharmaceutical, diagnostics and water utilities sectors in its dialogues with over 60 companies such as Tyson, McDonald’s and GSK. It has called for a coordinated approach by the pharmaceutical and food companies to address the risk of AMR and the incorporation of the “One Health” approach advocated by WHO. Columbia Threadneedle has also been a trailblazer by creating open dialogues with water utilities, such as Thames Water, and diagnostic healthcare companies including Sysmex Corp. They hosted a roundtable with other investors to discuss the risks of waterborne AMR associated with water utilities and the progress that can be made in that field.

Challenges/roadblocks ahead

Columbia Threadneedle has engaged with water utilities companies to highlight the risks of waterborne AMR, and has observed a generally limited range of awareness and interest among them in identifying their own contribution to solving the AMR challenge. It has also found that – while some water utilities have conducted research and convened small working groups on the issue – other challenges including tackling problems of sewage discharge that are taking priority. Columbia Threadneedle has recognised that because there is no clear consensus on the relative effectiveness of the different scientific methods in recording and reducing waterborne AMR, water utilities do not have a consolidated framework to adhere to.

Learnings/ Solutions

Regulators need to take a more prominent role in setting standards to tackle the risk of waterborne AMR. Investors can encourage regulators by using their collective influence and by acknowledging this risk as a systemic and material financial risk – as well as a risk to health and the environment – in order to create a more comprehensive and robust regulatory framework.

IAAMR ‘Challenge’ undertaken

EdenTree committed to engage with companies on the impact of AMR and publish an expert briefing discussing its causes.

Achievements

EdenTree joined IAAMR in 2021 and published an [expert briefing](#)⁹⁹ in May 2021 on the causes and risks of AMR. The briefing argued that the misuse, overuse and oversubscribing of antimicrobial medicines, the lack of availability of (new) antimicrobial drugs and vaccines, and the agricultural use of antibiotics are the most significant drivers of AMR. EdenTree has also incorporated AMR into its internal ESG screening processes, and is raising AMR awareness through bilateral company engagements within the pharmaceutical and water utility sectors.

Challenges/roadblocks ahead

EdenTree has encountered an accountability issue when addressing AMR in the pharmaceuticals and water utilities sector. Pharmaceutical companies producing human antimicrobial medicines have indicated that they are reducing the amount of R&D they conduct on these drugs. This is because, compared to other therapeutic and disease areas, they see fewer financial incentives to invest in antimicrobial medicines and vaccines due to perceived diminishing returns. While water utilities acknowledge that many pollution issues stem from agricultural runoffs and waste management practices, the presence of antibiotics in these water streams is yet to be clearly understood. Currently, regulation only requires testing for certain water pollutants – such as phosphates and ammonia – but there is little monitoring of antibiotic pollutants, which means that companies are not held to account for the presence of antibiotics in water streams.

Learnings/Solutions

To ensure the continual promotion of R&D of new antimicrobial medicines and vaccines, a better regulatory environment needs to be established. Furthermore, [financial push-and-pull incentives](#)¹⁰⁰ – such as those in their early stages in the UK, Sweden and Germany – must become more widely adopted, and investors can play a key role by using their collective influence to advocate for them.

Genesis Investment Management*Engaging with China's animal protein companies*

Investor Category: **Asset manager**
focused on emerging market equities
 Headquarters: **London, United Kingdom**

IAAMR 'Challenge' undertaken

Genesis undertook to engage with food companies in encouraging better animal husbandry and urging them to disclose their antibiotic use and policies.

Achievements

Genesis is an active manager in emerging market equities and has been focusing its AMR awareness efforts on companies operating in the Chinese animal protein sector. Genesis held multiple engagements with dairy and pork companies in China on their antibiotic use and policies, and shared FAIRR's template policy on antibiotics stewardship as an example of best practice. These engagements contributed to Hong Kong-based WH Group's decision to disclose more information about its antibiotic usage (in both its Chinese and EU operations) and to China Mengniu's formal confirmation of an antibiotics usage policy at one of its key supplying subsidiaries.

Challenges/roadblocks ahead

Genesis acknowledges that it is difficult to engage companies on AMR, as companies already face numerous pressing ESG priorities, in particular around climate change. Genesis also notes that its ability to verify companies' descriptions of antibiotics usage and practices is limited. Furthermore, few companies see AMR risks as immediately financially material, despite the [evidence](#)¹⁰¹ that AMR is progressing quicker than forecast.

