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Cash and Negative Interest Rates¹

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Cash is accused of three sins: First, cash is inefficient and costly to use, and society would be better off without it. Second, it promotes crime, and facilitates money laundering and tax evasion. Third, it makes negative nominal interest rates infeasible. In certain situations, this may hinder central banks from implementing optimal monetary policies. In this article, we argue that all three accusations are fallacies; they are based on faulty reasoning. There is absolutely no need to limit the use of cash. On the contrary, societies should facilitate its use.

The first two accusations have been around for a long time and there is an extensive literature on them. Our view is that, first, if cash is indeed inefficient, the market will eventually provide better solutions and cash will cease to exist. There is no need for policy intervention, since markets will address these kinds of inefficiencies. The reason that cash is still widely used only shows that it has unique features which create a strong demand for it. Second, in a historic context, the use of cash is a recent phenomenon. In contrast, crime, money laundering and tax evasion are much older phenomena, and it is therefore naïve to believe that cash is the cause of these problems.

The third accusation is new and for the rest of this article we focus on it. The accusation is that, because of cash (banknotes and coins), there is a zero lower bound (ZLB) or an effective lower bound (ELB) on nominal interest rates. The central bank is unable to lower short-term interest rates below the ZLB (in what follows we will use the terms ZLB and ELB interchangeably), because agents have the option to convert their book money into cash, which pays a zero interest rate. This argument has become increasingly popular in the aftermath of the financial crisis of 2007/2008 and the subsequent European sovereign debt crisis. The accusers believe that the existence of cash has been preventing central banks from setting the optimal level of (negative) interest rates in response to these crises. Furthermore, the inability to implement the optimal (negative) interest rate forced central banks to adopt unconventional measures such as Quantitative Easing (QE).

Let us first turn to the facts. A simple observation reveals that several central banks have implemented moderate negative interest rates, with deposit rates ranging from -0.2% to -0.75%.² In fact, the Danish National Bank has been using this instrument for nearly three

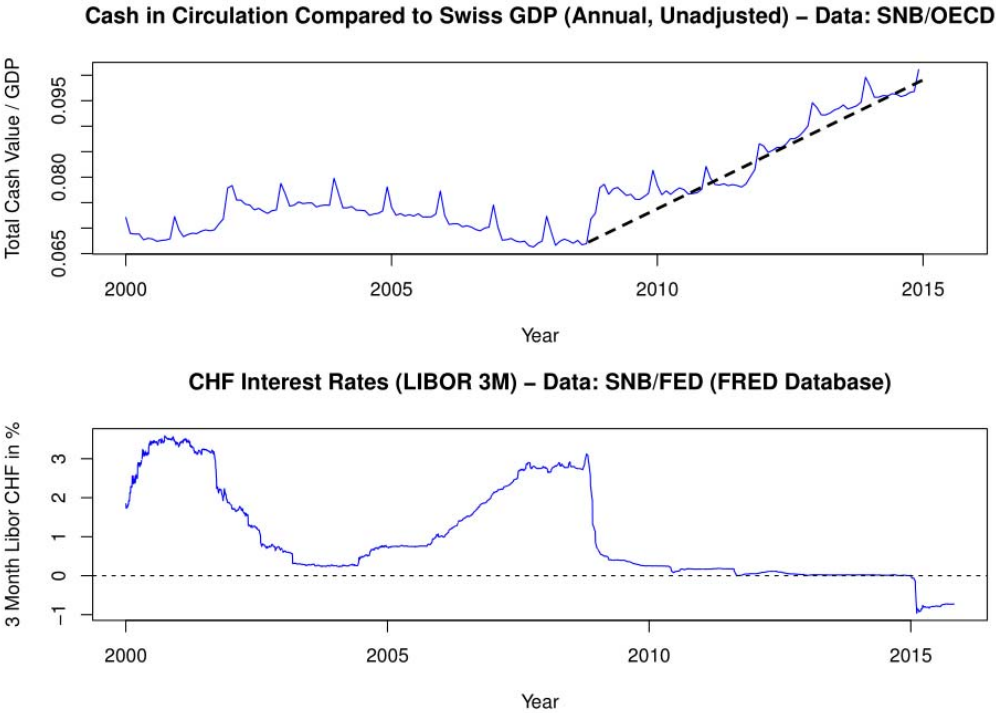
¹ This note is also circulating under the title "The Fallacy of a Cashless Society". It is based on a presentation of the authors at the conference "Cash on Trial" which was jointly organized by SUERF, University of Zurich and Liberales Institut, in Zurich on 5 November 2015. The note is published by SUERF Conference Proceedings 2016/1. Title of the volume is "Cash on Trial". Editors: Christian Beer, Ernest Gnan and Urs W. Birchler.

