Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Council report on virtual currencies in response to the Schwaab (13.3687) and Weibel (13.4070) postulates

of June 25, 2014

Contents

Summary

The report is in the form of an overview that sets out some fundamental aspects associated with the use of virtual currencies. It focuses on economic significance, legal treatment and risks. Virtual currencies are not to be confused with e-money.

The report explains that the economic importance of virtual currencies as a means of payment is fairly insignificant at the moment and the Federal Council believes that this will not change in the foreseeable future. Accordingly, virtual currencies have no influence on the mandate of the Swiss National Bank either.

The report demonstrates that virtual currencies carry substantial risks of loss and abuse for users but that they are not in a legal vacuum: contracts with virtual currencies are enforceable in principle and penalties can be imposed for criminal offences associated with virtual currencies. Certain business models based on virtual currencies are subject to financial market laws and need to be subjected to financial market supervision. Professional trade in virtual currencies and the operation of trading platforms in Switzerland generally come under the scope of the Anti-Money Laundering Act. This includes compliance with the obligation to verify the identity of the contracting party and establish the identity of the beneficial owner.

However, the efficient investigation of criminal offences and consistent seizure of assets are impeded by the fact that virtual currencies are for the most part managed on a decentralised and cross-border basis and therefore contact people are lacking for the prosecution authorities. A great deal of responsibility when dealing with bitcoins thus lies primarily with users themselves.

At the international level, there is not yet a uniform approach shared by states for dealing with virtual currencies. International standards in relation to them do not exist either. Accordingly, the challenges posed by virtual currencies have not been addressed uniformly up to now.

Given that virtual currencies are a marginal phenomenon and are not in a legal vacuum, the Federal Council has concluded that there is no need for legislative measures to be taken at the moment. The Federal Council is continuing to monitor developments in the area of virtual currencies in order for any need for action to be identified at an early stage. It recommends that the relevant authorities, namely consumer protection organisations, should urge users to take care when using Bitcoins.

1 Introduction

1.1 Background

Ever since it was invented in 1989, there has been a continual increase in the use of the World Wide Web and the development of web-based applications. Virtual currencies, and particularly Bitcoin, are one of the most recent innovations in this area. Bitcoin experienced an unparalleled development against the backdrop of the financial crisis and the associated loss of consumer confidence in public and private-sector institutions from 2008 onwards and has since become established as a reference in the virtual currency arena. The promoters of Bitcoin and virtual currencies in general have high hopes for their future. They believe that Bitcoin is a ground-breaking innovation that can enable consumers to escape from the dependency of the financial system and revolutionise payment transactions. In contrast, however, Bitcoin also attracts criticism as an ideal tool for criminal activity and a questionable vehicle for speculation, and there are calls for lawmakers to intervene with regulatory measures. There are also people who believe that Bitcoin is a temporary phenomenon and therefore that it will eventually disappear again.

Irrespective of which view will eventually prove to be true, Bitcoin has been gaining ground in Switzerland too for around two years, as attested to by the growing number of traders and service providers who accept bitcoins as a means of payment. Bitcoin nevertheless remains a marginal phenomenon that is rather insignificant from an economic viewpoint. The surge in Bitcoin prices over the past year and headlines about system breakdowns and abuses (and the associated uncertainty in general) have nonetheless aroused the interest of the media, parliament and authorities in Bitcoin.

In autumn 2013, National Councillors Jean-Christophe Schwaab (postulate 13.3687) and Thomas Weibel (postulate 13.4070) submitted parliamentary procedural requests calling for a report from the Federal Council that examines the risks and opportunities associated with bitcoin for Switzerland's financial centre and investigates the legal situation regarding Bitcoin. Moreover, the report should address the corresponding regulatory developments abroad. The National Council accepted both postulates in accordance with the Federal Council's motion. This report was prepared in response to both of the postulates under the leadership of the Federal Department of Finance (FDF) in collaboration with the Federal Department of Justice and Police (FDJP), the Swiss National Bank (SNB) and the Swiss Financial Market Supervisory Authority (FINMA).

1.2 Content of the report

With the spread of the Internet, challenges associated with electronic means of payment and electronic transactions are also increasingly emerging. Meanwhile, bodies such as the Financial Action Task Force (FATF) at the international level and national authorities such as FINMA have been addressing the risks carried by such methods of payment, particularly in the area of *e-money*. As explained in the report, e-money is not synonymous with so-called virtual currencies and therefore is not covered in this report. The report deals solely with the virtual currency phenomenon, particularly using Bitcoin as an example.

The report should serve to comprehend the nature of so-called virtual currencies in the context of the traditional payment system and to clarify their relationship with applicable Swiss financial market law and other legal provisions.

Chapter 2 sets out the basics of payment instruments and payment transactions, as well as the associated legal foundations – consisting of the Federal Constitution, the National Bank Act and the Federal Act on Currency and Payment Instruments – and explains the meaning and purpose of the corresponding regulations. Virtual currencies are also included in this chapter, with Bitcoin being described in more detail and discussed in relation to the mandate of the SNB.

Chapter 3 sets out the principles of how virtual currencies are dealt with legally from a private and criminal law standpoint. Furthermore, it includes a financial market law classification of activities with virtual currencies in the existing legal framework, consisting of the Banking Act, Stock Exchange Act and Anti-Money Laundering Act. This chapter also explains the effects of subjecting certain providers of services with virtual currencies to the Anti-Money Laundering Act with respect to compliance with the due diligence requirements.

Chapter 4 addresses the concrete risks associated with virtual currencies, focusing on aspects of consumer protection and possible abuses for criminal purposes.

Chapter 5 gives an overview of the current status of measures and regulatory efforts in selected countries around the world as well as at multilateral level.

Chapter 6 closes the report with a set of conclusions.

2 Payment instruments and payment transactions

Virtual currencies such as Bitcoin are essentially perceived as means of payment by the general public. The payment instruments that exist in Switzerland will be presented in this section.

2.1 Legal tender and other payment instruments in Switzerland

2.1.1 Legal tender

Swiss monetary policy rests on two main pillars:

I.   The Confederation shall be responsible for money and currency. The Confederation has the exclusive right to issue coins and banknotes. Thus, it holds the right of coinage and the monopoly over issuing banknotes.

II.   Furthermore, monetary policy is pursued by an independent central bank, the SNB, in the overall interests of the country (see box 1). These principles are enshrined in the Federal Constitution (Cst) [1].

The constitutional guidelines are fleshed out in the Federal Act on Currency and Payment Instruments (CPIA) [2] as well as in the National Bank Act (NBA) [3]. Article 1 of the CPIA defines the franc, made up of 100 centimes, as the Swiss unit of currency. The CPIA also empowers the Confederation to run the Federal Mint (Swissmint) and to issue circulation, commemorative and bullion coins. [4] However, the SNB permanently exercises the Confederation's monopoly over issuing banknotes. [5] Article 2 of the CPIA then lists the payment instruments considered to be legal tender. These are the coins issued by the Confederation, the banknotes issued by the SNB and Swiss franc sight deposits with the Swiss National Bank. There is a restricted acceptance obligation for Swiss circulation coins and an unrestricted one for Swiss banknotes. [6] Swiss franc sight deposits with the Swiss National Bank must be accepted in payment only by persons who hold a giro account there. [7]

Money has three functions according to the general theory of money: it is a means of payment, a unit of account and a store of value. Pecuniary debts must be discharged in legal tender of the currency in which the debt was incurred. [8] The Swiss franc fulfils the function of money as a means of payment by operation of law.

---

[1] SR 101, Art. 99 paras. 1 and 2
[2] SR 941.10
[3] SR 951.11
[4] Art. 4 and 6 of the CPIA
[5] Art. 4 of the NBA
[6] Art. 3 paras. 1 and 2 of the CPIA
[7] Art. 3 para. 3 of the CPIA
[8] Art. 84 para. 1 of the Swiss Code of Obligations

Box 1: Monetary policy of the SNB

<u>Mandate of the SNB</u>

The Federal Constitution entrusts the SNB, as an independent central bank, with the conduct of monetary policy in the interests of the country as a whole.[9] This mandate is stated more precisely in the NBA.[10]

In accordance with the Federal Constitution and existing legislation, the SNB must be guided by the overall interests of the country. The SNB is required to ensure price stability and, in so doing, to take due account of economic developments. To secure price stability, the SNB must provide appropriate monetary conditions.

<u>Price stability and implementation of monetary policy</u>

Price stability is an important prerequisite for growth and prosperity. In contrast, inflation and deflation impair economic activity. They complicate the decisions of consumers and manufacturers, lead to misallocations of labour and capital, and result in income and asset redistributions, disadvantaging the economically weaker.

The SNB equates price stability with a rise in consumer prices of less than 2% per annum. Deflation – i.e. a protracted decline in the price level – also breaches the objective of price stability. A conditional, medium-term inflation forecast serves as the main indicator for monetary policy decisions.

For implementing its monetary policy, the SNB sets a target range for the three-month francs Libor rate, which is its reference interest rate. The target range normally has a bandwidth of one percentage point. The SNB generally holds the Libor in the middle of the defined range. As interest rates approached zero in the wake of the financial crisis, the Libor target range was gradually narrowed. A target range of 0.0-0.25% has applied since August 2011.

If short-term interest rates are close to zero, as has been the case in recent years, and given undesired monetary conditions, the instrument of further interest rate cuts is no longer available. In such a case, the SNB can take unconventional measures to counter a tightening of monetary conditions. An example of such is setting an exchange rate floor, as occurred on 6 September 2011 when a minimum exchange rate of CHF 1.20 per euro was introduced.

<u>Cash supply and cashless payment transactions</u>

Monetary policy ensures that the national economy and payment transactions are always supplied with sufficient liquid funds.