Learnings/Solutions

Genesis found that these Chinese companies aim to be global as well as domestic leaders, which means that their concerns for their global reputation provide an opportunity to place AMR higher on their management agenda. Furthermore, following numerous food contamination scandals in China, there are now stringent testing standards to ensure food safety, and Genesis noted that antibiotic usage in the Chinese dairy sector is often linked to food safety protocols. In this context, Genesis identified engagement on food safety and, more broadly, supply chain management as highly effective channels to learn more about antibiotic practices. Finally, Genesis aims to persuade ESG data and ratings agencies to start assessing and scoring the protein companies on their antibiotics policies and practices, so that more companies will start to pay close attention to their role in AMR.

EOS at Federated Hermes*Framing AMR as a systemic risk in the healthcare sector*

Investor Category: **Stewardship service provider for clients of EOS**
 Headquarters: **Pittsburgh, Pennsylvania, United States**

IAAMR 'Challenge' undertaken

EOS sought to engage with numerous pharmaceutical companies and to host a multi-stakeholder, investor-focused event on AMR in the pharmaceutical, food and animal agriculture sectors.

Achievements

In October 2021, EOS presented a focus session to its clients and "engagers" on the risk of AMR in the animal pharmaceutical sector, aiming to increase awareness of AMR. It has been in dialogue with some of the world's largest animal pharmaceutical companies about the systemic risks associated with AMR, focusing on their response to these risks across their value chains in manufacturing, marketing and stewardship. EOS has also engaged actively with the healthcare sector (e.g. hospitals, healthcare service providers and retail pharmaceutical providers) and has taken a case-by-case approach to support shareholder proposals that highlight the ESG risks and opportunities associated with AMR in companies such as protein producers, restaurants and pharmaceuticals.

Challenges/roadblocks ahead

Due to a perceived lack of incentives, many pharmaceutical companies are withdrawing from antibiotic R&D and reducing future investment, so it is hard to persuade the industry to continue investing in R&D. Furthermore, those companies that do not have antibiotics in their portfolio believe they no longer have exposure to AMR, and it has been difficult to convince them otherwise, for example by illustrating how rising resistance risks render a company portfolio of certain medications and medical devices less effective.

Learnings/Solutions

EOS seeks to identify potential change-makers within companies and work with them on AMR. It has found that by framing AMR as a systemic risk that affects the entire healthcare value chain, it has enabled investee hospitals, healthcare service providers and retail pharmaceutical companies to better understand the risks and identify where they can mitigate their impact on the spread of AMR. Earlier this year, for example, EOS held meetings with a clinical healthcare services company, resulting in updates to its AMR position statement and a new AMR policy in its corporate social responsibility disclosures.

Interfaith Center on Corporate Responsibility (ICCR)*Persuading "Big Food" to take AMR seriously*

Investor category: **Investor network**
 Headquarters: **New York, United States**

IAAMR 'Challenge' undertaken

ICCR undertook to engage with food sector companies through dialogue, [shareholder proposals](#)¹⁰² and multi-stakeholder convening in order to eliminate the non-therapeutic use of all antibiotics from fast food restaurants' protein supply chains. It sought to prioritise the antibiotics cited on WHO's list of critically important antimicrobials for human medicine.

Achievements

ICCR has been leveraging investors' influence to tackle AMR for more than two decades and is regarded as a trailblazer in this field. As a long-term engager, it has continuously applied pressure to "Big Food" to acknowledge the AMR risks in its supply chains and to disclose the use of antibiotics. In 2018, for example, ICCR [successfully influenced](#)¹⁰³ McDonald's to phase out the use of medically important antibiotics from its poultry supply chain, which set a promising precedent for the rest of the industry.

Challenges/roadblocks ahead

ICCR acknowledges that more work and long-term investor pressure is needed to achieve long-lasting change. In 2018, McDonald's also made ambitious commitments towards reduction targets for medically important antibiotics in its beef supply chain, but then adopted much weaker targets four years later. Therefore, more pressure needs to be applied to ensure that fast-food chains do not resile from prior commitments to investors, but instead incorporate a comprehensive approach to tackle AMR, with targets across their entire business model.

Learnings/Solutions

ICCR recognised that a significant challenge stems from companies' marketing techniques. When McDonald's phased out the use of antibiotics from its poultry supply chains but not from its beef supply chains, it altered the language on its website to convince investors and consumers that progress had been made on its use of antibiotics across all its supply chains. There also needs to be more awareness of the multitude of risks associated with AMR, so that investors are well prepared and can ask companies the right questions, highlight discrepancies between commitments, follow up on specific targets, and analyse the real-world impact of companies' behaviour.

