

Money and Monetary Policy: a contemporary and historical review

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1 Introduction

This paper firstly compares the history of monetary affairs with the current situation, before reviewing and evaluating one of the new monetary policies prescribed by the global central banks post-2008.

No one could disagree with the statement that the world is now in a low interest rate era. Benchmark interest rates in many developed countries, e.g. USA, UK, and Japan, were cut to near-zero per cent right after the financial crisis, in the wish to boost economic activities,¹ arguably in line with the thought of Keynes (1936). However, interest rates cannot be lower than zero — this is the concept of Zero Lower Bound (ZLB).² The thought process behind this is simple: no one would opt for a deposit which earns a negative amount when one cashes out later.

At the time when ZLB has been faced, some central banks post-2008 decided instead to increase money supplies into the financial and monetary markets, which some call Quantitative Easing (QE).³ There is no fundamental difference between QE and deliberately growing the monetary base as in the 1920s in the USA — for both of them, an increase in money supply was brought out by the open market operations ("cyclical stabilisation" in 1920s) of the central banks.⁴ Thus, QE could not be seen as one of the advances from the history of monetary policies, in the sense that QE remains the idea of the 20th century or even before. There are several policies that have been unprecedented, and one of these is the Negative nominal Interest Rate Policy (NIRP), which is discussed in [Section 3](#). The implementation of NIRP is clearly a contradiction of ZLB, as it breaks the promise that ZLB states.

Now, the fundamental concept that an interest rate cannot be negative has changed. So, back to basics, what is the monetary policy? More fundamentally, what is money? [Section 2](#) answers these questions.

¹ Further descriptions: Rossi and Malavasi (2016) and Blanchard (2017).

² Further readings on the definition: Blanchard (2017).

³ See Bank of England (2018) for a description and Hausken and Ncube (2013) and Koo (2015) for further discussions.

⁴ Further descriptions: Brown (2015).

2 Monetary Policy from an evolutionary viewpoint

2.1 The development of monetary policy and monetary theory

A central bank, as the monetary authority of an economy, sets the monetary policy.⁵ The discussion of money and monetary policy can be traced back to the 18th century when Smith (1776) suggested that a "public stamp" should be affixed by the mints to facilitate exchanges and encourage commercial activities. Further developments in monetary theory occurred in the 20th century. For example, Irvin Fisher (1911) constructed the Quantity Theory of Money, which relates the amount of money to three economic variables: velocity of money circulation, price, and quantity of goods exchanged. Pigou (1917) worked on a similar argument and constructed the Cambridge Equation⁶, which relates money with the price and real income levels.⁷

However, money is not the only object of concern in monetary theory. After the Great Depression in the 1920s, economists started to consider interest rates as a reasonable tool to control the economy. In particular, Keynes (1936) and Hicks (1937) believed that an interest rate cut could boost the output of an economy. It can therefore be seen that the focus of monetary policy was then broadened to include the interest rate setting, and how this affects economic variables has become an important and interesting topic for economists. Modern economic thought, including Lucas (1972) and Kiyotaki and Moore (1997), provide frameworks for possible fluctuations due to money and credit shocks, highlighting the importance for a desirable monetary policy in the modern economy.

The monetary policy in recent decades may have had a shift in its focus from money-issuance to interest rate setting. British monetary policy, for example, has relied entirely upon interest rate changes during the period 1981–2003, compared to its previous aims of controlling credit, money stock, and bond purchases in the early half of the 20th century (Hall 1983; Bain and Howells 2003). From the academic perspective, Taylor (1993) introduced the Taylor Rule, which suggests that an interest rate induced by monetary policy should be responsive to the two key macroeconomic variables: output deviations and inflation rate.

It is wrong, however, to assert that the interest rate is now the only tool for monetary policy

⁵ See Bain and Howells (2003) for further discussions.

⁶ A.k.a. The Cambridge Approach.

