

# Antimicrobial Resistance Overview

WRITTEN BY THE  
THE GLOBAL FIXED INCOME TEAM

**The Loomis Sayles Global Fixed Income Team believes antimicrobial resistance (AMR) is a critical issue with the potential for material financial implications.**

Without significant intervention, we believe AMR can lead to harmful consequences for individuals, companies and the macroeconomy at large.

## The Scope

According to the World Health Organization (WHO), AMR contributed to nearly 5 million deaths in 2019, and it estimated AMR would cause 10 million deaths a year by 2050. In a recent study sponsored by the WHO, it was observed that AMR rates have increased by more than 15% from 2017 to 2020 for key antimicrobials used to treat E. coli, salmonella and gonorrhea among other infections, so this is a rapidly developing issue.

According to the World Bank, AMR could generate **\$1 trillion** in additional health care costs by 2050 and **\$1.0 to \$3.4 trillion** in GDP losses by 2030.<sup>1</sup>

## Growing Risk

Currently, many view the potential negative financial implications of AMR as low-probability tail risks. However, we believe without significant attention and intervention, there is a high likelihood that AMR will continue to lead to negative outcomes for humans and eventually for the macroeconomy. The risk is likely to grow to a point where the market can no longer ignore it. And that has implications for us as investors.

## The Issue

Antimicrobials destroy microorganisms or prevent their development. In the early 1940s, the production and use of antibiotic penicillin, a type of antimicrobial, helped form the foundation for the “modern era” of antibiotics (1940s to mid-1960s).<sup>2</sup> Drug advancement during this period and onward drastically transformed the success of health care interventions. Many of the procedures that benefit patients across the globe today could not have evolved without antibiotics.

However, over time bacteria have developed resistance to antibiotics. More specifically, AMR occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medications designed to eliminate them, increasing the risk of infectious diseases spreading. Despite this growing threat, no new classes of antibiotics have been discovered since the 1980s.<sup>3</sup>

## Getting Informed

As a result of AMR issues, we are educating ourselves with the help of industry and academic experts. Our objective is to better position our team to integrate AMR factors into our investment management process. This includes collaborating with credit research as we seek to effectively engage with companies about the topic, as well as defining how AMR factors should be considered in global bond portfolio construction decisions.

## Research

A critical first phase of our journey into incorporating AMR in portfolio management has been education. In order to understand the potential implications for our investments and understand how to best position portfolios while considering the effects of AMR, we needed to learn more:

- 1. What is driving AMR?**
- 2. What are the most effective & efficient solutions?**
- 3. What are the potential ramifications?**



Broadly speaking, we have delved into as much research as we could collect from Wall Street research analysts, academics and non-profit organizations to better understand the issues. So far, this approach has resulted in the development of information-sharing relationships and continual learning about best practices.

### KEY LEARNINGS TO DATE:

- 1. AMR research facets**
- 2. Integration - industries likely to be most affected**
- 3. Engagement to drive change**

## 1. RESEARCH

In the academic arena, we have found a lack of rigorous research to date on what would be the most effective and efficient solutions to AMR. Clearly, further understanding of the biggest roadblocks to interventions and realistic ways to remove those impediments are important steps. We think progress in academic research could help us determine where AMR may be financially material. We plan to continue our dialogue with researchers.

### TALKING WITH EXPERTS

We have also engaged with experts on AMR at the biotechnology industry's trade association, Biotechnology Innovation Organization (BIO). This organization is a strong advocate of the PASTUER act proposal, which is intended to support developers of new, or "novel," antibiotics. The Pew Charitable Trust reported that these would include drugs that are significantly different from existing antibiotics in their core molecular structure or their mode of attacking bacteria.<sup>4</sup>

BIO was instrumental in the biotechnology industry's preparations for the 79<sup>th</sup> UN General Assembly High-level Meeting on AMR in September 2024, titled, "Investing in the present and securing our future together: Accelerating multi-sectoral global, regional and national actions to address Antimicrobial Resistance." According to WHO representatives, global leaders approved a political declaration committing to a clear set of targets and actions, including reducing the estimated 4.95 million human deaths associated with bacterial AMR annually by 10% by 2030.<sup>5</sup>

Through these conversations, we are increasing our awareness and education of the overall AMR issue. We are also gaining an appreciation of the focus on the push/pull incentive mechanisms needed to drive innovation in the pharmaceutical space to make strides toward improvements on this worldwide issue.

(See sidebar: PASTEUR Act on page 5).

