Bitcoin: A First Legal Analysis
- with reference to German and US-American law -

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Abstract. The use of Bitcoins is increasing rapidly. Bitcoins are utilized in e-commerce to purchase both legal and illegal goods, they are transferred and traded and companies have invested their capital in the new digital currency. While the technical aspects of the system are well established, the legal framework remains unclear. Legislators all over the world are just starting to discover this new virtual phenomenon. This article illustrates selected legal challenges arising in different fields of law (public, criminal and civil law). Particular attention is paid to the German situation while the US-American context is also considered.

1 Introduction

Since laws are always one step behind technological developments, governments are just starting to react to the challenges that new digital currencies pose. At the same time, the use of Bitcoin, one of the most popular virtual currencies, is growing rapidly. Important features of the Bitcoin-system are the decentralized structure that is free of any governmental influence and the possibility to pseudonymously use the currency. Bitcoin transactions are relatively easy to verify when using the publicly available blockchain and, in contrast to other online payment services, transactions costs are almost zero. These characteristics are exploited in different ways. On the one hand, online shops, companies and private users profit from the fast and transparent way to sell and purchase goods; on the other hand, criminals make use of the pseudonymous and decentralized features. As a consequence, Bitcoins serve as a quasi-anonymous substitute for money in illegal activities. This development raises various legal questions. German is one of the few states in Europe starting to regulate the Bitcoin-system. In the sphere of public law (section 2), regulatory and tax law related issues play an important role. Offences such as money laundering, blackmail, theft or offences related to data are of great significance in criminal law (section 3). If Bitcoins are used in e-commerce, questions relating to the liability and enforcement in the context of civil law (section 4) are essential. In addition, since neither the criminal law, nor the civil law order is accustomed to dealing with virtual objects, fundamental questions relating to the enforcement of long-established legal rules arise. Therefore, this work aims is to give an overview of the different legal issues concerning Bitcoins

under German (and to a lesser extent US-American) law, thereby illustrating the immense need for legal research. The article also shows first initiatives regulating Bitcoins in Germany.

2 Public Law

Public law typically establishes rules for the relationship between the government and its citizens. Since Bitcoins serve as an alternative currency and individual usage of Bitcoins has increased, administrations have begun, after a period of uncertainty, to see the need to regulate and supervise the Bitcoin-system. As every Bitcoin user is a potential taxpayer and trading platforms earn money with Bitcoin-transactions, Bitcoins raise important issues for public law, especially in the fields of regulatory and tax law.

2.1 Licensing Requirement

The initial question that must be posed in Bitcoin regulation is whether Bitcoin trading platform operators must be licensed by financial supervisory agencies. The state of New York, for instance, plans to introduce so a called BitLicence for companies trading with Bitcoins [1, 2]. The license should protect consumers from online-fraud and improve control over money-laundering activities related to Bitcoins.

In Germany, virtual currency regulation already exists and follows from § 32 Section 1 of the German Banking Act (Kreditwesengesetz). According to this rule any person who conducts *banking business or financial services* for commercial purposes in Germany needs a written authorization by the German Federal Financial Supervisory Agency (GFFSA). The German Banking Act defines what falls under the category of financial services (§ 1 Sections 1a and 2). The Act specifically lists issuing and accepting of financial instruments as a financial service. Financial instruments include so called "Units of Account" (Rechnungseinheiten). In consequence, the GFFSA has classified "digital currencies", in particular Bitcoins, as units of account in the sense of the German Banking Act. In addition, the agency [3] and some regional courts [4] have expressed the opinion that companies need not to have their place of business in Germany, but that serving German customers would make the licensing requirement applicable. Hence commercial Bitcoin platform operators – at least those established in Germany and/or those serving German customers – need a license from the GFFSA under German law. Conducting financial services without the required license is punishable with imprisonment or a fine (§ 54 Section 1 Nr. 2 of the German Banking Act). In conclusion, in Germany the need for a license is directly derived from already existing laws. That is due to the fact that the German Banking Act's definitions are very broad and abstract leaving room for the inclusion of new developments such as virtual currencies. Thus the establishment of new rules for the licensing of Bitcoin businesses is not necessary under German regulatory law.

