Data Visualization at the Office of Financial Research

Building interactive data products for risk measurement and monitoring

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Views expressed in this presentation are those of the speaker(s) and not necessarily of the Office of Financial Research.
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5. OFR Product Demo
6. Q&A
About Me

Warren Reed

- Background in Engineering, Finance & Data Science
- Data Scientist; U.S. Treasury’s Office of Financial Research
- Monitoring Tools Program Lead

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About OFR

Mission

The OFR helps to promote financial stability by looking across the financial system to measure and analyze risks, perform essential research, and collect and standardize financial data.

Dodd-Frank Act

The 2010 Dodd-Frank Act established the OFR to support the Financial Stability Oversight Council, the Council’s member organizations, and the public.
About OFR’s Monitoring Tools Program

Monitoring Tools Program

• One of OFR’s core mandates

• Mapping the global financial system; Building tools for risk measurement and monitoring

• Makes monitoring tools accessible to our stakeholders

Current Monitoring Products

• Financial Stability Monitor

• Financial Markets Monitor

• U.S. Money Market Fund Monitor
Financial Stability Monitor

It is a heat map of vulnerability indicators, organized into fives areas of risk.
Financial Markets Monitor

Major developments and trends in global markets overview
About OFR’s Monitoring Tools Program

U.S. Money Market Fund Monitor

Examine various dimensions of U.S. money market funds with interactive visualizations

Source: financialresearch.gov
Use Case: U.S. Money Market Fund Monitor
Understand the Problem Domain

- Runs on U.S. Money Market Funds (MMFs) were a contributing factor to the global financial crisis.

- 2010 U.S. Money Market Reform mandated new data reporting (Form NMF-P) for all U.S. MMFs.

- The form contains data elements with lots of attribution-level detail on each U.S. Money Market Fund.

- OFR built a monitoring tool to unlock insights into this industry by using this dataset.
Understand the Problem Domain

Raw Data
Source: SEC

XML
Source: OFR

Datamart
Source: Tibco

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Understand Perspectives on U.S. Money Market Funds

- How can we better understand the risks in the U.S. MMF industry?
- How can we track individual funds and the market as a whole?
- How can we present this data to our stakeholders?
Understand what questions to ask

Source: financialresearch.gov
Understand what questions to ask
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Source: financialresearch.gov
Designing and developing with constraints

Technology Stack

ETL

SQL

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Designing and developing with constraints

Design Principles

- Show data
- Avoid distorting data
- Present many numbers in a small space
- Make a large dataset coherent
- Reveal data at several levels of detail

Source: financialresearch.gov