OliverWyman

CAPITAL AND LIQUIDITY STRESS TESTING

SUERF Webinar on 2023 Banking Turmoil
31 January 2024

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A business of Marsh McLennan

BANKS' FINANCIAL INTERMEDIATION EXPOSES THEM TO THREE TYPES OF RISK – CREDIT RISK, INTEREST RATE RISK … AND LIQUIDITY RISK

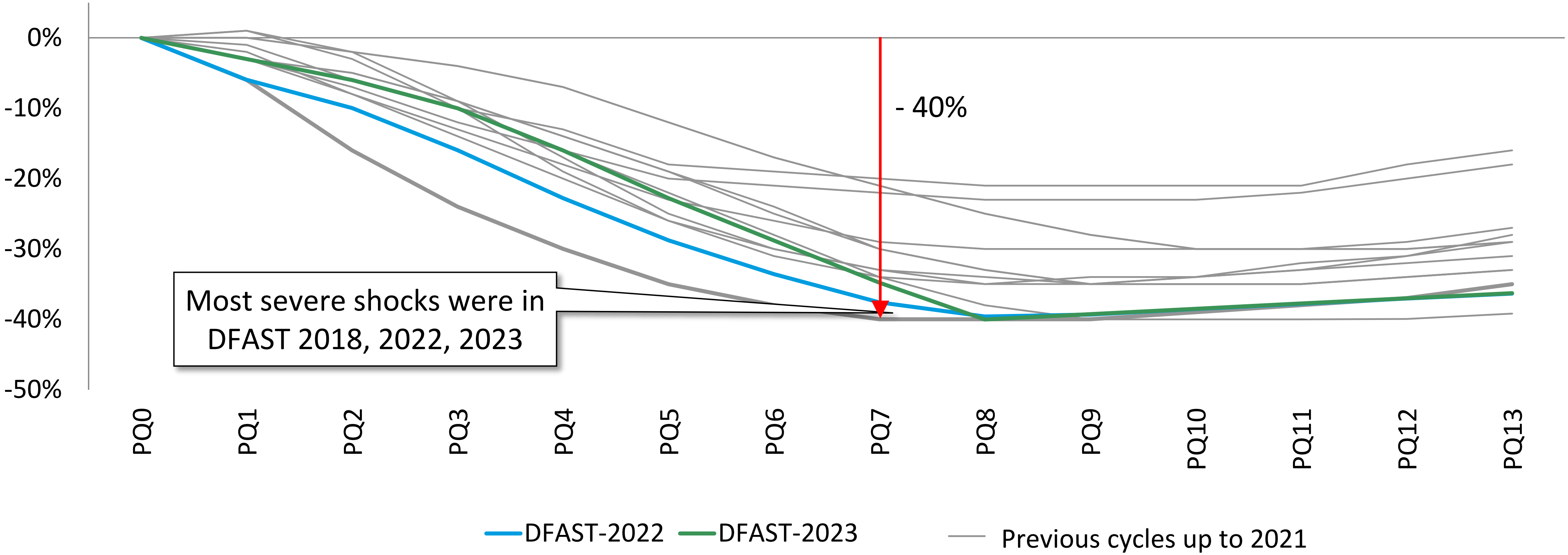
	CREDIT RISK	INTEREST RATE RISK
ORIGIN OF THE RISK	Borrowers' ability to meet contractual obligations	Mismatch in maturity & adjustment speed of assets and liabilities
STRESS SCENARIO	A severe recession: significant increase in unemployment driving up credit risk	High inflation following period of low rates, high growth, spike in rates
POLICY RESPONSE	Recession → High Unemployment ➡ Drop interest rates	Inflation ➡ Increase interest rates

- *Inspired by the GFC, the canonical bank stress scenario is characterized by a severe global recession scenario which assumes that interest rates are not expected to increase but decrease*
- *A second testing scenario is needed to probe the interest rate risk inherent in banks during and following high inflation time periods*