In the US – after a heated discussion [5] about the lawfulness of Bitcoins [6, 7] – Bitcoin services have been deemed subject to regulation. While, as mentioned above,

the New York State Department of Financial Services is intensively considering the introduction of a special BitLicense for all businesses operating (primarily) with decentralized virtual currencies,[8, 9] there are already some legal rules in place that establish a licensing requirement for money transmitters. These rules can be used to control Bitcoin services.

Money transmitters are regulated under federal law as well as under state law in the US. Federal law includes a registration requirement for money transmitting services due to 31 U.S. Code § 5530. Thus Bitcoin services have to register with the Financial Crimes Enforcement Network (FinCEN), if they fall under the category of money transmitters in the sense of the provision. FinCEN does not differentiate between transmitters of official currencies on the one hand and Bitcoin transmitters on the other, hence affirming a registration requirement [10, 11].

Whereas US federal law does not go beyond the need for a registration, additional licensing requirements stem from US state laws [12] causing two big problems. The first problem relates to unclear definitions of the term money transmitter in state law. Therefore it is quite difficult to identify which licensing requirements actually apply to a single Bitcoin business [12]. The bigger issue is that a money transmitter probably needs a license in every state in which it offers its services [12]. The latter issue arises on the international level too, because companies offering services on the internet have to comply with diverse legal orders. The German authority for instance, takes the view that conducting financial services in Germany means offering financial products to German citizens, no matter where the company is actually located. However, discussion surrounding this question has been controversial, particularly in view of the extraterritorial effect that such an opinion involves [13].

Given the above, Bitcoin services fall under licensing provisions of both legal orders. In the US, as well as in Germany, governments are keen to license Bitcoin transactions, mainly to control (and survey) the transfer of money.

2.2 Tax Law Related Questions

The rapid rise of the Bitcoin exchange rate guaranties increasing attention from tax authorities. The following two situations are of particular concern:

First, financial authorities may have an interest in the taxation of earnings denominated in Bitcoin, though tax policy and laws are not necessarily designed to take account of virtual profits. As Bitcoins are not recognized as traditional money, tax authorities are forced to develop new definitions to categorize Bitcoin revenue as taxable. Due to this “definition gap”, German tax authorities classify Bitcoins as an “economic asset” (Wirtschaftsgut) that is then subject to the income tax according to §§ 22, 23 of the German Income Tax Act (Einkommenssteuergesetz). In the US the Internal Revenue Code (IRC) includes the basic rules for taxation. According to Section 61 of the ICR “gross income means all income from whatever source derived”. Thus, the term “income” comprises various activities leading to an increase in wealth. In light of this, Bitcoins might be subject to the rules of the IRC [14]. Similar to the German understanding, income includes any economic value received, irrespective of the form (virtual or physical existent) of that income.

Second, sales taxes on profits of Bitcoin-transactions are also discussed in academia. In Germany, the distinction between private and commercial transactions plays a crucial role. Only transactions and online trading on a commercial basis are usually subject to sales tax, according to § 1 of the German Sales Tax Act (Umsatzsteuergesetz). Non-commercial users, when using Bitcoins as a method of payment or even in context with transactions of large Bitcoin exchange platforms such as Mt. Gox, are not obliged to pay sales tax.

In the US, the question of sales tax on Bitcoin-transactions is currently subject to discussion. However, a final decision has not been reached yet.

Bitcoins can be classified as "income" under US law [15]. General taxation of Bitcoin revenue depends on whether Bitcoins are seen as property or as currency [15]. Quite recently the Internal Revenue Service (IRS) decided to treat Bitcoin as property [16].

In both legal systems regulation and taxation requirements increase. Beyond these legal questions, authorities face difficulties in detecting taxable Bitcoin transactions and identifying the taxable persons, but this is this problem is of a practical rather than legal nature.

3 Criminal Law

In the context of criminal law, Bitcoins are often used as a method of payment to disguise the origin of money illegally obtained. Bitcoin wallets also offer the possibility to receive payments more anonymously than transfers between normal bank accounts. Additionally, since Bitcoins, like any other virtual currency, can be used to purchase goods (in e-commerce or offline), they can be the target of criminal activities. However, as Bitcoins only exist in the virtual sphere, it is difficult to apply traditional criminal law provisions in this special context.

