

## NEGATIVE INTEREST RATES AND HOUSING BUBBLES

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### ABSTRACT

In years after the financial crisis economists started to propose negative interest rates as a way how to escape from a liquidity trap. Negative interest rate was considered to be impossible but few countries have already set them below the lower zero bound. However, it has been done only in the central banks but not in the commercial banks. The main thesis of this paper is that low interest rates can inflate a housing bubble and as a result negative interest rates would only inflate it more. First, proposals how to make interest rate negative even in commercial banking are presented in the paper. Then we discuss general consequences of negative interest rates such as redistribution, initiation of a business cycle and most importantly, inflation. Finally, we look at the housing market and present theoretical and some empirical evidence of a possible ongoing bubble. The theory suggests that the negative interest rate would inflate the bubble necessarily. Consequences of a later decrease of housing prices have to be taken into account whenever negative interest rates are proposed.

### KEYWORDS

Negative interest rate, transmission mechanism, housing market, business cycle

### INTRODUCTION

It can be said, with a slight exaggeration, that all forms of human entrepreneurship are taxed, except one – the money hoarding. For almost a century policy-makers have been trying to solve this by more or less radical policies. The last attempt seems to be the negative interest rate. Although the negative nominal interest rate was considered to be impossible, proposals that can make it possible have already been presented and some forms of them have been applied. It is proved that this policy of raising the cost of holding money cannot work without a statutory anchor and enforcement. In this paper, we argue that since the originary rate of interest cannot be negative, the whole concept of negative nominal interest rates leads only to inflation of bubbles.

Because of this policy, we can expect higher spending in some sectors and hidden inflation in prices not represented in the consumer price index. We argue that the most notable examples of this inflation are in stocks, bonds and housing. Although all three bubbles can lead to tremendous social problems, we assume that policy makers should be worried most about the housing prices.

## BELOW ZERO

Until publishing the popular papers written by Buiter & Panigirtzoglou [1] and Buiter [2] there was a notable agreement on intuitive conclusion that nominal interest rates cannot be negative. But this constrain has become binding in the recent economic downturn. Policy makers of the USA, EU and especially Japan began thinking about lowering nominal interest rates below their zero bound. And it is not only for the lowering itself. Clearly, the main reason is to widen the field where they can manipulate with the economy but proposals how to do that imply another consequence, with such they can kill two birds with one stone. . As we will see later, those birds are of many forms, but one of them is crucial – inflation.

In 1990s the modern debate about relevancy of monetary policy started in nowadays world. Situation in '90s Japan, now called “the lost decade”, became threatening for them and at least interesting for the rest of the world. According to some economists, Japanese economy was the first economy trapped in the so-called liquidity trap since the big depression [3]. The term liquidity trap was first used by John Maynard Keynes, with a famous notion that he knows “of no example of it [other than an abnormal episode] in the United States at certain dates in 1932.” [4, 207-208]

Many authors, most notably Krugman [5] and Svensson [6], wrote papers opening and rethinking the liquidity trap issue. The second thing strengthening the discussion about this new exciting topic was beginning of the current crisis in 2008. In that time policy-makers “forced” the economists to explain what to do if the liquidity trap occurs. Krugman writes that this is “the third time in history that a major economy has found itself in a liquidity trap.” [3]. One of the solutions how to escape from the liquidity trap is to overcome the zero bound.

The zero bound can be described as a point where the crucial principles of modern macroeconomics stop working and are useless and even counterproductive. It is a remarkable point in the way that to some extent every school of economic thought recognizes here the failure of such instruments as the quantitative easing or interest rates setting. Even increased savings do not increase investment. And the list goes on. This is the point where the liquidity trap occurs.

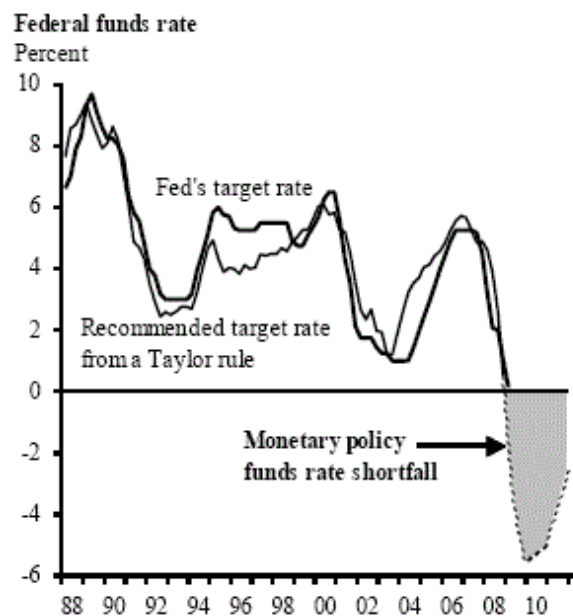


Figure 1 - Recommended target rate from a Taylor rule below zero [6]

At this point the question what to do arises, how to boost the economy when interest rates approach zero but they are still not sufficiently low to do so? How to escape from the trap?

