



The bitcoin trader

a facilitating role in the cash out of criminal proceeds

Anti Money Laundering Centre

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Introduction

In 1998, scientist David Chaum was the first person to attempt to combine encryption (cryptography) with electronic currency. Bitcoin was the first real crypto-currency and was released for the first time in January 2009. As of 2011, the interest in Bitcoin significantly increased. Given, among other things, the anonymous nature of Bitcoin, Bitcoin became a popular means of payment on the dark web. Criminals, however, soon encountered a lack of anonymity in the cash out. The moment the Bitcoins were converted into an electronic legal tender, the anonymity could no longer be guaranteed. The Bitcoin trader began to provide in the need for anonymity by purchasing Bitcoins against cash at an attractive commission fee. By doing so, the Bitcoin trader facilitates criminal customers and he could be guilty of the offence of money laundering. This document describes the role of the Bitcoin trader as facilitator in the cash out of criminal proceeds.

Methodology

The note 'The Bitcoin trader, a facilitating role in the cash out of criminal proceeds' was drawn up by the AMLC based on literature study, interviews with experts as well as information and experiences from criminal investigations whereby underlying crime has been established.

Reader's guide

Part 1 first of all provides general information on the phenomenon of Bitcoin. It focuses on Bitcoin in general, the anonymity of Bitcoin, the link to the illegality with regard to Bitcoin and the so-called 'Bitcoin mixer'. Part 1 concludes with a description of the profile of a Bitcoin trader. Part 2 provides an overview of the money laundering typologies regarding the purchase and sales of virtual currencies validated by the Financial Intelligence Unit of the Netherlands.

Part 1 Bitcoin and the Bitcoin trader

What is Bitcoin?

Bitcoin is an independent payment system with its own virtual currency, in which the users perform transactions directly with each other via the Internet without intervention of other parties, such as banks. A Bitcoin is not made of nickel or silver, but consists of a small piece of encrypted computer code to which the market of supply and demand places a value in euros or another legal tender.

Bitcoins are not physically available but are digital units. As with Euros, Bitcoins can also be divided into smaller units, thus enabling smaller transactions¹. Bitcoins can be exchanged through the Bitcoin network. This makes it possible for Bitcoins to be used as means of payment to settle economic transactions (goods and services). Apart from Bitcoin, there are also other virtual coins such as Litecoin and Peercoin. Bitcoin is the largest in turnover and users.

How does Bitcoin work?

To be able to pay with Bitcoins or to receive Bitcoins, you first need a Bitcoin address. This Bitcoin address is the public part of a key pair and can be shared with the trade partner. A Bitcoin address is comparable to a bank account number. A Bitcoin address has at least 27 up to 34 characters. The private part (private key) of the key pair may not be shared and is to be stored with care.

In practice, transferring Bitcoins means you enter the Bitcoin address of the receiving party (the payee), you fill in the amount of Bitcoins (the transaction amount) and click on 'send'. Next, all sorts of cryptographic operations take place to realise the transaction. Once you have transferred the Bitcoins, this cannot be undone. Upon sending the transaction, the user has the possibility to pay a voluntary 'fee'. By paying a fee, a transaction will be verified sooner.

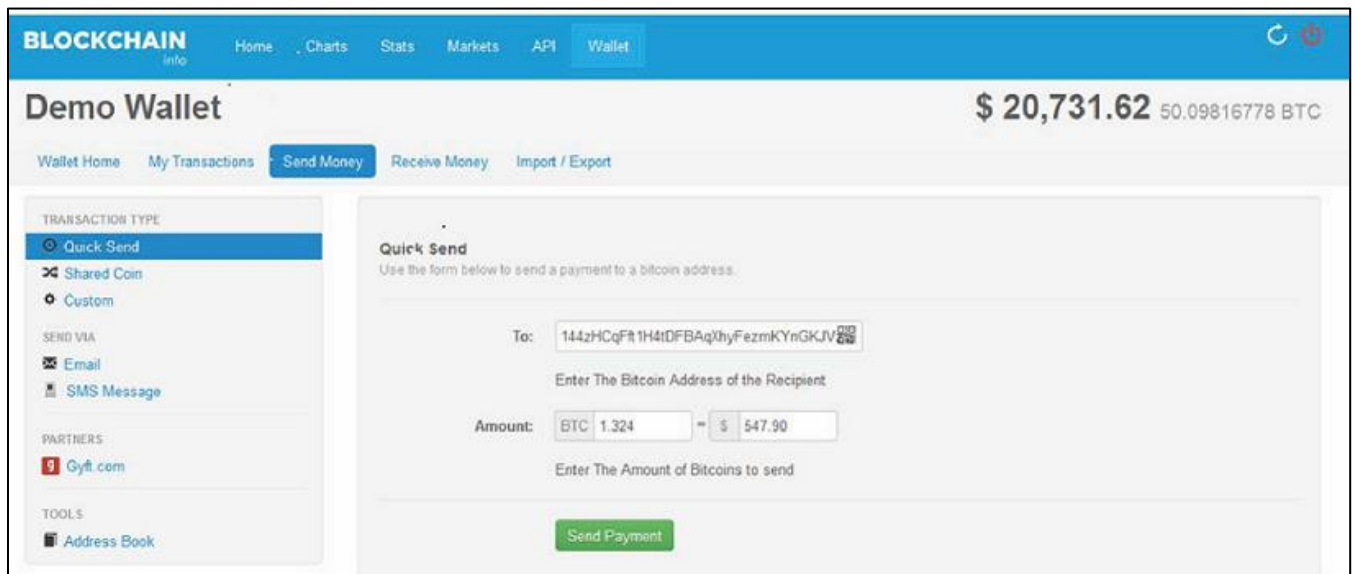


Figure 1 An example of a transfer of Bitcoins.²

¹ The smallest amount is one Satoshi. One Bitcoin consists of one hundred million (100,000,00) Satoshi.

² B.H.M. Custers, J.J. Oerlemans and R.L.D. Pool 'Ransomware, cryptoware en het witwassen van losgeld in Bitcoins' ['Ransomware, cryptoware and money laundering ransom money in Bitcoins', *Strafblad [magazine]* 2016 (2), 15. The wallet shown in the figure is managed by the company Blockchain. Blockchain is the name of a popular Bitcoin wallet that you can download via their service, please see: <https://blockchain.info/wallet/#/>. In addition, Blockchain is the name for the data structure behind the Bitcoin network (the general ledger in which all transactions are recorded). Blockchain enables you to validate transactions without a central authority, to check accounts and to set up a payments system as it were, without a central authority but it being a decentralised system.