⁷ Further reference for the Quantity Theory of Money and the Cambridge Equation: Froyen (2013).

makers (a.k.a. central bankers). The financial crisis in 2007/8 and its subsequent crises have made central bankers re-open their old-fashioned toolbox: print money. As discussed in [Section 1](#), some have named these plans as QE. The crucial reason for such action is that the interest rate has hit the ZLB, meaning for most of the central bankers, no further cut in the interest rate is possible.

Some economists, such as Goodfriend ([2016](#)), believed that ZLB is breakable since it is not the law of nature. Central bankers in practice have also tried NIRP, which is to impose a negative interest rate on financial institutions' deposits in the central banks: Sweden experienced NIRP in 2009, the European Central Bank has been implementing NIRP since 2014, and the Bank of Japan has been implementing NIRP since 2016.⁸

A summary of the monetary policies in the past century could be to say that interest rate control once dominated the monetary policies, but since 2008 there have been new issues — the ZLB stops central bankers from making further rate cuts, which then might be solved by some new policies, including QE and NIRP.

2.2 A comparison of past and present

It should be realised that there are only small differences between the definition of money in the early 18th century and today. Economists nowadays define money as an object with three purposes: a store of value, a unit of account, and a medium of exchange.⁹ Remarkably, a similar comment was given more than three centuries ago by Law ([1705](#))¹⁰:

- (a) Easy of delivery.
- (b) Of the same value in one place to what it is another.
- (c) To be kept without loss or expense.
- (d) To be divided without loss.
- (e) To be capable of a stamp, lets liable to be counterfeit.

⁸ Policy statements: Sveriges Riksbank ([2009](#)), European Central Bank ([2014a,b](#)), and Bank of Japan ([2016](#)).

⁹ For example, Mankiw ([2015](#)).

¹⁰ In O'Brien (ed. [1994a](#): 35).

These two definitions largely overlap with each other: for points (a) and (b), they can be understood as the unit of account; for (b) and (c), they contribute to the store of value; and for (a) and (e), they are similar to the medium of exchange. Point (d) contributes to all three modern purposes. Noticeably, neither of those definitions are equivalent to each other — (a) in Law (1705) cannot be replaced by any combinations of the modern definitions, and the unit of account concept can neither be covered by any combination of the concepts in Law (1705).

It should also be acknowledged that issues about money in the 19th and 20th centuries are still being debated today. Modern-day central bankers can be divided into two sides: Dovish and Hawkish.¹¹ Dovish in recent years means likely to cut interest rates, and Hawkish means likely to raise interest rates. In countries where freedom of speech is available, it is reasonable to expect discussion of these strategies in the media. For example, according to Reuters (2018), one of the most Dovish members of the Federal Open Market Committee (FOMC) is James Bullard, who mentioned in his interview in August 2018 with CNBC that he is "not happy" with any rate raise for the rest of the year 2018, because of his beliefs in weak inflation and economic growth¹²; in contrast, one of the most Hawkish members of the FOMC, Esther George, made her point clear to the media in August 2018 that two more forthcoming hikes in 2018 would be appropriate¹³. These debates, however, are not new, and in fact, have a tradition of more than 220 years. Back in 1797, a financial panic was triggered by the suspension of banknote-gold conversion in Britain. Economists were then divided into Bullionists and Anti-Bullionists: Bullionists could be seen as Hawkish in modern terms, who blamed the Bank of England (BoE) for the over-issuance of banknotes.¹⁴ One of the leaders, Walter Boyd, modestly conveyed his position that inflation was pushed by the over-issuance of money, for instance, by writing "Your mind must look down, with scorn, upon the stale and inadequate causes of the high price of provisions which have been assigned for it by some men, more distinguished by their station than by their acquirements" in Boyd (1801)¹⁵. Notable members of the Anti-Bullionists include John Hill and Coutts Trotter, who claimed that the increasing issuance of paper money was purely for transactional needs and which was to replace metal. For example, it is mentioned in Hill (1810) that "... the issue of bank-notes has no connection whatever with the price of bullion, except as by taking the

¹¹ Example from a financial viewpoint: Nasdaq (2018).

