

Non-technical summary for ‘Emergency Liquidity Injections’

By Nicholas Garvin

Understanding liquidity crises has long been, and will probably long be, an important objective for economic policymakers. Liquidity risk is inherent to banking systems because banks fund long-term assets (like mortgages) with short-term and at-call debt (like deposits). This process benefits the economy by making more credit available for households and businesses. However, it also generates the risk that if short-term debtholders withdraw their funds *en masse*, banks are unlikely to be able to pay them. This paper contributes to the research literature that studies how a policymaker can handle such a situation, which broad monetary stimulus is not designed for, by modelling the scenario faced by the United States and other global financial centres in late 2008. This type of situation appears highly unlikely in Australia in the foreseeable future.

The model depicts a banking system that is solvent, but a system-wide withdrawal by debtholders leaves banks with short-term payment obligations that exceed their available funds (i.e. their liquidity). It is then in the policymaker’s interests to inject liquidity into the banking system, which can prevent bank failures and the harm to the economy that would likely follow. However, injecting liquidity incentivises banks to take more liquidity risk the next time around, which makes future liquidity crises more likely. This paper compares different types of liquidity injection policies by where they sit in the trade-off between the perverse incentives generated, and the ability to support the banking system during a crisis.

To address the subject, I develop a game-theoretic model in which banks decide how many liquid assets to hold as protection against funding withdrawals. Banks consider the losses they would suffer if a crisis eventuated, which depend on the type of liquidity injection policy implemented by the policymaker. If a crisis eventuates, the type of policy also influences how the crisis unfolds. By placing a particular type of policy into the model, we can therefore analyse that policy’s influence on banks’ risk-taking decisions and on crisis outcomes. The model replicates some features of liquidity injection policies highlighted previously in the research literature. It also generates two new insights, which are the paper’s main contributions.

The first insight is that, if the policymaker injects liquidity by lending to banks, there is an indirect benefit of requiring them to provide collateral. The benefit arises through the (secondary) markets for the securities that the policymaker accepts as collateral. In the model, the crisis is characterised by falling prices in these markets, driven by selling pressure from the banks that need more cash. However, banks cannot sell securities that they are providing as collateral. Collateral requirements can therefore alleviate ‘fire sales’ in these markets, which benefits other banks through the higher market prices. In aggregate, the banking system ends up better off after the crisis, but, for each individual bank, there is no increase in the return to taking more liquidity risk.

The second insight is about whether a policymaker can disincentivise risk-taking by charging high ‘penalty’ interest rates on its emergency lending. Farhi and Tirole (2012) argue that, regardless of the effects on banks’ incentives, once a crisis occurs, the policymaker will then offer low rates. This is because the risk-taking that caused the crisis has already taken place, and charging banks penalty rates could now put them in further distress. Therefore, banks view any claims by the policymaker that it *would* charge penalty rates in a crisis as not credible, so such claims are powerless to influence risk-taking. I present a counterargument: penalty rates can be credible if the emergency loans are long term. In the crisis I model, banks are in liquidity distress but they are still solvent (i.e. they have not run out of capital). This means they will have no trouble making the repayments once liquidity conditions in the banking system improve. Charging banks penalty rates on *long-term* loans during a crisis will therefore not put them in further distress, which gives penalty rates more credibility.

Reference

Farhi E and J Tirole (2012), 'Collective Moral Hazard, Maturity Mismatch, and Systemic Bailouts', *The American Economic Review*, 102(1), pp 60–93.