Nordea Asset Management*Tackling AMR in the pharmaceutical and water supply industries*

Investor category: **Banks and financial services**
 Headquarters: **Stockholm, Sweden**

IAAMR 'Challenge' undertaken

Nordea is undertaking a long-term engagement with the world's largest pharmaceutical companies to combat water pollution related to drug manufacturing in India – a key driver of AMR.

Achievements

Nordea was one of the first investors to address the causes of AMR. Since 2016, it has engaged with pharmaceutical companies and suppliers about their role in India's water pollution crisis, commissioning two Changing Markets reports – in [2016](#)¹⁰⁴ and [2018](#)¹⁰⁵ – on the environmental and health impacts of pharmaceutical manufacturing in Hyderabad. These received widespread attention, igniting an industry-wide effort to decrease pharmaceutical companies' contribution to pollution and hence AMR, and helping to put the issue on the Indian suppliers' agenda.

Nordea communicated its expectations of the industry with regard to responsible drug manufacturing to members of the Pharmaceutical Supply Chain Initiative (PSCI) and their Indian suppliers. In response, the PSCI and other organisations developed an action plan for an industry-wide approach to address the expectations and report findings. Nordea [states](#)¹⁰⁶ that "many companies in this industry-level engagement have improved their supply chain and water risk management related to sourcing from India". Nordea has worked to build a strong relationship with the PSCI and is a member of its advisory panel.

Challenges/roadblocks ahead

Although the swift growth of India's pharmaceutical industry benefits India's economy (expected [growth](#)¹⁰⁷ up to \$130 billion by 2030), the waste generated in the manufacturing process contributes to the country's severe water pollution crisis.

Learnings/Solutions

Nordea's role on the PSCI advisory board enables it to engage constructively with the pharmaceutical industry on pollution and AMR and to encourage companies and suppliers to continue improving their environmental practices. Nordea also supports the PSCI's involvement in the Telangana State Government's Musi River clean-up project in Hyderabad. PSCI members are required to address pollution caused by the discharge of wastewater from the operations of PSCI members and their suppliers. Nordea will also continue working with the AMR Industry Alliance and monitor progress on its recently released antibiotic manufacturing [standard](#).¹⁰⁸

Tundra Fonder AB

Asking searching questions about companies' responses to AMR

Investor category: **Asset manager**

Headquarters: **Stockholm, Sweden**

IAAMR 'Challenge' undertaken

Tundra Fonder has committed to commissioning research on AMR, which is primarily aimed at raising awareness of the topic among the companies within its portfolio.

Achievements

Tundra Fonder developed its own screening questionnaire to better understand its portfolio companies' views and actions on AMR, and to demonstrate to investee companies that AMR is a long-term priority. The questionnaire was developed by Tundra's internal research team and builds on international guidelines for responsible investment. It follows a systematic approach and integrates risks and opportunities per country and sector, tracking progress on aspects related to ESG, including their approach to AMR. Questions are aimed at ESG risks that relate to the business and are tailored to the sectors and regions in which it operates. For example, companies are asked about their use of resources, waste-handling, emissions and AMR. Since 2018, this been sent to 11 healthcare companies, six of whom responded (55%), and nine consumer staples companies, of which seven responded (almost 80%). These companies are located in Bangladesh, Egypt, Indonesia, Pakistan, Sri Lanka and Vietnam. Each year, the questionnaire receives more responses, indicating that Tundra Fonder's engagements are helping to prioritise AMR within investee company agendas.

Challenges/roadblocks ahead

While the questionnaire is helping to focus more attention on the issue, the responses suggest that many companies are still not engaging adequately on AMR. Due to the complexity of the problem, and the many industries contributing to the risk, Tundra Fonder recognises that it will take time to raise sufficient awareness on AMR and to see companies take concerted action.

Learnings/Solutions

To ensure that AMR remains a long-term priority and a focal point for its portfolio, Tundra Fonder plans to continue active long-term engagement and to use its questionnaire to facilitate the yearly monitoring of company progress on tackling AMR, following up with individual companies as required. There is also a clear need for ESG data providers to adopt a standardised set of questions on AMR.