THE BIG CREDIT RISK EXPOSURE IS IN COMMERCIAL REAL ESTATE: DFAST SCENARIOS

Commercial Real Estate Price Index (change indexed to PQ0): DFAST 2011-2023

Severely Adverse scenarios vs. historical observations



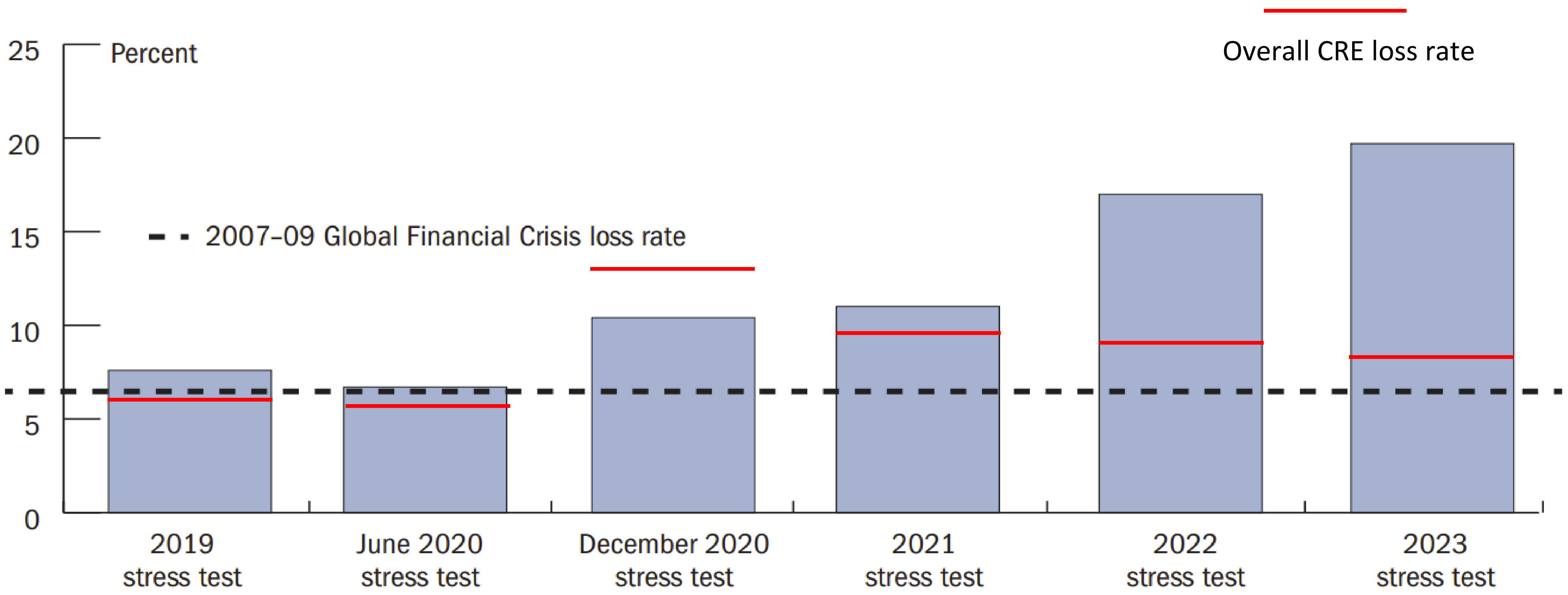
Source: Fed SCAP and DFAST-2011-2023 scenario disclosures

Note: For SCAP-2009, DFAST-2011 and DFAST-2012, only baseline and adverse scenarios were released. Therefore, adverse scenario data for these years is shown for comparison to severely adverse scenario data for DFAST-2013-2022. Historical data does not include restatements to preserve the jump-off point for historical DFAST scenarios. Fully restated historical data is available on the FRB website (https://www.federalreserve.gov/supervisionreg/dfa-stress-tests-2023.htm)