The SNB is entrusted with the note-issuing privilege. It supplies the economy with banknotes that meet high standards with respect to quality and security. It is also mandated by the Confederation with the task of coin distribution.

Regarding cashless payment transactions, the SNB is involved in the area of payments between participants of the Swiss Interbank Clearing (SIC) system. The payments are settled in SIC via sight deposit accounts held with the SNB. The SNB has been supporting the operation of cashless payment systems in Swiss francs for many years and participates in developing them. It promotes cashless payment transactions with its sight deposit account system and as manager of the SIC payment system. The SNB sets the conditions for system admission and exclusion, provides the necessary liquidity, manages participants' accounts and monitors daily operations.

Furthermore, the SNB follows developments and innovations in the area of payment instruments and payment systems both in Switzerland and abroad.

<u>Stability of the financial system</u>

The NBA assigns the SNB the task of contributing to the stability of the financial system. The SNB performs this task by analysing the sources of risk for the financial system, monitoring the systemically important financial market infrastructure and playing a part in shaping the framework conditions for Switzerland's financial centre. Special attention is given to the resilience of systemically important banks.

By establishing the franc as the currency unit of Switzerland, it fulfils its function as a unit of account. This makes it possible to express the value of all goods and services in units of the same reference value and thus make them comparable with each other. In this way, the

---

[9] Art. 99 of the Cst.
[10] Art. 5 para. 1 and 2 of the NBA

economic agents and institutions can efficiently gain a market overview and greatly reduce information costs.

In order for the franc to be able to fulfil the function of being a store of value, it is vital that its value remains stable and its purchasing power is preserved. The Swiss franc has been one of the most stable currencies in the world in terms of value for decades. Within the scope of the SNB's mandate (see box 1), price stability has successfully been preserved thus far.

2.1.2 Other payment instruments

In addition to legal tender, other payment instruments are widely used, of which the largest volume by far is accounted for by book money in the form of credit balances with commercial banks. Book money also reliably fulfils the functions of money; it is based on the same unit of account as legal tender and is regulated by minimum reserve requirements. The electronic transfer of book money, including by means of debit and credit cards, is widely used for payment transactions.

In addition to central bank money and book money, electronic money (or e-money) is another form of money. This is an electronic store of monetary value in the currency registered as legal tender which can be used for the payment of smaller amounts. E-money can be saved either on a chip card, for instance on a prepaid card, or on a PC using software-based systems.

Other payment instruments include the WIR currency and Reka checks, which are issued privately. Aside from payment instruments denominated in francs, it is also possible to make payments in Switzerland using official currencies from other countries. Normally, a prerequisite for accepting these currencies as a means of payment is their free convertibility into francs. At the same time, official currencies from abroad (foreign currencies) are always issued by a central issuer in their country of origin and are defined as legal tender for that country, just like the franc in Switzerland. In order for a payment instrument to be termed a foreign currency in Switzerland, it must be legal tender in another country.

A pecuniary debt can also be repaid using a means of payment other than legal tender, provided that the parties expressly or tacitly agree to this. Very few requirements are imposed on an agreement of this kind. It can be assumed that creditors consent to payment via book money, for instance, if they indicate their account number in the correspondence or on invoices. Book money, electronic money and foreign currencies are also money in the broader sense, even though they are not legal tender in Switzerland.

2.2 Virtual currencies

2.2.1 Definition

The Internet has provided interested parties with the opportunity to create virtual communities on the net, and some of these communities have also created their own electronic means of payment, thereby creating a new form of money. A virtual currency is a digital representation of a value which can be traded on the Internet and although it takes on the role of money – it can be used as a means of payment for real goods and services – it is not accepted as legal tender anywhere. These currencies have their own denominations. They differ from e-money in that they are not based on a currency with legal tender status. Virtual currencies exist only as a digital code and therefore do not have a physical counterpart for example in the form of coins or notes. Given their tradability, virtual currencies should be classified as an asset.

2.2.2   Bitcoin

Bitcoin is a so-called cryptocurrency, whose payment system is based on a digital peer-to-peer network[11]. Anyone who has a computer which is connected to the Internet can join the network. Of all the virtual currencies which exist today, Bitcoin is the most important in terms of prevalence and capitalisation.

What is special about Bitcoin is that the network is organised in a decentralised manner using a mathematical algorithm. In other words, there is no central body which issues the currency units or operates the system. The mathematical algorithm, which is based on cryptography, encrypts information in the system so that bitcoins can be clearly identified and cannot be duplicated.

There are two main types of players: users and miners. Most of the network consists of users who use Bitcoin as a payment system to carry out transactions in bitcoins. This is popular because the transaction costs are currently very low. However, costs arise if users want to change bitcoins into official currencies such as Swiss francs, US dollars or euros.

Users have one or several so-called *wallets* for managing bitcoins. A wallet contains one or several Bitcoin addresses, which are literally account numbers to which an amount of bitcoins amount can be transferred. To carry out a transaction, users send a transaction order to the network. Miners, the second group of main players in the system, process submitted transactions. By solving mathematical problems, they confirm that the user concerned actually owns the number of bitcoins and has not already spent them. Once the miner has confirmed this, the transaction is added to the *block chain*, a sort of central ledger listing all transactions. As compensation for their work, miners receive a specific number of bitcoins, which are created by the system. New bitcoins are thereby created out of thin air (ex nihilo). In this respect, the remuneration process represents the money creation process. There are currently approximately 12.7 million bitcoins. The total number of bitcoins is slowly increasing and is limited to 21 million so as to restrict the currency supply. However, it should be mentioned that bitcoins are divisible down to eight decimal places, whereby ultimately approximately 2100 trillion[12] indivisible Bitcoin units will exist.

It is also worth mentioning that unlike using Bitcoin as a means of payment, the task of miners, i.e. mining, is already very costly (in terms of time, material and energy costs).[13]

Generally speaking, bitcoins can be acquired in three ways. Firstly, by successfully participating in mining. Secondly, by accepting bitcoins as payment for a good or a service or thirdly, by purchasing them on a trading platform where bitcoins can be exchanged for official currencies such as US dollars or euros.

Bitcoin recently received huge attention due to the significant price fluctuations. At the end of 2012, a bitcoin was worth less than CHF 13; one year later it reached a value of more than CHF 1000 for a short time, then the value subsequently dropped within a month to approximately CHF 460 (see Figure 1). In spite of huge price fluctuations, an increasing number of traders (mainly in online trading and service providers in the IT field) accept Bitcoin as a means of payment. The use of Bitcoin can help give users an image of modernity and openness to new ideas. Nevertheless, the possible uses are restricted today compared with other currencies (see next chapter).

The daily global volume of Bitcoin transactions in April 2014 was estimated to be the equivalent of USD 52 million. It has to be assumed here that a significant proportion of these transactions were purchases of official currencies. By way of comparison, the combined daily

---

[11] A peer-to-peer network allows each network user to communicate with other network users without the communication passing through a central network administrator.

[12] $2.1 * 10^{15} = 2'100'000'000'000'000$

[13] Mining comprises carrying out complex mathematical tasks. This applies to both creating and transferring bitcoins. These tasks require significant computing capacity and also high levels of power. The overall consumption, depending on the source, is estimated to be equivalent to the power consumption of a medium-sized town.

transactions of the biggest payment service providers such as Visa and MasterCard amounted to over USD 37 billion in 2012. Even compared with the transaction volumes of major currencies such as the US dollar, euro or Swiss franc, bitcoin is of very minor significance.
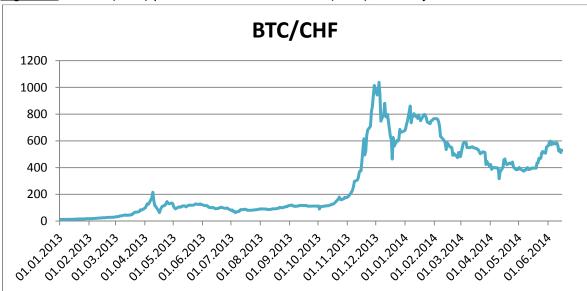
Figure 1: Bitcoin (BTC) price trend in Swiss francs (CHF), January 2013 to June 2014

Source: Coindesk.com

2.3   Bitcoin in Switzerland

Just like in other countries, the possibility of purchasing goods and services using Bitcoin is also gaining ground in Switzerland. According to the http://coinmap.org/ website, there are currently around 65 declared traders (and rising) in Switzerland who accept Bitcoin as a means of payment (globally there are 4,266 declared traders). These traders include for example florists, hairdressers, restaurants, hotels, bakeries, providers of leisure activities and also shoe shops. Moreover, a Bitcoin exchange machine was installed for a short period of time in Zurich at the start of 2014, and recently in Geneva as well. The biggest volumes, however, are currently being generated by trading in bitcoins and private transactions using bitcoins, as relevant websites and blogs point out.

There are no reliable figures on the number of users. At the request of the Confederation, the Swiss Federal Institute of Technology Zurich (ETHZ), which monitors activities in the Bitcoin network for research purposes, was able to make out 3,825 Swiss IP addresses which were active in the network on a specific reference date in April 2014. According to the ETHZ, the only trading platform where bitcoins can be traded against Swiss francs at present is LocalBitcoins.com, the headquarter of which is located in Helsinki, Finland. According to the source http://bitcoincharts.com/markets/localbtcCHF.html indicated by the ETHZ, the monthly rolling volume of Bitcoin trading in Switzerland is around CHF 65,000. However, as Swiss users can also trade in other currencies, this is most likely a lower limit. There are still no registered trading platforms in Switzerland to date.

At the network level, 84 of the 7,706 computers which were validating transactions in the Bitcoin network were located in Switzerland on the reference date in April 2014 according to the source (https://getaddr.bitnodes.io/) indicated by the ETHZ. This is equivalent to approximately 1.1% of the overall figure. Switzerland thus ranks thirteenth in the world. For the sake of comparison, the United States, which is at the top of the network, is home to almost 43% of these computers.