Amundi Asset Management

Lifting the lid on how ESG data providers and standard-setters are approaching AMR

Investor category: **Asset manager**

Headquarters: **Paris, France**

IAAMR 'Challenge' undertaken

Amundi Asset Management has raised awareness of AMR's materiality by encouraging ESG data providers and investor networks to develop KPIs for AMR.

Achievements

Through an initial round of fact-finding meetings, Amundi is engaging with a group of four large ESG data providers and standard-setters on the current landscape and the potential for including AMR metrics within their ESG company scorings and analyses or their standards. Promisingly, one data provider has included AMR-related KPIs in its analysis of pharmaceuticals in the environment and the stewardship of antibiotics. Another provider published an AMR report in 2019, which includes AMR as a KPI within its analysis of how a company approaches increasing access to medicines. Although welcome, this approach focuses on only one aspect relevant to reducing AMR – increasing access to antibiotics – while other aspects of company behaviour, such as stewardship practices and responsible manufacturing, seem excluded. Neither AMR nor antibiotic stewardship are covered within ESG data providers' analysis of animal health companies that supply antibiotics to the farming industry.

Challenges/roadblocks ahead

Initial engagements with this burgeoning topic have proved challenging, seemingly due to factors such as a lack of understanding of AMR's financial materiality and how it can be incorporated, along with limited resourcing and transparency of metrics informing company scores and ratings. The hope is that this will change with increasing awareness of the issue and demand from multiple investors.

Learnings/Solutions

Through collective action such as coordinating roundtables and letters, investors can demonstrate a growing appetite for adopting AMR metrics and transparency on KPIs to address issues of systemic risk. One approach to be explored further is the introduction of AMR-related KPIs from the angle of pollution, looking at pharmaceutical residues from manufacturing in the environment. KPIs could be used to assess the robustness of environmental risk management strategies minimising the environmental impact of the discharge of antimicrobials, including whether companies implement discharge limits.¹⁰⁹

Aviva Investors*Tackling AMR through policy engagement***Legal and General Investment Management (LGIM)***Calling for action and regulation on waterborne AMR*

Investor Category: **Asset managers**
Headquarters: **London, United Kingdom**

Investor category: **Asset manager**
Headquarters: **London, United Kingdom**

IAAMR ‘Challenge’ undertaken

Aviva Investors has raised awareness of AMR as a market failure and engaged with policymakers on AMR funding and regulations to correct this, as well as highlighting the materiality of AMR for investments.

Achievements

Aviva Investors has built on its strong history of company-level engagements (micro-stewardship) on AMR by creating an enabling environment for large-scale change – through dialogues with policymakers and focusing on macro-stewardship activities. It has undertaken several activities to emphasise the urgent need to fix the market for antibiotics R&D and address the fast-growing systemic risk of AMR. In December 2021, Aviva Investors co-wrote a [letter](#)¹¹⁰ on behalf of Investor Action on AMR to the G7 finance ministers, urging the G7 to work with investors and other groups in a multi-stakeholder effort to address AMR. It has recently published an [article](#)¹¹¹ exploring the impact of drug-resistant infections and how investors can persuade governments and policymakers of the need for economic incentives to address AMR. Aviva Investors also conducted a [Q&A](#)¹¹² with Professor Dame Sally Davies on the actions that the G7, international organisations and the pharmaceutical industry need to deploy to mitigate AMR.

Challenges/roadblocks ahead

As with other systemic issues like climate change, Aviva Investors has recognised the need for multiple approaches, rather than one consolidated strategy, to promote change and favourable market conditions. Because AMR is a risk within many sectors – such as agriculture, health and water – there is a need to identify the specific responses and actions that are appropriate to each sector.

Learnings/Solutions

Aviva Investors has acknowledged that it is essential to employ investors’ collective influence to engage with multilateral entities such as the G7, the G20 and the UN to ensure that AMR is on their agenda. While some policymakers and pharmaceutical companies encourage a consolidated approach to AMR, such as the AMR Action Fund, stronger pull incentives need to be established to ensure the discovery of new antibiotics for the market.

