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**Currencies, money and digital tokens**

30th anniversary of the WWZ and VBÖ, University of Basel

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Ladies and gentlemen

It is a great pleasure, and an honour, to be invited to speak to you today, on the occasion of the 30th anniversary of the University of Basel's Faculty of Business and Economics (WWZ) and the Vereinigung Basler Ökonomen (VBÖ). I congratulate you wholeheartedly on reaching this milestone. There is a long-standing and close association between the Swiss National Bank (SNB), on the one hand, and the WWZ and the University of Basel on the other. Many SNB economists were trained here and some of our staff regularly give lectures at the WWZ. I would like to thank the University of Basel and the organisers for inviting me to this special event. I am sure that the ties between our institutions will continue to be close for many years to come.

For central bankers, Basel is a special place. We regularly meet with our counterparts from all over the world at the headquarters of the Bank for International Settlements (BIS), not far from the WWZ, to discuss the challenges facing us. These challenges have always revolved around monetary policy and financial stability. The increasing digitalisation of the financial sector opens up another area for discussion. Against this backdrop, the BIS announced a few months ago that it was launching an Innovation Hub. The aim of the Hub is to study technological developments with the potential to improve the functioning of financial markets and support central banks in fulfilling their mandates. Furthermore, it will provide a network for central banks to exchange knowledge on innovations. One of the Hub's three regional centres will be in Switzerland, and will be operated jointly with the SNB.

The word 'innovation' brings me to the subject of my speech tonight.

## **Issuers and types of money**

Ladies and gentlemen, how do you pay your bill in your favourite restaurant? With cash, card or smartphone? We already have various payment options at our disposal, and these are typically based on cash or book money. In the not-too-distant future you may also be able to pay using a 'digital token'. Money in the form of a token? What's that, you may ask? Before we get into the detail, let's first remind ourselves of the similarities and differences between the various types of money.

Given that Basel lies at the intersection of three countries, your favourite restaurant might well be in France or Germany. So you may need to decide not just in what form you want to settle your bill, but in what currency. What exactly is the difference between currency and money? A currency defines a unit of account. In Switzerland and Liechtenstein the Swiss franc is the official or 'state' currency used to pay for goods and services. In the surrounding countries, the official currency of the euro area – the euro – is the unit of account.

Multiple types of money co-exist within a given currency. These can be broken down into categories as shown in this illustration. Two principal types of money are in use today: cash (banknotes and coins) and book money. While banknotes and coins are issued by states, bank

deposits, held on the accounts of commercial banks, are privately issued book money. The sight deposits of financial market participants, held at central banks, are another form of book money. This state book money functions as a liquidity reserve for commercial banks and as a means of payment for interbank transactions.

In addition to cash and book money, another type of money has recently emerged: digital ‘token money’. Tokens are digital assets, which can be transferred from one party to another. As with a payment using a banknote, such a transaction does not require the involvement of a central third party. I shall devote the rest of my remarks to exploring this kind of digital token money in greater depth.

Our understanding of digital token money has been heavily influenced by cryptocurrencies like Bitcoin. Cryptocurrencies are privately issued currencies denominated in their own units of account. In our illustration, we refer to money based on cryptocurrencies as ‘crypto tokens’.

Digital tokens can be issued in conjunction with a private cryptocurrency denominated in its own unit of account; but they can also use an official currency as their unit of account. On the one hand there are private issuers, who claim that the value of their tokens is stable against official currencies; in our illustration we assign this type of token money to the ‘stable coins’ category. However, state institutions such as central banks can also issue digital token money – the SNB, for example, could issue a Swiss franc token.

Ladies and gentlemen, as you see, digital token money can take a number of forms. It is important that we understand the characteristics and implications of these various tokens, as they could influence the SNB’s mandate. I will now set out our thoughts on this topic.

### **Privately issued digital token money**

Let me start by outlining our view of cryptocurrencies, before moving on to discuss stable coins and state-issued digital tokens. We believe that cryptocurrencies and cryptocurrency-based tokens are of only limited use as payment instruments, stores of value and units of account because they are subject to major fluctuations. Crypto tokens are more like speculative investment instruments than ‘good’ money in terms of their characteristics. Users typically describe money as ‘good’ if it has a stable value over time, is broadly accepted, and enables efficient payments. Given these parameters, it seems unlikely that crypto tokens will be widely used as money in Switzerland.

