

2020 Edition

ELLIPTIC

Financial Crime Typologies in Cryptoassets

The Concise Guide for Compliance Leaders



Contents

About Elliptic	4
Introduction	5
How to use the guide	6
Part I: Money Laundering	7
1 Cryptoasset Exchanges	8
1.1 Use of Non-Compliant or Unlicensed Exchanges	10
1.2 Use of Exchanges in High Risk Jurisdictions	12
1.3 Money Mules or Fraudulent Documents at Legitimate Exchanges	13
2 Peer to Peer Platforms	14
3 Decentralized Exchanges	16
4 Cryptoasset ATMs	19
4.1 Facilitation of Illicit Transfers	19
4.2 Money Mule Activity	20
4.3 Victims of Scams Sending Funds via Cryptoasset ATMs	21
5 Cryptoasset Gambling and Gaming Services	23
5.1 Online Casinos to Clean Coins	24
5.2 Cryptocurrencies Swapped for In-game Currencies	25
6 Cards	26
6.1 Cryptoasset Prepaid Cards to Layer Criminal Proceeds	27
6.2 Dirty Cryptocurrencies Used to Purchase Fiat Cards for Laundering	29
6.3 Fiat Cards Used to Purchase Cryptoassets for Illicit Purposes	29
7 Mixing Services and Privacy Wallets	30
8 Tokens and Stablecoins	33
8.1 Tokens Used to Clean Dirty Cryptoassets	34
8.2 Laundering Proceeds from ICO Scams	35
8.3 Laundering of Hacked Tokens and Stablecoins	37
9 Wallet-Specific Behaviors	39
9.1 Chain peeling	39
9.2 Multi-Customer Cross-Wallet Activity	40
10 Privacy Coins & Chain Hopping	41
10.1 Use of Privacy Coins to Layer Illicit Proceeds	42
10.2 Laundering Illicit-Origin Privacy Coins	43
Part II: Terrorist Financing	45
11 Crowd-Funding Through Charities and Other Organizations	47
12 Individuals or Small Cells	48
A Final Word	50
Endnotes	51



About Elliptic

Elliptic is the global leader in cryptoasset risk management solutions for crypto businesses and financial institutions worldwide. Recognized as a World Economic Forum 2020 Technology Pioneer and backed by investors including Wells Fargo Strategic Capital, SBI Group, and Santander Innoventures, Elliptic has assessed risk on transactions worth several trillion dollars, uncovering activities related to money laundering, terrorist fundraising, fraud, and other financial crimes. Elliptic is headquartered in London with offices in New York, Singapore, and Tokyo.



Reduce the Cost of Compliance

Automate compliance with transaction, wallet, and VASP screening solutions to scale up operations as volumes increase without adding headcount.



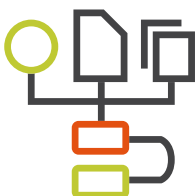
Reduce False Positives

Linking hundreds of millions of cryptoasset addresses to known entities minimizes false positives so your team can focus on high priority alerts.



Speed Up Risk Reporting

Trace activity back through layers of transactions to the source or destination of funds and export this audit trail easily to include in SARs.



Access to Crypto Compliance Expertise

Crypto regulation and technology experts are invaluable for training, professional services, and to share research on money laundering typologies and regulatory trends

Introduction

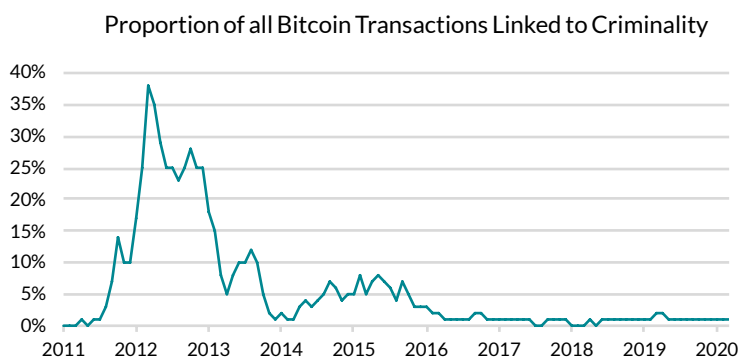
Elliptic's money laundering and terrorist financing typologies guide released in November 2018, was the only comprehensive study of cryptoasset-specific red flags.

This concise guide to financial crime typologies highlights what red flags to look out for in the cryptoasset space. It is designed to complement Elliptic's Ultimate Guide for Compliance Teams. The Ultimate Guide provides a deeper understanding of the different typologies with additional indepth research and data points for early detection.

Financial Crime Risks in Cryptoassets Can Be Controlled

Despite this picture of risk, it is worth noting that the cryptoasset industry is experiencing tremendous success in combating illicit activity.

While the total volume of illicit activity in cryptoassets has grown in absolute terms; illicit activity today still accounts for less than 1% of all transactions. A dramatic reduction from 2012, when 35% of cryptoasset transactions were illicit.



Source: Elliptic

Elliptic remains committed to eradicating bad actors from the cryptoasset ecosystem to smooth the way for safe use of crypto as the backbone to a new, open financial system. By sharing insights on cryptoasset typologies and red flags we hope to provide the industry and regulators with the support they need to carry on their good work to prevent financial crime in crypto.