Your Bitcoins are in your Bitcoin wallet. You can download a wallet for example via www.bitcoin.org. You can generate one or more Bitcoin addresses in the wallet. A Bitcoin address and a wallet are not linked to an identity or name.

There are different types of Bitcoin wallets. The first one is the mobile wallet, an app on your mobile phone. Bitcoin Wallet is a well-known example. Second is the software wallet, where the wallet software is installed on a computer. An example of this is Bitcoin Core. Furthermore, there is the online wallet, for which you open an account with an online service. A frequently used online service (web wallet) is Blockchain.info. There is also the hardware wallet, which stores the private key in a separate, properly secured, hardware device. Finally, there is the paper wallet: in this case you have printed your private key and public key. An advantage of this is that it prevents your Bitcoins from falling into the wrong hands (think of cyber criminals). The disadvantage is that you can lose it and do not have any backup.³

There are two types of wallets, dynamic wallets and static wallets. In the dynamic wallet, following each transaction, a new Bitcoin address is made and stored in the wallet. A static wallet always uses the same Bitcoin address for the transactions. The transactions done with a dynamic wallet are consequently more difficult to follow.

How do you get your Bitcoins?

You can get Bitcoins in different ways:

- You earn Bitcoins through “mining”
- You buy Bitcoins from exchangers, marketplaces (exchanges) or traders
- A person pays you in Bitcoins for goods delivered or services provided

Mining

The Bitcoin has to be virtually "dug". Every day a certain quantity is released to people who dig up Bitcoins ("mining"). New Bitcoins are tangled up in algorithms that are extremely difficult to crack. This cracking is done by deploying computing power. These "miners" not only unlock new Bitcoins and add these to the Bitcoin network, they also check Bitcoin transactions in the network. Anyone can mine by purchasing the necessary hardware and relevant software and, as one of the possibilities, to register with one of the mining pools. The number of Bitcoins you receive after your mining pool has dug up Bitcoins, depends on your contribution to the pool.

Purchase with cash or scriptural money

You use a wallet for purchasing, holding, selling and transferring Bitcoins. The actual purchase of Bitcoins can take place by means of electronic money or cash. In order to purchase Bitcoins with electronic money, you need a credit in the form of a legal tender, for example a bank account number in Euros with a bank⁴ or on-line payment services such as PayPal.

By means of your wallet and your credit you can purchase Bitcoins. A first option is through a Bitcoin exchange office. Bitcoin exchange offices buy and sell Bitcoins at their own risk and expense. They quote purchase prices and selling prices against which Bitcoins can be bought from them and sold to them, respectively. Examples of Bitcoin exchange offices include Bitonic, Coinvert, BTCdirect and Happycoins. at Bitonic the exchange costs vary between 0.1 and 1.5% of the transaction amount. This is the percentage difference (spread/fee) between purchase /selling price and the reference price/ market value of a Bitcoin. BTCDirect charges a fixed fee/ premium of 2% which is incorporated in the spread. In both cases, a reimbursement for the payment processor is included in the spread. Usually there is a small network fee payable for miners.

³ For further information on the paper wallet and how to create this, please go to <http://www.coindesk.com/information/paper-wallet-tutorial/>.

⁴ Bitcoins can be purchased via, for example, an iDEAL transaction in Euros. This is one of the easiest and cheapest ways of getting Bitcoins. However, there will be a link between the Bitcoin address (exchange) and the bank account (banking institution) with associated identifying data.

Apart from Bitcoin exchange offices, there are also Bitcoin market places.⁵ These are trading platforms where parties can purchase and sell Bitcoins. A market place is an intermediary, comparable to an on-line investment platform on which supply and demand meet, a market is facilitated (transactions, pricing) and credits (money and Bitcoins) of the customers are stored. For these market places, also known as exchanges, you generally have to register and, in some cases, also have to provide identifying personal details. In many cases, this is done through derived identification by transferring an amount into the account of the exchange.

Popular Bitcoin exchanges include Kraken, CleverCoin (now part of Kraken) and Bitstamp. On all transactions from Bitcoin into Euro and vice versa that the exchange facilitates, Kraken charges a fee of 0.26% and BitStamp a fee of 0.1% to 0.25% depending on the amount. A fee of 0.25% is charged by BL3P, the market place of Bitonic. Third-party expenses (payment processing) are charged on separately.

There is also a (limited) number of platforms that do not work with orders, but mainly operate as intermediaries or market places and bring together supply and demand. A well-known example is LocalBitcoins.com.

It is possible to purchase Bitcoins with cash money via so-called Bitcoin ATMs. You can enter Euro banknotes in the Bitcoin ATM, after which the equivalent in Bitcoins is deposited in your digital wallet. There are a couple of these in the Netherlands.⁶

Furthermore, it is possible to purchase Bitcoins against cash in person (face to face). People offer to purchase Bitcoins against, for example, cash via LocalBitcoins.com. The person quotes his price and limits (minimum and maximum transaction size) that he charges for (cash) purchases and sales. This is the trader we refer to in this phenomenon description.

Bitcoin payments for goods or services

You can also get Bitcoins by being paid in Bitcoins for delivering goods or providing services in economic transactions. You then get the counter value of your goods delivered or services rendered in Bitcoins directly deposited in your wallet. These could, by the way, also be illegal goods and services.

If you offer goods or services through a web shop that accepts Bitcoins as on-line payment means, the transaction takes place via a Payment Service Provider (PSP). Examples of PSPs include Bitpay, Qantani Payments and Mollie.

How do you sell your Bitcoins?

You can sell Bitcoins in different ways:

- online at exchangers and exchanges;
- in person (face-to-face) with a trader in cash.

When you sell to or via exchangers and exchanges, the profits will, as a general rule, be deposited into a bank account.

If you want to sell your Bitcoins against cash, you can do this through a trader who advertises on the Internet. When selling Bitcoins to a trader against cash a physical meeting is required, whereby, at the time of the transaction, the Bitcoins are transferred online from one wallet to the other, and the money is handed over. This poses risks for both parties. In the event of larger transactions, parties can take

⁵ In practice, both Bitcoin platforms as well as Bitcoin exchange offices refer to themselves as a 'Bitcoin Exchange', which could lead to confusion whether exchange means a platform or an exchange office.

⁶ By the end of 2015, the number was estimated at seven, see: <http://www.bitcoinspot.nl/wereldwijd-zijn-er-500bitcoin-pinautomaten-waar-staan-ze-in-nederland.html>.

measures to ensure that transactions are carried out as agreed on beforehand. Use of straw men, the choice of (public) meeting points and securing the environment are examples.

