

# THE NEGATIVE INTEREST RATE POLICY: THE EVENTUALITIES AND IMPLICATIONS<sup>16</sup>

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**ABSTRACT :** In the awakening of 2008's financial meltdown, the fiscal authorities have ambitiously plunged into new quests to figure out the distresses originated by traditionally the lowest interest rate of zero. Right after some plaintive sobering times, they have started implementing sophisticated quantitative easing policies such as adopting negative policy rate, and charging negative interest rates on the banks' deposits hold in central bank accounts in order to prevent numerous undesired outcomes like a catastrophic liquidity crisis in Europe, a deterioration in alarming recession already become permanent in Japan, and menacingly overvaluation of some developed countries' currencies. The point of our study is to scrutinize the underlying impacts of negative interest rate on the global sphere of banking and finance. Within the context of our study, the concept of negative interest rates is theoretically approached, and a wide range of diverse views dominant in academic literature is included. Across the research, conspicuous examples of countries embracing negative interest rate policies are attentively probed through elaborately analyzing the functioning of monetary transmission mechanisms, and the economic reflections of interest rate practices indigenized by central banks around the world. In the final chapter, the prospective consequences of negative interest rate policies are thoroughly quantized. The study is of vital importance for multifarious economic entities to intimately comprehend the negative interest rate policy.

**Key Words:** Negative Interest Rate, Monetary Policy, Central Bank, Tools of Monetary Policy, Gesell Tax

## NEGATİF FAİZ POLİTİKASI: OLASI SONUÇLAR VE ÇIKARIMLAR

**ÖZET :** Para otoriteleri geleneksel olarak faizlerin düşebileceği en alt sınır olan sıfır düzeyinin ortaya çıkardığı sorunları elimine edebilmek için yeni arayışlar içerisine girmişlerdir. Avrupa'da likidite krizini önlemek, Japonya'da kalıcı hale gelen durgunluğu yok etmek ve bazı gelişmiş ülkelerin para birimlerinde oluşan aşırı değerlenmelere engel olabilmek için politika faizlerinin negatife düşürülmesi, bankaların merkez bankasında tuttıkları rezervleri için negatif faiz uygulanması gibi genişletici para politikalarına başvurulmuştur. Çalışmamızın amacı; negatif faizlerin bankacılık ve finans kesimi üzerindeki etkilerini irdelemektir. Çalışmamızda negatif faizlere teorik olarak yaklaşılmış, akademik literatürdeki görüşlere yer verilmiştir. Merkez bankalarının aldıkları faiz kararlarının ekonomiye yansımaları ve aktarım mekanizmasının işleyişi ele alınarak günümüzde negatif faiz uygulayan ülkelerden örnekler verilmiştir. Çalışmanın son bölümünde ise negatif faiz politikasının ortaya çıkardığı olası sonuçlar değerlendirilmiştir. Çalışma negatif faiz politikasının ekonomik birimlerce anlaşılması açısından önem taşımaktadır.

**Anahtar Kelimeler:** negatif faiz oranı, sıfır alt tabanlı nominal faizler, likidite tuzağı, para politikası, Silvio Gesell, paranın vergisi,

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## INTRODUCTION

The central banks are in the position of a monetary authority that steers the economy through complicated fiscal policies. One of the most important tools of monetary policy they often refer is the policy interest rate. Since the main target of central banks is to maintain the price stability, they primarily take precautions devoted to inflation and deflation, and may ignore the financial stability on occasion. However, losing sight of financial stability may trigger severe crises that can deeply influence the macroeconomics in the medium- and long-term.

Recently, a period of interest rate cuts has been launched just to stimulate the economies all over the world. Actually, it is quite crucial for economic recovery whether the central banks set appropriate monetary policies for the periods of crisis and depression. Within the scope of quantitative easing policies, the interest rates approaching to zero will eventually demolish the effect of monetary policy. Therefore, the central banks are now in quest of new policies that may revitalize the economy. In this context, this study will sight to dig out the subject of negative interest rates policies implemented recently. In the first chapter of research, it will be discussed how the interest rates are formed, and the role they play on the monetary transmission mechanism. In the second chapter, theoretical views about negative interest rates will be included. In the third chapter, contemporary negative interest rate implementations will be analyzed, and finally the consequences of negative interest rate policies will be evaluated in the last chapter.