Economists argue, that one of the propositions how to escape from the liquidity trap is the negative interest rate. It is a very simple proposition – going lower will make the boost. Even the Taylor rule had predicted a negative number [7], so economists were put in the belief that the negative interest rate is a must (see *Fig. 1.*). This is a rule for central bank interest rates and it is plausible to do so, and so countries such as Sweden, Switzerland and Japan did. It is even technically possible to set commercial bank interest rate below zero, but who will lend the money if the simple holding of it will earn him more? If holding money yields zero return who wants to earn less by lending it? Keep your money in mattress is always a better choice. Therefore the solution must make the storing in mattress more expensive. How to do that?

If we want to seek the policy that can make holding money more expensive, we have to understand what money we are talking about. There are plenty theories of money and many types and forms, but the only distinction that we have to do for our analysis is to distinguish between the cash and the money on a bank account. These two forms of money differ in costs and benefits.

The benefits of money on bank account are numerous, e.g. the interest or additional services within the bank. The costs might be numerous.

The benefits of cash are mostly connected with its liquidity, but someone uses them to show his wealth or for an art. They have benefits in a market change where the other side has no bank account etc. The costs relate to carrying, storing, stealing, destroying and losing the cash.

If we want to seek the possibilities of rising the costs of holding cash, we can either lower the costs of accounts or the benefits of holding cash. It is also possible to expand the benefits of accounts or the costs of holding. Higher benefits of bank accounts are the result of a market competition, there is not a problem, same as the lower benefits of cash since these two are connected in the term of the opportunity costs. And since the case is about very *low* interest rates (thus low benefits of accounts) the only policy-interesting point is in the rising the costs of holding cash. How?

As we state above, if a policy-maker wants to raise the cost of holding cash it can be done through the rising the cost of carrying or storing it, or the probability of stealing, destroying or losing. Since the rising of a probability is generally expensive (imagine the policy of rising the probability of stealing cash or making the notes “fragile” or “tiny”) and the rising of the cost of carrying it (probably in the form of “heavy” or “very big” notes) too, the only relevant policy is hidden in the increase of the costs of storing the cash. This is the so-called carry tax, a portion of money held that one must pay to a government. An example of such note is shown below in *Fig. 2.* Now it is clear that the policy of imposing the negative interest rate is *de facto* taxation, although more or less unconventional and for this paper most importantly that imposing a carry tax can lower the bound below the zero. I So negative interest rates are possible not only between the banks but also in mortgages and other retail loans.

100 DOLLARS FREE-MONEY														
10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	1 Sept.	6 Oct.	3 Nov.	1 Dec.	
10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	11 Aug.	8 Sept.	13 Oct.	10 Nov.	8 Dec.
10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	18 Aug.	15 Sept.	20 Oct.	17 Nov.	15 Dec.
10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	10 Cents	25 Aug.	22 Sept.	27 Oct.	24 Nov.	22 Dec.
		10 Cents				10 Cents				29 Sept.				29 Dec.

Federal Currency Office, Washington, 1 January 1960

Figure 2 - Gesell's free-money scheme [8]

Economics as a science about human action implies definition of interest rate different from the definition in the Keynesian view of Krugman. His statements about liquidity traps and the negative interest rate are relevant within the Keynesian paradigm, but the crucial juxtaposition lies in the comparison with the paradigm of so-called Austrian school of economic thought.

In the Austrian view the interest rate is the ratio of the value assigned to want-satisfaction in the immediate future and the value assigned to want-satisfaction in remoter periods of the future. This interest rate is called the *originary* rate of interest. Originary interest is a category of human action and as such it can be shown that it cannot be negative or zero. "The reason of this arises not because capital is productive, nor out of man's psychology. Rather, it is embedded in the very concept of human action." [9, 121]. The very reason for this lies in the concept of time-preferences that are always, for everyone and in every situation, positive.

The Austrian business cycle theory explains that it is mainly the low interest rate set by the central bank lower than the originary rate what leads to the business cycle. Since the originary rate of interest cannot be negative and every nominal negative interest rate thus leads to the business cycle, what is the purpose of the negative interest rate?