2.4 Conclusion

From an economic perspective, Bitcoin is currently a niche phenomenon. Bitcoins are mainly used by small user groups. Bitcoin proponents also maintain that it would reduce transaction costs and provide greater security against counterfeiters compared with traditional currencies.

Even though Bitcoin fulfils the three main functions of money (i.e. intermediary in exchanges, a unit of account and a store of value) to a certain degree, its high volatility prevents it from fulfilling them entirely. It is thus highly unlikely that Bitcoin could acquire a similar standing to the Swiss franc.

On the one hand, the claimed advantages of Bitcoin have not been sufficiently demonstrated for now. On the other, Bitcoin seems to be a rather high-risk object of speculation. The sharp fluctuations in value seen recently led to substantial losses for certain investors. This severely limits Bitcoin's use as a medium of exchange. In addition, the complexity of the creation mechanism, its rather opaque decentralised system and the fact that Bitcoin is not legal tender seriously undermine it as a medium of exchange. Finally, Bitcoin is experiencing a crisis of confidence as a result of the recent closures of trading platforms.

3 Legal treatment

The principles of the legal treatment of virtual currencies are described below from the perspective of private law and criminal law and classified in terms of financial market law.

3.1 Private law

It is clear that also transactions with bitcoins are subject to the law and do not take place in a legal vacuum. Under Swiss law, for instance, the use of virtual currencies as a means of payment for the purchase of goods and services or for the purchase and sale of virtual currencies in exchange for official currencies requires a mutual expression of intent by the parties, thus meeting the requirement for the conclusion of a contract under Article 1 of the Swiss Code of Obligations (CO).[14]

However, the trade in and with bitcoins is hardly impaired by national borders. This trade has become a transnational, worldwide phenomenon. For a large number of transactions, more than one legal order will be affected, so that the fact pattern becomes international and it must be decided what law applies in each individual case. General statements about the rules of private law applicable to Bitcoin transactions can therefore hardly be made. The same is also true for the public authorities and courts responsible for adjudicating civil disputes. In practice, the difficulty consists in determining the applicable law and the court responsible for adjudication, and first and foremost in actually enforcing any existing subjective right when foreign law is applicable and/or when a foreign court must be called upon, given that the effort necessary for that purpose is in general not worthwhile, especially for private individuals.

3.2 Criminal Code

Irrespective of whether the Federal Act on Combating Money Laundering and the Financing of Terrorism in the Financial Sector (AMLA,[15] see also Chapter 3.3.3.) applies, a person may be subject to punishment for money laundering under Article 305bis SCC,[16] such as if the person operates a trading platform for virtual currencies and thereby carries out an act that is aimed at frustrating the identification of the origin, the tracing, or the forfeiture of assets which the person knows or must assume originate from a felony.

---

[14] SR 220
[15] Anti-Money Laundering Act, SR 955.0
[16] Swiss Criminal Code, SR 311

Since by definition a virtual currency constitutes property, the offence may also constitute an offence against property as set out in Articles 137 et seq. SCC, such as misappropriation, fraud, or unlawful use of financial assets. In addition to the already observed cases of extortion[17] (see Chapter 4.4), the property offences of unauthorised obtaining of data,[18] damage to data,[19] and computer fraud[20] constitute possible applicable offences in connection with bitcoins. Depending on the constellation of the fact pattern in question, real competition[21] with other offences to property – such as simple theft[22] – may be considered.

3.3 Financial market law

As means of payment, bitcoins are also an object of the financial market. The question therefore arises how bitcoins should be assessed from the perspective of financial market law and whether trading activities connected with bitcoins are subject to restrictions in accordance with financial market legislation currently in force. Trade based on bitcoins is conceivable in many different forms and manifestations.

This report therefore limits itself to an assessment of the currently most common trading activities connected with bitcoins:

- the use and acceptance of bitcoins as a means of payment for buying goods and services,
- the purchase and sale of bitcoins, and
- the operation of platforms for the purchase and sale of bitcoins.

The following remarks consider whether these activities are subject to the Federal Act on Banks and Savings Banks (Banking Act),[23] the Federal Act on Stock Exchanges and Securities Trading (Stock Exchange Act, SESTA),[24] and the AMLA.

3.3.1 Banking Act

a) General remarks

According to the Banking Act, only banks are allowed to accept deposits from the public on a professional basis.[25] Individuals or legal persons who intend to accept deposits from third parties on a professional basis must obtain a banking licence before commencing their activities.[26] According to the Ordinance on Banks and Savings Banks, an entity acts on a professional basis if it accepts deposits on a permanent basis from more than 20 people[27] or if it advertises such services in any form, especially in advertisements, brochures, circular letters, or electronic media.[28]

The Banking Ordinance provides several exceptions that are not considered acceptance of

---

[17] Art. 156 of the SCC.
[18] Art. 143 of the SCC, commonly referred to as "data theft".
[19] Art. 144[bis] of the SCC.
[20] Art. 147 of the SCC.
[21] This constellation should be considered, for instance, when a perpetrator steals a laptop containing the access key of a bitcoin wallet and the perpetrator subsequently transfers the bitcoins contained in the wallet of the theft victim to a different wallet. In regard to the laptop, simple theft (Article 139 of the SCC) should be assumed, while article 143 or 147 of the SCC would apply to the bitcoin transfer.
[22] Art. 139 of the SCC.
[23] Banking Act, SR 952.0
[24] Stock Exchange Act, SR 954.1
[25] Art. 1 para. 2 of the Banking Act
[26] See FINMA Circular 2008/3 "Commercial Acceptance of Public Deposits by Non-banks under the Banking Act", para. 3
[27] Art. 3a para. 2 of the Banking Ordinance, BankV; SR 952.02, see also FINMA Circular 2008/3, paras. 8-9.
[28] Art. 3 para. 1 of the Banking Ordinance

deposits from the public. One of these exceptions is when monies are provided only in consideration for the purchase of property or for the rendering of a service.[29] According to the current practice of FINMA, this exception also applies to means of payment and payment systems if they are used solely for the acquisition of goods or services. Acceptance of monies for the purpose of making payments with such means of payment or payment systems is permissible without a banking licence if the maximum credit balance per client never exceeds CHF 3,000 and no interest is paid.[30]

According to the Banking Ordinance, monies on settlement accounts are likewise not considered deposits from the public, provided no interest is paid on them. Settlement accounts are used solely to settle client transactions,[31] i.e., to maintain the necessary liquid assets to settle a main transaction.[32] This exception clause applies only if the main transaction is settled within a short period of time, respectively the deposited monies are forwarded within a short period of time.[33]

Deposits from domestic and foreign banks or other enterprises under state oversight are also not considered deposits from the public.[34] According to FINMA practice, the same is true if the repayment of deposits by the public and the payment of the agreed interest are guaranteed by a supervised bank.[35]

b) Use of Bitcoin as means of payment

The use of Bitcoin as a means of payment for the acquisition of goods and services is not subject to the Banking Act. This is true both in regard to the person making payments in bitcoins as well as in regard to the person accepting payment in bitcoins. In such cases, the accepted bitcoins are deemed consideration for the purchase of property or for the rendering of a service. Their acceptance thus falls within the scope of the exception clause covering money for goods or services.[36]

c) Purchase and sale of bitcoins

Bitcoins themselves do not constitute goods or services. Instead, bitcoins are a means of payment which in turn can be used to acquire goods or services. The exception clause covering money for goods and services thus does not apply to the purchase or sale of bitcoins in return for official currencies. But to the extent bitcoins are exchanged for official currencies *pari passu*, this is still not considered a deposit for purposes of the Banking Act, since no monies or bitcoins are collected by a party.[37]

In contrast, transactions are considered deposits under the Banking Act if the exchange of money in an official currency against bitcoins is not *pari passu*, but if a Bitcoin dealer accepts credit balances in official currencies on the dealer's own accounts with a view to future currency transactions. The same is true if the dealer accepts bitcoins from clients for future exchange transactions and the client is not able to dispose of the bitcoins at all times without the involvement of the dealer. Such acceptance must be treated the same as under the Banking Act the acceptance of money in official currencies because an obligation of the dealer arises to pay out the equivalent in money to the client. In the event of bankruptcy of the dealer, the bitcoins would be considered part of the bankruptcy assets – the same as credit balances accepted in money – and the client would to that extent not have any right of separation. Credit balances accepted by the Bitcoin dealer in money or bitcoins are also not able to benefit from the exception clause applicable to means of payment or payment

---

[29] Art. 3a para. 3(a) of the Banking Ordinance
[30] FINMA Circular 2008/3, para. 18bis
[31] Art. 3a para. 3(c) of the Banking Ordinance
[32] FINMA Circular 2008/3, para. 16
[33] See Esther Kobel/Karin Schmid/Daniel Roth, Bewilligungspflichtige Finanzmarkttätigkeit, TREX Der Treuhandexperte 2/2009, p. 78-79
[34] Art. 3a para. 4(a) of the Banking Ordinance
[35] Default guarantee; see FINMA Circular 2008/3, para. 34
[36] Art. 3a para. 3(a) of the Banking Ordinance
[37] On the exception for pure exchanges of money, see Judgment of the Federal Supreme Court of 5 January 2000, 2A.218/1999, E. 3 b) bb)

systems developed by FINMA[38], because in such cases, the credit balances are not used directly to acquire goods or services but rather – as mentioned above – to acquire another means of payment.