CRE RISK WAS (AND IS) CONCENTRATED IN OFFICE SPACE DRIVEN BY WORK-FROM-HOME

The banks in the 2023 stress test own ~20% of the office/downtown commercial real estate loans held by all banks

Office loss rate, cumulative 9 quarter

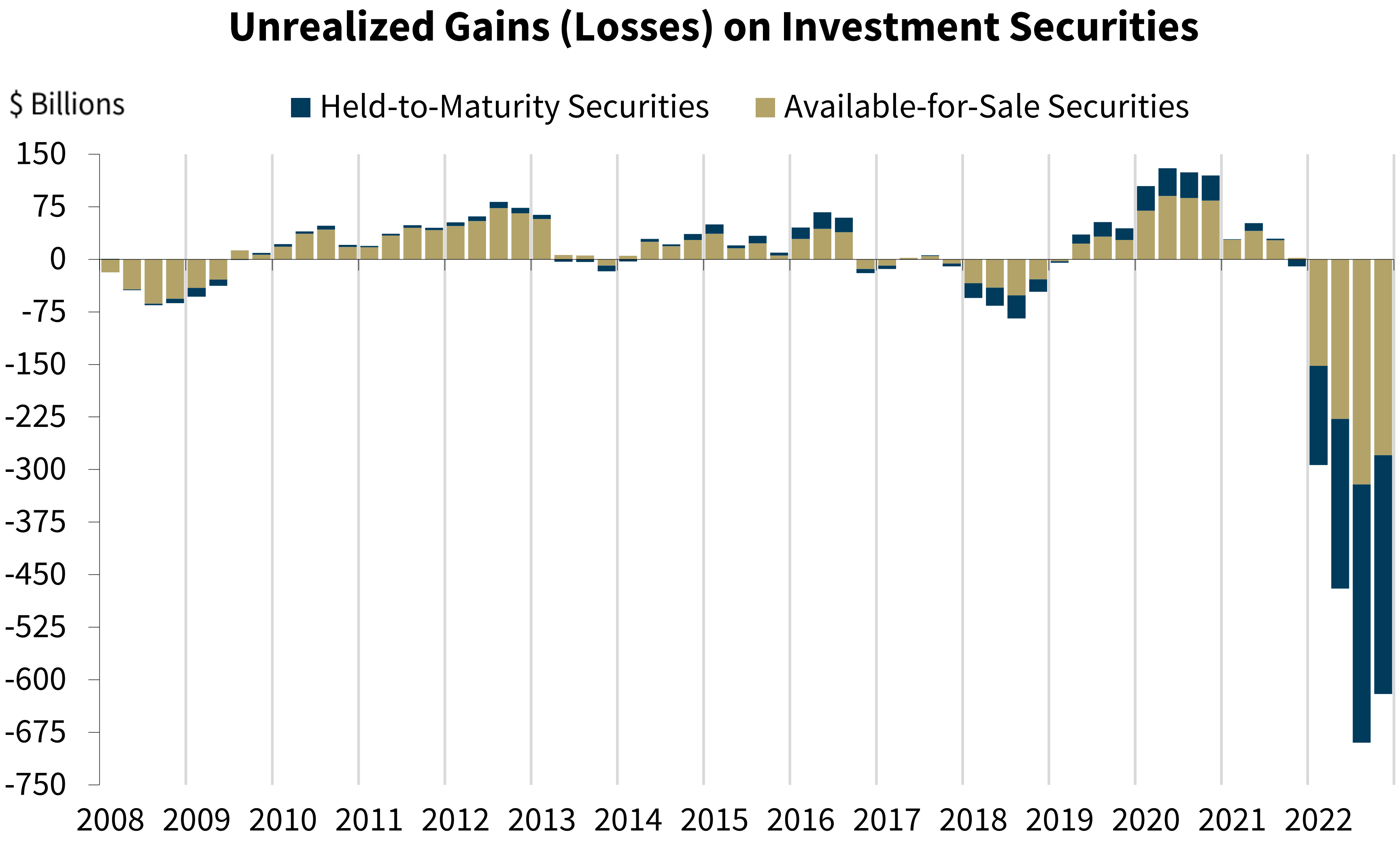


Source: Federal Reserve Board DFAST-2023 disclosures

WHAT ABOUT INTEREST RATE … AND LIQUIDITY RISK?