² The Danish National Bank (-0.75%), the European Central Bank, the Swedish Riksbank (-0.35%) and the Swiss National Bank (-0.75%) actively use negative interest rates as a monetary policy instrument.

years. Needless to say, all of these central banks still issue currency. This suggests that the coexistence of moderate negative interest rates and cash is feasible.

Let us consider the case of Switzerland in more detail. The Swiss National Bank (SNB) introduced negative interest rates on reserves in January 2015, with the current rate set at -0.75%. Not all reserves that financial institutions hold at the SNB are subject to the negative rate. The SNB defines exemption thresholds, and reserve holdings which are below this threshold are remunerated at 0%, whereas reserve holdings above this threshold are subject to the negative rate. Although considerable amounts of reserves are exempted from the negative interest rate, the introduction of negative rates on sight deposits had a strong effect on money market interest rates. For example, the 3-month LIBOR fell immediately below -0.75%, then recovered a bit, and, for several months, fluctuated around -0.75%. Several other interest rates followed suit. The Swiss government can now borrow funds for up to 10 years at negative rates.

Due to the relative novelty of this measure, it remains to be seen if and how these negative rates will affect the demand for cash. However, as Switzerland has had very low interest rates for several years, studying how these low interest periods affected the demand for cash may lead to interesting insights.



The upper figure shows cash in circulation as a fraction of the Swiss GDP. It becomes apparent that this fraction has increased from just below 7% to almost 10% between 2008 and 2015, which leads to the inevitable question of what is driving this increase. To answer this question, let us turn to the lower figure, which shows SNB’s target rate, the LIBOR 3M interest rate since 2000. Bearing in mind that cash does not yield any interest, the nominal interest rate of an alternative riskless nominal asset is the opportunity cost of holding cash.

The lower the nominal interest rate, the less costly it is to hold cash. Everything else equal, we would expect to observe an increase in cash holdings, after a decrease in the nominal interest rate.

However, following the same line of argumentation, we should be able to observe a comparable cash increase during the low interest-rate period between 2003 and 2005. Despite the similarly low nominal interest rate, there has only been a slight increase in the cash in circulation. Consequently, one would be hard pressed to believe that recent increases in cash holdings are driven solely by a decrease in the nominal interest rate. The descriptive analysis rather suggests that there must be another force which is causing the move towards cash.

In order to facilitate the discussion, it is helpful to distinguish between two types of assets: inside and outside assets. Inside assets are generated within the financial system. They are typically promises “to pay something”; that is IOUs (I owe you). For example, money held in a checking account (book money) is based on a promise by the bank to pay the depositor cash on demand. A company stock which is bought by a stockholder is an implicit promise made by the company’s management to pay the stockholder a fraction of its future profits.³ An IOU, being only a pledge, risks potential default. Quite naturally, demand for these inside assets reacts strongly to any changes in the probability of a default.

Outside assets, on the other hand, have no such promises attached. They are held because of their intrinsic value, or simply because people believe in them. Good examples are gold or fiat currency. Although the assets’ market values are affected by common beliefs, or more specifically by people’s expectations regarding future marketability, they are not subject to any issuer defaults. A person who owns a physical gold coin does not have to worry about a financial institution going bankrupt. In contrast, a person who owns a promise to a physical gold coin is subject to such a risk. Similarly, book money (money held in an account at a financial institution) is a promise to deliver cash on demand, which might not be honored, and therefore presents an additional source of risk.

The financial meltdown of 2007/2008 and the Euro Crisis triggered massive interventions by central banks. Furthermore, the events sharply increased debt-to-GDP ratios in many countries. We believe that these events have influenced people’s subjective beliefs, increasing the perceived likelihood of a major financial catastrophe. In particular, these crises have diminished trust in the financial system, quite naturally causing investors to out of these assets. They have also undermined trust regarding the central bank’s ability to act as a lender of last resort, and the government’s capacity (tax payers) to prevent another financial crisis without having to resort to drastic measures, such as confiscatory taxes (think of Cyprus) or forced conversions (think of the Greek euro exit discussion). We believe that

³ This is, of course, not the textbook view on what a stock is. In the textbook definition, a stock makes the holder a fractional owner of the firm and so he has a say on how much is paid out. In practice though, the management of the company has the say.

these events and doubts have played an important role, and partially explain why investors are switching from inside assets into outside assets.

Cash provides an insurance against bad outcomes, by enabling its holder to remain liquid when disaster hits. Financial crises (e.g., Lehman collapse), confiscatory taxes (e.g. Cyprus, Argentina, Hitler-Germany, to name only a few), or forced conversion (e.g., Grexit, Argentina) are just a few examples of events in which it may be advantageous to hold cash.

We do not claim that outside assets are completely immune to financial disaster. Historically, hyperinflation has impoverished many households which have held a large part of their wealth in the form of physical central bank currency. The observed increase in Swiss Franc cash holdings simply shows that a scenario of hyperinflation for Switzerland is not considered to be very likely at the moment. People seem to be far more concerned about irresponsible governments, which resort to confiscation and forced conversion to make up for bad policy decisions.⁴ By holding some of their wealth in outside assets, households and firms are able to partially protect themselves against such unpleasant events.