### 1. THE FORMATION OF INTEREST AND THE ROLE IT PLAYS ON THE TRANSMISSION MECHANISM

If an individual declines to spend all of his/her own income and prefers to save some proportion of it to spend in the future, then he/she will certainly demand a price in return for this suspense of disbursement. On the other hand, someone, who now desires to spend the income to be earned in the future, should definitely agree to pay a price for that action. The price of giving up to spend the money now and prefer to spend it in the future is called interest rate. In other respects, an extra price is also demanded for the erosion of money (*inflation*) in due course. Consequently, the nominal interest rates are set through the confrontation of people with fund surplus with the people with funding need.

The changes on policy rates that central banks decide will eventually find reflections on the decisions of consumption and investment in a certain delay (Özatay, 2012:64). The central banks fund the banking market with net liquidity shortage through various tools. The monetary policy sets the assets and liabilities of banks by controlling the growth in bank reserves (Minsky, 2008:271). The banks, which set their own position by considering the monetary position of central banks, grant loans to households and private companies. Therefore, the banks' costs of credits are under the influence of central banks' interest rates.

The volume of credit is a critical factor that is influential on the aggregate demand. During the times when the volume of credit is expanded, the aggregate expenditures are on the rise, and there emerges an amplifier impact on the prices of goods and services as well as on the asset prices. In the recession periods, it is targeted to stimulate the economy by keeping the level of

interest rates lower (Mankiw, 2010:364).

Traditionally the lowest level of zero wherein the nominal interest rate can fall down to may restrict the efficiency of monetary policy (Krugman & Wells, 2013:463). Any economic entity will hold the other kind of assets, as long as they get a higher yield than the base money acquiring the most liquid form of assets (Ilgmann & Menner, 2011:390). In such a circumstance, the banks will be reluctant to grant loans, and the consumers will hesitate to spend money as well as investors. Because, in case of deflation, the implementation of zero interest rate causes the people to get a positive interest rate through holding cash money. The extra rises in base money are hold either in an idle form in the bank vaults or in a cash form in the pockets of individuals or firms. This is called as liquidity trap. In his marvelous work called "*The General Theory*", Keynes asserts that a case of liquidity trap may emerge when the interest rates are kept extremely low.

The most important factor that is vital to maintain the functioning of monetary transmission mechanism is the real but not the nominal interest rates. With the monetary (or quantitative) easing, it is expected that the falling interest rates will trigger the investment expenditures, and consequently increase the national income. However, if there is a huge recession, then the reel interest rates may stay at higher levels despite the falling nominal interest rates. In such a case, somehow an expectation of higher inflation should be created by keeping on to increase money supply, in order to lower the reel interest rates and stimulate the economy (Mishkin, 2000:281). However, in his *General Theory*, Keynes argues that the impact of monetary policy may not be strong enough when an economy is experiencing a depression (Krugman & Wells, 2013:476). Despite the monetary policy practices, if the people do not have any expectation that general price level is on the rise, then this situation obstructs the stimulation of economy (Mishkin, 2000:292).

On the other hand, the variable nature of cash flow rate undermines the relationship between money supply and aggregate expenditures. However, cash flow rate is kept constant in the classical quantity theory of money that argues the rises in money supply cause general price level to increase. The more money demand influences from the interest rates, the more cash flow rate becomes variable (Mishkin, 2000:185). There are empirical studies showing that there has been never experienced a liquidity trap (the case of parallel money demand curve to the horizontal axis), which is actually the case wherein the money demand is infinitely elastic to interest rates. The researches conducted demonstrate that, despite the extremely lower levels of interest rates in 1930s, interest elasticity does not necessarily increase while the money demand is kept same as the other times. The money demand is elastic to the interest rates but not infinitely elastic (Mishkin, 2000:186).