### PRIVATE AND PUBLIC SECTORS

The AMR Industry Alliance, the largest industry group fighting antimicrobial resistance, launched a call to action ahead of the United Nations' High-level Meeting. The Alliance aims to increase coordination in public and private sectors to combat AMR.

1. **Strengthen responsible manufacturing of antibiotics worldwide**
2. **Transform the antimicrobial ecosystem to ensure a functioning and sustainable market**
3. **Remove barriers to equitable antimicrobial access and enable a sustainable and robust global supply chain**
4. **Improve the appropriate use of antimicrobials through better valuation of and investment in diagnostics**

## 2. INTEGRATION - INDUSTRIES LIKELY TO BE MOST AFFECTED

As a result of our external education as well as internal discussions, we have constructed a preliminary AMR focus list of industries and topics for engagement (see page 7). The list will evolve as we learn more about AMR and related material risks. Additionally, the Loomis Sayles credit research analysts who cover these industries have begun analyzing what is being done to combat this issue. This research will form the backbone of our integration and engagement efforts.

We have taken preliminary steps to understand what our data vendors are collecting in terms of AMR and to encourage them to report on this topic where figures are available. Even at this early juncture, we have learned how one of our vendors incorporates its AMR research into its methodology, which might aid our internal research efforts.

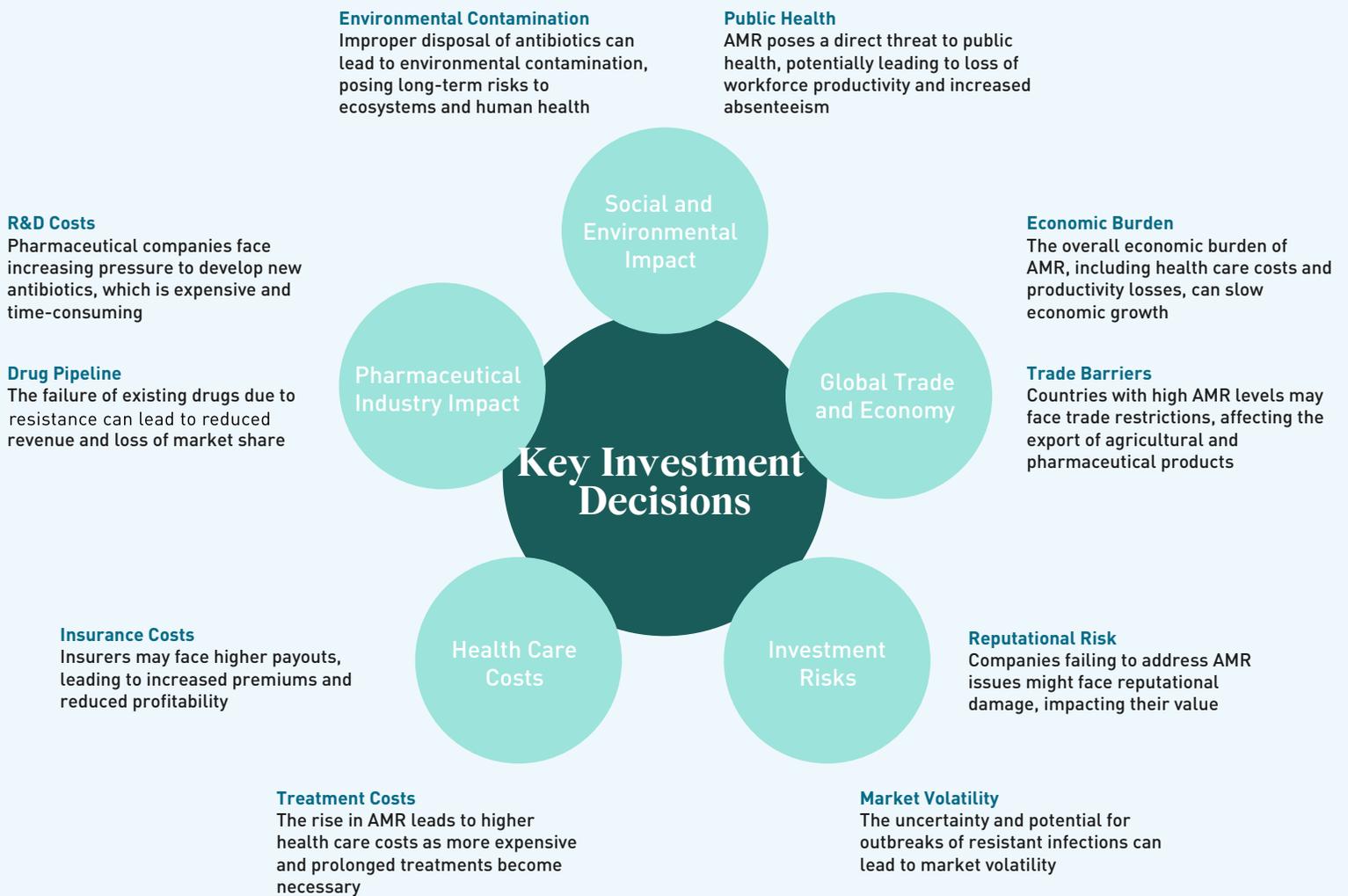
## PASTEUR Act

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The PASTEUR act stands for “Pioneering Antimicrobial Subscriptions to End Upsurging Resistance.” As of this writing, the bill is in a US Congressional committee. It would establish a subscription-style model for the US government to secure a reliable supply of novel antimicrobials to address the most serious and life-threatening infections and combat the threat of AMR. By delinking payment from sales volume, PASTEUR would ensure that payment reflects the value of antimicrobials to public health and supports their judicious use.

*S.1355 – PASTEUR Act of 2023 Congress.gov*

# A Multifaceted Issue for Investment Decisions



Source: *An Investor's Guide to Antimicrobial Resistance, August 2024. FAIRR, MSCI Sustainability Institute, Investor Action on AMR.*

### 3. ENGAGEMENT

We believe setting reasonable and realistic engagement topics and goals is the most effective way to drive change. In our view, we can make the most impact by focusing on industries that we have identified as having the most financially material exposure to AMR risks and opportunities. While data to measure AMR and analyze progress is limited thus far, our analysts have designed issuer-specific quantified targets (e.g., the percentage of dairy sourced from suppliers following formal animal welfare standards) as well as more qualitative goals (e.g., rolling out new diagnostic methods in hospitals).