This report is exclusively for the compliance community to provide compliance leaders with the practical tools needed to:

- Identify specific money laundering and terrorist financing risks
- Develop anti-money laundering and counter terrorist financing (AML/CTF) governance systems
- Evolve the controls in place to manage risk to business, customers, and society.

In compiling this guide, Elliptic has drawn from multiple sources:

- Data insights drawn from Elliptic's continuous research and analysis of blockchain data
- Consultations with compliance officers at cryptoasset businesses about the typologies they face and risks they encounter on a day-to-day basis
- Publicly available reports, indictments, and literature produced by law enforcement agencies (LEAs), national financial intelligence units (FIUs), organizations such as the Financial Action Task Force (FATF), and other publicly available court documents
- Other public records such as press reporting.

Our intention is to help crypto business and financial institutions compliance leaders benchmark compliance controls and inform policy development as we work towards common goals; build trust in crypto, manage risk, and maintain the highest standards of regulatory compliance.

How to use the guide

Our customers use this guide alongside our blockchain analytics tools to help stay ahead of illicit activity.

The Elliptic Suite of crypto AML solutions enables compliance teams, regulators, and FIUs to:

- Automate AML/CTF and sanctions compliance checks
- Identify address clusters associated with illicit actors and take action
- Illustrate the flow of Bitcoin from address to address to support investigations
- Monitor movement related to criminal activity involving dark web markets, ransomware attacks, cryptoasset exchange hacks, and other crimes.

This guide catalogues identified typologies into two parts for easy reference.

Part I

An outlook of key money laundering typologies Elliptic has identified and their impact on specific cryptoasset products and services.

Part II

An overview of identified terrorist financing cases involving cryptocurrencies.

Look out for these indicators which evidence the typologies described and inform actions you need to take.

Red Flags

Indicators of risk that might not clearly pinpoint illicit activity as a standalone. But, when they appear in conjunction with other indicators it may suggest suspicious activity is at play.

Case Study

We have included some case studies of how criminals are exploiting the typologies and evidenced how the typology is played out.

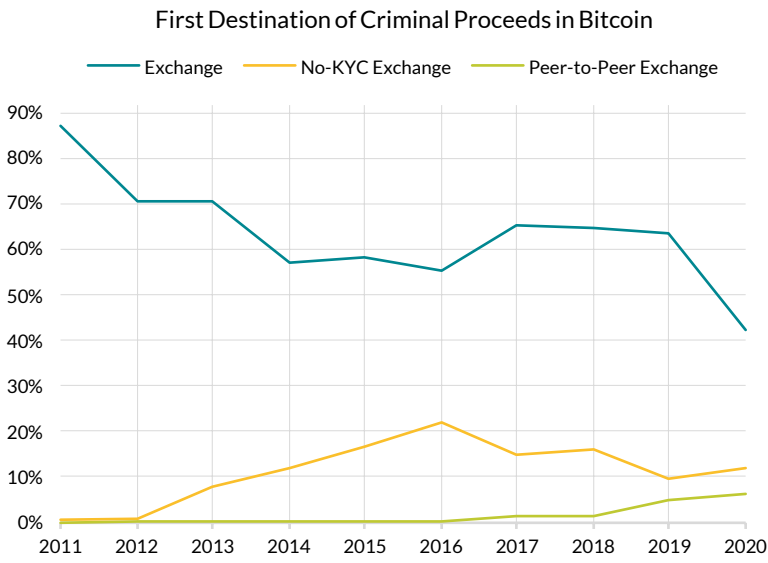
Part I: Money Laundering



1 Cryptoasset Exchanges

Cryptoasset exchanges provide essential liquidity to crypto markets, acting as vital gateways between the fiat and cryptoasset ecosystems. Thus, exchanges inevitably feature heavily in cryptoasset-related money laundering activity.

Elliptic's research demonstrates that criminals are moving away from regulated exchange platforms and are increasingly laundering cryptoassets through exchanges that do not require KYC information. As the chart below demonstrates, following the FATF's introduction of new cryptoasset guidance in June 2019, illicit Bitcoin transfers to large reputable exchange platforms dropped significantly, while those to exchanges that don't require KYC rose.



Source: Elliptic

Search Coi...

1  Bitcoin BTC

2  Ethereum ETH

3 XRP XRP

4  Bitcoin Cash

 EOS EOS

 Lunellor XLN

1.1 Use of Non-Compliant or Unlicensed Exchanges

The Problem

Criminals deliberately seek out exchanges they know they can exploit with little or no obstruction when moving between fiat and cryptoasset, or from cryptoasset-to-cryptoasset.

Considering unlicensed and non-compliant exchanges often do not require any KYC or Customer Due Diligence (CDD) information from users. Non-compliant and unlicensed exchanges present significant systemic risks within the cryptoasset ecosystem because they enable a wide range of illicit actors to engage in large scale money laundering.