In our previous discussion we have found the negative interest rate capable of keeping the monetary policy working, whatever are the consequences.

Despite these facts, why there are still those who support it? What are the incentives to support such policy? They can be of three kinds, policy-makers can benefit from the carry the tax politically (through reelection), directly (in business) or they do not know the consequences.

As Mises [10] shows complexly, with grace Parkinson [11] or finally Buchanan [12], these incentives can be based on strengthening the political position of the policy-maker, most often a reelection. What side-effects are so desirable?

It lasts for centuries, but in the roughest form from exactly 1936, from the publishing of Keynes' General Theory of Employment, Interest and Money [4]; the most desirable side-effect is definitely to boost the aggregate demand. Why? According to Krugman [13]: "When the economy is in a liquidity trap, *government spending should expand up to the point at which full employment is restored*" (emphasis in the original). And how? Since the tax holding money is costlier, people are pushed to spend their money for goods. This spending is exactly what drives up the aggregate demand. The policy is relevant to this point. But economics can show that it is *not*

necessary. It may not be relevant and may be even counterproductive. Rothbard [14] provides some pieces of evidence, the whole process has all the properties of redistribution, it changes expectations about future and drives resources to alternative uses. We will show that the process can also inflate bubbles and lead to a later depression.

It is not a big conspiracy if we look at the other side of the carry tax to find out what is the purpose of this whole theory. First, there are some notable lines in papers proposing the carry tax. For example: "The carry tax would serve as a powerful deterrent to hoarding currency. Currency that was hoarded and "past due" would only be accepted at a discount sufficient to cover the arrears." [15]. Or this quotation can make the purpose clearer: "So incentives have to be created to induce private holders of currency to reveal their ownership of currency, come forward and pay any negative interest due. No government has, as yet, had the stomach for that." [2, 216]. There is *no* single line arguing that the carry tax is important for the escape from the liquidity trap.

But we can raise an objection to this conclusion. It is possible that these authors see the escaping purpose as implicit and thus do not mention it. Since we find this objection relevant, we have to take into account *both* possible purposes.

## THE TRANSMISSION TO THE HOUSING MARKET

In this paper, we argue that the most important consequence of the negative interest rates can be seen in the housing market. To understand the link between the rates and housing prices we have to follow the money from the initial setting of the rates by a central bank to final housing purchases.

In the current system money is created in commercial banks through loans. Then these new loans can be and mostly are spent in different sectors for goods and services and thus increase demands for these goods and services. Increased demands lead to higher prices, especially of goods with inelastic supply. Inelastic supply can be expected in goods limited in quantity or produced on markets with high costs to entry or exit.

The role of a central bank is crucial in this mechanism. Central banks provide liquidity to commercial banks and increase their motivation to earn money by provision of cheaper loans and thus creating new money. To provide the liquidity, central banks can buy foreign currencies or other assets from commercial banks, decrease their regulatory limits or decrease central bank's interest rates.

All these policies are targeted to incentivize commercial banks to loan-making and with people spending this money to increase inflation to the targeted level. The most important result is uneven distribution of this increase in general level of prices. Some goods and services are not represented in CPI even though these policies increase demands for them. Typical example is demand for financial assets such as bonds or stocks. They are not included in CPI and if they would be, official inflation rate would be arguably higher.

Central banks thus increase prices of goods and services directly through their outright purchases or indirectly through the transmission mechanism.

Arguably, in the case of transmission mechanism there are markets where the new money is spent earlier and those where the increase in demand is seen relatively later. Because there was more than 7 trillion EUR in outstanding lending in 2016 at the European mortgage market we would expect this additional demand to press on higher housing prices. These are shown in *Fig. 3* below, represented by house price indices.