## **2. A THEORETICAL APPROACH TO NEGATIVE INTEREST RATES**

Silvio GESELL, who started the discussions of negative interest rates in academic literature, firstly spoke of that subject in his work called *The Natural Economic Order* published in German in 1916. Gesell proposes that an increase in real capital will cause a nominal interest rate of zero (Keynes, 1961:356). According to Gesell, the nominal interest rate would only

help to restrain the growth of real capital stock. Since the real capital is a scarce resource, it merely provides positive returns. The return of real capital should be equal to the yield of monetary capital. The capital stock expands to the point where the marginal efficiency of real capital is equal to zero, and then starts shrinking. Because it is not possible to maintain the growth when the marginal efficiency of capital is below the predetermined monetary ratio (Ilgmann & Menner, 2011:387).

According to Gesell (1958:182), if the lenders are more in number than the debtors in an economy, then the debtors will demand an extra payment from the lenders in return for their contribution that lessens the amount of funds the lenders hold. The phenomenon is expressed as negative interest rate. The negative interest rates may be imagined as the taxation of money. Because Silvio GESELL is the first to come to that conclusion, it takes part in academic literature as *The Gesell Tax*. Gesell tax eliminates the nominal interest rates with zero lower bound. And, it creates a negative money tax model, which is in essence a Neoclassical Model (Ilgmann & Menner; 2011:383).

Gesell's idea of income tax is not widely approved. Keynes (1961:356) theoretically agreed with Gesell's idea, but argued that his theory was lacking in something and there were many mistakes in his theory. However, Fisher sees the negative interest rates as a way of giving money to the market. In the later years, Fisher and Keynes fulfilled the deficiencies in the Gesell's theory (Ilgmann & Menner, 2011:384).

Supporting some economists such as Marshall, Taussigh, and Schafer – arguing the concept of negative interest rate – Neumark (1948:466) renders that sometimes the savers rather put their money in bank accounts because it is easier and safer than to keep them in their pockets, and consequently agree to pay a certain amount of interest. Whereas, Marshall (1962:483) propounds that, in an economy in which the number of people who are willing to spend money is greater than that of people who are willing to borrow, the individuals who have no chance to use their hoarded wealth in a profitable way and worry about the senescent periods of their surviving families may accept a negative interest rate just to preserve their capital reliably.

Gesell's proposition about the negative interest rate gained currency again as a result of the permanent deflationist pressure and economic recession in Japan (Ilgmann & Menner, 2011:385). Paul Krugman makes a mention of deflation as 'a black hole, which he does not anticipate to be avoided before the economy enters'. When the interest rates go to zero, then it poses an obstacle for the success of monetary stabilization policies (Eggertsson & Woodford, 2003:143). Because of the institutional and contractual constraints, a zero policy rate may delay the functioning of transmission mechanism, which is supposed to be working in the market (Bech & Malkhozov, 2016:37). The negative interest rate is an alternative policy that is implemented to overcome the problems created by zero nominal interest rates (Abo-Zaid & Garin, 2016:226). Fischer (2016:5) – The Chairman of Board of Governors of Federal Reserve System – argues that the policy of negative interest rate may be one of the necessary steps to be taken in order to mitigate the constraints of zero interest rate practices. The methods suggested to resolve the problem of zero lower bound can be categorized under three

subtitles: These may be summarized as eliminating the money in circulation, paying negative interest rate for the money in circulation (levying tax on money), and isolating the value measurement function of money from the tool of exchange, i.e. an instrument of payment function of money (Buiter, 2010:213). When the money that is accepted as a value measurement (numeraire) is lowered to a negative level in accordance with the monetary policy, the exchange ratio between the money accepted as a value measurement and cash money can be adjusted by forward discounting the cash money (Buiter,2010:213).