Red Flags for Non-compliant and Unlicensed Exchanges

- Requires no KYC/CDD information
- Customer accounts can be established or services accessed with only basic information, such as an email address and password
- Unable to produce AML policies and procedures when requested to do so, documented AML policies are of a poor standard
- No limits or restrictions on customers' volumes and values of permissible trading activity
- Customers fund their account even if they have received cryptoassets directly from mixers/tumblers
- Customers regularly engage in business with other non-compliant and, or opaque exchanges
- Association with high percentages of cryptoasset transfers coming from addresses associated with criminal sources, such as ransomware attacks and dark web markets e.g. 50-60% or more of the exchange's business may come from or go to criminal sources
- Recently registered with possibly has no prior established history of cryptoasset trading;
- Association with open discussions among criminals on its user chat rooms, internet message boards (such as Reddit) or other surface web sources.



Case Study

RG Coins

In September 2020, a US jury convicted the founder of Bulgarian cryptoasset exchange RG Coins for facilitating online fraud and money laundering.

According to the US Department of Justice, Rossen Iossifov, the owner of RG Coins, allowed a Romanian criminal organization to launder cryptoassets through his exchange. The criminals defrauded US citizens by offering fake goods on online auction sites such as eBay. Once in receipt of victims funds in fiat currencies, the fraudsters converted them into cryptoassets via numerous methods. They then converted the cryptoassets back into local currency through RG Coins, and transferred the funds onwards through the banking system.

Court documents suggest that RG Coins enabled these illicit cryptoasset swaps from September 2015 to December 2018. In one two-year period, RG Coins facilitated over \$4.9 million worth of Bitcoin swaps for the organized crime group.¹



1.2 Use of Exchanges in High Risk Jurisdictions

The Problem

Criminals will often look to exchanges that are in high risk jurisdictions, when seeking to exploit. For cryptoasset-laundering purposes

This category can include countries and regions that in other contexts might not be regarded as high risk and should be considered higher risk for cryptoasset-laundering purposes.



Red Flags for Cryptoasset Exchanges in Higher Risk Jurisdictions

- Limited or no information available from any source about the location of the exchange
- Ownership structure may be opaque and involves the presence of shell companies in multiple jurisdictions, e.g. the Seychelles, Belize, Marshall Islands, associated with easy and non-transparent company formation
- Information on registration or legal status is unclear or contradictory with no available explanation, e.g. headquartered in Bulgaria but subject to the laws of Cyprus
- Headquartered in a jurisdiction with no AML regulation around cryptocurrencies, and its website suggests it does not voluntarily apply AML/KYC in the absence of regulation
- No KYC/AML policies in place at the exchange and it is also located in a country associated with high levels of organized criminal activity such as Russia or Colombia
- Overseas registration, e.g. in the Caribbean, even though nearly all its customers are located elsewhere e.g. 75% or more are located in the EU
- Provides fiat currency trading pairs that are illogical or do not make business sense e.g. an exchange in Finland offers high value trading in Colombian pesos², or an exchange in Cyprus offers trading in Russian rubles
- Registered in a jurisdiction associated with international sanctions, such as Venezuela or Iran
- Offers trading in a state-issued cryptoasset such as the Venezuelan petro
- Registered in a lower risk jurisdiction but has directors and beneficial owners who are from, and reside in, higher risk jurisdictions e.g. the exchange is a UK registered limited company but whose owners reside in the Ukraine.

1.3 Money Mules or Fraudulent Documents at Legitimate Exchanges

The Problem

Criminals will target non-compliant or unlicensed exchanges, legitimate exchanges that are subject to regulation and licensing, or that are voluntarily compliant and have strong risk mitigation measures in place.

Using regulated and compliant exchanges can add a veneer of legitimacy to a criminal's otherwise illegitimate behavior. Legitimate exchanges can have a 'mixing' effect for criminals.



Red Flags for Money Mule Activity Impacting Legitimate Exchanges

- Accounts are opened by numerous individuals within a short period of time using shared addresses, mobile devices, IP addresses and other common identity indicators
- Presentation of documents that appear to be forged, falsified, or stolen
- Forged or stolen impossible to distinguish from legitimate documents (see the text box on KYC kits below)
- Large numbers of accounts opened simultaneously by groups of foreign nationals. For example, groups of Vietnamese nationals opening accounts in Japan, or nationals from Baltic states opening accounts at exchanges in Spain
- Inconsistencies between the customer's stated identity information and other data they provide, or activity they undertake. This could be a customer with an address in a poor rural region of Africa who may have an email address, or IP addresses associated with China. They could make frequent large value cash-outs to exchanges in Hong Kong, suggesting a Chinese individual has stolen or purchased the mule IDs
- Multiple customers make high-value onward transfers to common accounts in high risk jurisdictions with no clear apparent purpose. A customer can purchase cryptocurrencies in euros at a Finland exchange, quickly swap the cryptocurrencies for Colombian pesos and then request immediate transfers onward to banks in Colombia
- Frequent transfers are made to or from the customer's account at the exchange, to or from individual third party bank accounts e.g. the mule is transferring funds to other mules or to criminals
- The account holder may not have any understanding of what the funds in the account are being used for when questioned. In a case of stolen identity, they may not even be aware that an account was opened in their name
- Mule accounts may feature randomly generated email addresses that just have a string of random numbers and letters.

2 Peer to Peer Platforms

Peer to Peer (P2P) platforms are separate from large centralized exchanges that actively manage orders for large books of customers.

