[Funding Quantitative Easing to Target Inflation](#)

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The study of quantitative easing (QE) policies has so far focussed on which assets the central bank should buy, and on how it can pursue its targets for real and financial stability. This paper emphasizes instead the funding of QE by central bank liabilities, with an eye on achieving the inflation target. It provides a central-bank liability-theory of QE to complement existing asset-theories of QE, presents some evidence in favor of it, and discusses its policy implications.

In contrast with the variety of programs on the asset side of QE, the change in the balance sheet of the major four central banks looks the same on the liabilities side. All four financed their purchases via reserves: overnight interest-paying voluntarily-held deposits by financial institutions at the central bank.

The paper makes four points on reserves and inflation. First, it argues that the market for bank reserves in the United States has been saturated since about 2011. Theoretically, post-QE the supply of reserves shifted far enough to the right that it now intersects the demand curve at its horizontal segment. Empirically, bank-level data on assets shows how QE significantly changed the distribution of reserves deposits by banks. Second, it makes the case that once the economy is saturated, only the interest paid on reserves but not the size of the balance sheet have an effect on inflation, so they can be used as independent policy tools. Using data on inflation options to perform an event-study analysis of the effects of QE on inflation, it shows that the first round of QE shifted the distribution of expected inflation. But, consistent with the theory, since QE2, further expansions of the balance sheet have had little to no effect on inflation expectations across their entire distributions. Third, it asks whether keeping the current elevated size of the central bank's balance sheet, or even engaging in further QE, is feasible. Keeping the focus on liabilities and inflation, it discusses the constraint posed by the solvency of the central bank in terms of a solvency upper bound on the size of QE. The United States in 2016 is well below this bound. Fourth, it argues that the central bank is not out of firepower to affect inflation, even if it focuses solely on reserves and their remuneration. It discusses three radical proposals for innovating on the future composition of QE, in case inflation starts deviating significantly from target: ``helicopter drops", reserves that have payments indexed to the price level, and medium-term reserves with promised future interest rates.

The paper's conservative message for inflation-targeting in the future is to return to the pre-crisis consensus of following rules for interest rates and communicating present and future changes in the interest-rate path, leaving QE aside to potentially deal with other goals. Three changes to this old consensus are proposed. First, that the main target interest rate in the United States stops being the Federal Funds rate and becomes the interest on reserves. Second, that the return to a lean Fed balance sheet does not go all the way back to the pre-crisis zero reserves, but keeps the market for reserves saturated. Third, that if radical policies are needed to bring inflation back on target, these take the form of innovations on the composition of the central-bank liabilities that keep the focus on the return on the reserves that the central bank can control.