Application of the exception clause for settlement accounts may be considered.[39] The precondition, however, is that no permanent credit balances are maintained in money or bitcoins for the client. It must be ensured by technical means that the equivalent value of the credit balances transferred to the Bitcoin trader by the client is assigned completely and immediately to the sole power of disposal of the client or – if this is not possible in an individual case – the credit balance is transferred back to the client, fully and immediately, in the original form. After the equivalent value is paid out or the credit balance received from the client is transferred back in money or bitcoins, no balances of the client in question may remain at the Bitcoin trader, and no interest may be paid on the money or bitcoins received. The payout or transfer back to the client must be carried out by the Bitcoin trader; no third party may be used to carry out the transaction in question.

If a Bitcoin trader accepts credit balances in official currencies or bitcoins on a professional basis, and if the exception clause for settlement accounts cannot be applied, it is still possible in accordance with the practice of FINMA to prevent applicability of the Banking Act if a bank supervised by FINMA guarantees full repayment of the deposits. Since the acceptance of bitcoins – which clients are not at liberty to dispose of at all times without involvement of the trader –constitutes an acceptance of deposits from the public as described above, the bank's guarantee must extend both to the accepted credit balances in official currencies and to the credit balances in bitcoins.

d) Trading platforms

The principles outlined above for the purchase and sale of bitcoins apply equally to the operation of online trading platforms via which users can sell and buy bitcoins to and from each other. From the perspective of banking law, it is unproblematic if the platform merely brings together parties for the purchase and sale of bitcoins or assigns purchase and sale offers to each other. However, if the platform operator is also involved in settlement of the payment process, it matters whether the operator accepts credit balances in money for this purpose from users of the platform on the operator's own accounts or whether the operator accepts bitcoins from users which the clients are not able to dispose of at all times without the involvement of the operator. These cases are deemed to be deposits for the purposes of the Banking Act if the operator maintains credit balances in money or bitcoins for the user on a commercial and permanent basis, and which can be employed by the user for the future purchase and sale of bitcoins via the platform.

If no permanent account balances are maintained, an exception for settlement accounts may again apply. For this purpose, it is necessary that the amounts in money or bitcoins transferred by the users are forwarded in full and immediately to the counterparty of the purchase transaction, that no balances for the client in question remain at the operator of the platform, that no interest is paid on forwarded monies or bitcoins, and that no third party is involved in the settlement of the transaction. An alternative here again is a default guarantee by the bank, covering all client balances in money or bitcoins.

3.3.2   Stock Exchange Act

It can be ruled out that sellers of bitcoins would be made subject to the Banking Act as securities dealers or those operators of platforms for the purchase and sale of bitcoins would be considered exchanges in this regard in accordance with the Stock Exchange Act.[40] The precondition for this would be for bitcoins to be qualified as securities in accordance to the Stock Exchange Act.[41] But bitcoins are neither securities nor value rights (not certificated

---

[38] See para. 18[bis] of FINMA Circular 2008/3
[39] Art. 3a para. 3(c) of the Banking Ordinance
[40] Art. 2(a) of the SESTA
[41] See Art. 973c of the Swiss Code of Obligations(CO)

rightswhich have the same function as securities) nor financial contracts (derivatives[42]). However, it cannot be ruled out that – depending on the particular design thereof – a specific financial product using bitcoins as the underlying asset would have to be qualified as a derivative in the future.

3.3.3 Anti-Money Laundering Act

a) General remarks

The Anti-Money Laundering Act applies to so called financial intermediaries.[43] In addition to the financial institutions subject to a licence under special legislation,[44] financial intermediaries include all natural and legal persons who on a professional basis accept or hold on deposit assets belonging to third parties or who assist in the investment or transfer of such assets.[45] Before taking up business activities, such financial intermediaries must either join a self-regulatory organisation (SRO) recognised by FINMA or request a licence from FINMA as a directly supervised financial intermediary[46].

For purposes of the Anti-Money Laundering Act, is deemed to act on a professional basis as defined in the Anti-Money Laundering Act who:[47]

- achieves a gross revenue of more than CHF 20,000 per calendar year;

- takes on business relations with more than 20 contracting parties per calendar year which are not limited to a one-time activity or maintains at least 20 such relations per calendar year;

- has unlimited power of disposal over assets belonging to third parties that exceeds CHF 5 million at any single point in time; or

- executes transactions whose total volume exceeds CHF 2 million per calendar year.

b) Use of Bitcoin as means of payment

The mere payment of goods and services in bitcoins and the performance of services for payment in bitcoins is not considered financial intermediation for purposes of the Anti-Money Laundering Act. Activities of that kind are therefore not subject to the Anti-Money Laundering Act.

c) Purchase and sale of bitcoins

The purchase and sale of bitcoins is in any event considered financial intermediation if the Bitcoin trader requires a banking licence.[48]

But the Anti-Money Laundering Act may apply even if no banking licence is required. Currency exchange on a professional basis, for instance, is deemed a trading activity covered by the Anti-Money Laundering Act.[49] The purchase and sale of bitcoins on a professional basis in return for official currencies constitutes such a currency exchange activity. While bitcoins are not money, bitcoins do exhibit key features of money: They are units of value with which real goods and services can be acquired, which are accepted by a community as means of payment, and whose financial value doesn't depend on their intrinsic value. If it is also taken into account that the exchange of bitcoins into official currencies is in principle possible at all times and without restrictions, there is no reason to treat such exchange activities differently from the exchange of foreign currencies.

---

[42] See Art. 5 of the Ordinance on Stock Exchanges and Securities Trading
[43] Art. 2 para. 1 of the AMLA
[44] Art. 2 para. 2 of the AMLA
[45] Art. 2 para. 3 of the AMLA
[46] Art. 14 para. 1 of the AMLA
[47] Art. 7 para. 1 of the Ordinance on the Professional Practice of Financial Intermediation (PFIO; SR 955.071)
[48] Art. 2 para. 2(a) of the AMLA
[49] Art. 5 para. 1 of the PFIO

Currency exchange is a two-party relationship: The seller of one currency is at the same time the buyer of another currency. But exchanging bitcoins into official currencies is also possible as a *three*-party relationship. When a Bitcoin exchange machine is used, for instance, it is conceivable that a different person withdraws cash at the machine than the person from whose *wallet* the equivalent value in bitcoins was transferred to the machine. Similarly, the machine can be used in theory to credit bitcoins acquired in return for cash to the *wallet* of a third person. It would even be conceivable to deposit cash at a Bitcoin exchange machine, transfer the equivalent value in bitcoins to another machine, and have a third person withdraw cash at that other machine. The execution of transactions of this sort is not deemed to be currency exchange, but rather *money transmitting*.[50] The distinction is relevant in that money transmitting is always deemed to be on a professional basis due to the associated higher risks of money laundering,[51] i.e., the otherwise applicable thresholds for deeming transactions to be on a professional basis[52] do not apply; moreover, stricter due diligence requirements apply to such transactions (see Chapter 3.3.4 b).

Unlike in the case of the exchange of official currencies, it is in principle not apparent in the case of the exchange of cash for bitcoins whether the purchaser and seller of bitcoins are identical to the recipient of the corresponding equivalent value, due to the anonymity associated with the trade in bitcoins. Consequently, it can hardly be assessed whether an individual case involves a two- or three-party relationship and accordingly whether the transaction constitutes currency exchange or money transmitting. Accordingly, Bitcoin traders can benefit from the thresholds for deeming transactions to be on a professional basis and from the lower requirements for entities subject to due diligence only if it can be ensured through technical means beyond a doubt that the transactions involve only two parties, i.e., the clients are regularly also recipients of the equivalent value in money or bitcoins. If this cannot be ensured, the business activity must be classified as money transmitting due to the higher money laundering risks.

d) Trading platforms

Operators of Bitcoin trading platforms may also be covered by the Anti-Money Laundering Act. This is certainly the case if a banking licence is required to perform their activities (see Chapter 3.3.1 d).

Otherwise, the question of the applicability of the Anti-Money Laundering Act again depends on whether, as part of the operator's activities, the operator accepts credit balances in money or bitcoins from the users of the platform. If this is not the case and if the operator's activities are limited to bringing parties together for the purchase and sale of bitcoins or to assigning purchase and sale offers to each other, the Anti-Money Laundering Act does not apply. The case is different if the operator is also involved in settlement of the payment process: If the operator acts on a professional basis, the operator must in general be deemed a financial intermediary. This is even true if the conditions are met for settlement accounts as referred to in the Banking Ordinance (and, in other words, if the operator does not already perform banking activities). Anyone is namely considered a financial intermediary who performs payment transaction services on a professional basis. Such a service may consist in the financial intermediary transmitting liquid assets to a third person on behalf of the financial intermediary's contracting party, where it physically takes possession of such assets, has them credited to the financial intermediary's own account, or orders their transmission in the name of and on behalf of the contracting party.[53]

The transaction is not considered a payment transaction covered by the Anti-Money Laundering Act if someone collects a payment from a debtor on behalf of the creditor. This is

---

[50] Art. 4 para. 1(c) in conjunction with para. 2 of the PFIO
[51] Art. 9 of the PFIO
[52] Art. 7 of the PFIO
[53] Art. 4 para. 1(a) of the PFIO

considered a debt collection activity not subject to the Anti-Money Laundering Act.[54] But as a rule, this exception clause is not likely to apply to Bitcoin trading platforms. As a matter of principle, operators of Bitcoin trading platforms maintain contractual relationships with both parties to the transaction carried out via the platform (both users of the platform). Moreover, a currency exchange transaction – which is what the purchase and sale of bitcoins between the two users is deemed to be – does not include a characteristic service that would allow the capacities of creditor and debtor to be assigned to the parties.

3.3.4 Due diligence requirements

a) General remarks

If the activities connected with virtual currencies result in applicability of the Anti-Money Laundering Act as outlined in 3.3.3, the financial intermediary must comply with the requirements set out in Chapter 2 of the Anti-Money Laundering Act. These requirements are divided into due diligence requirements for the prevention of money laundering and terrorist financing[55] and requirements in the event of suspicion of money laundering.[56]

Due diligence requirements include in particular the duty to verify the identity of the contracting party and establish the identity of the beneficial owner, the duty to keep records of transactions carried out, the implementation of organisational measures in companies to prevent money laundering and terrorist financing, and a training requirement for employees and audit companies.