3.1 Bitcoins as a Substitute for Money

The pseudonymity of Bitcoin transactions makes it an attractive tool criminals can use for illegal activity. In comparison with regular money, the advantages of Bitcoins are twofold: there is neither a need to be personally present when receiving money, nor it is necessary to use bank accounts that are controlled and enable identification. The transfer of Bitcoins, sometimes after having used Bitcoin-mixers, is much harder for law enforcement to verify and control than the use of a normal bank account, even if an intermediary is used. Due to these characteristics, the use of Bitcoins – especially as a method of payment in the online environment or when buying illegal goods via anonymous networks – is becoming more and more popular.[1] In addition, criminals use Bitcoins increasingly often as a method of payment when blackmailing individual computer users, companies or even public authorities [17, 18]. For instance, criminals install malware on computers via email attachments. The virus then hinders the

[1] The best-known example is Silkroad, where drugs and other illegal commodities where sold until the shut-down in October 2013. Successor platforms already exist.

affected persons' access to their data unless a ransom (of Bitcoins) is paid. The requested sum is usually not a very high one, thus many users decide to pay instead of waiting for the police to solve the problem. Another way could be a DDoS-attack of a website, in particular one that generates profits like an online shop. Recently, due to the rapid growth of the Bitcoin exchange rate, criminals even decided to reduce the sum to be paid [19].

Usually, when Bitcoins are used as a substitute for money, criminal law provisions are applicable without any difficulties. Under German law the relevant crimes like fraud (§ 263 German Criminal Code) and blackmail (§ 253 German Criminal Code) specify any pecuniary loss [20] (Vermögensschaden/-nachteil) on the part of the victim whether it is a loss of official money or any other values such as Bitcoins. The US federal legal situation is quite similar. Blackmail for instance requires that the offender "demands or receives any money or other valuable thing" (18 U.S. Code § 873). Bitcoins can be easily classified as "other valuable thing".

3.2 Money Laundering

Bitcoins are suspected of being utilized in money laundering [21]. It is possible to exchange money coming from illegal activities for Bitcoins and then disguise the origin of this money again, for instance with the help of Bitcoin-mixers.[2] Different features of the Bitcoin-system play a role in this context: The traceability of Bitcoin-transfers is complicated and therefore it is very challenging for law enforcement to verify the origins of Bitcoins. Users can create a new password for each Bitcoin-transaction and are able to use a new synonym and randomly generate various new keys for transactions. In addition, due to its decentralized structure there are no general reporting duties that apply to the Bitcoin-system. While banks have to report to supervisory authorities and their financial operations are closely supervised[3], Bitcoin transactions remain far less controlled.

Some specific events have aroused the suspicion that Bitcoins have been used to launder illegal money from tax offences. The most famous example is the very fast rise of the Bitcoin-exchange rate shortly before the compulsory bank levy on Cypriot capital in March 2013 [22, 23]. At that moment, the Bitcoin exchange rate doubled within a few days and has not fallen beneath that value since. One explanation for that rapid rise could be the attempt of bank account holders to exchange their money into a seemingly anonymous currency to disguise the origin of that money and protect it from financial authorities. While this incident shows that Bitcoins can be potentially used for money laundering purposes, the liability for such an offence according to national law provisions is far from clear.

Under German law, one of the meanings of money laundering is – concealing the origin of an economic asset obtained through unlawful action(s) (§ 261 German Criminal Code). The term economic asset is traditionally understood as tangible thing or as right which has a value [24]. Traditional money or jewelry etc. fall under this

[2] Bitcoin mixers are tools that allow to disguise the original source of Bitcoins.

[3] Compare the US-supervision of bank transfers via the control of the SWIFT system: EU/US SWIFT Agreement of 1 August 2010.

term without any difficulties. If bank notes are obtained of an unlawful action in the meaning of the provision, for example they are stolen, concealing their origin is punishable as money laundering. However, buying Bitcoins with stolen money to conceal its origin can only be money laundering if Bitcoins can be classified as economic assets in the sense of the provision. Bitcoins do not fall under the traditional understanding of this term, but one could argue that this term has to be interpreted in a broader sense [25, 24], since it corresponds with the spirit and the purpose of law to cover anything which has a value. In addition, when comparing Bitcoins to other money-laundering tools, it is possible to draw parallels to book money (Buchgeld) that similar to Bitcoins exists only in a virtual sphere and is subject to the German money laundering provision. However, an official authority has not yet recognized this interpretation.

