THE VIEW

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GETTING HIGH ON LOW INTEREST RATES: HOW FALLING INTEREST RATES HAVE DRIVEN SAVINGS HIGHER

EH EULER HERMES

Allianz (Ⅲ)

EXECUTIVE SUMMARY

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- Low or even negative interest rates can either cause households to reduce their savings (substitution effect) because of lower rewards, or to increase their savings (income effect) to maintain their financial income. Our analysis shows that for every drop by 1 percentage point in interest rates, savings rates increased by 0.2 percentage points in Europe. Using a balanced panel data sample, we assessed the savings behavior of households in 16 countries in the European Union from 2000 to 2018.

- Other factors than monetary policy have a much bigger impact on savings behavior, namely demographics (old-age dependency ratio), with an effect of 0.4pp; public social expenditures (-0.7pp) and in particular health expenditures (-1.5pp). With a rapidly aging population across Europe, prolonged life expectancy fosters continued savings, even in retirement. Secondly, a weak welfare state encourages precautionary savings. Finally, high health expenditures further encouraged to save.

- Low or even negative interest rates by themselves will not magically lead to productive savings i.e. less no-yielding deposits and more high-yielding risky assets such as equities, or real estate. An overhaul of the institutional set-up, first and foremost regarding the pension and tax systems, is indispensable for monetary policy to be more effective.

0.2PP

INCREASE IN SAVINGS RATES CAUSED BY EVERY DROP BY 1 PP IN INTEREST RATES.

INTRODUCTION

Since the outbreak of the great recession, interest rates in the developed world have fallen to historical lows. In the summer of 2014, the European Central Bank lowered its interest rates on excess bank reserves into negative territory (-0.1%). This unconventional measure to boost the economy was supposed – amongst other things – to deter households from withholding consumption today in favor of consumption tomorrow, i.e. saving. Low interest rates decrease the rewards of saving. Therefore, the obvious effect for a rational agent would be to save less because why bother if instead of being rewarded households are penalized with negative rates? Has this been the case, though? Has the European Central Bank succeeded in modifying the behavior of households? What other factors are at play? We will discuss the effects of the unconventional monetary policy on households' savings across different countries in Europe.

Box: Life cycle theory of consumption[1]

The life cycle theory of consumption is the intertemporal allocation of time, effort and money. Agents make sequential decisions to achieve a certain (stable) financial goal using the currently available information as best as they can. When it comes to money matters, agents try to smooth consumption over their lifetime, which does not mean keeping consumption constant over time, but rather maintaining a constant level of marginal utility of money.

Figure 1: Income and consumption over life cycle
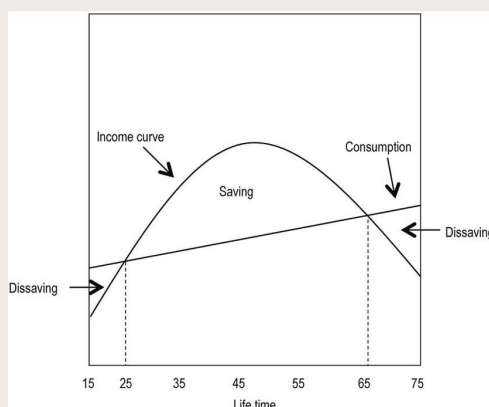
Source: OECD

In simple terms it states that in life's early stages one goes into debt because income is insufficient or non-existent to cover one's expenses. As one grows older and income increases, the wealth accumulation phenomenon is present. Lastly, at retirement age, the dissaving phase begins.

The intertemporal decision models assume that people evaluate pleasures and pains much like financial markets evaluate losses and gains: by discounting the value of outcomes. Given their limited resources (income), households have a simple choice whether or not to forgo consumption today for future consumption. This decision is, among other factors, influenced by the level of interest rates – although the direction is not clear ex ante.

[1] Modigliani and Brumberg, 1954

THE WORLD AS WE KNOW IT

The dynamics of interest rates and savings are more complicated than a discount rate. Negative interest rates may, in some cases and contrary to the intentions of monetary loosening, increase households' savings as they put downward pressure on the return of financial instruments. This is especially true for aging populations that target savings as a retirement provision. In this case, households try to compensate for the depressed return of their savings by increasing the volume set aside for future consumption. This effect of increasing precautionary savings is exacerbated if there is a perception of a gloomy and/or volatile economic outlook. If interest rates show a negative relationship with savings, it is said that the income effect prevails as households compensate for the lack of savings returns. Otherwise, if there exists a positive relationship – lower interest rates lead to lower savings, as envisaged by monetary loosening – one can conclude that the substitution effect dominates the saving decision: Low returns discourage savings, which are substituted by consumption instead.