The requirements in the event of suspicion of money laundering impose the duty upon the financial intermediary to immediately file a report with the Money Laundering Reporting Office Switzerland (MROS) if it knows or has reasonable grounds to suspect that the assets involved in the business relationship are connected in particular to money laundering,[57] are the proceeds of a felony, are subject to the power of disposal of a criminal organisation, or serve the financing of terrorism.

b) Bitcoin trading

If a professional Bitcoin trader does not maintain a permanent business relationship with clients and if the trader carries out activities that are merely deemed to be currency exchange transactions, then the trader has to verify the identity of the contracting parties and to establish the identity of the beneficial owner only if one or more interlinked transactions reach or exceed the amount of CHF 5,000[58] or if there is suspicion of possible money laundering or financing of terrorism.[59] If the contracting party does not have to be identified because the threshold of CHF 5,000 is not reached, then the identity of the beneficial owner also does not have to be established.[60]

If, however, the Bitcoin trader performs activities that are deemed to be money transmitting, then the trader may not benefit from the simplified due diligence requirements and must in any event verify the identity of the contracting party (i.e. starting from a transaction amount of CHF 0[61]) and establish the identity of the beneficial owner.[62] There are also no simplifications for payment transaction services performed by operators of Bitcoin trading platforms.

As outlined above in Chapter 3.3.3, trading activities connected with bitcoins may be attributed to already existing categories of activities of financial intermediaries, and the due

---

[54] Art. 1 para. 2(b) of the OPFFI; see also FINMA Circular 2011/1 "Ausführungen zur Verordnung über die berufsmässige Ausübung der Finanzintermediation (VBF)", para. 59
[55] Art. 3 to 8 of the AMLA
[56] Art. 9 to 11 of the AMLA
[57] Art. 305bis of the SCC
[58] Art. 45 para. 1(a) of the AMLO-FINMA
[59] Art. 45 para. 4(b) of the AMLO-FINMA
[60] Art. 51 of the AMLO-FINMA
[61] Art. 45 para. 4(a) of the AMLO-FINMA
[62] Art. 51 para. 4(a) of the AMLO-FINMA

diligence requirements applicable to the respective line of business can be derived therefrom. However, consistent implementation of the applicable due diligence requirements is associated with very great or even insurmountable difficulties due to the technical circumstances and the anonymity intrinsic to the Internet. In the case of Bitcoin transactions attributed to money transmitting, for instance, it cannot be ensured that the identity of the recipient can be traced retroactively by prosecution authorities in the event of suspicion or that it can be utilised for investigations. In this respect, the possibility of money transmitting using bitcoins is different from existing payment systems using banks or classical money transmitters. This shows that such trading activities connected with bitcoins entail risks in the fields of money laundering and terrorist financing that cannot be controlled with legally enshrined due diligence requirements alone.

3.4 Conclusion

First, it must be noted that legal transactions connected with bitcoins that are settled entirely in Switzerland may as a matter of principle fall within the scope of the Swiss Code of Obligations. In the case of cross-border transactions, however, the great difficulty lies in determining the law applicable to each individual transaction.

Since bitcoins are considered assets, not only the offences set out in the special legislation governing the financial market apply but in particular also the provisions of the Swiss Criminal Code governing offences against property.

With respect to the consideration under financial market law, it can also be noted in summary that the mere use of bitcoins as a means of payment for goods and services is not regulated by the financial market legislation. This is true from the perspective both of the person paying for such services in bitcoins and of the person receiving payment in bitcoins. Furthermore, Bitcoin trading platforms that merely bring buyers and sellers of bitcoins together or that match purchase and sales offers are not subject to financial market legislation. In contrast, the purchase and sale of bitcoins on a professional basis are covered by the Anti-Money Laundering Act. The same is true of the operation of Bitcoin trading platforms that forward money or bitcoins from users of the platform to other users. In the case of such activities, the due diligence requirements applicable under the Anti-Money Laundering Act – especially to verify the identity of the contracting party and to establish the identity of the beneficial owner – must therefore be complied with.

Certain trading activities connected with bitcoins also require a banking licence. As a matter of principle, this is the case when money is accepted from clients or users on own accounts on a professional basis or bitcoins are accepted which the clients or users cannot dispose of at all times without the participation of the trader or operator. If no permanent credit balances in money or bitcoins are maintained for the clients or users, then – under certain strict conditions – it may be assumed that the accounts are merely settlement accounts that do not fall within the scope of the Banking Act. According to the practice of FINMA, the Banking Act also does not apply if a bank supervised by FINMA guarantees the repayment of all money and bitcoins received from clients or users.

Whether a specific business model connected with bitcoins is covered by financial market legislation is determined by FINMA within the scope of its duties. For each individual business model, FINMA checks whether in light of its specific design it requires licensing by FINMA under financial market law or affiliation with an SRO. Where there is reasonable grounds to believe that trading activities in connection with bitcoins are being carried out that may require a licence, FINMA would initiate clarifications to determine violations of financial market legislation. If FINMA determines that an unauthorised activity has occurred, it takes the necessary measures to restore a lawful state of affairs, even extending to liquidation of the company in question. Since FINMA does not carry out comprehensive monitoring of the market with respect to unauthorised activities, it can be active in the event of unauthorised trading activities only if it receives relevant indications of such activities.

4 Risk assessment

As indicated in the introduction, certain risks are associated with Bitcoin whose relevance to different areas are discussed in this chapter. These areas are the SNB mandate, consumer protection, and potential abuse for criminal purposes.

4.1 SNB mandate

Existing virtual currencies are not a problem in regard to performance of the SNB mandate. Because of their extremely limited use so far, they are unable to undermine the effectiveness of the SNB's monetary policy or to have a significant impact on payment system; they also do not adversely affect the stability of the financial system.

Moreover, the probability is very small that existing virtual currencies will be used as means of payment to a great extent in Switzerland in the foreseeable future. For the foreseeable future, Bitcoin for instance does not represent an alternative to the franc. As a means of payment, it is absolutely a niche product.

4.2 Consumer protection

Apart from the risk of a speculative bubble, points of criticism mainly include vulnerability to offences against property. If Bitcoin passes the stage of a marginal phenomenon, the already existing security problems may also become worse if large-scale hacker attacks turn out to be advantageous in financial or other terms. The closure of one of the largest Bitcoin trading platforms, Mt. Gox, at the end of February 2014, in which a large number of investors lost Bitcoin balances in the total amount of about USD 500 million, underscores the considerable risks for investors and consumers entailed by virtual currencies.

No specific laws exist to protect consumers in connection with virtual currencies, and *wallets* are vulnerable to hacker attacks.

4.3 Potential abuse for criminal purposes

Innovations often also open up new opportunities for criminal activities. Initial investigative proceedings in Switzerland and abroad show that Bitcoin can be abused by criminals in many different ways. This chapter first assesses the general attractiveness of the virtual currency for illegal acts. Then, five areas of crimes are examined that turn out to be especially vulnerable in this connection. These are: Bitcoin as a means of payment for illegal goods and services, money laundering, Bitcoin theft, fraud in connection with Bitcoin, and the unlawful use of third-party computers to *mine* bitcoins. Finally, the question is briefly discussed whether Bitcoin can be deemed a pyramid scheme.

The use of the Bitcoin network offers greater anonymity than the existing electronic payment systems. Also as a means of payment, bitcoins offer far-reaching anonymity that is of great interest to criminals. To exchange bitcoins, a Bitcoin address is required that can be created free of charge. This address is assigned unambiguously to the user, but it does not provide any indications of the user's identity. Although all transactions are recorded and published in the Bitcoin network, transactions can be prevented from being traced back to the involved users. If a new address is created for every incoming or outgoing payment, the identity of the user can be further concealed. Another advantage for criminals is the decentralised structure of Bitcoin. Bitcoin transactions do not have to be settled via intermediary entities. Services administering bitcoins for users (analogously to banks) are hardly regulated. Prosecution authorities do not have contact people who identify clients and discover and document suspicious transactions. Bitcoin access data can be hidden so that prosecution authorities are unable to block or seize assets.

4.3.1 Bitcoin as a means of payment for illegal goods and services

Bitcoin is meanwhile a possible means of payment on certain trading platforms, and trading platforms for illegal goods and services make preferential use of Bitcoin. The best known example was the black market website "Silk Road", which was closed by the FBI in October 2013.[63] This website was used to trade drugs, stolen credit card data, counterfeit goods, weapons, and other illegal products. The only accepted currency was Bitcoin. At the beginning of 2014, the investigations by Swiss authorities focused on a website offering malware that could be paid for using Bitcoin.

Both in Switzerland and abroad, prosecution authorities are also investigating several cases of extortion in which ransom is being demanded in the form of bitcoins. Little is known about the perpetrators so far, but the modus operandi is always similar: In a first case, the persons pulling the strings attacked the computer of a company and manipulated the data so that the company no longer had access to it. Only after paying the ransom were the data released again. In another case, a company in Switzerland was threatened with a *distributed denial of service (DDoS)* attack[64] if it did not transfer a certain amount of bitcoins to an account. The attacks did in fact subsequently take place.

Since the transfer of bitcoins for the benefit of criminal groups can be carried out anonymously, the FBI believes that this is one of the greatest dangers arising from the currency.[65] Support for terrorist groups using Bitcoin payments is conceivable, but concrete cases are not known so far. The FBI believes that other possibilities for using Bitcoin include primarily their use in illegal Internet casinos and as a means of payment for unlawful pornography.