In the US, there is currently a discussion whether Bitcoin developers, e-wallet holders or Bitcoin users have to comply with the Bank Secrecy Act (BSA) and the regulations passed by the Financial Crimes Enforcement Network (FinCEN) [5]. The US American Federal Money Laundering Provision (18 U.S. Code § 1956) includes a term that leads to similar problems as those from German provision. Object of money laundering is "property derived from an unlawful act" which leads to the question if Bitcoins are property. Unlike in Germany[4], the US-American understanding of property covers also intangible goods that could apply to Bitcoin. This question is related to the discussion of virtual property and virtual items in online games like World of Warcraft [26], but has not been clarified yet. Though, as in Germany, the spirit and purpose of the US money laundering provision is an argument for a broad interpretation of the term property including virtual items such as Bitcoins.

3.3 Offences Related to Data (Cyber Crime)

The creation of new Bitcoins requires an increasingly large amount of computing power. As a consequence, high electricity use and costly hardware has made mining new coins quite expensive. However, the situation is drastically altered if others bear the mining cost. One possibility is using botnets to support the generation of new Bitcoins through the secret use of infiltrated computers to aid in the mining process [27]. Another possibility to illegally use Bitcoins is to exchange Bitcoins against botnets conducting a dDos-attack.[5] Of course, the construction of botnets is subject to criminal law provisions, but most provisions relate to computer fraud or other data related crimes [28]. Both legal systems the German and the American, punish such computer crimes irrespective of the exact purpose (obtaining official money or Bitcoins or something else) behind them.[6] However, the enforcement of such provisions is time-consuming and difficult due to the quasi-anonymous features of the Bitcoin-System as described above.

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[4] Property ('Eigentum') in the meaning of § 903 German Civil Code (BGB) only relates to physical/tangible objects ('Sachen', § 90 German Civil Code).

[5] For example: http://www.hackforums.net/.

[6] Compare §§ 202a ff. §§ 303a ff. German Criminal Code and 18 U.S. Code § 1030.

3.4 "Theft" of Bitcoins?

If Bitcoins or Bitcoins users are the target of criminal activity, such as theft, the application of traditional criminal law provisions is not straightforward and legal recourse is unclear. Bitcoins are computer-generated and not physically existent. Such kind of immaterial object is not automatically part of national provisions protecting against theft. In Germany, for instance, only physical objects can be the object of theft [29]. Other provisions protect against the manipulation of data or computer fraud (§§ 202a et seq. and 303a et seq. German Criminal Code), but such provisions were not necessarily designed to cover theft of virtual goods. § 303a of the German Criminal Code, which protects the integrity of data, is occasionally used as alternative to prosecute such offences. Due to this uncertainty, there are very few cases available that demonstrate how the theft of virtual objects would be prosecuted [30]. Apart from such practical difficulties in enforcement, the features of Bitcoins lead to problems relating to the application of basic criminal law rules. However, the theft of virtual goods is growing and this development is profoundly challenging traditional criminal law.

In the US, state law defines theft. For instance, Article 155 New York Penal Law, punishes the stealing of property. As already seen in the context of money laundering the status of virtual goods as property has been discussed but not answered yet. This problem exists under various legal systems. In the Netherlands, usually very progressive in the field of internet law, the Supreme Court classified virtual goods as property and sentenced a teenager for stealing virtual money and virtual goods in the online fantasy role playing game Runescape [31]. Some single US courts have the tendency to appreciate virtual property as well [32, 33], nonetheless the protection against theft of Bitcoins is still unclear.

To give an interim result, criminal law provisions in the US and Germany can only apply to Bitcoins, if their scope is extended. One main problem in this regard seems to be the virtual nature of Bitcoins. If provisions, such as the German theft provision, do not allow for such extensions, other provisions have to be designed to cover these cases.