Other ways of getting cash are indirect, where payments are first made into a bank account, by credit card or prepaid card, after which cash withdrawals are possible.

The value of a Bitcoin

The price of Bitcoins is determined by the value that traders attribute to Bitcoins, through supply and demand on the exchanges. The pre-determined number of Bitcoins to be issued 21 million.^{7 8} The value of the Bitcoin fluctuates strongly, as the figure below shows.

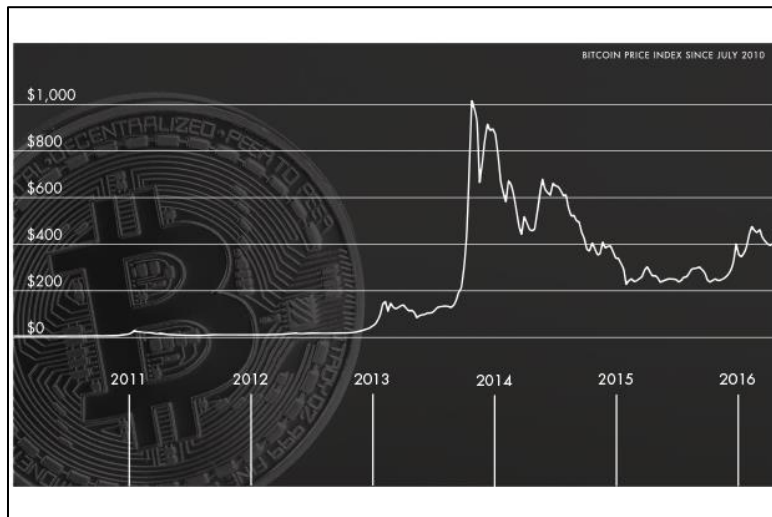


Figure 2 The rate of the Bitcoin from 2011 to 2016⁹

www.coindesk.com shows the daily closing rates of the Bitcoins in dollars.¹⁰

Dutch laws and regulations with regard to Bitcoins

Bitcoins are virtual currencies with which you can pay worldwide. Dutch case law does not consider Bitcoins to be money, but a means of exchange, such as silver and gold.¹¹ In the Netherlands, the Bitcoin, therefore, is not a legal tender.¹² Bitcoin, namely does not fall within the definition of (electronic) money within the meaning of the Financial Supervision Act. Virtual currencies, such as Bitcoins, do not fall within the scope of financial supervisory legislation.¹³

⁷ This number will be reached by mid 2140. Until then, the Bitcoins will be issued in a phased manner. The vast majority of Bitcoins will already be in circulation by 2033. Source: B.H.M. Custers, J.J. Oerlemans and R.L.D. Pool 'Ransomware, cryptoware en het witwassen van losgeld in Bitcoins' ['Ransomware, cryptoware and money laundering ransom money in Bitcoins', *Strafblad [magazine]* 2016 (2), 15.

⁸ The total value of all Bitcoins added together is about 10.8 billion dollars (9.6 billion Euro), as stated by the Financieel Dagblad [Dutch Financial Times], see <http://fd.nl/beurs/1155828/bitcoin-bereikt-marktwaarde-van-10-mrd>. This is no record. The coin reached its first major peak at the end of 2013. The price of one Bitcoin then went up by more than 1,100 dollars and as a whole reached a market value of nearly 14 billion dollars, see

<http://www.bankingreview.nl/artikel/29030/banken+verzekeraars/bitcoin-marktwaarde-overstijgt-10-miljard-dollar>.

⁹ <http://www.spectator.co.uk/2016/03/is-bitcoin-a-safe-haven-against-mainstream-money-mayhem/>.

¹⁰ To convert into Euros, you can make use of the 'Historical Exchange Rates' (<http://www.excelclout.com/historical-exchange-rates-in-excel/>).

¹¹ District Court Overijssel 14 May 2014, ECLI: ECLI:NL:RBOVE:2014:2667. The Dutch Court ruled that the "wallet" in which Bitcoins are being kept does not differ much from an ordinary bank account. However, this is not managed by a bank for example, but by the owner himself, as such these are not scriptural funds.

¹² Bitcoins do not appear physically. Therefore, Bitcoins cannot be regarded as currency. Bitcoins are not electronic money either, as there is no claim on the payer.

¹³ Letter from the Minister of Finance to the President of the Lower House of the States General dated 19 December 2013, reference: FM/20131939 U.

You have to indicate the value of your Bitcoins in Box 3 of the income tax return.¹⁴ When you trade in Bitcoins on a commercial basis, like Bitcoin traders, you must account for the profits in your tax return. The European Court of Justice has ruled that Bitcoins may be traded exempt from VAT.¹⁵ Transactions in goods and services that are paid for in Bitcoins, however, are not exempt from VAT.

Some advantages and disadvantages of Bitcoins

Conducting a Bitcoin payment is practically free of charge and very quick. Each Bitcoin transaction has a unique code, which is not linked to an identity or name giving you thus anonymity. Moreover, there are no borders within the network, so it does not matter where the payer and receiver are located. This is different in the mainstream payments system in which entrepreneurs owe transaction fees for making (the process of) the payments as well as for every international transfer, and whereby bank account numbers with identifying information are linked to the transactions.

Reliability in legal tenders is achieved by the fact that the money emission is done by a central bank, by supervision on the banks and the trust put in a bank due to supervision by the central bank (in the Netherlands this is De Nederlandsche Bank [The Dutch Bank] and for example the deposit guarantee scheme. This is not the case for Bitcoins. There is no authority that can offer suchlike reliance. If an on-line service for Bitcoin wallets goes bankrupt or gets hacked, the customers will have lost their Bitcoins.¹⁶ The value of the Bitcoin strongly fluctuates, partly due to the relatively small scale of the coin, scandals and the (associated) trust of consumers. In this sense, the Bitcoin can be considered a risky investment. Sending Bitcoins is an irreversible process; when you have transferred too much or to a wrong address, this cannot be undone.¹⁷

Bitcoin and anonymity

How anonymous is Bitcoin?

As described above, you make use of a wallet and one or more Bitcoin addresses when carrying out transactions. A wallet and an address are not linked to a name. To that extent you are trading as an anonymous person.

However, all Bitcoin transactions are visible and in principle traceable. All transactions that take place in the Bitcoin network, are namely stored in the so-called Blockchain. This public ledger stores, among other things, when a transaction has taken place, which Bitcoin addresses have been involved in this and the amount of the transaction.

