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“Simulating liquidity stress in the derivatives market”

Abstract. We analyse whether margin calls between derivative counterparties could strain their ability to pay and thereby spread liquidity stress through the market. Using trade repository data on bilateral derivative portfolios, we simulate variation margin calls in a stress scenario and compare these with institutions' liquid-asset buffers. Where these buffers are insufficient to meet the margin calls we assume institutions borrow the shortfall, but only at the last moment when payment is due. This delay can force recipients to borrow more than otherwise to help make their own payments. This is how liquidity stress can spread through the network. That said, we find aggregate liquidity shortfalls equivalent to only a modest proportion of average daily cash borrowing in repo markets, and only a small proportion of this is attributable to the contagion mechanism just described. However, more important than this result is the toolkit that generated it. This could be used regularly to investigate whether margin calls could generate systemic liquidity strains. If that were the case, additional liquidity requirements targeted at institutions that spread liquidity stress would reduce potential liquidity shortfalls most effectively. Changes to the structure of margin payments could also reduce potential liquidity shortfalls. We show how our toolkit can quantify the effects of such policies.