The picture may be different for stable coins, however. These are designed in such a way that they can potentially assume the characteristics of good money – for instance if they are pegged to stable, official currencies. In the simplest case, such an anchor would consist of a single currency. Let’s take an example: An issuer of stable coins in Swiss francs would typically pledge that his tokens are equal in value to Swiss franc cash. When it comes to classifying these kinds of stable coins, two important factors need to be taken into

consideration. The first concerns the strength of such a pledge. Does the issuer explicitly commit to instantly and unconditionally converting the stable coins into Swiss franc cash at nominal value? Or is the pledge merely a statement of the issuer's intention to keep the exchange value of his tokens stable against the Swiss franc? The second key point concerns the credibility of the pledge. In the case of a Swiss franc stable coin, the more extensively the issued tokens are backed by Swiss franc-denominated assets – and the more liquid and intrinsically valuable these assets are – the more credible the pledge will be. And indeed, some stable coin issuers seek to lend their 'stable value' pledge maximum credibility by ensuring that their tokens are fully backed by bank deposits or banknotes in the anchor currency.

The Facebook-affiliated Libra project has attracted a lot of attention in recent weeks. Libra can be classified as a stable coin, as its value is supposed to be kept stable against a basket of official currencies. Libra's creators have sought to underpin this claim by fully backing their stable coin with a reserve of assets (including government bonds) in the relevant currencies. However, there is no guarantee that Libra will be converted – proportionally and at any time – into the currencies in the basket. Libra is thus its own unit of account and a private currency.

Libra and the Swiss franc stable coin I mentioned earlier represent only a small part of the spectrum of possible stable coins. Irrespective of their precise structure, such stable coins share one core characteristic: they are pegged to stable currencies in order to minimise fluctuations in value. Stable coins therefore hold greater promise for widespread deployment as a payment instrument and store of value than today's crypto tokens. This is why it is important that we analyse and classify stable coins rigorously from a regulatory and monetary policy perspective.

First, on the regulatory front, it is essential that we are clear about the economic function of stable coins. Depending on how they are structured, stable coins may have the characteristics of a bank deposit or a privately issued banknote. This would be the case for the Swiss franc stable coin, were it to be used widely for cashless payments or as a store of value, as it would effectively become a substitute for Swiss franc bank deposits. The issuers of such Swiss franc stable coins would take on functions similar to those of a bank – all the more so if they were to use the funds collected to finance risky, long-term projects and engage in maturity transformation.

If the economic function of stable coins is comparable to that of bank deposits, their issuers should have to play by the same rules as banks. The principle of regulating by activity rather than by technology ('same business, same risks, same rules') must apply here. On the other hand, not all stable coins are directly comparable with bank deposits, particularly if a token is used more for investment purposes. Certain stable coins could therefore conceivably be issued without the issuer holding a banking licence. Today, the Swiss Financial Market Supervisory Authority already classifies tokens according to their function, and the regulatory treatment is

different for each category. However, the more a stable coin resembles a bank deposit or cash in terms of its economic function, the greater its utility as money will be.

Whether or not a banking licence is required, stable coin issuers must abide by certain regulations just like any other financial market participant. These range from investor and data protection to rules on combating money laundering and terrorism financing. As you see, ladies and gentlemen, stable coins present many regulatory challenges, which in turn require close cooperation between the various authorities. This is particularly true of cross-border projects like Libra.

In addition to the regulatory issues, there is the question of whether stable coins might influence the effectiveness of monetary policy. If Swiss franc stable coins were to proliferate in Switzerland, this would have no immediate impact on the effectiveness of our monetary policy. In such a scenario, the Swiss franc would remain the relevant currency. The stable coins pegged to Swiss francs would simply be another Swiss franc-denominated form of money alongside bank deposits and cash. As long as prices, wages and loans are set in Swiss francs, the SNB can influence incentives for savers and borrowers via its monetary policy and thus ensure price stability over the medium term. However, if stable coins pegged to foreign currencies were to establish themselves in Switzerland, the effectiveness of our monetary policy could be impaired.

How close stable coins will get to good money and what additional benefits they will offer versus traditional types of money remains to be seen. What matters is that the various bank and token money providers operate under identical competitive and regulatory conditions. The market will then decide which types of money households and companies prefer over the long term.

So far, I have focused on various types of digital token money emerging from the private sector – crypto tokens on the one hand and stable coins on the other. Inevitably, the debate about privately issued digital token money also raises the question of whether central banks should issue their own tokens. This brings me to the last section of my speech, which looks at state-issued digital token money.

### **State-issued digital token money**

Just like a private institution, a central bank, too, can issue digital token money in its own currency. Essentially, there are two potential areas of application: One, all households and companies could be given access to tokens. Or, two, tokens could be made available only to commercial banks and other financial market participants, just like sight deposits at the central bank today.

