

# LOST IN CONTAGION: BUILDING A LIQUIDATION INDEX FROM COVARIANCE DYNAMICS

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## Abstract

We propose a tool for monitoring fire sales and fund liquidations in financial markets. This liquidation index detects fire sales episodes in a contemporaneous manner and estimates their magnitude, using only publicly available data (asset prices and volumes). At every date  $t$ , it takes into account the movement of asset prices and realized covariances between dates  $t - \tau$  and  $t$  and estimates a theoretical magnitude for fire sales over the period  $[t - \tau, t]$  that generated such joint movement of prices and covariances. As such, the liquidation index spikes during fire sales episodes and can hence be used in a systemic risk management perspective, as it enables to detect fire sales episodes – even complex liquidation events such as the hedge fund crash of August 2007 which was undetected by commonly-used monitoring tools. It can also be useful in a trading and portfolio allocation perspective as it allows to distinguish between periods of 'fundamental' asset behavior from fire sales periods, characterized by crowding and contagion effects and during which diversification effects are reduced.