Given the desire to hold assets outside of the financial system and the potentially disciplining effects of the existence of such instruments, it would be clearly welfare-reducing to outlaw cash. Needless to say, for financial intermediaries, outside assets are a nuisance, since they do not generate income. This consideration provides an explanation why so many banks are pushing for a cashless society. Their fervor is simply motivated by the prospect of pumping up their earnings from bank card charges and other fees.

So far, we have argued that cash does not prevent central banks from implementing moderate negative interest rates. However, we do not claim that a decrease in the nominal interest rate does not increase the demand for cash. How much is substituted depends on two parameters: first, the cost (or gains) of holding cash, and second, the expectations about the duration of a regime with negative interest rates. The latter is important, because a switch into cash involves significant fixed costs.

The costs of switching into cash are different for various economic agents. A person who holds a few thousand francs on a bank account faces low costs when exchanging them for cash and stuffing the bills under the mattress. However, for a firm or a pension scheme which holds several hundred million francs in cash, the same operation can be very costly. The costs involve storage and handling, security measures, and insurance. Furthermore, current anti-money laundering laws make it very difficult to use cash for large payments or to exchange it for book money. Recent trends suggest that these laws will become even stricter in the years to come.

Beliefs about the duration of negative interest-rate regimes are heterogeneous as well. Agents who believe this to be a temporary measure are unwilling to pay the fixed cost

⁴ We do not claim that the Swiss populace is concerned with an irresponsible government. We believe that a large part of the observed increase in currency is most likely held by non-Swiss nationals.

involved in order to switch to cash. In contrast, agents who believe that such a regime is permanent are more likely to do so. Furthermore, not all agents are subject to the same negative rate. In Switzerland, with one exception, Swiss banks have not yet passed on negative interest rates to their retail customers.⁵ Negative rates are, however, passed on to large cash holders such as pension funds.

Because of heterogeneities in duration beliefs and in switching costs, substitution is a gradual process, and many central banks are currently estimating how much switching is likely to occur for various negative interest rates. There is no single level at which all economic agents suddenly decide that cash is superior, just as there is no positive nominal interest rate which causes economic agents to collectively abandon cash altogether. It is rather based on a personal decision, driven by individual beliefs and cost structures. Hence, there is no strict ZLB or ELB.

It is, though, quite clear that for sufficiently low negative interest rates, we would see a large rush into cash. This might prevent central banks from setting very low interest rates. In contrast to those who advocate a ban on cash, we believe that this is a virtue of cash and a reason to promote it. Cash protects us from irresponsible policy advice. As an example, consider Buiter and Rahbari (2015, pp. 2-3) who argue that central banks need to occasionally set negative nominal interest rates within a range of between -5% and -10%:⁶

“But the effective lower bound on nominal interest rates is unlikely to be at the -5% or -10% that central banks may at times wish to set the policy rates at.”

We do not know where the scientific underpinnings for nominal rate of -5% to -10% are coming from, nor do we agree on the desirability of such drastic measures.⁷ Buiter and Rahbari justify such large negative interest rates with a symmetry argument, which makes no sense at all. We quote their statement here, because we are afraid that the reader will not believe it otherwise (2015, the Abstract and p. 14))

“The -100bp deposit rate set by the Swedish central bank suggest that the carry costs of currency are higher than past consensus estimates. Nevertheless, they are unlikely to permit the policy rate to be moved as freely to -5% as to +5%. (...) Bringing symmetry to the central bank’s traditional policy instrument, the official policy rate clearly makes sense.”

To paraphrase, they mean is that a central bank that occasionally sets the nominal interest rate at 10% should also be able to occasionally set it at -10%. Clearly, a central bank that occasionally sets the nominal interest rate at 100% should then be allowed to occasionally

⁵ The exception is the Alternative Bank. Other banks are likely to have passed on the cost in less transparent ways; e.g., in the form of fees.

⁶ Buiter and Rahbari (2015). “High Time To Get Low: Getting Rid Of The Lower Bound On Nominal Interest Rates.” Global Economics View, Citi Research.

⁷ Of course, one can find some simplistic theoretical models or heuristic monetary policy rules (e.g. the Taylor rule) which can yield such large negative rates.

set it at -100%. Because of symmetry, this is welfare-maximizing (QED according to Buiter and Rahbari (2015)).

We probably do not have to emphasize that we disagree with this view. In fact, we think that policy advice based on such weak foundations as the latter by Buiter and Rahbari (2015) is irresponsible. It only serves the advisor, because he can get the attention of the media, but it is a disservice to the public.

Fortunately, cash provides an insurance against the potential implementation of bad policy advice. We are, therefore, thankful for its existence and wish it a good and long healthy life.