4 Civil Law

Similar to criminal law, classifying Bitcoins under German civil law is also difficult due to their virtual nature. The German civil law system distinguishes special categories of objects, which can be covered by rights, namely physical objects, claims and a strictly limited [34] number of other immaterial goods (IP rights). However, Bitcoins are neither physical objects nor are they claims because there is no issuer and a Bitcoin's value is not covered by any guarantees.

The only possible approach to classify Bitcoins under the currently existing list of IP rights is the German Copyright Act. This act protects works which represent a personal intellectual creation (§ 2 of the German Copyright Act (Urheberrechtsgesetz)), and contains special rules for the protection of software (§ 69c of the German Copyright Act). But Bitcoins are neither a personal intellectual creation (but the result of a software process) nor software (just the Bitcoin protocol is software). German civil law does not include any rules for the property of virtual

goods comparable to the rules about exclusive property rights over physical objects. Given the analysis above, there does not seem to be a proper place for Bitcoins in the German legal system.

Nevertheless the Bitcoin system plays a vital and growing role in online trading. The number of Bitcoin users who mine, buy, hold and sell Bitcoins is increasing. And more and more e-commerce shops accept Bitcoin payments. But all participants are confronted with considerable legal uncertainty, as described below.

4.1 E-commerce

Since Bitcoins are used in e-commerce the following questions arise: Which types of contracts exist between the parties of a Bitcoin transaction and which legal norms are applicable? Is there a repayment claim in the case of dispute? And what impact does the use of intermediaries have on the legal classification? The answers to these questions are difficult to find, in particular since German civil law is quite complex.

First of all it has to be clarified that contracts which include Bitcoin transactions generally are legally effective in accordance with the fundamental principle of contractual freedom. But to answer the questions raised here it is necessary to identify the legal nature of Bitcoin contracts.

If somebody buys a product in exchange for money this is classified as a contract of sale. It seems obvious this would cover a typical purchase paid for with Bitcoin. But a closer look at the legal norm that defines contracts of sale under German law (§ 433 of the German Cilvil Code (Bürgerliches Gesetzbuch)) yields a different conclusion. It defines a contract of sale as a contract that includes the duty to transfer the ownership of a movable thing[7] in exchange for *monetary* payment [35]. Therefore this designation does not apply because Bitcoins cannot be classified as money that is meant to be an official currency. It is characteristic of money that it is linked with a general duty of acceptance.[8] But nobody is required to accept Bitcoins as payment instead of traditional money.

The situation in which somebody buys Bitcoins in exchange for money cannot be classified as a conventional contract of sale either because Bitcoins are not movable (physical) things; however, German law equates the sale of rights to the sale of movable things (§ 453 of the German Civil Code). So the rules about contracts of sale would be applicable to the discussed constellation if Bitcoins were rights. Right in this case is defined as an individual's power to require an action or an omission from somebody else. Examples are pecuniary claims or copyrights. However, Bitcoins cannot be classified as rights. A Bitcoin is not a claim and in particular there is no one who is required to take Bitcoins in exchange for money or who grants Bitcoins a certain value. One cannot have a copyright in Bitcoins either. And one cannot own them in the sense of having an exclusive right.

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[7] The US federal Uniform Commercial Code (U.C.C. Article 2 § 2-106) and the United Nations Convention on the Sale of Goods (Article 1 Section 1) are only applicable to the sale of movable things, too.

[8] In Germany § 14 Section 1 of the German Federal Bank Act classifies the Euro as legal tender. US American Law classifies United States coins and currency as legal tender in 31 USC § 5103.

Another solution seems to be the classification as a contract of barter [36]. German law equates such contracts to contracts of sale (§ 480 of the German Civil Code). Contracts of barter can include the exchange of movable things and rights [37, 38]. According to a very broad understanding [39], this can encompass other miscellaneous assets of value that can be legally transferred as well. However, in situations in which Bitcoins are exchanged against money, barter contracts are not applicable, since only exchanges not involving money can be classified as barter contracts. The legal situation in the USA is similar. Barter contracts, which are covered under the American Uniform Contract Code (UCC), are contracts of exchange without the use of money as well [40].

