

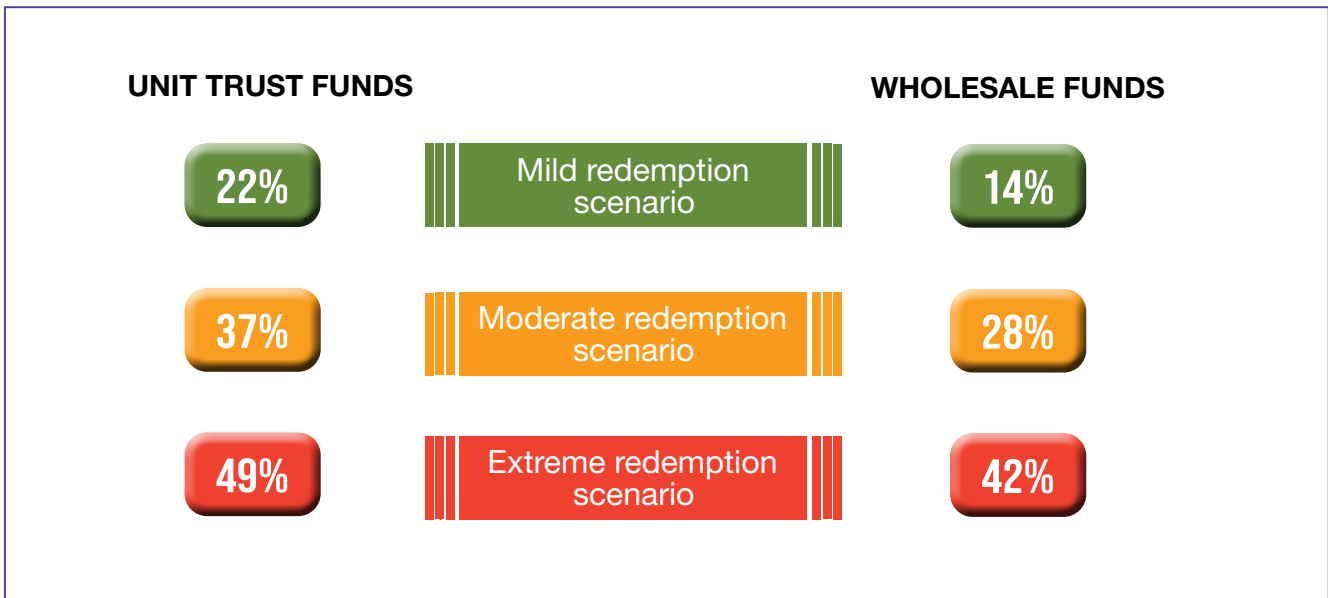
ASSESSING LIQUIDITY RISK IN INVESTMENT FUNDS

Asset liquidity remains critical in mitigating adverse impacts from potentially large redemption pressures, which are common during periods of unfavourable market conditions. Recognising the need for an industry-wide assessment, the SC developed and conducted a series of macro stress tests on unit trust and wholesale funds (collectively referred to as investment funds). This aligns with the International Organization of Securities Commissions¹ (IOSCO) focus on assessing the liquidity characteristics of assets in relation to their anticipated redemption flows in stressed market conditions.

STRESS TEST SCENARIOS AND METHODOLOGY

The macro stress test was conducted based on plausible tail scenarios, which were derived from historical redemption data to simulate mild, moderate, and extreme redemption pressures (Figure 1). Several assumptions were applied in developing the scenarios, including the expectation that the initial redemption shock would prompt further redemptions by other unitholders. Additionally, individual investment funds were required to maintain liquidity buffers of at least 10% in all asset classes in anticipation of future redemptions by unitholders. Effectively, funds incapable of reserving sufficient buffers for redemption are considered illiquid. The stress test exercise also assumed that neither the regulator nor the trustee would intervene in terms of liquidity management practices.

FIGURE 1
Stress test scenarios based on redemption of NAV



Source: The SC.

¹ Final Report: Recommendations for Liquidity Risk Management for Collective Investment Schemes. The Board of the IOSCO, IOSCO, 2018.

The macro stress test model involved a bottom-up approach where risks across the financial markets and assets were considered. The model utilised sensitivity analysis where a factor of large rolling redemption pressures was applied to the individual investment funds liability in three broad scenarios of redemption pressures based on historical redemption patterns. On the funds' asset side, liquidation of certain asset classes was moderated by downward pressure on asset prices.