They act as focal points for cryptocurrency users to interact directly when swapping fiat and cryptocurrencies, including through in-person exchanges involving direct cash transfers. These platforms play an important role in the cryptoasset ecosystem by enabling cryptoasset users to interact without the involvement of large, centralized intermediaries.

The Problem

P2P platforms may not be subject to regulation depending on their jurisdictions. Users are often not required to provide personal identifying information.

Major P2P platforms such as LocalBitcoins and Paxful have robust compliance operations, while many others do not. Criminals use these unlicensed individual P2P traders to clean their illicit funds.



Red Flags for Brokers Operating on P2P Exchanges

- Abnormally large values, volumes, or turnover of cryptoassets cashed out at exchanges from P2P platform-associated wallets and for onward transfer to bank accounts. All of which appear to contain no logical business explanation
- An individual who frequently sends cryptocurrencies to wallets at P2P exchanges may claim that they are trading for purely speculative purposes. Their cryptoasset trading activity does not correlate logically with day-to-day movements in the price of cryptocurrencies
- Brokers refuse to provide KYC information to legitimate exchanges and may then open accounts at other exchanges that are non-compliant or that have weak KYC measures;
- A broker's wallet is associated with a large number of transfers to or from separate customers at a level that is improbable for a normal cryptoasset user
- A broker may have a social media profile on Twitter, Facebook, etc. offering their services, or may offer them through sites such as [Bitcointalk.org](https://www.bitcointalk.org) and [Bitcoin-otc.com](https://www.bitcoin-otc.com)
- Cryptoassets may originate from sources such as the dark web or from mixers, before being rapidly transferred out from the P2P trader's address, then to an exchange, and finally cashed out quickly from the exchange to bank accounts.



Case Study

Singapore P2P Traders

In June 2020, authorities in Singapore charged a 23-year-old woman acting as an unlicensed P2P trader.

The woman allegedly received funds into her Singapore dollar bank account from fraudsters. The fraudsters paid her a commission to convert the funds into Bitcoin for onward laundering.³ She was charged with failing to obtain a license to provide exchange services under Singapore's Payment Services Act (PSA).



3 Decentralized Exchanges

Decentralized finance (DeFi) has been one of the most exciting areas of cryptoasset growth and investment across 2020. Using the Ethereum network, innovators have launched new DeFi platforms for the following:

- To enable lending
- Prediction markets
- Decentralized exchange services (DEXs).

Unlike simple P2P platforms, which are basic websites enabling cryptoasset users to connect; DEXs built on Ethereum utilize smart contracts to enable users to undertake cryptoasset-to-cryptoasset exchanges in real time.

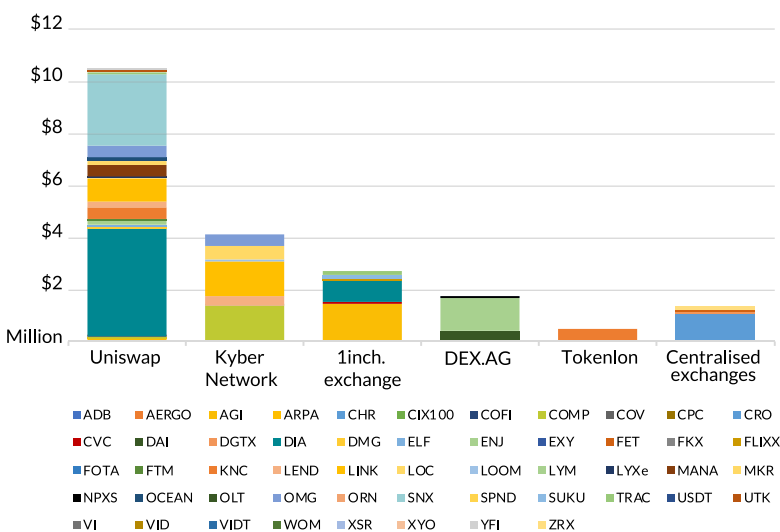
Some observers see DEXs as providing an advantage over centralized exchanges in that they prove less vulnerable to theft and loss because they are non-custodial in nature.

DEX trading volumes have exploded across 2020, hitting highs of more than \$30 billion per month. Major DEXs such as Uniswap are now competing with large centralized exchanges in overall trading volumes. This increase in liquidity on DEXs has made them increasingly vulnerable to exploitation by money launderers, who can layer large volumes of funds through these increasingly active platforms.

The Problem

Ethereum Tokens Stolen From Kucoin: Value Sold on DEXs

Total Sold on DEXs: \$19,485,190. (As of 2 Oct)



Source: Elliptic

DEXs offer criminals the advantage of bypassing compliance controls, much in the manner of dealing with non-compliant exchanges like Payza or BTC-e. Simultaneously offering another advantage; they lack a central administrator with active oversight of user accounts, records, identities or activities.

The explosion in DeFi has also led to a corresponding ecosystem of tools that enable hiding ether transactions, such as the Tornado Cash mixing services. Criminals can use these in conjunction with DEXs.