¹² Media source: Kim (2018).

¹³ Media source: Saphir (2018).

¹⁴ See O'Brien (ed. 1994b: vii-xxvi; 1994c: vii-xxiv) for further comments on the history.

¹⁵ In O'Brien (ed. 1994b: 29).

place of coin in domestic circulation ..."¹⁶.

What differentiates today to the pre-1960s could be the invention of the internet,¹⁷ which has tremendously sped up the transmission of information across geographical locations. Households in the late 20th century soon became familiar with the card payment as an alternative to cash and cheque, which brings opportunities for cashless payments.¹⁸ In fact, cashless payments have become the dominant methods of payment in many countries: 87% of the Swedish consumers did not pay cash for their most recent purchases, as per surveyed by Sveriges Riksbank (2009); 60% of all payments in the UK are cashless, and more strongly, 96% of all payments in the UK made by businesses are cashless, as reported by UK Finance (2017).

It can further be understood that society, for some countries at least, is engaged with the cashless concept. Media sources, e.g. Howgego (2018), have pointed out different possible outcomes in a cashless future; public identities such as the HM Treasury (2018) have also shown their willingness to engage in digital payments. In particular, the Swedish central bank has set out plans and further implementation of its own digital currency (Sveriges Riksbank 2017a,b).

To conclude, despite the definition of money and the debates about monetary policies being in a similar position as in the 18th and 19th centuries, the form of money has broadened out dramatically from banknotes and cheques in the previous to a variety of cashless features today, and banknotes seem to be becoming increasingly less important. This phenomenon can, in fact, lead to a change in the variety of monetary policy, in particular, on the practice of NIRP.

¹⁶ In O'Brien (ed. 1994c: 113).

¹⁷ See Ward (2009) for further description.

¹⁸ Further readings: UK Cards Association (2018).

3 Breaking the Zero Lower Bound

3.1 NIRP in action

Is there the possibility of the interest rate being negative? It should be noticed that the real interest rate, as per originally set out by Irving Fisher (1896), was in the negative area, and this has become a usual practice of monetary policy in the recent decades.¹⁹ This means that it is not a new feature to have a negative real interest rate, i.e. individuals in society are opting for a deposit even if the expected purchasing power of that deposit will be less than it is now. What is new, however, is the policy which makes the nominal interest rate negative, i.e. NIRP. Economies in Europe, followed by Japan, have put NIRP into action, and that clearly breaks the concept of ZLB.²⁰

There are two clarifications on NIRP: first, NIRP is charging financial institutions for their deposits at the central bank; second, it is up to financial institutions to choose whether they charge their retail depositors fees — namely, households who deposit. On the second point, interesting behaviours are observed: European banks, e.g. Alternative Bank Schweiz (2018) and UBS AG (2018) have been applying a negative interest rate on their depositors²¹; whereas no major Japanese banks, e.g. MUFG (2018), have applied a negative interest rate on their depositors.

A summary is therefore that ZLB has clearly been broken post-2009 when central bankers in Europe and Japan set NIRP. Moreover, some households are also faced with a negative rate on their deposits, meaning that it is feasible to charge households money on their accounts held at banks, instead of paying them the interest. Therefore, NIRP is an advancement on monetary policy in contrast to its history.

3.2 Validity of NIRP

Why is NIRP still feasible, though? As introduced in Section 1, ZLB is arguably an obvious and intuitive idea that should hold everywhere. To resolve the conflict, the origins of ZLB are presented — Keynes (1936) believed that if the interest rate is lower than a certain level,

¹⁹ For further data, see Nessén (2016b).

²⁰ For further data and description, see Nessén (2016a).