¹⁴

http://www.belastingdienst.nl/wps/wcm/connect/bldcontentnl/belastingdienst/privewereld/vermogen_en_aanmerkelijk_belang/vermogen/wat_zijn_uw_bezittingen_en_schulden/uw_bezittingen/overige_bezittingen/overige_bezittingen.

¹⁵ <http://fd.nl/ondernemen/1124130/bitcoin-is-een-valuta-en-dus-vrij-van-btw>.

¹⁶ Annual Report of the Nederlandse Bank [Dutch Bank] 2013, p. 84. 84.

¹⁷ B.H.M. Custers, J.J. Oerlemans and R.L.D. Pool 'Ransomware, cryptoware en het witwassen van losgeld in Bitcoins' [Ransomware, cryptoware and money laundering ransom money in Bitcoins], *Strafblad [magazine]* 2016 (2), 15.

Hoogte	Leeftijd	Transacties	Verzonden Totaal	Doorgegeven door	Grootte (kB)
422205	2 minutes	2543	19,756.74 BTC	BitFury	998.12
422204	20 minutes	410	1,908.75 BTC	Telco 214	749.16
422203	22 minutes	2076	8,091.97 BTC	F2Pool	999.81
422202	28 minutes	2338	24,074.91 BTC	F2Pool	999.79
422201	36 minutes	2710	22,128.14 BTC	AntPool	998.12
422200	1 hour 4 minutes	1263	6,806.21 BTC	BTCC Pool	997.08

Laatste Transacties	Amount
c4c4e1e2771feff4d954a6888...	7.4287257 BTC
071d1e8b36d8ebbd2b02d922b...	0.06095616 BTC
6769f295cbd0ea720ccae49b7...	0.06358153 BTC
5ebf9041fde053afb5a7c953b...	41.9422672 BTC

Figure 3 Screen shot of the Blockchain with actual Bitcoin transactions taking place worldwide

Via the search screen on <http://blockchain.info> in the lower right corner of figure 3, you can enter a Bitcoin address. You will get an overview of the transactions that were done with that address. The Bitcoins are traceable via Blockchain up to the moment they once were created.

Via the website <http://walletpal.com>, you can see the transactions that have been done with certain wallets. You can enter a Bitcoin address in the search field of this website. A message will appear stating that this Bitcoin address is part of a certain wallet. After that you will get to see all transactions done with this wallet. Via the button 'show wallet addresses' all Bitcoin addresses connected to this wallet become visible.

date	received/sent	balance	transaction
2016-02-19 09:14:24	+0.00263622	0.00263622	bd04500b4b2c8072229e...

Figure 4 Screen shot of WalletExplorer which wallet is linked to a certain transaction

The above-mentioned tools, available through the Internet, can therefore help you find out which transactions were done with which Bitcoin address. In addition, you can find out which Bitcoin addresses belong to which wallet.

Possible breaches of the anonymity of Bitcoin.

A wallet and a Bitcoin address are not linked to a name of a natural person and thus provide anonymity. However, you have to download a wallet, purchase your Bitcoins, transactions are being initiated and registered via the Internet and at some point you want to sell Bitcoins. In this process, traces can be left behind that eventually lead to the identity of the person behind the wallet, the addresses, the transactions and the money flows.

You need a bank account to purchase and sell Bitcoins through Bitcoin exchange offices or Bitcoin exchanges. Money is transferred from this account to the exchange office or the exchange in return for Bitcoins. When selling Bitcoins, the exchange office or the exchange transfers the monetary equivalent

to the bank account. The banking institution also knows the identity of the account holder and moreover, all (other) financial transactions. Combine the Bitcoin transactions and the financial transactions of the bank account and you will get a fairly good view of the length and the scope of the trade by the person concerned. The banking institution also has the obligation to report unusual transactions, due to which this information can be disclosed.¹⁸ In 2014, supervisor De Nederlandsche Bank (DNB) warned banks and payment institutions against integrity risks of virtual currencies. DNB qualifies the present virtual currencies as products with very high risk profiles and, as such, as payment means they are favourable links in money laundering schemes.¹⁹

Increasing anonymity

On Internet websites it is advised to hide your IP address by using the Tor network.²⁰ By making use of the Tor network, the IP address of the user is rendered anonymous, making it impossible to trace the identity and the location of the person. Users of the Tor network can therefore surf the Internet anonymously, the IP address is not logged. In this way, your Bitcoin transactions cannot be linked to your IP address and therefore not linked to you. Also the use of public Wi-Fi networks or the use of a VPN service provider²¹ constitutes anonymity on the Internet.

You can also generate more anonymity by making use of:

- a third party (straw man)
- a Bitcoin mixer
- Coin-Join
- a Bitcoin trader

The straw man

One or several third parties ('straw men') may be used for opening bank accounts, whether or not in the names of those third parties, or in the names of legal entities set up by those third parties (including foundations), which are used for purchasing Bitcoins or receiving its equivalent in Euros when the Bitcoins are sold. Third parties can also be used to withdraw money from the account and to undertake the actual cash purchase transactions for the trader. In this way a person can operate as an independent trader, or a criminal organisation can change its Bitcoins without revealing his or its identity.

The Bitcoin mixer

A Bitcoin mixer pertains to on-line services that are called "mixing services". After paying a commission to the mixer, Bitcoins are exchanged against other Bitcoins. This commission is a percentage of the total amount of Bitcoins (approx. 2% to 3.5%). Because Bitcoin transactions are recorded in a public register (the Blockchain), the origin of Bitcoins can be traced. The Bitcoin mixer makes it impossible to trace transactions. Mixing services have only one purpose and that is to disguise the source of the Bitcoins. Some of these mixing services, such as BitLaundry, explicitly state this: "Secure Launder renders your bitcoins completely untraceable, even to the most persistent forensic investigator."²²

In order to constitute anonymity for service providers and customers, mixing services often operate via Tor networks. Furthermore, mixing services mostly seem to operate from jurisdictions with which no,

¹⁸ Article 1 in conjunction with Article 16 of the Money Laundering and Terrorism Financing Act.

¹⁹ Newsletter banks June 2014 of 3 June 2014 'DNB warns banks and payment institution against integrity risks of virtual currencies. <http://nieuwsbrief.dnb.nl/edition/nieuwsbrief/-nieuwsbrief-2014/152>.

²⁰ Tor is short for the Onion Router, a special network that renders users anonymous. There is a browser available, the Tor Browser, giving you access to this network. Put simply, the Tor allows you to surf anonymously, visit blocked websites and surf to websites that end with .onion via Tor's own network. You cannot visit these websites via a regular browser. Source: <http://www.nu.nl/internet/3852521/tor-diepe-web-en-zo-gebruik.html>.