4.3.2 Money laundering risks

The exchange of bitcoins into legal tender without resorting to acquisition by means of mining (see Chapter 2.2.2) has expanded the range of users while increasing the risks of money laundering and terrorist financing. The exchange of official currency generated by predicate offences to money laundering in bitcoins realises the first stage – placement – of classical money laundering . The subsequent buy/sell transactions, which are likely to make it almost impossible to trace the transactions, make up the second phase of money laundering called layering. The integration of these funds into the real economy – the third stage of money laundering – is achieved by exchanging them again into a common currency.

Money transmitting is another activity that can also make Bitcoin attractive. Very low transmitting costs are a decisive economic advantage. Once again, anonymous transaction processing as well as the absence of control and regulation are factors that may lead to abuse. It must be pointed out, however, that this activity is possible only to the extent that bitcoins can be converted into an official currency in the destination country. With this in mind, the use of bitcoins for money transmitting might also not only serve for laundering money that has been acquired illegally, but also for financing all illegal activities, including terrorist activities.

Even though Bitcoin has been the object of studies and even of official warnings concerning the risk it represents, particularly in the fields of money laundering and terrorist financing, no major criminal cases of money laundering with Bitcoin have become known in Europe so far. Nevertheless, investigations are currently underway in several countries. In the United States, the administrator of Silk Road was arrested and charged namely with money

---

[63] Apparently, the website was re-launched by the former administrators as "Silk Road 2.0" in November 2013.

[64] In DDoS attacks, a large number of computers are used to send queries to a website with the goal of shutting them down.

[65] FBI, "Bitcoin Virtual Currency: Unique Features Present Distinct Challenges for Deterring Illicit Activity", 24 April 2012

laundering on 4 February 2014.[66] He and an accomplice are said to have exchanged more than a million bitcoins originating with users of the illegal website.

In Switzerland, the Money Laundering Reporting Office Switzerland (MROS) has received few reports connected with Bitcoin. The first of the two following typologies arose from suspicious activity reports received by MROS. The second is a theoretical example that could come to pass in the future. This modus operandi could be attractive for criminals especially due to the increasing difficulty of introducing illegal assets into the regular financial circuit.

Example 1: Phishing:[67]

Bitcoins legally acquired by one person are to be resold. The buyer and seller agree to settle the payment using an online trading platform. The supposed payment from the buyer is received on the seller's account. The bitcoins retained by the trading platform are released and transferred to the buyer upon confirmation that the money has been received. The seller's bank later receives notification that the payment was fraudulently triggered, i.e., debited from an account via phishing and used for the payment without the actual account holder's involvement in the purchase. If the amount has not yet been withdrawn by the seller, the seller's bank will block the amount and – with the seller's consent – return the money to the victim. The Bitcoin transaction cannot be reversed. The seller thus loses his bitcoins without compensation.

Example 2: Exchange of criminal money into bitcoins:

Money of criminal origin (e.g. from drug dealing) is used to buy bitcoins. As the acceptance of bitcoins as a means of payment increases, goods such as cars, jewellery, or real estate might in future be bought. Shortly thereafter, the goods could be resold in return for official currency. The origin of the criminal assets is concealed when they are exchanged into bitcoins. As soon as the goods acquired with these assets are resold, it is all the more difficult to establish a direct connection to the criminal origin of the assets.

In the two aforementioned typologies, assets of fraudulent origin are brought into circulation with the help of intermediaries.

Bitcoins can also be used for petty crime, active primarily in drug trafficking. In this way, the Bitcoin exchange machines for example can easily be used by criminals. For major organised crime (apart from Silk Road), the high volatility of that money may make it less attractive for investing large sums.

4.3.3 "Theft" of bitcoins

Bitcoins are stored in a *wallet* on a personal computer, a smartphone, or an online platform as a digital code and are lost if this information is lost. Many cases are known internationally in which criminals use malware in a targeted manner to gain access to this information and steal bitcoins. This involves relatively little risk for the criminals, since they can operate from far away and largely anonymously. In Switzerland, one case of "Bitcoin theft" has been reported. Unlawful access was gained to the notebook of a Swiss private individual, and bitcoins in the amount of more than CHF 100,000 were stolen. The attack allegedly was carried out from a server abroad. In terms of criminal law, such cases may also be deemed data theft[68] or computer fraud[69] (see also immediately below).

---

[66] http://www.justice.gov/usao/nys/pressreleases/February14/RossUlbrichtIndictmentPR.php
[67] This is a fraudulent technique used to obtain the access information to bank accounts of Internet users.
[68] Art. 143 of the SCC.
[69] Art. 147 of the SCC.

4.3.4 Fraud and fraud-like offences connected with Bitcoin

In the past, several variations of fraudulent offences connected with Bitcoin have become known. In mid-February 2014, for instance, two of the largest Bitcoin trading platforms (Mt. Gox and BitInstant) had to suspend Bitcoin trading due to a weakness in the software that most major Bitcoin trading platforms use to carry out Bitcoin transactions. Hackers had apparently exploited a vulnerability in the system to make the system believe a transaction had failed when in fact it had been carried out properly. While most trading platforms were able to remedy the error in a short period of time and resume trading, Mt. Gox had to file for bankruptcy, since apparently bitcoins valued at approximately USD 500 million had been lost.[70]

Also in Switzerland, at least one case of fraud in connection with Bitcoin has been reported. The injured party had released his bitcoins in an exchange transaction using an trading platform but never received the equivalent value in francs. The prosecution authorities of the canton in question took up the investigation.

4.3.5 Unlawful use of third-party computers to *mine* bitcoins

The *mining* of new bitcoins is very burdensome, requires special computers with extremely high performance, and generates high initial procurement and electricity costs. To pass on the immense costs to others, criminals frequently try to infect third-party computers with malware to turn their computers into Bitcoin *miners*. The German Criminal Police Office is currently investigating such a case, and the FBI also already has experience with this modus operandi. In Switzerland, no case of this kind has become known so far.

4.3.6 Bitcoin as a pyramid scheme?

As among others in the Schwaab postulate (13.3687), the question is repeatedly raised whether Bitcoin can be deemed an impermissible pyramid scheme. Pyramid schemes are business models in which the prospective profits of the participants are largely financed by the deposits of new participants. Without the permanent acquisition of new participants, the systems collapse, and the investors lose their investments in most cases. Since in the case of Bitcoin the typical promises of profits are lacking, it cannot be assumed that Bitcoin is a pyramid scheme. Moreover, the only monetary advantages that can be expected from the use of Bitcoin are the reduction or elimination of fees.[71]

4.4 Conclusion

This brief overview of possible abuses of Bitcoin shows that virtual currencies, especially due to their possible use with maximum anonymity, offer criminals many opportunities for illegal acts. Bitcoin is used as a currency for acquiring illegal products or as ransom in cases of extortion. Moreover, bitcoins can be abused for money laundering purposes or stolen with relatively little risk. The fact that bitcoins are hardly administered by centralised entities and that prosecution authorities are therefore lacking contact persons makes the efficient investigation of offences and the consistent seizure of assets more difficult. But much of the responsibility in dealing with Bitcoin lies with the users themselves. Without optimal protection of their *wallets* and data carriers such as computers, laptops, smartphones, etc., they risk losing their Bitcoin balances or becoming victims of abuse. In Switzerland, only a few cases in connection with Bitcoin have been reported to date. At the criminal level, this virtual currency therefore tends to be a marginal phenomenon so far. If bitcoins should become accepted more broadly as a means of payment, however, and if consequently

---

[70] A study by the Department of Information Technology and Electrical Engineering at the ETH Zurich is investigating this alleged loss (see References).

[71] Jean-Daniel Schmid/Alexander Schmid, "Bitcoin – eine Einführung in die Funktionsweise sowie eine Auslegeordnung und erste Analyse möglicher rechtlicher Fragestellungen", in Jusletter of 4 June 2012, p. 6-7.

structures are increasingly developed to administer them, it is likely that the abuses will increase as well.

5   Comparative law

5.1   Individual countries

In light of the striking development and spread of virtual currencies over the past five years, many countries are starting to consider regulating virtual currencies such as Bitcoin or have already drawn certain conclusions. It is striking in this regard that no country appears to have begun comprehensive regulatory projects.[72] However, some countries have already issued binding guidelines for activities connected with virtual currencies. Because the need for specific rules on dealing with virtual currencies is often still unclear, most countries have issued precautionary warnings for consumers and potential investors about the risks associated with the use of these currencies. In the United States, a US Senate committee held a hearing in November 2013 for the first time with experts of the Federal Reserve, the Securities and Exchange Commission, and several US government departments. These experts did not rule out that virtual means of payment such as Bitcoin may have a future. At the same time, they warned of risks for users and investors.

Looking at the concrete approaches and discussions in other countries concerning how to deal with virtual currencies (especially Bitcoin), a lack of uniformity and accordingly also different regulatory tendencies can be seen. This is true both for the definition of the subject matter as well as the consequent discussions on any measures to be taken. In fact, such measures have been taken only sporadically or to a limited extent. A separate category of measures consists of those taken as a response to the abuse encountered in practice or potential abuse in connection with virtual currencies.

The various approaches and, where available, the measures taken by selected countries are briefly described below.

In October 2012, the European Central Bank (ECB) issued a report discussing the characteristics of virtual currencies and the possible implications of virtual currencies for central banks and public authorities. However, the ECB document does not necessarily reflect a consensus of Member States nor does it contain any recommendations, but rather limits itself to the presentation of potential challenges. It views itself much more as a contribution to future discussions of the topic. In a warning issued on 12 December 2013, however, the European Banking Authority (EBA) drew the attention of consumers to risks involved in the buying and trading of virtual currencies such as Bitcoin.