- Bank financial intermediation makes them naturally long credit and interest rate risk
- Maturity transformation exposes banks to liquidity risk on *both* sides of the balance sheet
  – Liabilities: demand deposits
  – Assets: lines of credit and loan commitments
  – Kashyap, Rajan and Stein (2002 JF): don't worry, in systematic liquidity shock, deposits hedge line/commitment draws
  – Run *to* (not from) bank, e.g. LTCM in 1998, Fall 2007
- Deposit insurance provides condition for that hedge
  – Pennacchi (2006 JME) shows this "natural" hedge didn't exist before introduction of deposit insurance (FDIC)
- Deposits also "hedge" against interest rate risk
  – Cheap (insured) deposits are resistant to interest rate rise
  – Deposit beta << 1 (Δ deposit rates / Δ interest rates)
- Why should we worry?
  – Deposit franchise value derives from *insured* deposits (Drechsler, Savov, Schnabl, Wang (2023))
  – E.g.: SVB share of insured deposits was 6%
- Hard to hide interest rate driven losses in securities portfolio

A DISASTER HIDING IN PLAIN SIGHT DRIVEN BY INTEREST RATE RISK

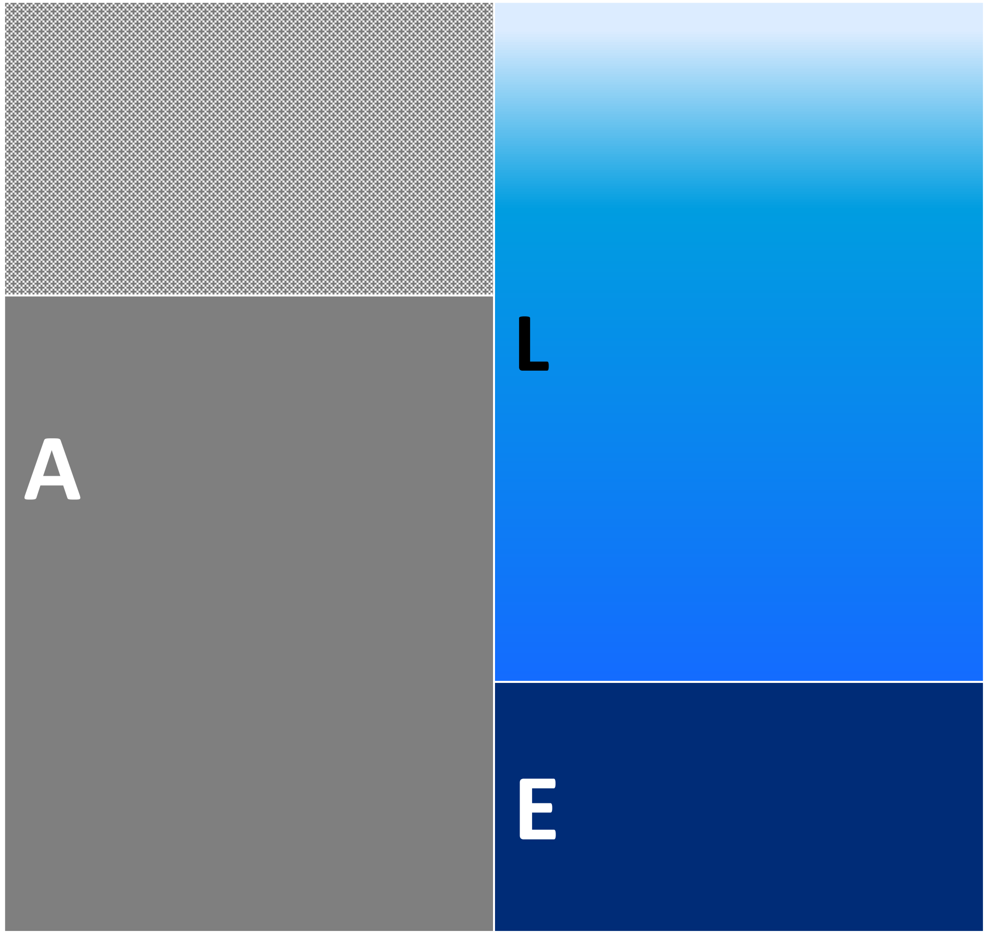


Source: FDIC Quarterly Banking Report 2022Q4
Note: Insured Call Report filers only.

TOXIC BREW OF UNINSURED DEPOSITS, HTM SECURITIES AND HQLA

HQLA
(some in HTM)

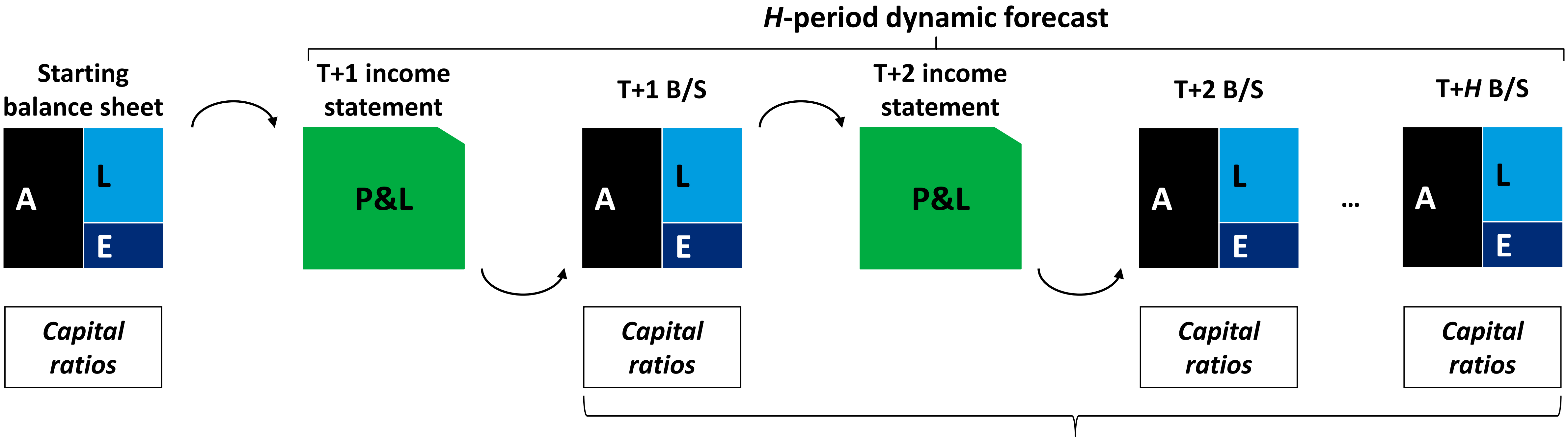
In 2022, banks moved almost $1T in securities from AFS to HTM



High share of uninsured deposits

Fed’s Bank Term Funding Program outstanding at $168B (24 Jan 2024)

STRESS TESTING TRANSLATES SCENARIOS INTO FINANCIAL IMPACTS USING DYNAMIC PROJECTIONS OF BALANCE SHEET, P&L AND RELEVANT RATIOS



Regulatory ratios required to be above thresholds throughout period

- **Only as good as the capital regulations**
- **Beholden to accounting regime**