Interest rates across rich nations have been on a downward trend since the 1980s. This shift is a reflection of other changes within the economies, such as demographic changes, globalization, lower inflation and higher levels of savings, as well as on trend falling productivity and economic growth. Interest rates are part of the monetary policy tool kit to stimulate the economy. At a low – or negative – level of interest rates, central banks find themselves with an additional constraint on their policy decisions. In this regard, the main concern for households is that in the event of a recession, or an undesirably low level of inflation – i.e. Japan – the central bank will lose one of its most important instruments to defend price and overall economic stability.

In the case of households, banks are the transmission channel of monetary policy, although some other factors affect this, such as the composition of the balance sheet of each individual household. For the purpose of our study, we will assume that the short-term (deposit) interest rate is the actual transmission channel of monetary policy. Banks are, however, rather un-

willing to transmit negative rates to households as they could easily withdraw their money from deposit accounts and hold it in cash instead. In countries like Germany, with a traditionally risk-averse average net saver, the debate has been growing on whether negative interest rates should be implemented for retail customers or whether the government should step in, preventing banks from charging negative rates in the first place, or at least compensating savers. Or should savers learn to invest in riskier assets? However, the longer the negative interest rates last, the more banks (and governments) are accepting the current state of affairs and implementing negative deposit rates (See below for the ECB's deposit rate composite for the European Monetary Union). How does this affect households' decisions on savings? In this paper we will focus on the effect of interest rates in the household savings rate of 16 countries in the European Union from 2000 to 2018.

Figure 2: ECB key interest rate
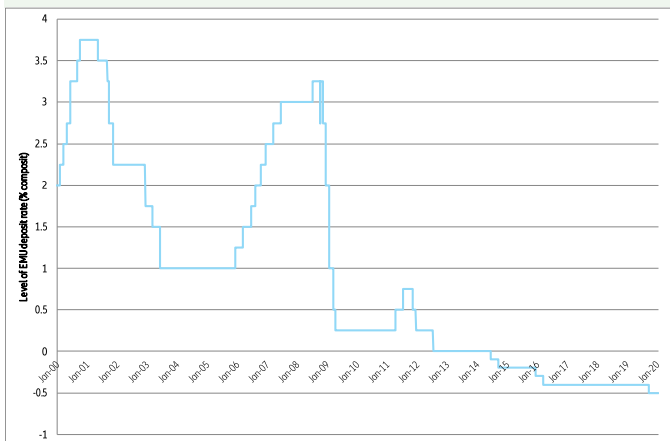
Source: European Central Bank

Figure 2: Selected EU countries' savings rates

Source: Eurostat

We assessed the savings behavior of households in Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the UK. In the years leading up to the crisis, countries such as Austria, Belgium, France, Germany, Italy and Switzerland had a stable development of their savings rates (total household savings as a percentage of disposable income). We used a balanced panel data sample (variables observed across entities throughout time) in order to analyze these variables.

After the crisis – when the interest rate cuts started as measure to boost the economy out of the slump – within this small sub-sample, only Germany (2018, 19%) and Switzerland (2016, 23%) have seen their savings rates increase. One of the countries whose savings rate has suffered the most is Italy. At its pre-crisis height, Italian households were saving 15% of their disposable incomes; in 2018, savings only represented 10% of their disposable incomes. A similar development can be seen in Belgium, whereas it is hard to detect a significant change post crisis in France.

The rest of the countries exhibited rather volatile savings rates even before the crisis. But even among them, the Netherlands and Sweden showed a significant rise in household savings as a percentage of their disposable incomes. Developments in Portugal and Spain, on the other hand, followed more the Italian pattern. While low interest rates dominate across Western Europe, the savings behavior is far from uniform: This is a clear sign that savings behavior is not solely dependent on interest rates, but rather on a wide array of factors.

Figure 4: Selected EU countries' savings rate


Source: Eurostat

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DETERMINANTS OF
SAVINGS BEHAVIOR

The underlying determinants of savings behavior, and the effect we found, were not divergent from modern economic theory. With our estimations over the full sample, we found that short-term interest rates (our assumption of the transmission channel of monetary policy) had a negative effect on savings rate of 0.2%, i.e. a fall in interest rates by 1pp increased the savings rate by 0.2pp. We assume that the agents in the European countries we analyzed tried to compensate for the low returns on their savings by saving higher volumes. The small size of the effect was to be expected, given that these economic variables have longer maturities and that economic variables such as savings have persistence – savings tend to present serial correlation. In other words, the same way agents plan to smooth out their consumption, they will try to smooth out their savings. However, it was not assumed that the low-interest rate environment would be perennially present. Over the long-run, if we continue on the same path, this effect is likely to change in magnitude.