There are two policy options to prevent the economic equilibrium from falling into the trap of zero lower bound. The first is to wait for a progress that will maintain to increase the demand of goods and services. The second is to lower the base of nominal interest rate below zero through charging tax on the money in circulation. If the nominal interest rate applied to the money in circulation is kept equal to or lower than the nominal interest rate of nonmonetary instruments, then the economy will not fall into a liquidity trap (Buiter & Panigirtzoglou, 2003:740). It is possible to achieve satisfaction of money demand through closing the gap between the short-term nominal interest rates of nonmonetary financial instruments and the nominal interest rates applied to the money in circulation (Buiter & Panigirtzoglou, 2003:727). This situation gives rise to the implementation of negative interest rate policy on cash money in circulation, just as the case in the Gesell's idea about the taxation of money.

The markets mostly full of risks and uncertainties force the already uneasy investors to act more cautiously. The negative interest rate is seen as a price of security paid to a financial institution in return for its service. It goes without saying that such a situation is unlikely to happen in an environment with positive expectations. Ilgmann and Menner (2011:402) claim that negative nominal interest rates encourage consumption and investment in demand-led recessions. In a deflationist environment, negative rate policies may be adopted in order to lower the real interest rates. Provided that there is no inflationist pressure, a moderate tax on money may improve the efficiency. During the great deflationist shocks, if nominal interest rate is lowered to the level of zero, then negative nominal interest rates may be a tool for central banks to stimulate the traditional monetary policy. The circuit velocity of money and demand deposits may be more stable. And, Gesell tax can make the money control more efficient.

A negative policy rate brings down the yields of short-term government bonds, and money market rates (Arteta et. al.; 2016:7). If the negative loan rates are higher than the interest rates of deposits that are already negative, then the money holders consent to grant loans with negative rates (Ilgmann & Menner; 2011:384). The traditional monetary policy does not work because nobody wants to lend at zero interest rate. However, if negative interest rates are valid and the money holders will lose money in any case, then the alternative with less loss should be preferred.

Abo-Zaid and Garin (2016:215) concludes that when the money demand in standard New Keynesian Model is enlarged with financial (credit) conflicts, then it generates a mechanism that improves optimal negative nominal interest rate. They also claim that the optimal nominal policy rate of markets with tight credit markets is lower, and more inclined to be

negative. According to the findings of Abo-Zaid and Garin (2016:226), in the banking market with monopolistic competition structure, the optimal nominal interest rate fluctuates between -2% and -4%. The magnitude of nominal policy rate is set by the power of banks in the credit and deposit market.

### 3. TODAY'S NEGATIVE INTEREST RATE PRACTICES

Following the global financial meltdown, the negative interest rate policies were first adopted by Riksbank in Sweden, and by Nationalbank in Denmark. These two banks kept the repo interest rates – the primary policy tool – at positive levels, but lowered the deposit rate to negative levels. The investors residing in Germany, Denmark, and Switzerland expressed that they agreed to pay a certain amount of price in return for the safety of their money (Anderson & Liu; 2013:13). Discussing the relationship between inflation and interest rates in Germany, Dor (2016:3-6) wrote that the interest rates were higher than the rates of inflation until 2012, but then the long-term interest rates fell below the rates of inflation or in other words negative real interest rates prevailed.

ECB started to implement negative nominal interest rate policy in the midst of 2014, while Swedish Riksbank at the beginning of 2015. Sweden aims to pursue an inflation targeting strategy. Both ECB and Riskbank provide funds to the market through asset purchases. Compared to ECB, Riskbank made more bond purchase as much as 30% of the outstanding nominal government bonds.

The developments in Euro zone give rise to increase fund inflow to Switzerland, and appreciate the Swiss franc. Setting a floor against Euro in 2011, SNB announced that it was going to charge negative interest rate (-0.25%) to deposit accounts in order to be able to pursue that floor policy at the end of 2014. SNB finally ended up lowering the interest rate in question to the level of -0.75% as a result of the continuing pressures on Franc in 2015, January. On the other hand, Denmark first decreased the monetary policy interest rate to the level of -0.75% because of the fluctuations experienced in Kron in 2015 and then increased it to the level of -0.65% as a result of the success of policy implemented in 2016 (Bech & Malkhozov, 2016:32).