In the EU, there is to date no legal foundation governing virtual currencies. Bitcoin namely does not meet the definition of electronic money in the E-Money Directive 2009/110/EC,[73] since it is not issued as a claim on the issuer. This means that any regulation of Bitcoin is currently being left to the Member States, even if regulatory initiatives at the EU level cannot be ruled out in the future.

---

[72] Drawing on source material is difficult: Primary sources of public authorities, central banks, and international organisations are accessible only on a very restricted basis. Most of the statements made in this chapter are based on secondary sources (such as newspaper articles) and relevant websites.

[73] Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions, OJ L 267, 10/10/2009, p. 7. According to Article 2 para. 2 of the Directive, "electronic money" means electronically, including magnetically, stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions as defined in point 5 of Article 4 of Directive 2007/64/EC, and which is accepted by a natural or legal person other than the electronic money issuer.

The countries mentioned below share the view that Bitcoin or other virtual currencies are not deemed to be legal tender and therefore will hardly be a serious competitor to official currencies or a threat to the stability of the financial system in the foreseeable future. Apart from this consensus, the following approaches can be distinguished: There is one state referring to Bitcoin as "private money" (Germany), while others consider it to be merely a means of exchange or payment but not money (United States, Canada, United Kingdom, Brazil); some are discussing the possibility of recognising virtual currencies as legal tender (State of California). Another group tends to define Bitcoin as a good (Norway, Finland) and as an investment object (Sweden). Finland and Sweden in particular have made it clear that the relevant legal foundations do not permit Bitcoin to be classified as a means of payment.

The different approaches and definitions mentioned above may also have consequences in each of these states for the taxation of sales transactions using Bitcoin as a means of payment (e.g. value added tax, profit tax), of Bitcoin balances themselves (e.g., capital gains tax, property tax), or the trade in bitcoins (e.g. stamp duty, profit tax). They may also have consequences in terms of supervision law for providers of services connected with virtual currencies (placement of certain activities under financial market supervision).

In light of the risks associated with virtual currencies – namely the use of Bitcoin for the payment of illegal goods and services, fraud, theft, or money laundering (and all countries agree on these risks) – some countries focus on prevention and thus on the providers of services connected with virtual currencies. Some countries have already issued guidelines or decrees. In the United States, for instance, the competent Financial Crimes Enforcement Network (FinCEN) held in a pioneering decision that service providers offering platforms for trading in virtual currencies as well as the administrators of such payment systems are deemed to be money transmitters and thus subject to anti-money laundering legislation. Nothing is known yet about the tax treatment in the United States at the federal level. Some US states (California, New York) want to advance the regulation of virtual currencies, which may also include fiscal aspects.

France is moving in a similar direction to the United States. The French financial market authority (ACPR) decreed that anyone wanting to operate a trading platform for virtual currencies in France must apply for official authorisation as a payment service provider (prestataire de services de paiement) and that the platform must settle incoming and outgoing payments connected with its activities only via licensed financial service providers.

The Monetary Authority of Singapore (MAS) recently announced that it intends to regulate the activities of Bitcoin traders, with the goal of imposing the same duties on them in connection with anti-money laundering (i.e. identification of Bitcoin customers, reporting of suspicious transactions, etc.) as on the traditional financial intermediaries for "classical" financial transactions.

Unlike in the United States and France, activities involving Bitcoin in Australia are not subjected to the money laundering provisions of the country. But the Australian government wants to explain by the beginning of 2015 how it assesses the developments involving virtual currencies and how it intends to regulate such currencies.

In Canada, virtual currencies are not covered in any way by existing laws. On 13 February 2014, however, the Canadian finance minister announced that in order to secure Canada's position in the fight against money laundering and terrorism, the government is planning to regulate virtual currencies.

Also in the United Kingdom, virtual currencies are not subject to any regulations. The British financial market authority FCA is supposedly holding itself back on purpose, which is said to have resulted in the voluntary attempt by providers of services connected with virtual currencies to comply with the FCA guidelines, also in regard to anti-money laundering. In contrast, the British tax authorities are discussing how to tax virtual currencies and transactions in virtual currencies.

In Germany, the Federal Financial Supervisory Authority (BaFIN) qualified Bitcoin as "private money" in August 2013,[74] which may be used as a means of payment for transactions between two parties. Companies, however, need authorisation by BaFIN for that purpose. With the recognition of Bitcoin as private money, the tax obligations in this regard were clarified at the same time. Earnings from sales paid with Bitcoin will be taxed at 25%, and companies must apply the value added tax rate.

Russia has a very restrictive practice: Because of the directly associated risks of money laundering and terrorist financing, the government declared Bitcoin illegal without further ado.

Thailand has decided similarly to Russia, although the Thai central bank is apparently considering a relaxation of the regime. Currently, however, the purchase and sale of bitcoins, the use of bitcoins as a means of payment, and the import and export of bitcoins are prohibited.

In China, the demand for bitcoins is currently rising, and public authorities are tolerating bitcoin trading for now. However, the central bank prohibits Chinese financial institutions from using bitcoins or offering operations involving the virtual currency. Credit balances of companies working together with the Bitcoin sector may not be accepted.

5.2   International bodies and organisations

Several international bodies have begun to deal with the issue of virtual currencies, notably:

FATF

In light of the lack of uniformity in the approaches taken by individual countries, efforts have gained momentum at the international level to achieve a consensus on certain aspects relating to virtual currencies. For instance, a group of states under the leadership of the United States submitted a discussion paper within the FATF in February 2013, containing proposals for basic definitions and typologies. A goal of this paper is to clarify in a foreseeable manner how the FATF Recommendations against money laundering and terrorist financing should be applied uniformly in connection with virtual currencies. The discussions have not yet advanced very far, however.

IMF

In the view of the International Monetary Fund (IMF), currencies are issued by nation-states. This means the IMF is unable to recognise virtual currencies as currencies. A publication in the Chicago Journal of International Law[75] deals with this topic and concludes that the IMF should pay more attention to virtual currencies. The discussion is still in the beginning stages, however.

6   Conclusions

Bitcoin is used only to a minor extent in Switzerland for payment purchases. Compared with the franc, its limited dissemination in the real economy and its high value fluctuations are reasons why it currently plays an unimportant role as a means of payment. Moreover, the complexity of the creation mechanism, the lack of transparency of its decentralised system, and the lack of power to discharge from payment obligations are strongly detrimental to Bitcoin as a means of exchange. Finally, Bitcoin is going through a crisis of confidence because of the recent closures of trading platforms. From a monetary policy standpoint, virtual currencies will not be able to threaten price stability and the stability of the Swiss financial system in the foreseeable future. The longer-term developments in the field of virtual currencies are difficult to predict, however. The Federal Council and the SNB are

---

[74] www.bafin.de/SharedDocs/Veroeffentlichungen/DE/Fachartikel/2014/fa_bj_1401_bitcoins.html

[75] http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2248419

therefore continuing to follow the developments in the field of virtual currencies so that any need for action can be recognised in a timely manner.

Virtual currencies exist only as a digital code and therefore do not have a material counterpart, such as in the form of coins or banknotes. Since by definition, however, they constitute assets, offences against property as set out in articles 137 et seq. of the Swiss Criminal Code can therefore be committed in connection with them.

From the standpoint of private law, it is clear that transactions with bitcoins are subject to the law and do not take place in a legal vacuum. Under Swiss law, for instance, the use of virtual currencies as a means of payment for the purchase of goods and services or for the purchase and sale of virtual currencies in exchange for official currencies requires a mutual expression of intent by the parties, thus meeting the requirement for the conclusion of a contract under Article 1 of the Swiss Code of Obligations (CO). In the case of cross-border transactions, the great difficulty lies in determining the law applicable to each individual transaction.

The possibilities for transmitting money offered by bitcoins (e.g. with the help of Bitcoin exchange machines) imply a high degree of anonymity and create new risks of money laundering that cannot be handled by the increased due diligence requirements. Thanks to Bitcoin, it is in effect possible to transmit values anywhere in the world without permitting technical identification of the beneficial owner. In this way, it can be considered a new form of money transmitting that is often attractive for money launderers and terrorist organisations. Solutions have to be sought in a coordinated manner at the international level. Switzerland will participate in international efforts headed in this direction.

In connection with anti-money laundering, the amendment set out in the dispatch on implementation of the FATF Recommendations revised in 2012 should be noted, according to which in the case of purchase transactions exceeding the amount of CHF 100,000, the transactions must necessarily be settled using a financial intermediary under the AMLA. This would also ensure that the risk of money laundering in connection with payment services using virtual currencies would be reduced.

Furthermore, Bitcoin trading platforms that merely bring buyers and sellers of bitcoins together or that match purchase and sales offers are not subject to financial market legislation. In contrast, the purchase and sale of bitcoins on a professional basis are covered by the Anti-Money Laundering Act. The same is true of the operation of Bitcoin trading platforms that forward money or bitcoins from users of the platform to other users. Trading activities connected with bitcoins also require a banking licence if, in the course of trading activities, money is accepted from clients or users on own accounts on a professional basis or bitcoins are accepted which the trader or operator can dispose of without the participation of the client or user. If no permanent credit balances in money or bitcoins are maintained for the clients or users, then – under certain strict conditions – it may be assumed that the accounts are merely settlement accounts that do not fall within the scope of the Banking Act. According to the practice of FINMA, the Banking Act also does not apply if a bank supervised by FINMA guarantees the repayment of all money and bitcoins received from clients or users.

Whether a specific business model connected with bitcoins is covered by financial market legislation is determined by FINMA within the scope of its duties. For each individual business model, FINMA checks whether in light of its specific design it requires licensing by FINMA under financial market law or affiliation with an SRO. Where there is reasonable grounds to believe that trading activities in connection with bitcoins are being carried out that may require a licence, FINMA would initiate clarifications to determine violations of financial market legislation. If FINMA determines that an unauthorised activity has occurred, it takes the necessary measures to restore a lawful state of affairs, even extending to liquidation of the company in question. Since FINMA does not carry out comprehensive monitoring of the market with respect to unauthorised activities, it can be active in the event of unauthorised trading activities only if it receives relevant indications of such activities.