²¹ A VPN tunnel is set up through a VPN service in order to encrypt and render your internet traffic anonymous. As a VPN service changes your IP address, you can then hide your geographical location or seemingly alter it.

²² <https://bitlaunder.com/laundry-bitcoin>.

or hardly any judicial cooperation is accomplished.²³ The mixer is constructed in such a way, that you do not get your own Bitcoins back, not even if you put your Bitcoins through the mixer in different portions. The Bitcoins you get back following the 'mixing', are Bitcoins originating from other persons who also make use of this service. These will be Bitcoins with other transaction histories. By using the mixer, your transaction history (nature, size, wallets and parties) cannot be seen or reconstructed.²⁴ You can, however, see that Bitcoins that have gone into the mixer, have in fact been in a mixer.²⁵

The CoinJoin

A special way of mixing is mixing based on CoinJoin. CoinJoin is a form of mixing whereby several persons collectively make one Bitcoin transaction. Preferably, the amounts that are offered are of equal size to make it nearly impossible to relate the output of transactions (the amounts for the beneficiaries) to the input of transactions (the amounts that are offered).²⁶

The Bitcoin trader

A Bitcoin trader is a person who buys and/or sells Bitcoins against cash on a commercial basis and at his own expense and risk. By making use of the services of a Bitcoin trader, it is possible to buy and sell Bitcoins without using an exchange office, an exchange, a bank account or electronic money. You do have to pay a higher commission to the trader than you would to a regular exchange. The trader charges between 7% and 15% of the transaction value, via an exchange this is between 0.25 - 0.30% (excluding payment processing fees).

Below, the phenomenon of 'Bitcoin trader' will be discussed more extensively.

Bitcoins and illegality

Like other currencies, you can use Bitcoins in various ways. First of all, you can use Bitcoins for (consumer) spending. This can be done on-line, through web shops that accept Bitcoins as means of payment via PSPs, as well as in regular shops that accept Bitcoins. You can pay by scanning a QR code or by holding your phone near NFC checkouts.²⁷ Moreover, you can invest in Bitcoins or speculate with Bitcoins.

A Bitcoin address and a wallet are not linked to an identity or name. Due to this anonymous nature, Bitcoins also attract criminal activities.²⁸ Bitcoins offer the opportunity to launder unlawfully obtained money in a relatively anonymous way.²⁹ A lot of traders on Darknet markets (including AgoraMarket, NucleusMarket, EvolutionMarket, MiddleEarthMarketplace, AlphaBay, Abraxis) only accept payments made with Bitcoins. These are on-line market places that offer criminal services and products. Think for example of drugs, weapons and child pornography but also stolen credit card

²³ B.H.M. Custers, J.J. Oerlemans and R.L.D. Pool 'Ransomware, cryptoware en het witwassen van losgeld in Bitcoins' ['Ransomware, cryptoware and money laundering ransom money in Bitcoins], *Strafblad* 2016 (2), 15 with reference to: M. Möser, R. Böhme & D. Breuker, 'An inquiry into money laundering tools in the Bitcoin ecosystem', *eCrime Researchers Summit (eCRS)* 17-18 September 2013, p. 1-14.

(<http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6805780>).

²⁴ D. Moore en T. Rid, 'Cryptopolitik and the Darknet. Encryption policy is becoming a crucial test of the values of liberal democracy in the twenty-first century' *Survival*, 58 (1): Global Politics and Strategy 2016, p. 17.

²⁵ For more information on the Bitcoin mixer, please see R.S. van Wegberg, J.J. Oerlemans and M.O. van Deventer 'Bitcoin Money Laundering: Mixed Results? An explorative study on money laundering of cybercrime proceeds using Bitcoin', *Journal of Financial Crime* (2017, in press).

²⁶ For more information on CoinJoin mixing: <https://bitcointalk.org/index.php?topic=279249>.

²⁷ NFC (Near Field Communication) is a non-contact communication method. NFC is used, for example, when you make contactless payments by bank card.

²⁸ Also see R. Betlem, 'Meer controle op bitcoin-transacties', *Het Financieele Dagblad* 3 August 2016.

²⁹ The FBI established this already in 2012. Source: FBI 'Bitcoin virtual currency. Unique features present distinct challenges for deterring illicit activity', *Wired* 5 September 2012, www.wired.com/images/blogs/threatlevel/2012/05/Bitcoin-FBI.pdf (consulted on 14 August 2017).

information and services related to cybercrime.³⁰ Most of what is offered on a Darkweb market place are illegal goods.³¹ Also in the field of cybercrime, criminals frequently use Bitcoins.³²

Cash has had a privileged status in illegal activities for a long time. The problem with cash is the logistics (storage, transport, size), however it has the charms of anonymity and the absence of a paper trail. The strength of the Bitcoin is the quick transfer of money. Amounts can be sent all over the world in just a few seconds. The names of the sender and receiver are not mentioned, thus providing parties with more anonymity than they would have with regular banking transactions. Europol estimates that 40% of intra-criminal traffic takes place in Bitcoins.³³

The Bitcoin trader as facilitator of money laundering

A Bitcoin trader is a person who buys and/or sells Bitcoins against cash on a commercial basis, at his own expense and risk. A Bitcoin trader can be recognised by frequent Bitcoin transactions, the large numbers of Bitcoins, the larger amounts he exchanges at an exchange or exchange office, large receipts in his bank account originating from an exchange or exchange office, without any visible business activities which are paid in Bitcoins.³⁴

A vendor of Bitcoins and a Bitcoin trader come into contact via adverts of the Bitcoin trader on the 'surface' web, for example via localbitcoins.com, via forums on the Dark web or on a Bitcoin platform. Subsequently, the vendor of the Bitcoins and the Bitcoin trader meet somewhere in the physical world after which on-site a Bitcoin transaction takes place via the Internet. Bitcoins are directly transferred by the vendor to a wallet of the trader who then hands the vendor the equivalent in cash as agreed upon. This concludes the transaction.

On localbitcoins.com, people (traders) offer their services to purchase Bitcoins against cash set within the rates specified by them (exchange rate) and limits (size of the transactions). The most frequently used minimum amount for the purchase against cash by a trader varies between EUR 2,000 to 5,000 for each transaction. The highest minimum amount on offer is EUR 30,000. Where a maximum is mentioned, the highest transaction size is EUR 200,000.

Bitcoin traders sell Bitcoins against cash on a similar basis. The most frequently used limits vary between a minimum rate of EUR 500 and a maximum rate of EUR 10,000 with a purchase peak in cash of EUR 50,000 maximum.³⁵ With the Bitcoins they received, criminals can pay their criminal activities whether for transactions on the Dark web or otherwise.