Moreover, demographics are an important factor for savings behavior. In our sample we identified a positive relationship between old-age dependency ratios and the savings rate. While the population in retirement is supposed to be in a dissaving stage, there is evidence that supports the idea that in rich countries – much like the ones in our sample – even in retirement, prolonged life expectancy fosters continued savings. The effect of the old-age dependency ratio on the savings rate we identified was of 0.4% in our small European sample. With a rapidly aging population across Europe, this effect is likely to deepen and prevail. Twenty years ago, the old-age dependency ratio in the European Union was 23.5%. In 2018, this figure increased to 30.5%. The projections about the populations' age structure in Europe in the next 30 years do not show a positive development in that area. By 2050, the old-age dependency ratio will reach 55% and the proportion of the very old (population aged more than 85) will more than double (+130.3%, from 13.8 million in 2018 to 31.8 million in 2050)[2].

Figure 5: Old-age dependency ratio (65 and up)
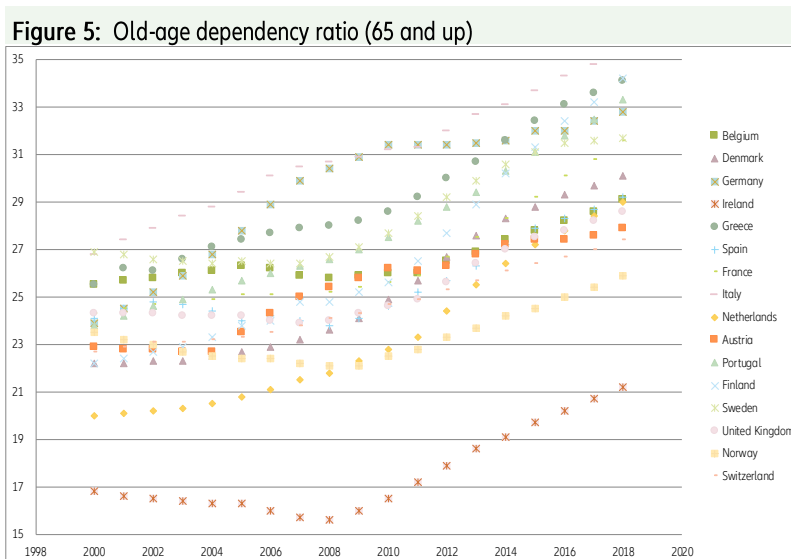
Source: United Nations Population Division and Allianz Research

[2] UN Population Division, 2019.

Furthermore, the presence of a welfare state is also important for the development of the savings rate. There is a negative relationship between public social expenditures and savings rates (-0.7%): If the state cannot guarantee a certain level of welfare, agents are encouraged to create precautionary savings; likewise, if social welfare is sufficient, agents are less inclined to do so.

Current health expenditures, much like the welfare state, have a strong impact on savings behavior – we estimate a 1.5% effect. This is the strongest relationship with the savings rate in our analysis. The impact is similar to that of social expenditures. To measure it we used health expenditures normalized to GDP. Unemployment was also associated with a significant impact on the sample's savings rates (0.2%). When there is labor market volatility, savers are more inclined to raise their levels of savings.

In addition, we controlled for the financial development and financial openness of each country using the Chinn-Ito index. We also found differences within countries and period effects across the savings rates time series. Country effects for Portugal, Spain, the UK, Denmark, Finland and Norway are in negative territory. The natural level of savings in the rest of the countries is markedly higher (see graph below). According to our estimations, the period effect on savings has been declining since 2011. It would be somewhat of a stretch to assume that the negative interest rate policy has been mainly responsible for this as it only started in 2014. However, the effect has been more pronounced as of late (2018, -2.7%). While savings have been on the rise across Europe despite the negative policy rate (deposit rate), there are other aforementioned factors that influence savings behavior on a deeper level.