It could be argued, that the transfer of Bitcoins should be handled as an "atypical work and service contract" [41]. This contract, correctly worded, would require the successful transfer of Bitcoins and not merely the attempt to transfer them. This stipulation however, does not help with the issue of contracts that deal with the purchase of physical goods using Bitcoins.

4.2 Liability

One fundamental question concerns ensuring that the contractual risks are properly balanced between merchant and customer. What happens in the case of data loss or data misuse? To answer these questions it is necessary to classify the legal nature of Bitcoins and the contracts that include them. As mentioned above, there is currently no viable solution to this problem. Since one could nonetheless make a binding contract involving Bitcoins, even without classifying the type of contract, one could ask why the classification of contracts is important anyway. Under German law the identification of the contractual type is essential for the identification of the relevant liability rules, since there are special rules (about liability, consumer protection etc.) for certain types of contracts. And if any of these special rules are applicable, general rules are not. For this reason liability issues will remain unclear as long as the contractual type is not classified.

Moreover Bitcoin users face a couple of practical problems respective to the enforcement of any claims. One example is the irreversibility of transactions. Bitcoin shares this feature with some other payment methods, indeed, but in contrast to these other (central) payment methods there is no central instance who can execute a reverse transaction in cases of mistakes. Thus, the payer carries the risk of transferring Bitcoins to an unknown payee or a wrong public key.

4.3 Enforcement/Foreclosure

Finally the legal situation of Bitcoins in the field of enforcement is unclear. It has to be clarified whether and, if so, how a creditor can seize a debtor's Bitcoins (provided that he attains knowledge of it). The German Code of Civil Procedure includes a – conclusive – list of possible seizable assets.

First there exists the ability to seize (and transfer) monetary claims (§§ 829, 835 of the German Code of Civil Procedure). But, as mentioned above, Bitcoins are not claims so this legal rule is not applicable. German law also recognizes the ability to seize physical objects, but Bitcoins are not physical objects. Hence the right to seize the data storage medium on which the debtor's wallet is stored does not entitle the creditor to access and confiscate the Bitcoins connected to the wallet.

§ 857 of the German Code of Civil Procedure, which allows the seizure of „other pecuniary rights", suggests another possible type of seizure. This should serve as a catch-all provision but, as mentioned above, Bitcoins are not rights. So the legal status of Bitcoins in the area of enforcement remains uncertain as well. In US law, the nature of Bitcoins and the question of legal categorization in civil law related contexts seems to be just as challenging as in German law. It is, for instance, unclear whether Bitcoins are securities, commodities or a currency [5]. If they are a security, other regulations, "including general antifraud rules", would then be applicable [5]. Narrow definitions in both, German and US law, plus the technical features of Bitcoins currently lead to the mentioned enforcement difficulties.

4.4 Common Law

At first glance there seem to be similar problems in the field of Bitcoin contracts and e-Commerce under the US American system. But in contrast to Germany with its civil law system that is based on and bound to codified laws, the US legal system follows the common law approach that is based on case law therefore characterized by a higher level of flexibility. Thus, under US law, it is somehow easier to find solutions for the classification of Bitcoins and related issues without changing the existing law but through case-law. Before however such decisions are made Bitcoin suffers from the legal uncertainty under US law as well as under German law.

5 Conclusion

It seems that current legal rules are not designed to handle a decentralized virtual currency like Bitcoins. Traditional laws lack the flexibility to adapt quickly to new technological contexts. The article illustrates that the virtual aspect of Bitcoins plays a crucial role. One could add that Bitcoins are just one example that shows the fundamental difficulties of the legal treatment of virtual objects. Data that only exist in a digital form is another prominent example. In Germany especially the criminal and civil law systems are by no means prepared for the challenges arising outside the traditional understanding of physically existent objects. In the US, the legal situation is also still unclear in large parts, but the flexible nature of case law reshapes the issues. So far, it appears that governments have been able to adapt to the characteristics of the Bitcoin-system and hence effectively regulate only in the context of regulatory and tax law. From the users' point of view, this development raises some concerns. There is a danger of imbalance, if only public law rules increase and civil as well as criminal law remain unable to adapt. Therefore, if the regulation of the Bitcoin-system increases, attention has to be paid to a balance between the different

interests at stake. Some of the other critical fields of legal regulation have been addressed in this article.

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