IAAMR ‘Challenge’ undertaken

In addition to adopting a “One Health” approach to AMR, LGIM published two blogs in 2021 – [Anti-microbial resistance: why should investors care?](#)¹¹³ and [Anti-microbial resistance: engaging water utility companies.](#)¹¹⁴

Achievements

LGIM published a [briefing](#)¹¹⁵ in 2022 and made AMR a central topic at its 2022 Annual Sustainability Summit. The keynote speaker, Professor Dame Sally Davies, UK [Special Envoy](#)¹¹⁶ on AMR, emphasised investors’ role and the need to engage all industries, and was interviewed for a subsequent [LGIM podcast](#).¹¹⁷ During the 2022 AGM season, LGIM supported the AMR resolutions filed at McDonald’s, Hormel Foods and Abbott Laboratories. LGIM publicly declared its vote at the McDonald’s AGM in May in favour of Resolution 6, requesting the company to “Report on Public Health Costs of Antibiotic Use and Impact on Diversified Shareholders”. During summer 2021, LGIM sent an open letter to over 20 investee water utilities companies across Asia, Europe, and North and South America to understand to what extent they were adopting monitoring systems to detect agents such as antibiotic-resistant bacteria and antibiotic-resistant genes in waste sanitation and management systems.

Challenges/roadblocks ahead

From its stewardship activities, LGIM observed a lack of awareness of AMR generally and waterborne AMR in particular. This is driven by the lack of national (or international) regulatory requirements and incentives, and the failure to identify long-term risks to individual companies. LGIM also noted that very little reporting is taking place in this area.

Learnings/Solutions

LGIM plans to direct its attention towards influencing the regulatory landscape to drive a more “enhanced and standardised approach to the problem”. The absence of statistics and data concerning the economic impact of AMR is making it hard to inform policymakers and investors about the topic. LGIM will be engaging with policymakers globally to develop a comprehensive approach to regulating AMR risks in the water sector. The collective voice of investors can also be of value in advocating for tighter regulations.

Section 4

Taking stock of key trends and looking ahead

The investment community is beginning to recognise its ability to play a role in combating drug-resistant superbugs, and use its influence to signal AMR as a systemic issue of material significance. Steps taken by investor partners have demonstrated how asset owners, asset managers and DFIs can tangibly support global efforts to curb rising AMR. However, it is essential that more investors formally assess and integrate AMR risks, opportunities and impacts through a holistic and multi-sectoral “One Health” approach.

Initiatives such as the 2022 World Antimicrobial Resistance Awareness Week emphasise the need for all stakeholders to collaborate in preventing AMR. While pharmaceutical, animal agriculture and water utilities companies have a clear role to play in preventing AMR, this rising threat will have a multi-sectoral impact. As a result, a wider range of investor portfolios will inevitably be exposed to the growing and widespread costs related to AMR.

Given the global economic implications of AMR, the investor case studies outlined in this report have centred on raising awareness, fostering learning and understanding, and engaging relevant stakeholders to drive change. Actions taken to date have engaged multiple sectors and actors in determining where best to target efforts moving forward. This section summarises some of the findings from the conversations with investor partners around the key trends and priorities that will drive further investor action in the coming months and years.

How data enables engagement and drives change

A lack of data, updated economic models or hypotheses that assess AMR's multi-sectoral impact on the economy is regularly cited as an obstacle to adopting an AMR lens when making investment decisions or communicating the need for private sector action and collaboration. This is indeed a challenge and will hopefully be addressed in the short to medium term. Currently, investor partners are exploring the most effective ways to demonstrate AMR's materiality, highlighting the human and financial impact of AMR by drawing comparisons with the COVID-19 pandemic, for example.

The negative impact of AMR on countries' gross domestic product (GDP),¹¹⁸ which contributes to rising rates of inequality, is likely to be far greater than initially anticipated, given that AMR is rising more quickly than expected.¹¹⁹ The World Bank's 2016 low-impact scenario assessments alone present a stark reality.¹²⁰ Investors can continue to cite these figures – together with new findings on the updated global burden of AMR – to inform peers and investee companies on what AMR will mean for the health of the economy, their business activity and, ultimately, their bottom line. However, updated economic predictions and figures from the World Bank and other economic organisations are urgently needed to enable investors to fully integrate AMR into their own scenario planning and to effect collective action.

Positioning AMR in ESG standard-setting and reporting frameworks

The ESG data provider market has grown significantly in response to increased demand from asset managers and owners for more consistent and comparable data on sector-wide company ESG activities.¹²¹ As data providers' scores, ratings and analysis become more widely utilised, they will continue to play an important role in investor efforts towards more sustainable investment practices. The same is true for standard-setters that offer ESG frameworks assessing financially material topics. One of the insights from the various case studies is the acknowledgement of the materiality of AMR, and how it is overshadowed by other ESG priorities for investors. Several investor partners have indicated a strong appetite for introducing sectoral metrics on AMR, given the systemic risk it poses. This would not only satisfy investor demand for universal coverage of this topic but would help incentivise widespread cross-sectoral company action and reporting on AMR. Further engagement would help ensure that AMR risks become a priority for ESG ratings agencies and data providers, and that industries improve their reporting disclosures. The IAAMR initiative can help coordinate a collective dialogue between the investors and the data providers and standard-setters to help demonstrate investor appetite for data on AMR and why this is a material issue.

