Retirement News Highlights

Monday, May 15, 2023

How States Can Account for Climate Risks to Pension System Assets

Maryland and California are using new approaches to measure and manage potential financial challenges

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Pew
May 15, 2023

The report published in January by the Maryland State Retirement and Pension System (MSRPS) marks its fifth annual assessment of financial market conditions that could hinder its ability to meet pension obligations. In addition to standard evaluation techniques such as pension stress testing, the Maryland system has gone further in the past half decade to include critical insights on the potential impact of a changing climate on the $62 billion in assets held for the state's public workers and retirees.

Building on early efforts by the MSRPS board and staff, Maryland became the first state to require its public retirement system to routinely analyze climate-related financial risks in 2018, beginning what may now be a trend among public pension funds. California, for example, enacted similar periodic requirements in 2020 for its two state-sponsored pension funds, which manage more than $700 billion combined in public assets. The reports by the state employees and state teachers retirement systems focus on what the state system can do to proactively limit climate risks. As in Maryland, the state efforts use measures and targets to reduce greenhouse gas emissions set in global climate treaties as a foundation for the regular analyses.

Of course, these states are not the first to consider the potential financial risks of a changing climate. In fact, such analyses have been used increasingly across the banking and financial sectors internationally, including by central banks such as the Bank of England and the Bank of Japan, in addition to several European retirement funds.

Federal policymakers and regulators in the U.S. have also started to focus on these long-term risks to the fiscal health of the nation's finances. In a 2020 report, the Federal Reserve Board identified the impact of climate change as a critical emerging risk factor to the stability of the U.S. financial system. More recently, the Fed announced a pilot exercise to develop a framework for climate scenario analysis, working with six of the nation's largest banks.

Magnifying these efforts, the Biden administration issued an executive order in May 2021 calling for a "whole-of-government" approach to identifying, measuring, and disclosing the financial risks that the impact of climate change poses to the nation's families, businesses, and the economy—including safeguarding Americans' life savings and pensions from these emerging risks.

While these approaches are still developing, it is not surprising that U.S. public pension funds have been among the early actors to incorporate such factors into their risk measurement and management practices. Because public retirement fund investments—which include more than $4 trillion of public

assets—are long term in nature, the systems are especially exposed to emerging climate trends and broader macroeconomic risks to financial markets and the economy.

Climate risk analysis in Maryland’s report

Based on legislation passed in 2018, Maryland’s annual pension risk reports include an assessment of the potential impact that future environmental conditions might have on the value of state retirement plan assets. To this end, the state pension system continues to use what has increasingly become one of the standard approaches to assessing the financial impact of climate risks to inform the plan’s investment strategies and policies going forward.

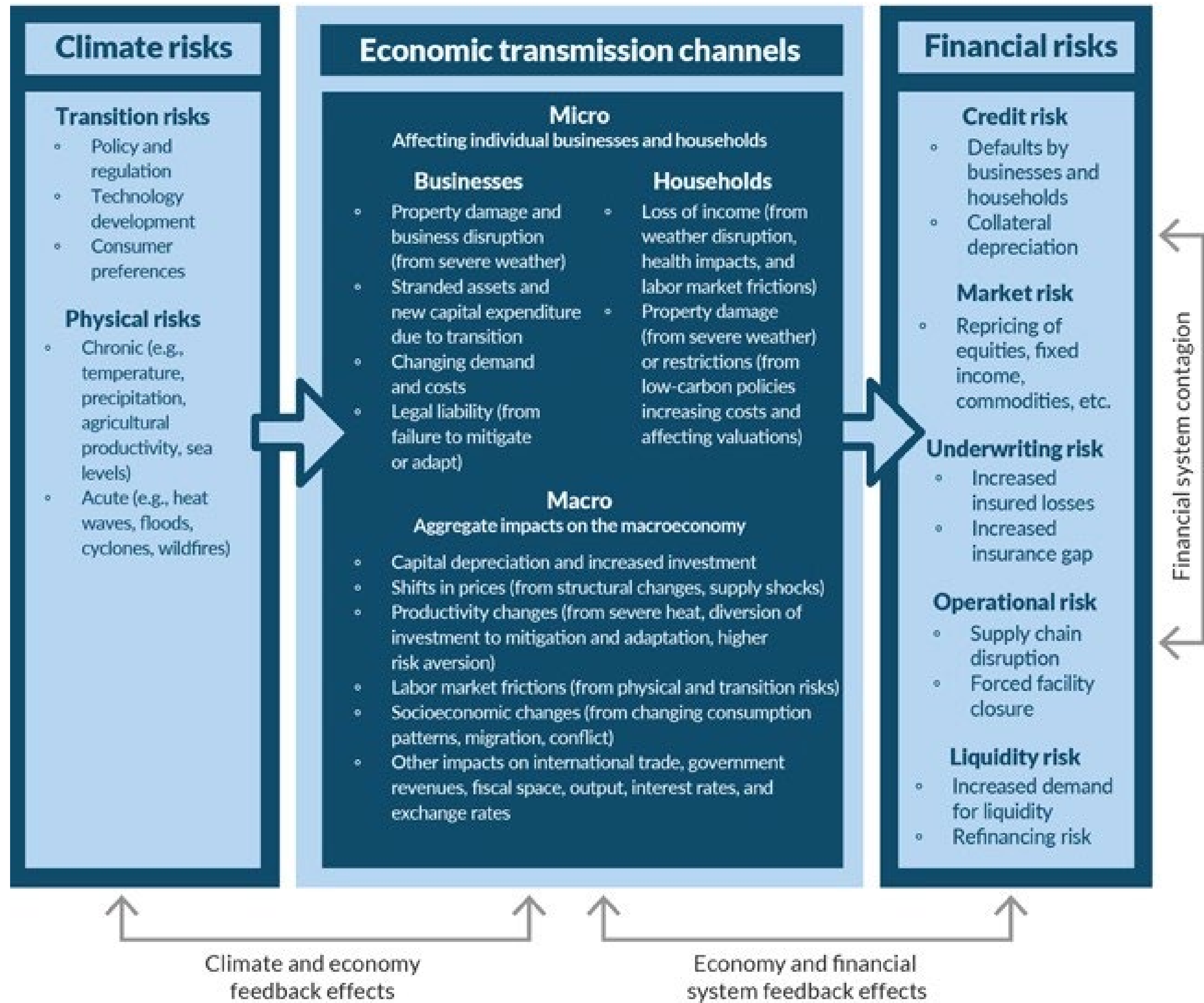
Specifically, this year’s report includes climate stress testing, essentially the examination of different scenarios to assess the economic impact of a range of future climate conditions on plan investments. The scenarios are typically based on two or more future temperature change possibilities laid out in the 2015 Paris Agreement. That international climate treaty set global benchmarks to “substantially reduce global greenhouse gas emissions to limit the global temperature increase in this century to below 2.0 degrees Celsius while pursuing efforts to limit the increase even further to 1.5 degrees Celsius.”