An average private individual or entrepreneur would not soon carry out transactions of such size, against such high exchange costs and in cash.

A comparison at localbitcoins of traders who buy those Bitcoins against cash and those who sell the Bitcoins against cash at localbitcoins, demonstrated partly identical (fictitious) names of traders. Also traders who exclusively appear on buy ('quick buy') or sale ('quick sell') in cash ('In-person Cash') advertise more extensive services. Because of the fact that traders both buy and sell Bitcoins against cash, this means that a check out is therefore not always necessary and part of the cash transactions consequently remain under the radar of exchangers, exchanges and banking institutions.

³⁰ R.J. de Jong, 'Bitcoin miners, Bitcoin cashers, Bitcoin mixers and Penal Code', *TBS&H*: March 2017, no. 1.

³¹ D. Moore and T. Rid, 'Cryptopolitik and the Darknet. Encryption policy is becoming a crucial test of the values of liberal democracy in the twenty-first century' *Survival*, 58 (1): Global Politics and Strategy 2016, p. 7-38.

³² Rapport Europol 2015 "The Internet Organised Crime Threat Assessment (IOCTA)", p. 12.

³³ "Overall, Bitcoin is beginning to feature heavily in many EU law enforcement investigations, accounting for over 40% of all identified criminal-to-criminal payments." Rapport Europol 2015 "The Internet Organised Crime Threat Assessment (IOCTA)", p. 46.

³⁴ A possible explanation for a suspect having a large volume of Bitcoins is him being a miner. However, mining is becoming less and less rewarding due to the power costs. In that case, the statement of the suspect has to be supported by the energy bill of the suspect, the present hardware and software and his transaction data.

³⁵ Date reference localbitcoins.com 8 September 2016.

Meeting preferences: public palce

..... All trades are private, no ID'S. We can meet at any safe public place. I do a lot of face to face trades without using escrow, so my feedback does not represent acctual number of trades which I made with localbitcoins.com members. So if you need reliable buyer, contact me. I am looking for long-term partnerships as well.

Figure 5 A trader offers his services on localbitcoins.com

Investigations³⁶ showed that the costs for making use of a Bitcoin trader are considerably higher than using an exchange office or an exchange. It is not uncommon for a trader to charge between 7% and 15% of the transaction value; with a regular exchange this figure is between 0.25 - 0.30%. Despite the high commission fees, there is a market for these traders.

These criminal investigations also show that the traders, after having sold Bitcoins to exchange offices or via exchanges, make cash withdrawals from (major part of) the money received in their bank accounts. This way, the trader presumably provides for the cash money he needs for buying new Bitcoins.³⁷

Investigations also show that Bitcoin traders, by demonstrating the profile of withdrawing larger amounts in cash that originate from an exchanger or an exchange, are asked by banking institutions to clarify this and, after that, cancel the relation with the bank. In the same way, the exchanges terminate their client relationships, thus providing a picture of successive exchangers, exchanges and banking institutions.

Why would anyone make use of a Bitcoin trader while there are reliable and cheaper alternatives available? The answer to this question lies in the offered anonymity, the offered cash upon selling the Bitcoins as well as in the source of origin of these Bitcoins. Various investigations showed that criminals have exchanged their Bitcoins via these types of traders. Millions of Bitcoins have thus been exchanged against cash with high commission fees as remuneration for the trader.³⁸ Part of these Bitcoins originate from illegal activities on the Dark web.³⁹ In addition, one out of three criminal

³⁶ Criminal investigations by the FIOD money laundering team Haarlem office, FIOD money laundering team Zwolle office and the Police Mid Netherlands.

³⁷ Criminal investigations by the FIOD money laundering team Haarlem office, FIOD money laundering team Zwolle office and the Police Mid Netherlands.

³⁸ B.H.M. Custers, J.J. Oerlemans and R.L.D. Pool 'Ransomware, cryptoware en het witwassen van losgeld in Bitcoins' ['Ransomware, cryptoware and money laundering ransom money in Bitcoins], *Strafblad* 2016 (2), 15 with reference to the press report on the website of the Tax and Customs Administration, '10 aanhoudingen in internationaal bitcoins onderzoek', 10 arrests in international bitcoins investigation 20 January 2016, www.belastingdienst.nl/wps/wcm/connect/nl/fiod/nieuws/10_aanhoudingen_in_internationaal_bitcoins_onderzoek.

³⁹ The press report on the website of the Tax and Customs Administration, '10 aanhoudingen in internationaal bitcoins onderzoek', 10 arrests in international bitcoins investigation, 20 January 2016 www.belastingdienst.nl/wps/wcm/connect/nl/fiod/nieuws/10_aanhoudingen_in_internationaal_bitcoins_onderzoek.

investigations shows that one or more Bitcoin mixers are used in the process from the criminal to the Bitcoin trader^{40, 41}.

Customers carefully examine the reviews written about a trader. Positive reviews are often a decisive influence to do business with a trader. Next, trust is further built up by first starting with smaller currency transactions.