Red Flags for DEXs

- A customer suddenly receives a large amount of cryptoassets directly from a DEX-associated account and attempts to cash out immediately
- The customer can not provide any evidence or logical explanation for their source of funds and why they were engaged in dealings through a DEX
- The DEX may be associated with relatively high volumes of illicit activity involving Dark Markets, exchange hacks and other crimes such as ransomware attacks
- A customer's activity involves frequent interactions with DEXs also engages in transactions with mixing services such as Tornado cash.



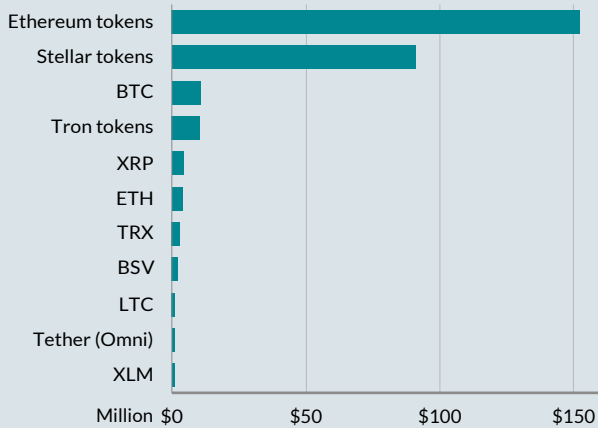


Case Study

KuCoin Hack

On 25 September 2020, the Singapore-based KuCoin exchange was the target of a major hack. Cybercriminals stole \$281 million in cryptoassets from the exchange including Bitcoin, Litecoin, XRP, Tether, and ether. Approximately \$152 million of the total stolen funds included a range of Ethereum-based tokens.

Cryptoassets stolen from KuCoin



Source: Elliptic

Once in possession of these funds, the criminals undertook a complex series of laundering techniques. They moved funds through mixing services, and also attempted to exchange them via DEXs. The criminals had sold nearly \$20 million of the stolen tokens on DEXs, within one week of the hack. Most of these funds were deposited at Uniswap and Kyber Network DEXs.

4 Cryptoasset ATMs

Cryptoasset ATMs play an increasingly important role in the cryptoasset ecosystem. These ATMs provide a reliable method for rapidly transferring cryptocurrencies into fiat, or vice versa. They offer a useful avenue for moving cash from one counterpart to a wallet, to another person located elsewhere. Proponents view them as playing a critical role in furthering financial inclusion and broader cryptoasset adoption.

There are more than 11,600 cryptoasset ATMs located around the world⁴, and many provide access to a growing range of altcoins: Ether, Litecoin, Dash, Zcash, Monero, and others.

In many jurisdictions, cryptoasset ATMs remain unregulated, or of unclear regulatory status. This makes them an attractive target for criminals, who use ATMs to convert large amounts of cash to cryptocurrencies.

4.1 Facilitation of Illicit Transfers⁵

The Problem

Criminals seek to take advantage of how easy it is to use cryptoasset ATMs. They particularly explore how to convert dirty fiat into cryptocurrencies, or vice versa, and move their illicit proceeds to other members of a criminal network.

Criminals can do this domestically, or internationally, allowing them to bypass contact with the formal financial system during various certain stages of the money laundering process.



Red Flags for Cryptoasset ATMs

- Large denomination notes, e.g. euro 50, 100, 500, used to make frequent and ongoing fiat deposits into Bitcoin ATMs by the same users, possibly re-using only a small number of cryptoasset wallets
- Cryptoasset ATMs used by the criminals are located in regions or neighborhoods associated with high concentrations of criminal and gang activity
- Funds are sent to, or collected from cryptoasset ATMs in jurisdictions with little or no regulation around cryptocurrencies, and, or involving cryptoasset ATM providers that do not require KYC/CDD information
- Cryptoasset ATMs are located at physical addresses associated with what appear to be front businesses, and which may themselves be owned by criminals complicit in the illegal activity
- A single front business may operate numerous Bitcoin ATMs, all of which have turnover levels that are implausibly high.

4.2 Money Mule Activity

The Problem

Along with targeting standard cryptoasset exchanges, criminals may also rely on mules to funnel illicit funds through cryptoasset ATM networks.

The use of widespread and complex money mule networks can create added challenges of detection and prevention for cryptoasset ATM operators, especially where false or stolen identifying information is used.



Red Flags for Mule Activity Involving Cryptoasset ATMs

- A single individual making multiple fiat deposits at a cryptoasset ATM each day up to the standard deposit limit or at frequent intervals for amounts consistent with 'smurfing' activity
- A single individual accesses multiple cryptoasset ATMs in different locations over a short period of time for unexplained reasons
- Accounts are opened by university students or other young individuals due to job adverts. The related job adverts may pose under the guise of IT consulting firms or similar businesses⁶
- False identity documents used to undertake transactions and pass KYC where it is required including use of earlier described KYC kits
- Numerous individuals with common addresses, mobile devices, nationalities or other similar identity indicators sign up for accounts within a short time period for ambiguous reasons
- High value funds are sent from multiple cryptoasset addresses via ATMs to a single recipient wallet address over a short period
- Inconsistent or improbable reasons customers provide, e.g. to buy furniture or other ordinary items, for the large value transfers given the sums involved.