As Chapter 5 also showed, risks of abuse for criminal purposes when employing virtual currencies cannot be ruled out, although abuse has tended to be a marginal problem so far. If bitcoins should become accepted more broadly as a means of payment, however, and if consequently structures are increasingly developed to administer them, it is likely that the abuses will increase as well.

Because of the fact that virtual currencies represent a marginal phenomenon and transactions do not take place in a legal vacuum, the Federal Council concludes that there is currently no need for legislative action.

The fact that bitcoins are hardly administered by centralised entities and that prosecution authorities are therefore lacking contact persons makes the efficient investigation of offences and the consistent seizure of assets more difficult. Moreover, as a decentralised means of payment without territorial attachment, Bitcoin does not know any borders. Such a phenomenon can be difficult to control with uncoordinated state measures. Indeed, the state responses to this phenomenon have not been particularly well coordinated so far. For this reason, the competent authorities in other countries as well, notably the European Banking Authority (EBA), have issued warnings to the users of virtual currencies. The EBA's warning explains what virtual currencies are and what risks exist for users. This said, much of the responsibility in dealing with Bitcoin lies with the users themselves. Without optimal protection of their *wallets* and data carriers such as computers, laptops, smartphones, etc., they risk losing their Bitcoin balances or becoming victims of abuse. The Federal Council therefore recommends that relevant public authorities and organisations, notably consumer protection organisations, warn users to exercise caution when using Bitcoin.

7   Glossary

Bitcoin

Bitcoin is a *cryptocurrency* (BTC), whose *payment system* is based on a digital peer-to-peer network. The *payment system* for settling Bitcoin transactions has a decentralised organisation. Bitcoins are also not emitted by a centralised and regulated issuer, but rather they are generated in a decentralised manner by the computers of the *miners* participating in the network.

Book money

Book money is a credit balance kept on commercial bank or postal accounts. Alongside legal tender, book money plays a key role in payment transactions. Banks are required vis-à-vis the public to exchange these credit balances into central bank money. For this reason, the National Bank Act requires banks to back up a certain percentage of these liabilities with reserves (see also *money*).

Central bank money (monetary base)

The central bank money is composed of the sum of banknotes in circulation plus sight deposits of domestic commercial banks held at the SNB.

Cryptocurrency

A cryptocurrency is a virtual *currency* whose creation is based on the principles of cryptography (see also *virtual currency* and *Bitcoin*).

Currency

A currency is *money* issued by a regulated central institution and is recognised as *legal tender* in a country. Usually, it is a central bank that circulates a currency in the form of banknotes and coins (see also *legal tender*).

Electronic money

Electronic money (or e-money) means an electronically stored monetary value in the currency permitted as legal tender. This includes prepaid cards with many possibilities for users. Electronic money requires pre-payment, i.e. the stored monetary value must have been acquired beforehand in return for money.

Legal tender

According to the Federal Act on Currency and Payment Instruments, coins issued by the Confederation, banknotes issued by the SNB, and sight deposits denominated in francs at the SNB are deemed legal tender. Legal tender must as a matter of principle be accepted as payment without restrictions, unless contractually agreed otherwise. Legal tender generally consists of the official currency of a country.

Miners

Bitcoin network participants that validate the transactions of the users of the network and are compensated for that with a certain amount of newly created bitcoins.

Minimum reserves

To facilitate the smooth functioning of the money market, banks must hold a certain percentage of their short-term liabilities in francs as minimum reserves. Valid minimum reserves comprise Swiss franc coins, banknotes and sight deposits held at the SNB. With the minimum reserve requirement set out in the National Bank Act, the legislative power ensures minimum holdings in central bank money.

Money

Money is a means of payment and exchange generally accepted by the public. It also serves as a store of value and as a unit of account (measure of value). In Switzerland, banknotes and coins (cash) as well as book money are normally referred to as money (see also *book money*).

Money creation

This is the process by which money is created. On the one hand, the SNB is entitled to create money, because of its note-issuing privilege. On the other, commercial banks can create book money, by granting loans. Their means of creating book money are determined by the requirements of Swiss law regarding minimum reserves, and by the SNB's readiness to increase or reduce the money supply.

Payment system

A payment system is a usually electronic system with standardised rules for transmitting, clearing, and settling payments among participants.

Swiss Interbank Clearing (SIC)

SIC (Swiss Interbank Clearing) is the Swiss electronic interbank payment system, which has been operated since 1987 on behalf of the SNB by SIX Interbank Clearing Ltd, a subsidiary of SIX. It is a real-time gross settlement system (RTGS) with a queuing mechanism. Payments are processed individually and sequentially, i.e. on a gross basis, and the SIC participants' settlement accounts are fed from their sight deposit accounts at the SNB (see also *payment system*).

Virtual currency

Digital representation of a value that is tradable on the Internet; while it performs certain functions of money, it is accepted as a means of payment only by the members of a specific virtual community. It is not considered legal tender anywhere. These currencies have their own denomination. They are issued and controlled by a non-regulated institution or a network of computers. They are thus distinguished from e-money in that these currencies have no underlying legal tender (see also *cryptocurrency*).

Wallet

Electronic wallet in which the user of the network keeps his or her Bitcoin balances.

8 Bibliography and sources

8.1 Selected bibliography

Decker, Christian, Wattenhofer Roger, *Bitcoin Transaction Malleability and Mt. Gox,* in arXiv: 1403.6676, Cornell University Library, 26 March 2014.

Federal Bureau of Investigation, *Bitcoin Virtual Currency: Unique features Present Distinct Challenges for Deterring Illicit Activity,* April 2012.

Elwell, Craig K. et al., *Bitcoin: Questions, Answers, and Analysis of Legal Issues*, Congressional Research Service, 20 December 2013.

European Central Bank, *Virtual Currency Schemes*, October 2012.

Normand, John, *The audacity of Bitcoin – Risks and opportunities for corporate and investors*, J.P. Morgan Global Rates & FX Research, February 2014.

Plassaras, Nicolas, *Regulating Digital Currencies: Bringing Bitcoin within the Reach of the IMF*, Chicago Journal of International Law, 7 April 2013.

Schmid Jean-Daniel, Schmid Alexander, *Bitcoin – eine Einführung in die Funktionsweise sowie eine Auslegeordnung und erste Analyse möglicher rechtlicher Fragestellungen* (Bitcoin – an introduction to how it works and an interpretation and initial analysis of possible legal issues)*,* in Jusletter, June 2012.

Sorge, Christoph, *Bitcoin – das Zahlungsmittel der Zukunft?* (Bitcoin – the payment method of the future?), Wirtschaftsdienst: Ökonomische Trends, 2013.

Vauplane de, Hubert, Cazaillet Sophie, *Bitcoin: money, money, money?*, Revue Lexbase No. 567, 17 April 2014.

Velde, François R., *Bitcoin: A primer*, Chicago Fed Letter No. 317, December 2013.

8.2 Selected other sources

United States:
http://fincen.gov/statutes_regs/guidance/pdf/FIN-2013-G001.pdf, 18.3.2013
http://www.coindesk.com/fincen-bitcoin-miners-investors-money-transmitters/,

Brazil:
http://www.bcb.gov.br/pt-br/Paginas/bc-esclarece-sobre-os-riscos-decorrentes-da-aquisicao-das-chamadas-moedas-virtuais-ou-moedas-criptografadas.aspx, 19.2.2014

EU:
http://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf, October 2012
https://www.eba.europa.eu/-/eba-warns-consumers-on-virtual-currencies, 13.12.2013

UK:
http://www.coindesk.com/bitcoin-regulation-uk/
http://www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2014/qb14q1prereleasemoneyintro.pdf

Germany:
http://www.coindesk.com/germany-official-recognises-bitcoin-as-private-money/
http://www.coindesk.com/german-government-relieves-capital-gains-tax-on-bitcoin-positions/

http://www.bafin.de/SharedDocs/Downloads/DE/BaFinJournal/2014/bj_1401.pdf, 19.12.2013

Australia:
http://de.scribd.com/doc/192730349/National-Australia-Bank-Bitcoin-to-replace-AUD,
19.12.2013

Sweden:
http://www.coindesk.com/sweden-regulate-bitcoin-asset/,

France:
http://acpr.banque-france.fr/fileadmin/user_upload/acp/Communication/Communiques%20de%20presse/20140129-Communique-ACPR-position-bitcoin.pdf, 29.1.2014
https://www.banque-france.fr/fileadmin/user_upload/banque_de_france/publications/Focus-10-stabilite-financiere.pdf, 5.12.2013
http://acpr.banque-france.fr/fileadmin/user_upload/acp/publications/registre-officiel/201401-Position-2014-P-01-de-l-ACPR.pdf

Singapore:
http://www.mas.gov.sg/News-and-Publications/Press-Releases/2014/MAS-to-Regulate-Virtual-Currency-Intermediaries-for-Money-Laundering-and-Terrorist-Financing-Risks.aspx

Canada:
http://www.coindesk.com/bitcoin-not-legal-tender-canada-government-official/, 17.1.2014

Russia:
http://www.coindesk.com/bank-of-russia-issues-warning/

China:
http://www.bloomberg.com/news/2013-12-05/china-s-pboc-bans-financial-companies-from-bitcoin-transactions.html
http://www.pbc.gov.cn/publish/goutongjiaoliu/524/2013/20131205153156832222251/20131205153156832222251_.html

IMF:
http://www.imf.org/external/pubs/ft/aa/index.htm
http://pix.cs.olemiss.edu/csci103/bitcoinMarketplace.pdf