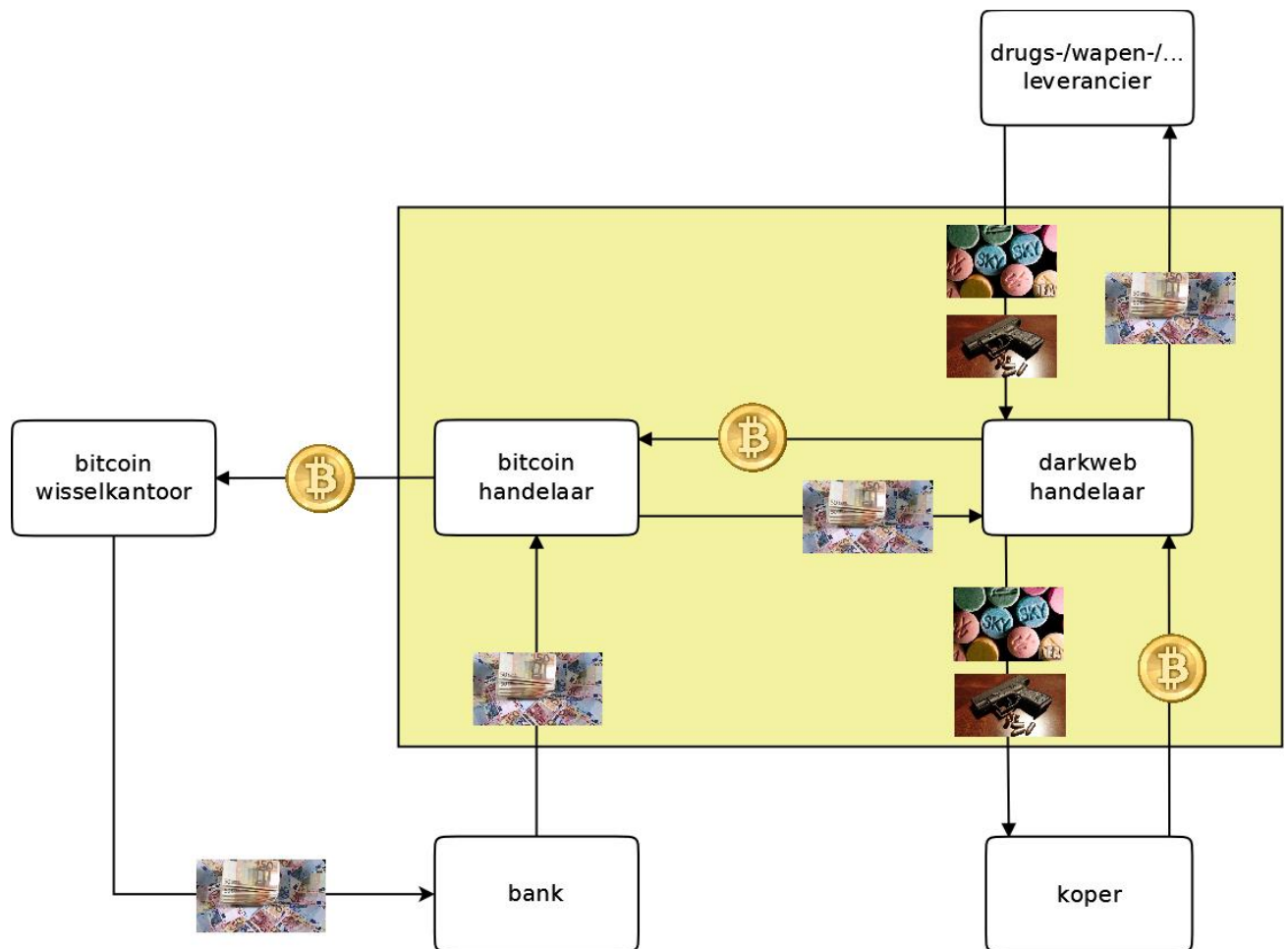


Figure 6 A schematic representation of a criminal cash flow via the Bitcoin trader

⁴⁰ Criminal investigation of the Police Midden-Nederland.

⁴¹ To be able to see if Bitcoins were used on the Darkweb and/or originate from a mixer, tooling can be used which is available on the Internet, such as "WalletExplorer". By means of such a tool the history and/or origin of Bitcoins can be retrieved.

Investigations and ⁴² scientific research ⁴³ show that the circumstances for exchanging Bitcoins at a Bitcoin exchanger or Bitcoin exchange and the circumstances for exchanging them at a (facilitating) Bitcoin trader are substantially different. The table below shows the differences adopted so far, therefore explicitly not exhaustive.

Reference	Regular Bitcoin exchange	(Criminal) Bitcoin trader
<i>Place of service</i>	<i>At a national or international exchange set up for this purpose</i>	<i>In public places, such as a (parking place of a) fast food chain or supermarket, or in a private house.</i>
<i>Remuneration services</i>	<i>A regular exchange charges about 0.25 - 0.30% of the amount to be exchanged as commission fee for the services rendered.</i>	<i>A trader charges 7 - 15% of the amount to be exchanged as commission fee.</i>
<i>Money transactions</i>	<i>Scriptural money and verifiable</i>	<ul style="list-style-type: none"> - <i>Cash purchase (and sale) of commercial transactions;</i> - <i>Bank balances are withdrawn in cash upon check out (unverifiable cash withdrawals)</i>
<i>Anonymity customer</i>	<i>The number of Bitcoins to be paid and the bank account number of the customer to which the value has to be transferred, is known to the exchange.</i>	<i>Only the amount of Bitcoins that is asked to exchange is known to the trader. Trader and customer often do not know each other's identity.</i>
<i>Visibility</i>	<i>An exchange is visible/known in the following ways:</i> <ul style="list-style-type: none"> - <i>a website</i> - <i>registered with the Chamber of Commerce</i> - <i>known with the tax authority</i> 	<i>A trader is visible/known in the following ways:</i> <ul style="list-style-type: none"> - <i>cannot be found under his own name on the 'surface' web</i> - <i>not (actually trading accordingly) registered with the Chamber of Commerce</i> - <i>not known with the tax authority for exchange activities.</i>
<i>Bitcoin history / origin</i>	<i>Very diverse</i>	<i>One or more of the following characteristics occur - above average -:</i> <ul style="list-style-type: none"> - <i>the Bitcoins have a history of one or more mixers</i> - <i>the Bitcoins have trade history on the Darkweb.</i>
<i>Administration</i>	<i>In accordance with laws and regulations</i>	<i>Absent</i>
<i>Customers</i>	<i>Very diverse</i>	<i>Customers active on the Dark web</i>
<i>Scope</i>	<i>Varies from small to large amounts</i>	<i>Large amounts for each transaction</i>
<i>Communication to the customer</i>	<i>Public via mainstream communication lines</i>	<i>Insulated: via dark web or insulated communication methods such as Blackberry Messenger, Whatsapp and Threema⁴⁴, veiled language via telephone or in text messages.</i>

⁴² Criminal investigations by the FIOD money laundering team Haarlem office, FIOD money laundering team Zwolle office and the Police Mid Netherlands.

⁴³ R.S. van Wegberg, J.J. Oerlemans and M.O. van Deventer 'Bitcoin Money Laundering: Mixed Results? An explorative study on money laundering of cybercrime proceeds using Bitcoin', *Journal of Financial Crime* (2017, in press).

⁴⁴ Threema is an instant messaging programme allowing users to exchange messages and files amongst each other. Threema advertises its product with the marketing feature that security, encryption and privacy are key in the application. Moreover,

The above can be summarised as follows:

A Bitcoin trader provides a service by exchanging Bitcoins against cash. He does this for a commission fee. This commission is relatively high: where a regular exchange would charge 0.25 - 0.30%, the Bitcoin trader charges between 7% and 15% of the transaction amount. The customers of the Bitcoin trader are willing to pay this high commission for the anonymity they get when selling their Bitcoins (cash out). The trader often does not know his customers. He each time receives large amounts of Bitcoins from his customers. The Bitcoins have been used on the dark web and/or by one of several mixers. The trader himself sells his Bitcoins as needed to exchange offices and exchanges upon which the equivalent is deposited in the bank account. The balance is withdrawn in cash in order to again purchase Bitcoins against cash.