Following the negative interest rates period, the financial markets went into the effort of harmonization of their markets. Within the scope of necessary harmonization efforts for negative interest rates, the central banks have made some alterations on IT systems, documentation practices, and accounting rules. They have sent alarming signals to the markets implying that the interest rates might be negative in the future. SNB has set an individual exemption limit for drawing accounts, and announced that it will charge negative interest rates on the reserve holdings exceeding a certain amount (Bech & Malkhozov, 2016:33).

In Japan, coupled with Shinzo ABE's government in 2012, an economic approach called *Abeconomics* was emerged by the implementation of a range of fiscal policies including numerous public interventions in order to stimulate the stagnant Japan economy. This approach actually had a Keynesian character that was particularly comprised of expansionary

fiscal policies. The approach aims to reconsider and rehabilitate the financial system, and make a structural alteration in the economy. In Japan, the borrowing and deposit rates are already close to zero, while normal margins in new loans are eliminated. This case forces the banks reluctant to grant new loans. The banks are now insufficient to restructure their own capital. However, in the US, contrary to Japan, many banks have restructured their own capital composition through keeping the spread between bank deposit and credit rates high (Goyal & McKinnon, 2003:361).

The new negative interest rate policy has augmented the bond prices by 150% in Japan, and Yen has considerably depreciated as a result of Japan Central Bank's high volume recoin operations, but still failed to maintain an economic growth. These policies have suddenly decreased the circuit velocity of money in Japan. Therefore, a vicious circle of deflation and quantitative easing has emerged. As the nominal interest rates of assets in Yen are kept under pressure, the commercial banks will be reluctant to meet the credit demand of even the premium customers. For the Japan banking system to recover, it is mandatory to escape from the liquidity trap caused by low interest rates, and stabilize the Yen/US\$ ratio. The fluctuations seen in the Japan financial institutions' assets in US\$ and in the exchange rate of Yen/US\$ give rise a negative risk premium (Goyal & McKinnon, 2003:361).

Recently, the efforts for achieving the target of price stability between 0% and 3% are managed to be continued by the help of many factors such as the stimulation program conducted by Japan central government because of the lower levels of consumer prices, the on-going negative interest rate policy, the announcement of Bank of Japan declaring that *'as soon as possible -10% of remuneration rate will be charged for each augmentation seen in reserves in order to reach the price stability target'* (Bech & Malkhozov, 2016:41), and the policy of pulling down the interest rates of loans in the real estate market. The first reaction of the markets against the negative interest rates was a billowing increase in the prices of Japan stocks and depreciation in Yen (Kinoshita, 2016:4).

In US, the Federal Deposit Insurance Corporation (FDIC) assures the deposits hold in banks. However, the return of depositors that insure their own drawing accounts falls to negative values because of the price they pay in return for insurance. In addition to this, the 20-year term inflation protected bonds issued by American treasury has a zero yield, while five-, seven-, and ten-year term ones have negative yields (Anderson & Liu, 2013:13).

Alongside SNB, also ECB and DN grant at least some of their reserves exemption from the negative interest rates policy. In Eurozone and Switzerland, the excess liquidity is hold in central banks as overnight repo, while overnight or weekly choices are offered in Denmark and Sweden (Bech & Malkhozov, 2016:35).

The banks with reserve deficit or reserve excess may equalize their deficits and excesses between each other (Bech, Malkhozov, 2016:38). The banks holding reserves below the exemption limit would like to buy borrowed reserve up to the level of exemption threshold. On the contrary, the banks with higher reserves would like to grant reserve. In an economy where the relationships between banks are strong, even though the central bank increases the

interest rates the banks may create borrowing opportunities between each other or realize fund-raising activities through securitization operations as long as there is a developed derivatives market. Meanwhile, these all weaken the power of policy implemented by central banks.