4.3 Victims of Scams Sending Funds via Cryptoasset ATMs

The Problem

Public reporting points out a growing number of scams involving cryptoasset ATMs. Victims are duped into depositing fiat funds into cryptoasset ATMs for onward transfer to cryptoasset wallets belonging to criminals. These criminals launder the funds forward via exchanges or other conversion services.



Red Flags for Cryptoasset ATM Scams

- Victims may be elderly individuals who do not understand cryptocurrencies and may appear confused when questioned about their activity
- Victims may also sound panicked and frightened if contacted by the cryptoasset ATM operator, especially if threatened by fraudsters. Financially vulnerable victims may have been targeted as part of an apparent employment or work from home scam
- Victims may have been instructed to make multiple cash deposits at the cryptoasset ATM just under the single maximum deposit threshold.



5 Cryptoasset Gambling and Gaming Services

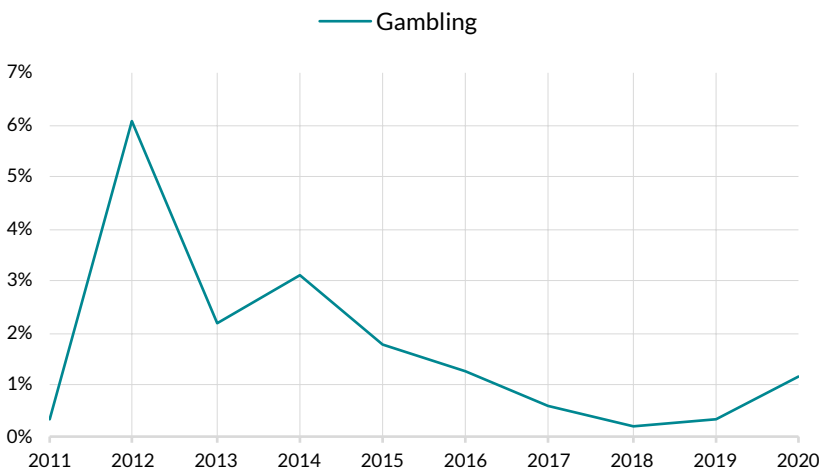
Cryptoasset gambling services such as Satoshi Dice were among the earliest, most successful and resilient cryptoasset apps. A wide range of cryptoasset-focused gambling sites now exist, and a growing number of online casinos have begun to accept cryptocurrencies from customers. Similarly, new online exchanges enable users to swap cryptocurrencies for in-game currencies, such as Linden Dollars and World of Warcraft Gold. This helps to build an increasingly intricate online gambling and gaming ecosystem.

While these services are supporting an impressive online infrastructure, they can also be exploited in money laundering schemes. Many online gambling services do not require KYC and CDD information. Elliptic’s research has shown that gambling sites processed approximately 20% of all Bitcoin laundered from the Alphabay dark web market during the years 2015 and 2016.⁷

As the chart below demonstrates, in more recent years, gambling services have dropped substantially as a destination for illicit Bitcoin proceeds relative to their past use. Today, less than 2% of criminal proceeds in Bitcoin are sent to gambling services directly from illicit sources. However, 2020 saw an uptick in laundering through Bitcoin gambling services over the previous two years.

Percentage of Overall Illicit Bitcoin Proceeds Sent to Gambling Services

First Destination of Criminal Proceeds in Bitcoin: Gambling Services



Source: Elliptic

Two key methods criminals employ for laundering cryptocurrencies via gambling and gaming services are outlined below.

5.1 Online Casinos to Clean Coins

The Problem

Online casinos including those that are cryptoasset-only, and those that accept both fiat and cryptocurrencies, are effective for cleaning illicit funds. These schemes resemble tried and tested money laundering methods that criminals have employed for decades at casinos globally.

Chips or credits are purchased from the casino using Dirty funds. When the criminal cashes out his winnings (or accepts a loss as part of the cost of laundering), he receives new funds and a receipt from the casino that disguises the gambling activity as the source of the original funds.



Red Flags for Cryptoasset Gambling Typologies

- Use of unlicensed, unregulated, or Tor-based gambling
- Regular use of online gambling sites such as Seals with Clubs that do not require any KYC, and make an open commitment to protecting anonymity of users
- Gambling sites that do not publish information about their ownership or their jurisdiction of registration
- Gambling sites that do not impose limits on volumes and values of cryptoasset used
- Funds are sent to mixers immediately before or after funds are deposited, or withdrawn at gambling sites.⁸

5.2 Cryptocurrencies Swapped for In-game Currencies

The Problem

In-game currencies such as Linden Dollars and World of Warcraft Gold are available on a growing number of online exchanges, such as VirWox.

Swapping cryptocurrencies thus providing a useful method for layering criminal proceeds through multiple online environments. This in turn allows a criminal to break up their transaction trail through cyberspace. The method may be used to clean illicit cryptoassets, or to conceal dirty fiat.⁹



Red Flags for Cryptoasset or In-game Currency Laundering

- Large volumes or values of cryptocurrencies deposited into, or received at an exchange that facilitates swaps with in-game currencies over a short time period
- The individual is unable to explain why they require cryptoasset to in-game currency swaps of such a significant value
- The criminal uses exchange sites that are unregulated, or that require no KYC information.