In addition to individual engagement efforts, Loomis Sayles recently joined the FAIRR Initiative, a collaborative investor network that raises awareness of the environmental, social and governance (ESG) risks and opportunities in the global food sector. We believe joining FAIRR will help provide us with actionable education on issuers and industries that could prove useful in our integration and individual engagements.

## AMR focus list of industries & topics for engagement:

### Food

- Supply chain use of antibiotics – such as asking how companies monitor/track/limit antibiotic usage in their supply chains as well as better understanding existing policies.

### Health care

- Development and usage of diagnostics (e.g., asking pharmaceutical companies about new diagnostics and making them faster/easier/cheaper, and asking hospitals about increasing the usage of diagnostic testing as well as how they can better prevent spread of infections).
- Infection resistance materials (e.g., asking medical technology companies about infection resistance materials in their implantable devices).

### Pharmaceuticals

- Novel antibiotics are a new class of antibiotic designed to seek and destroy resistance genes in bacteria. Specifically, we are asking pharmaceutical companies what they're doing in this regard as well as their thoughts on new models to finance the research into this area.
- Plans to prevent infections with the use of vaccines and immunotherapies.

### Water Waste

- Sewage releases – including asking about plans to reduce sewage releases and/or improve wastewater treatment at the company and regulator level.

# Next Steps

A three-pronged approach to our path forward:

- 1.**  
**RESEARCH**  

We will continue to educate ourselves on the topic and help raise awareness both internally and externally.
- 2.**  
**INTEGRATION**  

We will be mindful of AMR risks and seek opportunities with those providing AMR solutions in our portfolio management process.
- 3.**  
**ENGAGEMENT**  

We will engage with companies represented in portfolios about AMR where we deem it to be financially material. We plan to continue to engage with industry organizations and further our AMR network.



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## Endnotes

<sup>1</sup>World Health Organization, *Fact sheets* 21 November 2023.

<sup>2</sup>Saloni Dattani (2024) - "What was the Golden Age of Antibiotics, and how can we spark a new one?" Published online at [OurWorldinData.org](https://ourworldindata.org/golden-age-antibiotics). Retrieved from: 'https://ourworldindata.org/golden-age-antibiotics' [Online Resource]

<sup>3</sup>"Why Is It So Hard to Develop New Antibiotics?" Wellcome.com Nov. 17, 2023. <https://wellcome.org/news/why-is-it-so-hard-develop-new-antibiotics>

<sup>4</sup>*New Types of Antibiotics Are Key to Fighting Drug-Resistant Bacteria*, 19 December 2016.

<sup>5</sup>Source: WHO, *World leaders commit to decisive action on antimicrobial resistance*, 26 September 2024.

## Disclosure

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*Market conditions are extremely fluid and change frequently.*

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