Figure 6: Country fixed effects
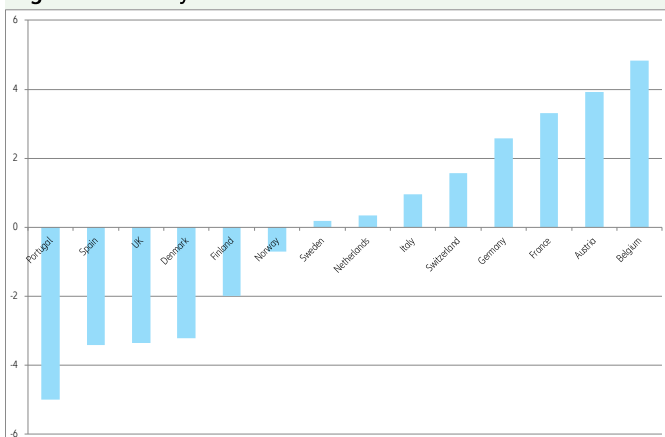
Figure 7: Period fixed effects
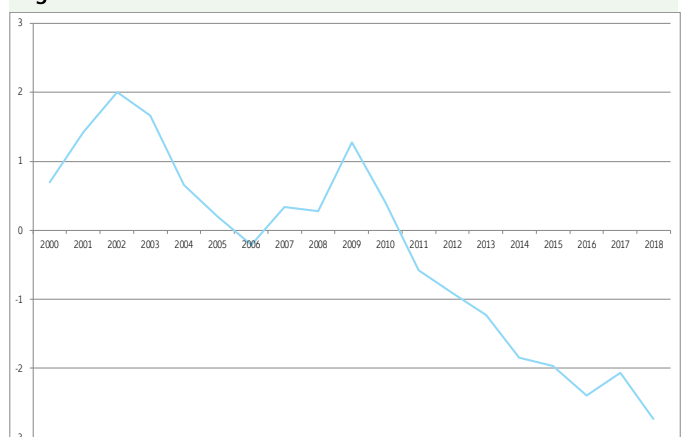
EUROPEAN HOUSEHOLDS NAVIGATING THE LOW-INTEREST RATE TIDES

It is important to look at the structure of households' balance sheets to gain a deeper understanding of the savings behavior across Europe. Traditionally, deposits are interest-earning assets. However, some retail banks in Europe have started to transmit negative rates to new clients. Countries whose savings portfolio is deposit-heavy, such as Greece (65% of financial assets), Portugal (45%), Austria (42%), Spain(41%) and Germany (41%), are specially affected by these policies. The balancing force of the low-interest earnings could be debt, though the growth levels of debt have been subdued since the global financial crisis and the effect of low interest rates is more pronounced on the asset side of the balance sheet[3].

Conclusion

Household savings are an important element for economic stability and while the cost of consumption is lower in low-interest rate times, we have not observed an increased consumption phenomenon across Europe. Demography has a stronger role to play here: precautionary and retirement provisions seem to take the lead in shaping savings behavior in Europe. This leads to a sobering conclusion: The growing debate over whether banks should transmit negative interest rates to retail customers or whether the government should step in is missing the point. Interest rates have only a limited impact on savings behavior and will not by themselves lead to a change in savings behavior that is better suited to an environment with low or even negative interest rates. What is necessary instead is an overhaul of the institutional set-up and the right incentives to nudge households into higher yielding assets. It's the pension and tax systems, sir (not monetary policy).

[3] Allianz Global Wealth Report 2019

Appendix

For this analysis we used generalized method of moments because economic variables such as household savings tend to have persistence and are serially correlated. One lag was used for the model with the following specification:

$$Y_{it} = \beta_0 Y_{it-1} + \beta_1 r_{it} + X'\Gamma_{it} + Z'\Phi_{it} + \upsilon_i + \mu_t + \varepsilon_{it}$$

Y_{it} is the household savings as % of disposable income, r_{it} is the deposit rate, X is a vector of endogenous variables, Z a vector of exogenous variables, υ_i is country-specific effects, μ_t is time-specific effects, and ε_{it} is the error terms.

Table 1—Determinants of Household Savings		
	Savings rate	Risky asset allocation
Deposit interest rate	-0.19***	-0.49
	-0.12	-0.32
Social protection	-0.66***	-0.45**
	-0.12	-0.19
ODR	0.35**	0.25
	-0.11	-0.18
Health expenditures	1.47***	1.36***
	-0.32	-0.49
Unemployment rate	0.16**	0.17
	-0.7	-0.11
C	2.37	38.57**
	-5.6	-9.81

Source: Author calculations.
*** Significant at the 1 percent level.
** Significant at the 5 percent level.
* Significant at the 10 percent level.

Table 2 — country effects	
Austria	3.924619
Belgium	4.838941
Denmark	-3.22342
Finland	-1.99453
France	3.302957
Germany	2.578274
Italy	0.962905
Netherlands	0.334352
Norway	-0.6991
Portugal	-4.99846
Spain	-3.42142
Sweden	0.188631
Switzerland	1.560736
UK	-3.35449

Table 3 — year effects	
2000	0.693647
2001	1.422759
2002	2.004157
2003	1.662009
2004	0.660401
2005	0.195434
2006	-0.20819
2007	0.336038
2008	0.27836
2009	1.272567
2010	0.418192
2011	-0.58291
2012	-0.9109
2013	-1.22334
2014	-1.84284
2015	-1.96222
2016	-2.3912
2017	-2.06795
2018	-2.73054

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