6 Cards

Cryptoasset prepaid cards allow cryptoasset users to purchase real-world goods and services seamlessly. This is a convenient, portable method for transferring and spending cryptocurrencies. Users can simply load their prepaid accounts with cryptocurrencies and then spend the funds at any retailer, rather than having to find vendors to accept cryptocurrencies.

Recent cases suggest criminals have been trying to take advantage of the convenience of cryptoasset prepaid cards to quickly move dirty funds.

Similarly, criminals can use cryptoassets to purchase fiat prepaid cards or stolen card details, and then use those cards as a way of further laundering their illicit funds.

These typologies are described below.



6.1 Cryptoasset Prepaid Cards to Layer Criminal Proceeds

The Problem

Cryptoasset prepaid cards can offer a useful 'layering' vehicle for moving criminal proceeds, allowing criminals to do the following:

- deposit illicit cryptoassets (can be from ransomware or the dark web) into their prepaid account for rapid conversion into fiat;
- swap illicit fiat for example, from online bank account compromise or stolen card fraud, for cryptocurrencies, which they can then transfer onward or spend on their prepaid card.



Red Flags for Cryptoasset Prepaid Cards

- Moving funds directly from an illicit source such as ransomware and dark web drug proceeds to a cryptoasset prepaid card provider to use for rapid conversion into fiat, or to purchase physical goods and services
- Using large incoming transfers from bank accounts to top-up cryptoasset prepaid balances rapidly and spend on high value items at merchants associated with luxury goods
- The cards may feature sudden spurts of high volume and high value spending at a single merchant for no obvious purpose
- Mules that in some cases, can be used to open numerous accounts and obtain prepaid cards using: genuine or fake IDs, common addresses, mobile devices or IP addresses
- Criminals open accounts at prepaid card providers that are unregulated, non-compliant, or with weak KYC or CDD measures in place
- Fiat funds transferred to cryptoasset prepaid card providers arrive from bank accounts in high risk countries, such as Ukraine, Belarus and Russia;
- Criminals setting up numerous accounts at a single prepaid provider and attempting to use multiple cards just below the authorised transaction limits to avoid detection on each account
- The criminal attempting to top-up stolen fiat debit or credit cards where the prepaid card allows a 'top-up' with debit or credit cards, which they then convert into cryptocurrencies for further onward laundering
- Large volumes of inbound fiat wire transfers may be associated with social engineering frauds that exploit Facebook or other social media platforms to obtain funds from victims and then convert them to cryptocurrencies for more laundering
- Criminals attempt to make purchases on online platforms that convert cryptocurrencies directly into holdings in commodities such as gold and other precious metals¹²
- Criminals targeting providers of prepaid cards that are unlicensed or non-compliant.



Case Study

The Carbanak and Cobalt Cyber Crime Syndicate

In March 2018, Europol arrested the head of the cybercrime group that developed the Carbanak and Cobalt malware strains used to attack dozens of global banks. This criminal group laundered up to \$1 billion, relying heavily on cryptocurrencies.

The malware strains they deployed allowed them to compromise bank accounts and transfer funds to their own overseas banks accounts. The malware also allowed the thieves to compromise bank ATMs, emptying them of cash.

The criminal network moved these stolen funds through numerous fiat bank accounts using money mules in countries such as Taiwan, Spain and Belarus¹⁰. They eventually converted the funds into cryptocurrencies through exchanges and wallet service providers offering prepaid card services. According to Europol, the prepaid cards were used to buy luxury items, including houses and cars.¹¹



6.2 Dirty Cryptocurrencies Used to Purchase Fiat Cards for Laundering

The Problem

Stolen card details are widely available on the dark web, including on Tor-based sites such as Joker's Stash, which act as underground emporiums for carders. Criminals can purchase stolen card information often alongside accompanying KYC kits to help mask the proceeds of illicit funds.

Furthermore, criminals may attempt to use cryptocurrencies to purchase fiat prepaid or gift cards from legitimate vendors that accept cryptocurrencies for cards.



Red Flags for Legitimate or Stolen Fiat Cards

- A customer purchases a large amount of cryptoassets and makes an immediate onward transfer to a dark web carding site
- A customer purchases a large amount of cryptoassets and immediately uses the funds to make frequent or high value purchases at mainstream vendors that offer the purchase of fiat-denominated prepaid and, or gift cards with cryptocurrencies.

6.3 Fiat Cards Used to Purchase Cryptoassets for Illicit Purposes

The Problem

Growing availability of both fiat prepaid cards and cryptoassets means criminals can readily leverage both technologies in their operations.

Criminals can obtain prepaid cards, or credit or debit cards, to buy cryptoassets at exchanges, with the aim of using the cryptoassets to purchase illicit goods and services. This can include the use of both new cards, as well as stolen card details.



Red Flags for Legitimate or Stolen Fiat Cards to Purchase Cryptoassets

- A customer makes numerous purchases of cryptoassets using prepaid cards with a frequency that can't be legitimately explained
- The customer uses countless different cards to make purchases of cryptoassets
- After purchasing cryptoassets using prepaid cards, the customer immediately transfers the cryptoassets to high risk sites. These could be dark web markets or sites associated with prostitution or similar activities.