It is a generally known fact and also typical for money laundering that several forms of crime involve (large amounts of) cash.⁴⁵ In addition, it is generally known fact,, and also a money laundering typology that physically transporting large quantities of cash brings about substantial security risks.⁴⁶ Another money laundering typology is that exchanging cash is often done in order to interrupt the paper trail of a money laundering cycle.⁴⁷

The trader showcases himself anonymously on the 'surface' web and the dark web. It is a generally known fact that the dark web is often used for (the preparation of) criminal activities.⁴⁸ The trader meets his customers in public places, such as fast food restaurants, where the transactions are carried out.

Various criminal investigations⁴⁹ show that the Bitcoin trader is a link in the criminal money laundering process. In view of the above, the Bitcoin trader is fully aware that there is a considerable chance that he receives Bitcoins which originate from crime. The Bitcoin trader who fits the above-mentioned profile will, in general, be regarded as a criminal Bitcoin trader who facilitates the criminal money laundering process.

Part 2 Indicators of money laundering

Threema offers the possibility to use the programme on several devices under one single username. This means that the user can see all the sent and received messages on all of his or her devices if he logs on with his user name.

⁴⁵ The money laundering typology involves: In case of large quantities of cash in various currencies: it is generally known that various forms of crime involve large amounts of cash in various currencies." The generally known fact involves: The Court considers it generally known that various forms of crime involve large amounts of cash usually in large denominations, while denomination bank notes of €500 are a rarity in mainstream payment transactions. (ECLI:NL:RBMNE:2015:1838).

See <https://www.amlc.nl/producten/witwasindicatoren/>.

⁴⁶ The money laundering typology involves: In case of physical transport of large amounts of cash: the physical movement of large amounts of cash involves a serious safety risk. The general knowledge involves: The Court considers it general knowledge for private individuals having large sums of money available to be highly unusual given the risk of theft for example, whereby money is not insured. (ECLI:NL:RBMNE:2015:1838) and "it is general knowledge that the physical transportation of large amounts of cash involves a serious safety risk". (ECLI:NL:GHSHE:2015:1181). Zie

<https://www.amlc.nl/producten/witwasindicatoren/>.

⁴⁷ This typology has been published on the website of the Netherlands Financial Intelligence Unit, <http://www.fiu-nederland.nl/nl/witwas-typologieen-0>.

⁴⁸ D. Moore and T. Rid, 'Cryptopolitik and the Darknet. Encryption policy is becoming a crucial test of the values of liberal democracy in the twenty-first century' *Survival*, 58 (1): Global Politics and Strategy 2016, p. 7-38.

⁴⁹ Criminal investigations by the FIOD money laundering team Haarlem office, FIOD money laundering team Zwolle office and the Police Mid Netherlands.

The following general objective characteristics regarding Bitcoin traders, customers and Bitcoin mixers appear in investigations into Bitcoin traders who facilitate money laundering.

Bitcoin traders and the customers of Bitcoin traders

- ask high commission fees for exchanging (purchasing) Bitcoins for Euros (or another legal tender) against cash compared to regular exchanges and exchange offices.
- accept or have Bitcoins available with a history on the Dark web, considering that the Dark web is known for its major share in illegal activities.
- accept large quantities of Bitcoins from private persons, which quantities are not common for an average private person.
- acquire or have Bitcoins available that originate from a Bitcoin mixer.
- work with customers who prefer large amounts in cash instead of bank transfers.
- the absence of administrative records with regard to the services provided, proceeds and customers.
- the absence of any form of relevant scope of legal business economic activities (products/services) that can explain the observed number of Bitcoin transactions and/or cash money.
- withdraw large amounts in cash from the bank account shortly after having received the money originating from regular Bitcoin exchanges and exchange offices.
- work with customers who do not have a legal commercial explanation for making use of a Bitcoin trader's services.
- making use of the services of a Bitcoin trader solely serves to generate anonymity.
- persons who make use of the services of Bitcoin traders are persons who want to prevent their identity from being exposed.
- making use of the services of Bitcoin traders solely serves the purpose to ensure that the (criminal) origin of the Bitcoins cannot be traced back to the customer.
- the sole purpose of making use of Bitcoin traders is to disguise the (criminal) origin of the Bitcoins and the cash.
- persons who make use of Bitcoin traders are persons who anonymously trade goods and/or services (and offer these on the Dark web).
- paying and willingness to pay high commission fees for converting (selling) Bitcoins in exchange for Euros (or another legal tender) against cash, compared to commission fees charged by normal Bitcoin exchanges and exchange offices.
- the nature (Bitcoins) and scope of the exchange transactions (of Bitcoins into cash) do not fit the nature and scope of the legal activities, income and assets of the Bitcoin trader's customer.

Bitcoin mixer

- a large part of the Bitcoins that are in a mixer, have a connection with the Dark web.
- the sole purpose of making use of a Bitcoin mixer is to disguise the (criminal) origin of the Bitcoins.
- persons who make use of the services of a Bitcoin mixer are persons who want to prevent their identity and/or their transaction history from being exposed.
- absence of a legal commercial explanation for making use of a Bitcoin mixer.

Part 3 Money laundering typologies

The FIU validated and published the following typologies for money laundering on its website:

“Typologies as a result of investigations into the purchase and sales of virtual payment methods:

1. In a relatively short period of time repeatedly withdrawing substantial amounts of cash from (a) bank account(s), wholly or in parts, without any obvious economic necessity and in combination with several times receiving scriptural money (which amounts, in the case of the trader in virtual currencies apparently originate from the sale of virtual currencies).

2. Purchasing virtual currencies by which at least two of the following features are met:

- a. the purchaser offers his services via demand and supply sites on the Internet;
- b. the purchaser does not establish the seller's identity;
- c. the purchaser protects his own identity;
- d. the purchaser pays in cash;
- e. the purchaser charges an exchange fee which is unusual high;
- f. the transaction is conducted in a (public) place where a lot of people are present, which decreases the safety risks of the purchaser;
- g. a legal economic explanation for the way the exchange was made is not likely;
- h. the scope of the purchased virtual currencies is unlikely in relation to the average private use;
- i. as an exchange institution, the purchaser is unknown to the Chamber of Commerce and the Netherlands Tax and Customs Administration.

3. The purchaser and/or seller make(s) use of a so-called mixer at the sale of virtual currencies.”