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**Comments on Central Bank Balance Sheets:  
expansion and reduction since 1900  
by Niall Ferguson, Andreas Schaab  
and Moritz Schularick**

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This is a very useful and pleasant paper to read. It provides the proper data that enable us to gauge how the recent surge in the size of central banks' balance sheets fits into the historical perspective. Data are provided as a percentage of GDP, and also of M2. They span most of the past century and are drawn directly from central bank data. The key findings of the paper are that the balance sheets of most central banks have remained within the range of 10% to 20% of GDP for most of the past century, except on two occasions: during the Second World War, when it reached almost 40% of GDP, and today, at about 30% on average. Some major central banks have broken their Second World War records in the recent period, however: the United Kingdom, Japan and the United States.

The paper distinguishes 23 episodes of large expansions and 17 episodes of large contractions. Most of these expansions are related to either intervention in foreign exchange markets or to the purchase of government securities. Contractions almost always took place smoothly. The ratios of balance sheet size to GDP and to M2 fall because of the rise of the denominator rather than contraction of the numerator. Among the rare exceptions to this pattern is the Nordic crisis of the 1990s during which the balance sheet contraction took place rapidly, once the crisis was over.

This begs the question of how balance sheet size could contract in the current circumstances, given the much lower growth environment, but more to the point, should it contract at all? Why does it matter? The orthodox position claims that there is an inflationary risk associated with such large balance sheet expansions. If true, this would be good news, given the current stance in Europe against deflation. In the analysis of the quantitative easing policies in the United States, there is some evidence that QE1 and QE2 managed to lift inflation expectations, but only very modestly.

The paper itself reports an analysis, which would allay fears of inflationary consequences, (but which would not address the other side of the argument – the deflationary risk) showing that a relationship between inflation and balance sheet expansion appears in the data prior to 1980, but breaks down afterwards. The result has more of the nature of a correlation than of causation, but it still reveals something about the inflationary risk. The results are hardly surprising. Inflation seems to operate of its own accord. As shown in a piece published in the World Economic Outlook (IMF 2013), the Phillips curve coefficient has steadily fallen to the point that it is essentially nil today. This can be viewed as a triumph for central banks in establishing their credibility. Indeed the World Economic Outlook analysis demonstrates that inflation expectations are increasingly anchored by monetary policy as they now move almost one for one with the long-term inflation targets set by central banks. But then again, if central banks' credibility is the key factor behind this success, why should we fear deflation today? If central banks are so good at anchoring long-run inflation expectations, where is the problem?

It seems clear that the economy is operating under a new model. Wage bargaining is not what it used to be. Very briefly, it can be argued that we are witnessing the emergence of a new paradigm regarding inflation. Under the pressure of new technologies, labour share has been falling. Cheap software of all kinds is taking over labour activities, so that the lowest wages seem to be essentially flat, given downward resistance, with inflation above the minimum levels being driven by relative wage effects. At the top of the ladder, bonuses are paid to the super winners, whose incomes are essentially indexed on the financial markets, which is where the action has been taking place.

Money that floods into the economy as a result of easy monetary policies does not fuel the product or labour markets as before, but boosts asset prices. According to this line of reasoning the issue then

becomes about whether the fact that money inflating the price of assets would eventually be good for investment. The price of capital is reduced, Tobin's  $q$  is lifted, and investment should follow. It is not that simple, however. The correlation of Tobin's  $q$  with investment is notoriously low; one paper by Lorenzoni and Walentin (2007) shows that it is about one tenth of what the theory suggests. For instance, the paper shows that the volatility of Tobin's  $q$  is 27 times greater than the volatility of the investment rate. Cash flows do a much better job of predicting investment. Using the same metric, their volatility is just twice that of the investment rate.

So in the end, we have a joint phenomenon. Productive capital becomes cheaper and cheaper as a result of information and communications technology; this makes for wage deflation, low interest rates, with the price of assets climbing up, but with little impact on the real economy. According to the (now famous) data collected by Thomas Piketty, wealth has almost doubled as a percentage of GDP. It climbed from an average of 250% of GDP in the early 1970s to 450% now. From this perspective, the data presented in the paper show that the growth in central banks' balance sheets is commensurate with the rise in asset prices. What does that tell us about the impact of this balance sheet expansion on the economy? When the financial markets become dysfunctional, as they did after the sub-prime crisis, no one can doubt that the intervention prevented a systemic collapse. But what can we expect as the situation is normalised? Is the risk that it may further inflate the price of assets, with no other result than another bubble? As Wasmer et al. (2014) have shown, for instance, most of the results in Piketty regarding the wealth-to-GDP ratio appear to be driven by housing and more specifically by the price-to-rent ratio, which is surely driven by interest rates and monetary policies.

Another line of reasoning relates to the literature on quantitative easing. It shows that the Federal Reserve System's operations succeeded mainly in reducing the price of the assets that were purchased and did not have much of an effect on the other prices (see Krishnamurthy and Vissing-Jorgensen 2011). When controlling for their effects on the underlying credit default swaps, the Federal Reserve's operations have not affected the valuations of the target assets, and only bring down their default risk. This lends weight to the view that quantitative easing operated not through a portfolio rebalancing effect but on account of the fact that the Federal Reserve took some default risk off the economy. This means that the benefit is really to be looked at on the fiscal side of the operation. I do not see this as especially bad news, but the central bank may want to be prudent in advertising it. This interpretation allows a measure of the hidden stimulus that is carried by quantitative easing to be provided. If the risk is, say, 2% on average on the assets purchased, an expansion of the balance sheet representing 15% of GDP makes for a (repeated) stimulus of 0.3%. This is not negligible, but it is not very significant either.

To summarise, the period of balance sheet expansion that we are currently experiencing is not unheard of, although it has broken a few records for a number of key central banks. As the paper emphasises, it is more unconventional from a theoretical point of view than with respect to history. Back in 1980 the idea that a central bank could engineer a repricing of assets by intervening vastly on the markets would have looked perfectly sensible. Today, we think of the relative price of assets as being driven by the marginal rates of substitution across various states of nature, so the theory goes against such balance sheet operations. We clearly need to dig deeper to analyse the whole situation, and with the proper data, such as those presented in the paper, we have a better chance of doing it.

## References

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