²¹ See Blackstone (2017) and finews.com (2017) for media sources.

then everyone will prefer money to deposit. This concept is named the liquidity trap, as economists, e.g. Leijonhufvud (1968), were to later refer to it. Liquidity trap then implies that there is a minimum interest rate that the central bank could set, and this was later presented as a horizontal line in the IS-LM model by Hicks (1937). Since money yields a zero per cent nominal interest rate, i.e. whatever it is on the banknote has the same nominal amount at any point in the future, the minimum amount in Hicks (1937) should be zero. Economists nowadays, e.g. Naghshpour (2014) and Blanchard (2017), explain ZLB through similar, if not the same, logic as above. It should be emphasised that there is no equivalent relationship between ZLB and the liquidity trap, although some economists, e.g. Mankiw (2015), claim so.

There is a critical weakness in the above logic — money yields a zero per cent nominal interest rate. This is true if we consider the money’s definition part (c) in Law (1705) — money can be kept without loss or expense, and indeed this is a key contribution to the store of value in modern-day definition, as presented in Section 2. But what if (c) was taken away from the definition of money? It is impossible to have a banknote which has a nominal decrease in value over time, thus (c) cannot be unsatisfied by the banknote; however, it is possible to let cashless money, e.g. current accounts at banks to have a nominal decrease in value over time, simply by applying a negative rate of interest onto the account.

Now, in an economy where money does not have a proper function as a store of value, i.e. in the absence of definition part (c) in Law (1705), it follows that money may not necessarily yield zero per cent — money can yield negatively, and thus the ZLB changes to a bound that is below zero, and NIRP to some extent is acceptable, as long as the policy rate is higher than the actual lower bound.

The above reasons may be criticised as theoretical or philosophical assertions without practical application, and it is indeed true that no society at the current stage completely functions without banknotes as a form of money, thus there is always some form of money that yields a zero per cent nominal rate of interest. However, as reviewed in Section 2, what differentiates today from the 1930s when ZLB was founded is the increasing domination of cashless money: with an increasing portion of non-banknotes as a form of money, it is reasonable to consider the above argument as a valid reason for the practicality of NIRP, especially the possibility for financial institutions to apply a negative rate of interest to households, i.e. members of the society who have their bank accounts as the dominant format of money.

This section concludes with an intuitive story, as an example of the above thought processes. In 1936, Bill purchases a beverage every day from a store down the road, where the only method of payment is cash. No change in domination would occur if the same banknote remained in Bill's pocket, holding money thus yields zero per cent interest, and Bill would never put his money in a bank account which yields a negative rate of interest. Today, Bill purchases a beverage every day, and there are two methods of payment acceptable — card or cash. As cash payment is less popular, the nearest vending machine only accepts card payment, and the store which accepts cash requires a ten-minute walk down the road. Bill could either save some money in the bank, which is helpful as this makes the transaction of beverage-buying more convenient; or hold cash, which is useless if he only wanted a beverage with a walk of fewer than ten minutes. Hence, making deposits in a bank account which yields a negative rate of interest may be the preferable option for Bill, especially if he wishes to save the daily ten-minute walk. Under this circumstance, a bank could impose a negative interest rate on Bill's account.

4 Conclusion

By reviewing the history of monetary economics, the similarities and differences compared to the present day have been discussed, showing the rationalisation of NIRP as an advancement of monetary policy. Indeed, the fundamentals have changed — the money the individuals are holding today is no longer necessarily the one that individuals used to hold in the 18th century; money no longer needs to satisfy all of the five properties given by Law (1705), and neither the current three.

Similar to studies such as Koo (2015) which suggested that the orthodox economic models failed to explain the Japanese economic recovery in the 1990s, the orthodox economics concept of ZLB no longer works in the 21st century. ZLB has indeed been broken by the central bankers in Europe and Japan, and this paper conceptually explains the validity of NIRP by updating the concept of "Lower Bound" in ZLB to a 21st century version.

After all, it could be concluded that in line with Goodfriend (2016), ZLB can be broken and NIRP can be called for whenever needed. The fundamentals of economic theory, and monetary theory specifically, need to be therefore investigated in order for a more suitable and efficient policy making approach appropriate for the rapidly changing society.

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