The banks have practiced an enforcement to the depositors similar to the exemption threshold applied to themselves by the central banks, and reflected the negative rates to the big depositors. However, the possibility of small depositors to withdraw their cash in the face of negative interest rates has made the banks unwilling to reflect the negative rates to small depositors (Bech & Malkhozov, 2016: 39). So far, the reason of no abnormal boom seen in the money demand to be triggered by the negative policy rate may be the protection of small depositors from the negative rates. In Eurozone, Denmark, and Switzerland, the money demand is on the uptrend because of the extremely low levels of interest rates even before the negative rate policy (Bech, Malkhozov, 2016:41).

In the Scandinavian countries, the need for physical money has been gradually decreasing as a result of the development of new payment systems for years. Nevertheless, Fischer states that the idea of moneyless transactions seems distant in US. In order to eliminate ZLB connected with physical money, some elementary steps should be taken such as boosting the electronic payments, cooperating with the countries already using electronic payment in their business connections, and stopping the central banks to print physical money (Fischer, 2016:8).

The technological infrastructure of financial transactions is in a state of flux because of the latest innovations like P2P finance (peer to peer lending), crowd funding, and crypto currencies. The financial innovations such as facilitating the independent individuals to borrow or lend between each other, to fund start-ups, and to make these transactions by means of virtual-digital currencies online may constrain the central banks from controlling the liquidity in economy through monetary policies. When the borrowings are made outside the traditional banking system, then the role played by commercial banks in the money multiplier loses its significance. During the last decade, there has been a considerable fall in money demand in Sweden. The share of cash hold by government in GDP has dropped from the level of 3.5% to 2%. The falling Cash/GDP ratios are also widely seen in OECD countries (Boel, 2016:147).

#### **4. THE CONSEQUENCES OF NEGATIVE NOMINAL RATE POLICY**

The portfolio investments escaping to the countries with higher real interest rates would not like to enter the countries with negative interest rates. The financing entities, which would not want to make loss, will withdraw their capital from the financial corporations and retain them. Among the costs of keeping money in the purse are the physically attrition of money, the theft risk, and the transferring difficulties. Also, keeping the money outside the financial system wherein the necessary audits and controls are conducted causes to increase the number of unrecorded transactions. Retaining money on hand will create significant problems for the big capital owners such as storage conditions. Printing paper money with very high value is also not preferred because of the anti-corruption laws. However, the paper money with low values



will create a demand for a gigantic storage area. At the same time, the withdrawal of money out of the financial system will limit the production of bank money. With the money multiplier mechanism, the money supply derived from deposits will shrink. And, this will cause problems in the investment finance funds, and to plunge the investments.

ECB believes in the century-long recession thesis that claims the real return of investments will structurally follow a downtrend. The thesis argues that the investment expenditures will be promoted by very low or even negative real interest rates. However, it is unclear whether the falling borrowing interest rate will encourage the investment expenditures. The investment environment is affected by many factors such as investment costs, financing conditions, price expectations, profit possibilities, and uncertainties (Minsky, 2008:299). It may be observed no rise in inflation even though the rising monetary base. The individuals might not like to borrow despite the very low level of interest rates. The success of a negative interest rate policy depends on whether there will be an uptrend from savings to investments (Kinoshita, 2016:5).

When ECB started to charge negative interest rates on the banks' excess reserves in Euro system and to make big asset purchases, there was observed a sharp slump in the long-term interest rates. This development gave rise the income of savers and retirees to go down. To defend itself, ECB then argued that lower interest rate was the result of insufficient growth and inflation not the central banks' policy (Dor; 2016:1).

The policies targeting to stimulate the economy through increasing the volume of credits might cause the problems of asymmetrical inflation. If the negative rates reflect badly on credit rates or at least the interest rates of credit crash to zero, then it will provide a basis for the issues of moral hazard and adverse selection.