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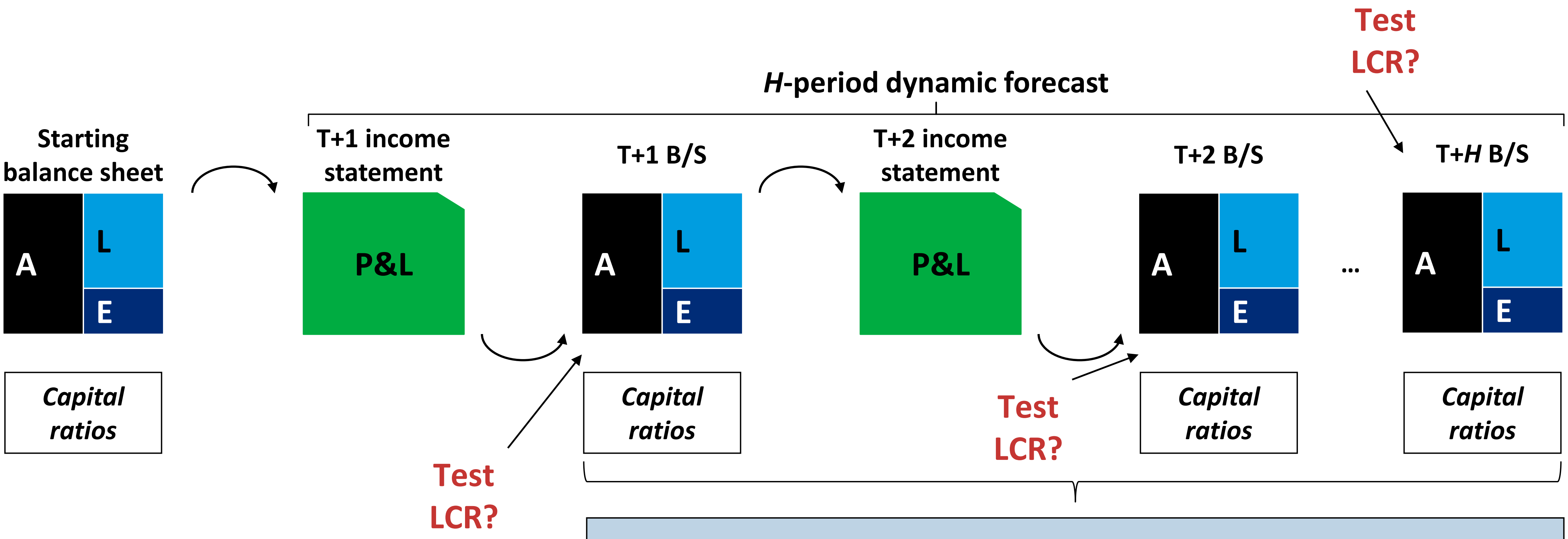

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“CAPITAL” AND “LIQUIDITY” STRESS TESTS EXIST ON A CONTINUUM OF ASSESSING BANK RESILIENCE TO SHOCKS

Liquidity Stress Testing
Higher Frequency (Minutely / Hourly / Daily)

Capital Stress Testing
Lower Frequency (Quarterly / Annual)

Intraday Liquidity Stress Testing (Hourly / Minutely)

LCR-type Stress Testing (Daily / Weekly / Monthly)

US DFAST Capital Stress Testing (Quarterly)

EBA (and others) Capital Stress Testing (Annual)

- **Goal:** Ensure liquidity needs in stress can be met
- **Time Horizon of Key Drivers:** short; potential shocks evolve quickly requiring frequent testing
- **Complicating Factors:**
  – Liquidity at the legal entity vs. bank/group level
  – Commitment drawdowns
  – Can miss scenarios in which the bank is liquid but insolvent

- **Goal:** Ensure capital adequacy (solvency) through stress
- **Time Horizon of Key Drivers: l**onger; potential shocks evolve more slowly based on macroecon. conditions
- **Complicating Factors:**
  – Capital at the legal entity vs. bank/group level
  – Commitment drawdowns
  – Bank may become insolvent within measurement period

QUALIFICATIONS, ASSUMPTIONS, AND LIMITING CONDITIONS