Active ownership and long-term stewardship

New guidance documents on integrating AMR in investment processes, such as active engagement activities, can help investors adopt an AMR lens across different asset classes. Investors are also encouraged to engage or continue to engage companies bilaterally or collaboratively. Long-term sustained engagement by investors and stakeholders is essential to ensure that companies follow through on their commitments. By pooling influence and aligning on core demands, collaborative investor engagements can help drive company disclosure and improved practice.

For example, since 2016, a coalition of investors has actively engaged McDonald's – through a combination of letters, direct engagement and shareholder resolutions – on antibiotic use in farming. Encouragingly, in 2017, McDonald's published its Vision for Antibiotics Stewardship, committing to phase out the use of medically important antibiotics in its US poultry supply chains within that year and globally by 2027. It also committed to eliminate their use in its global beef supplies. However, McDonald's is still to implement these pledges across its entire business model or to disclose publicly the progress it has made. Investors representing over \$12.8 trillion in combined assets, and with the endorsement of the IAAMR initiative, have since written to the Board of Directors to ensure that McDonald's commitments translate into action. The IAAMR initiative is well placed to help facilitate collective investor engagement with a number of sectors on AMR, as well as provide materials and expertise.

Macro-level engagement: regulation and incentives

As well as engagement with investee companies, investors can look to influence policymakers on macroeconomic factors – indicating an appetite for the appropriate regulation of harmful business practices, the introduction of incentives to build a more lucrative market for antibiotics R&D, and an increased clarity over the agreed expectations, roles and responsibilities of different sectors.

For example, through engagements with water utilities companies on implementing effective monitoring and reporting systems (to detect agents such as antimicrobial residue, antimicrobial resistant pathogens and antibiotic-resistant genes), four investor partners have found that there currently exists no agreed methodology to monitor the risk of waterborne AMR. As a result, it has been hard to engage or drive progress with companies in the sector, due to a lack of understanding over what is expected. This context provides an opportunity for investors to use their collective influence to raise regulators' and policymakers' awareness of the need for more comprehensive regulatory frameworks in, for example, water utilities and other industries.

With the risk AMR poses to all portfolios, it is in investors' interests to encourage companies to enter the R&D space for antimicrobials. One of the most effective ways to do this is through economic incentives – push-and-pull mechanisms such as the "Netflix" subscription model recently implemented by the UK (see 'New incentives signalling business opportunities' in Policy developments pg.16). Investors, bilaterally and especially as part of a collective, can advocate with multilateral entities for increased incentives, contribute to innovative funding models, and encourage and draw the attention of investee companies to the opportunities open to them as a result of these positive developments.

Investors can harness opportunities such as the 2023 G7 presidency held by Japan and India's G20 presidency to urge policymakers to ensure that AMR is actively prioritised. The IAAMR initiative aims to continue enabling investor collaborations to drive action at the multilateral level.

Conclusion

Investors and other stakeholders have a key role to play in using their collective voice and influence to tackle AMR as a systemic issue. As defined by WHO, a "One Health" approach is aimed at designing and implementing programmes, policies and research in which multiple sectors communicate and work together to achieve better health outcomes. Initiatives like IAAMR which encourage investor collaborations, spurring action across multiple sectors, are therefore vital. This report seeks to shine a light on the actions investor partners are already taking through initiatives like IAAMR, which serve as a platform to bring out that collective voice of investors in the policy, corporate, international organisation and academic sectors. Through the case studies and learnings from this report it is clear that the IAAMR Initiative is well positioned to continue deepening its mission. It aims to continue encouraging new partnerships and collaboration between investors who are already addressing the topic, because they have a critical role to play in influencing policymakers, helping companies to recognise long-term risks and trends, and supporting the introduction of incentives, innovations and best practices to tackle AMR. Finally, we hope that the report will spur a new wave of investors to address the silent pandemic of AMR through investing in the antimicrobial space and further engaging on this topic in 2023 and beyond. The gravity of the situation makes this an urgent call to action for investors.

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