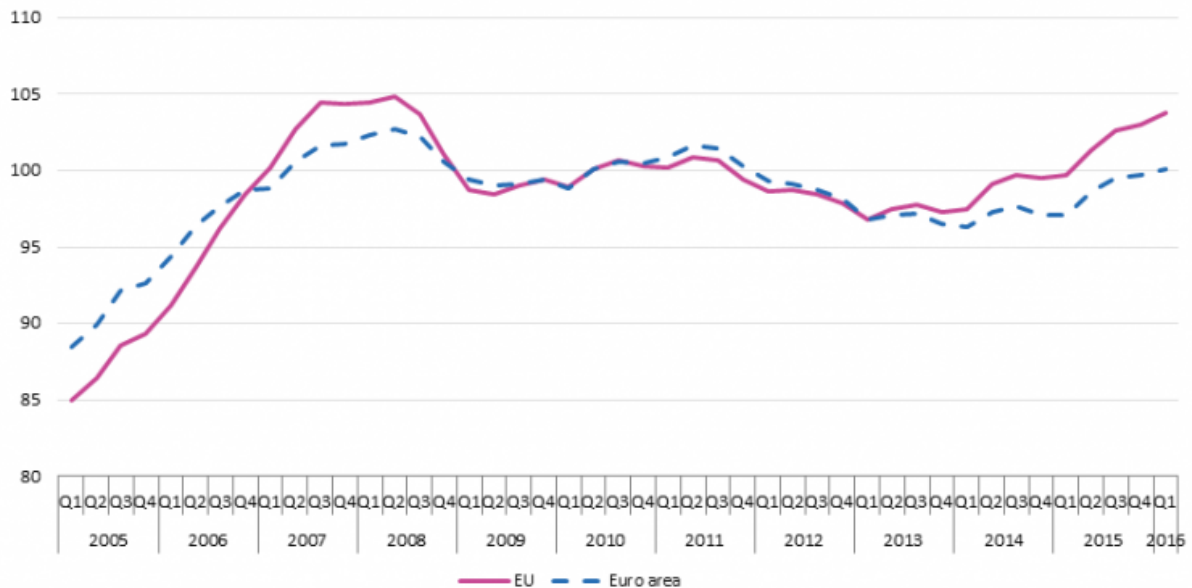


Figure 3 - House price indices - euro area and EU aggregates; index levels (2010 = 100) [16]

We see that low interest rates clearly led to higher housing prices before the crises. In 2008 crisis reverted the trend and prices went to 2006 level. The prices started to rise again in 2013 but went up only by about 3% per year. Compared to the average 5% growth in money supply (M3) we can be tempted to conclude that housing is less than proportionally represented in the new demand created with this money.

First objection to such claim has to be a possible effect of a change in housing supply. According to Hypostat [17] there is no significant change in housing supply: "Housing supply (as measured by the number of building permits issued, housing projects begun and housing projects completed) has remained more or less static since 2009, with building permits showing timid signs of increase during the last two years."

If this is so, then with stable supply and accelerating increase in demand the price of housing should increase proportionally to an increase in new mortgages. This is not seen.

However, the smaller increase in housing prices can be then explained with expectations and speculation. We argue, that the demand for housing itself is lower and is increased with speculative demand based on expectations of future increase in prices.

The effect of negative interest rates to the housing market is then the same as any other decrease in interest rates. Commercial banks are incentivized to provide more mortgages and increase demand for housing, partly because of speculative reasons. Moreover, stocks, bonds and other assets not represented or underrepresented in CPI will become more expensive but without increasing inflation rate.

## CONCLUSION

Negative interest rates are discussed as a possible savior tool for central banks in their





effort to increase inflation in liquidity trap. With low growth and low inflation or even deflation central banks standardly decrease their interest rates. It was thought that the zero lower bound is binding but solutions how to go below zero were already presented. In today's world, it is possible to expect negative interest rates not only between central and commercial banks but also between commercial banks and firms or individuals. The goal is to motivate people to take and banks to grant more loans, especially mortgages.

But an effect of this new and alternative policy on inflation is limited. First, because it requires decrease in interest rates of commercial banks whose space to do that is limited by an alternative in holding cash. Proposals which make holding cash harder or more expensive were already presented. A possibility of a complete abolition of cash was also discussed in previous years.

Second step to overcome in the transmission mechanism can be insufficient demand for mortgages from the people. It is hard to push people to take more and higher mortgages if they do not demand more housing or more expensive housing. Thus, the demand is artificially increased through speculative demand of people who invest in increasing prices of housing in times of low interest rates. With negative interest rates, even stable prices of housing turn mortgages into profitable investment. There is a gap in empirical evidence for this claim but we have presented a limited evidence that this may be the case in EU.

We have to add to that a possibility of a housing bubble already exists. Based on the knowledge of the transmission mechanism we can argue that housing prices in 2008 would fall much lower than they did with the help of central banks. This shadow price of housing without added speculative demand can be lower and there can be significant gap between today's prices and the shadow price. Thus, a housing bubble can be present even when the prices are stable.

Policy makers, investors and lenders should be aware of this possibility and especially on the housing market where next to financial consequences defaulted mortgages create also well-known social problems.

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