In Switzerland, the idea of granting all households and companies access to digital central bank money was mooted as an alternative to the Swiss sovereign money initiative. The SNB put out a statement at the time, and remains critical about the idea of broad access to digital

central bank money. I would like to briefly sum up the main arguments, and point out that the discussion about access to digital central bank money needs to be conducted independently of the technology adopted. In principle, households and companies could be granted access to digital central bank money via both a token-based and an account-based system.

Broad access to digital central bank money would call the existing two-tier banking system into question. Instead of being the banker to the banks, as it is today, the SNB would act like a commercial bank, taking on the role that is currently played by the private sector. Moreover, broad access to digital central bank money could pose a threat to financial stability. Switching over from bank deposits to digital central bank money is easier than changing to physical banknotes. In a crisis situation, this could increase the risk of a bank run. Thus, overall, the implementation of this proposal would have far-reaching consequences not just for banks, but also for the entire financial system.

These fundamental concerns would argue against opening up access to digital central bank money to all households and companies. Furthermore, cashless payments in Switzerland are already reliable, secure and efficient and the system is continuously being updated and refined. So from that standpoint, too, access to digital central bank money for all households and companies, whether in the form of Swiss franc tokens or sight deposits, would bring virtually no advantages.

Now let's turn to the second potential area of application for state-issued digital tokens: digital token money exclusively for financial market participants. Such tokens could be used in payment transactions between financial market participants in the same way as sight deposits are today, and could ultimately result in efficiency gains for financial market infrastructures. Taking Switzerland as an example, this would mean that the SNB would make Swiss franc tokens available to financial market participants.

The financial industry and a number of central banks are currently assessing whether, and to what extent, tokens can bring efficiency gains. For instance, experiments and tests are being conducted with digital tokens in the areas of securities trading, settlement and management. It is hoped that 'security tokens' could be transferred between counterparties in near real time, resulting in more efficient management of securities. In a 'Swiss franc tokens for financial market participants' scenario it would be possible to exchange security tokens for token money on a delivery-versus-payment basis.

In-depth analysis will be required to determine whether security tokens can indeed bring the desired efficiency gains. Besides the technical hurdles that would to be overcome, steps must also be taken to ensure that applicable legal and regulatory requirements can be met. Moreover, efficiency gains must never be allowed to compromise the security of technical systems.

It is too soon to answer the question of how best to configure money flows in trading with security tokens. In certain situations, security tokens could be traded and settled just as efficiently if the transfer of funds continued to flow directly via the sight deposits at the

central bank. So digital token money for financial market participants is not necessarily a prerequisite for achieving efficiency gains in the trading and settlement of security tokens.

## **Conclusion**

Ladies and gentlemen, this brings me to my concluding remarks.

There are a variety of interesting potential uses for digital tokens – including, for example, privately issued digital tokens in the form of stable coins, as well as state-issued digital token money for financial market participants.

Stable coins have the potential to achieve broader acceptance than crypto tokens. The associated opportunities and risks have to be seen in a wider context. The benchmark for assessing utility, efficiency, reliability and security is set by the existing systems and the regulations governing comparable activities. Only once there is competition on equal terms will it become clear whether stable coins can be a useful and efficient complement to today's cash and book money.

Moreover, if security tokens become established in the financial sector, this will raise the question of whether state-issued digital token money will also be needed for the new financial market infrastructures, as a means of payment for financial market participants. Here, too, it will have to be demonstrated that such tokens offer advantages over the existing system of sight deposits at central banks. The SNB is following developments closely, and is actively involved in the debate, not least through its future participation in the BIS Innovation Hub I mentioned earlier.

Thank you for your attention.

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SCHWEIZERISCHE NATIONALBANK  
BANQUE NATIONALE SUISSE  
BANCA NAZIONALE SVIZZERA  
BANCA NAZIUNALA SVIZRA  
SWISS NATIONAL BANK



# Types of money in Switzerland

Currency	Issuer	Type		
		Cash	Book money	Digital token money
state	state	Banknotes and coins	Sight deposits held at the SNB for financial market participants Sight deposits held at the SNB for all households and companies	Swiss franc tokens for financial market participants Swiss franc tokens for all households and companies
	private		Bank deposits	Stable coins (value stable against Swiss franc)
private	private			Stable coins (minimal fluctuations in value against official currencies, e.g. Libra) Crypto tokens (e.g. Bitcoin)

Existing types of money

Potential types of money