Including these climate scenarios in an economic model can provide decision-makers with information about potential physical and transition risks to their assets and investment portfolio. Physical risks occur when financial system assets and income are hurt by physical damage to property or a certain class of investments, such as real estate, because of increases in the frequency and severity of weather disasters, or long-term environmental shifts linked to climate change. In contrast, transition risks measure the potential financial consequences of broader shifts in efforts to reduce emissions, such as changes in government policies, consumer or market sentiments, or the development of new energy-producing technologies. Figure 1, taken from a 2022 report from the Network for Greening the Financial System, illustrates the different ways that climate-related risks can become financial and economic risks.

Figure 1

How Climate-Related Changes Can Affect Financial Systems and the Economy

Physical impacts and policy or market responses can pose significant risks to fiscal health



Source: Network for Greening the Financial System, "NGFS Scenarios for Central Banks and Supervisors" (2022)

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The Maryland system examines these risks by assessing how plan investments in stocks and bonds across different business sectors—such as energy, technology, and financial services—may perform under different climate scenarios. The results of these analyses then become one of several points of consideration during periodic reviews of the funds' strategic asset allocation. These broader examinations are standard in retirement fund management to determine how assets are best allocated across stocks, bonds, and alternative assets with the goal of achieving a certain target percentage of returns on investments and minimizing potential losses. In fact, in Maryland's latest report, officials note

that the 2021 strategic asset allocation review marked the first time the system's climate risk analysis was a key consideration in the overall asset allocation process.

Other evolving approaches

In addition to the emerging practice of climate stress testing, a broader focus on environmental-, social-, and governance-based (ESG) investing is gaining more widespread attention, though not without controversy. Historically, pension fund boards have adopted policies to exclude or divest from certain investments, such as tobacco or firms based in South Africa during apartheid. In many cases, these policies were rooted in the principles of socially responsible investing, which centered on excluding certain investments based on investors' preferences or a negative screening. In contrast, certain ESG considerations today are increasingly rooted in the principles of fiduciary duty, with the goal to limit future investment risks or to identify opportunities to capitalize on broader trends that could occur due to future economic or policy changes. Accordingly, Maryland's retirement system is actively evaluating best practices and tools to factor ESG risks into its decision-making process.

For the first time, Maryland's 2023 report includes a deeper review of a group of assets in the system's investment line-up and contemplates their "carbon footprint"—emissions of the greenhouse gas carbon dioxide—to provide a general estimate of the system's exposure to potential added costs if policies like carbon taxes are enacted. This developing technique is also gaining momentum; the U.S. Securities and Exchange Commission is contemplating similar disclosure requirements for all publicly traded companies amid some industry reservations.

Of course, Maryland and California are not alone in assessing emerging climate risks to their pension investment portfolios. Officials in Maine, Minnesota, and New York are contemplating approaches to measuring and mitigating the emerging risks that climate trends pose to their public pension funds. Going forward, the Federal Reserve's pilot climate scenario analysis for banks is likely to shape the evolution of risk measurement and management practice for these and other state retirement systems, just as the central bank's initial stress test protocols for financial institutions required under the 2010 Dodd-Frank Act have influenced scenarios and modeling for pension financial stress testing. In the meantime, however, practical examples like Maryland's approach provide a blueprint for state policymakers and program managers who want to measure and mitigate the emerging risks of climate change on their retirement systems' assets.

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