In terms of liquidation, a macro stress test can be conducted based on either one of two slicing approaches. In a horizontal slicing² (waterfall liquidation³) approach, liquidation takes place from cash and cash equivalents (most liquid) to corporate bonds/sukuk (least liquid). Under the vertical slicing (*pro rata* liquidation) approach, the structure of the portfolio takes precedence;

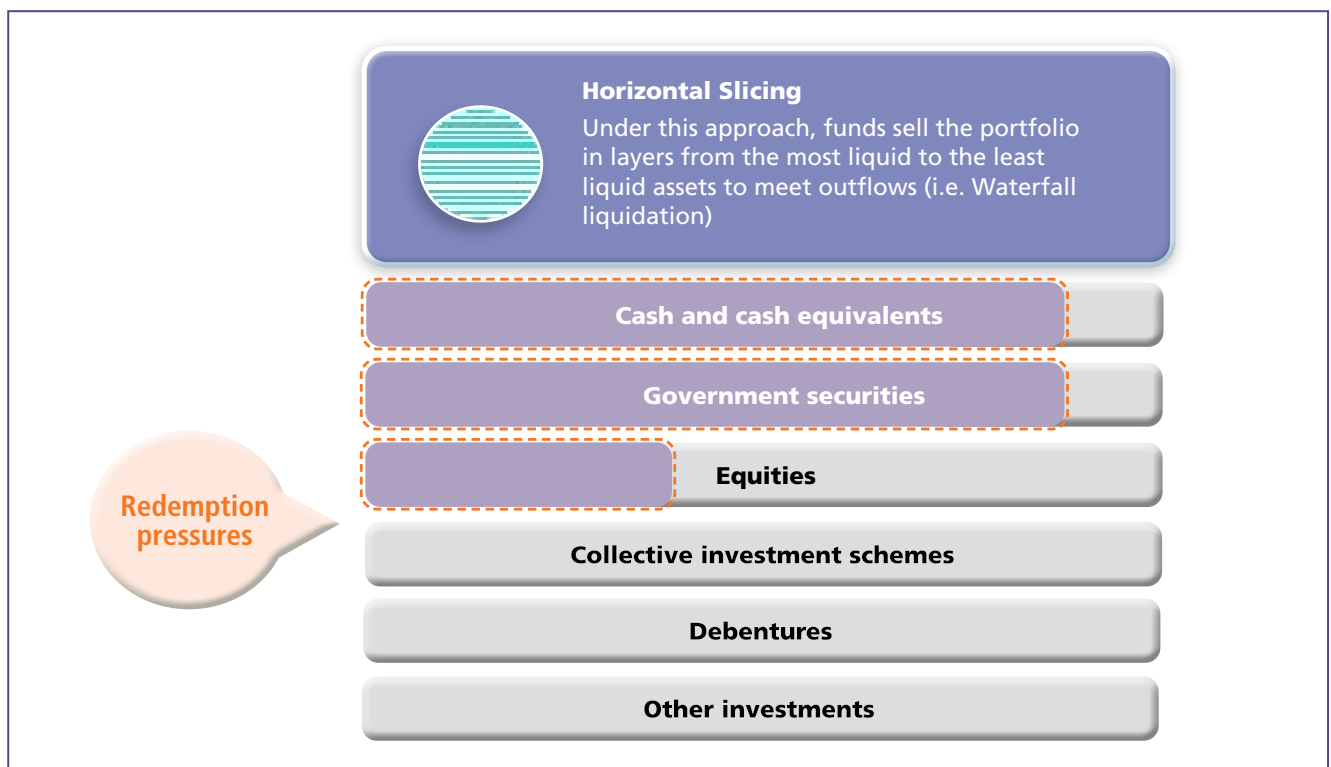
all securities are liquidated in the same proportion. Such strategies would enable fund managers to maintain their respective asset allocations.

Under the SC's macro stress test, the horizontal slicing approach was chosen given its capacity to render a more pronounced observation into potential risk transmission effects across major asset classes. In this slicing approach (as illustrated in Figure 2), liquidation would first occur in withdrawals of highly liquid assets, including cash, deposits, money market placements, and government securities.

To simulate the impact of a market risk shock at the point of liquidation, the stress test model assumes a decline in fair value for the equities, government securities, and corporate bonds/sukuk asset classes.

FIGURE 2

Asset liquidations based on horizontal slicing approach



* The fund will maintain a 10% balance of each asset class as liquidity buffer for potential future redemptions.

** Other investments exclude derivatives as the instrument may be unsuitable for liquidation, e.g. foreign currency forward contracts. Instead, other asset classes will be equally adjusted to assume liquidation of such exposure.

Source: The SC.

² *Bond Funds and Fixed-Income Market Liquidity: A Stress Testing Approach*, Technical Reports No. 115, Arora, Rohan, et al., Bank of Canada, August 2019.

³ *Liquidity Stress Tests for Investment Funds: A Practical Guide*, IMF Working Paper, IMF, October 2017.