The continental Europe has already experienced that the negative interest rate is not an effective lower bound. The anxiety about the negative interest rates in US stems from the likelihood of the deteriorating of money markets' equilibrium. It is argued that the negative interest rates will lead to such scenarios: either the money funds will knock out dollar or there will be a tension in money markets. In the US financial system, the transactions of securities are promoted by a complicated and interconnected infrastructure. It is worried whether the negative interest rates will be easily adapted to this system. Fischer pleads that some of the automatic systems may not be exactly adapted to the instruments with negative interest rates (Fischer, 2016:7).

Should the negative policy rates reflect to the borrowing interest rates, the lucrateness of banks will be negatively affected (Bech & Malkhozov, 2016:40). In addition to this, the profitability and substantiality of financial corporations such as insurance companies and pension funds that all have long-term liabilities might be weakened (Bech & Malkhozov, 2016:43). The success of this policy mainly depends on whether the financial corporations and individuals will be surviving with the lower spreads under the negative interest rates until the economy recovers and the prices tend to rise (Kinoshita, 2016:5). If the negative interest rates become permanent or an expectation is created about the future of them, then it might be

possible to reduce the costs related with the use of money through various innovations (Bech & Malkhozov, 2016:41).

## CONCLUSION

The interest is one of the most important tools for the central banks to pave the way for economy to be stabilized. During the periods of crisis, the central banks take precautionary actions and tend to implement quantitative easing policies in order to meet the rising money demand. And, that situation causes the interest rates to diminish. The level of zero is traditionally accepted as the lowest bound that interest rates can descend. The interest rates touched down to zero in the developed economies following the financial meltdown give rise to lose the efficiency of central banks' policy rate tool. The monetary transmission mechanism is unlikely to work when the interest rate is zero. One of the methods used to eliminate the problems created by the zero interest rate policy is to drive down the interest rate under zero.

While the history of debate on negative interest rates goes back to the beginning of 20<sup>th</sup> Century, it gains currency once again because of the debt crisis in Europe and the permanent deflation in Japan. First of all, the policy interest rates are lowered to prevent the liquidity crisis in Europe, and then the big asset (government bond) purchases and the negative interest rate practices on the banks' excess reserves in Euro system are implemented. The prominent countries adopting negative interest rate policies are Sweden, Denmark, Switzerland, and Japan.

The volumetric effect of policy rates embraced by central banks on the banks and households is still not exactly clear. Because the investment decisions are not merely determined by the interest rates, and are quite sensitive to the expectations. Consequently, the expenditures may not follow an uptrend even though the interest rates take negative values. Also the functioning of transmission mechanism may vary across economies. It is surely beyond doubt whether the negative interest rates will stimulate the economy is a matter of question to be answered in future.

The negative interest rates may spark off some undesired consequences. For instance, the negative rates economically sabotage the income of savers, and tumble the lucrativeness of financial institutions. Particularly the insurance companies and pension funds that all have long-term liabilities will confront with huge difficulties if the negative interest rates become chronic. On the other hand, in case of negative credit interest rate, the rising loan demand will improve the possibility of confronting with an environment full of moral hazard and adverse selection. However, the negative deposit rates will ultimately induce households and companies to withdraw their money out of the financial system, to constrain the formation of bank money, and to occur various security and storage problems.

The policies conducted by the central banks of developed countries lead the short-term capital to flow into the developing economies. In such a circumstance, the currencies of developing countries get over appreciated, and the volumes of domestic credits take off. It is also observed that the problems of current deficit are further intensified. When the import is

financed by hot money flow, the vulnerability of an economy may go out on a limb. The short-term foreign capital may suddenly take leave of a country in case of any adverse event stemming from global risks. Nevertheless, the artifice in attraction of direct foreign investments and long-term resources is far and away the best way of building healthier financial infrastructure. The capital-rich developed countries occasionally experience a resource problem for financing their investments because of their high level of savings. It is unlikely for them to get into trouble for keeping the interest rates at negative values because they actually need no short-term capital. However, in a global market where the economic policies of developed countries' central banks called the shots, the migration of global capital from the countries charging negative interest rates towards the developing economies with possibly high returns will be continuing to affect adversely the vulnerability of those desperate developing countries, and pose a fateful threat to their foreign exchange rates for quite sometime.

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