7 Mixing Services and Privacy Wallets

Cryptoasset mixing services add an element of privacy and opaqueness to the otherwise highly transparent Bitcoin ecosystem. By collating and redistributing Bitcoin among numerous users, these services break the chain of end-to-end traceability around transactions on cryptoasset blockchains.

Mixers play a vital role in cryptoasset laundering due to their ability to obscure transaction flows.

Illegal mixing services have generally been associated with a small number of mixers, whose creators in some cases advertise to dark web vendors, cybercriminals and other illicit actors.

Among the most prolific mixers to date is the Helix mixer, which went offline in early 2018 but operated as a significant money laundering vehicle for criminal actors. In February 2020, Larry Dean Harmon, founder of Helix mixer, was arrested and charged with laundering over \$300 million via the Helix mixer on behalf of criminals.¹³ In October, FinCEN announced a \$60 million penalty against Harmon for operating an unlicensed MSB.

Mixing services are generally used in coordination with other money laundering typologies outlined in this report, some of which we've noted throughout. We also note some specific cases that have emerged recently in Chapter 11 on multi-service typologies.

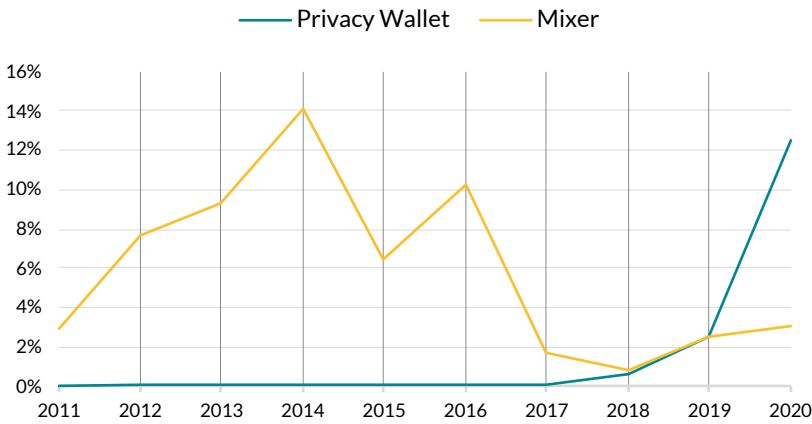
Once the Helix mixer stopped operating, mixing activity involved a broad set of much smaller mixers for a while. None immediately took the place of Helix as the primary mixer of illicit actors. In 2018, Europol was of the opinion that "the use of other coins with greater privacy will slowly replace the need for dedicated mixing services."¹⁴ See section 10 below for further descriptions of typologies involving privacy coins.

Mixing activity has experienced a resurgence across 2019 and into 2020. Another mixing service, ChipMixer, has taken the place of Helix, making a prominent appearance in the 2020 Twitter hack, as well as the KuCoin exchange hack.

2020 has also seen the use of privacy wallets emerge as a money laundering vehicle for criminals. Privacy wallets such as Wasabi Wallet use built-in anonymization techniques like CoinJoin to achieve a mixing effect that hides a users' ultimate source of funds. As the graph below demonstrates, across 2020, privacy wallets overtook mixers as a preferred avenue for laundering illicit funds.

Proportion of Illicit Bitcoin Sent Directly to Mixers and Privacy Wallets

First Destination of Criminal Proceeds in Bitcoin:
Mixers and Privacy Wallets



Source: Elliptic

Fortunately, despite their opaque properties, mixing services and privacy wallets are detectable using Elliptic’s blockchain analytics software, enabling cryptoasset businesses to identify related suspicious activity.



Red Flags for Mixing Services and Privacy Wallets

- A customer has received a large amount of funds from a mixing service or privacy wallet and cannot provide further evidence of the ultimate source of funds
- A customer’s account shows frequent transactions to, or from a mixing service or privacy wallet in a short amount of time, with only a vague explanation
- A customer is evasive about their reason for using a mixing service or privacy wallet.

Elliptic’s software can generally identify mixers, and below are other indicators of Bitcoin addresses that could represent unidentified mixing services on the blockchain:

- The address involves very large volumes and values of Bitcoin inputs and outputs (can be more than 20,000), and has been highly active
- At any given time, the address has a very low balance, which would distinguish it from an exchange or other conversion service managing customer orders
- The address suddenly stops transacting after having processed large volumes of payments, suggesting it has been abruptly shut down.



Case Study

Helix Mixer and Coin Ninja

US legal and regulatory action against Larry Dean Harmon, the founder of the Helix and Coin Ninja mixing services, reveals the scale and nature of illicit activity that mixing services can achieve.

FinCEN discovered that Harmon offered his mixing services to criminals; especially vendors on the dark web market Alphabay. Over a three year period he processed more than one million transactions worth \$311 million.¹⁵

Harmon ran Helix on the Grams darknet.onion site¹⁶ and advertised his services on both the surface web and dark web, claiming that Helix could allow users to avoid law enforcement detection. He claimed that by providing users with fresh cryptoasset addresses with no trading history, Helix made transactions less susceptible to blockchain monitoring.¹⁷ From April 2014 to December 2017, Helix was the mixer of choice for dark web vendors on Alphabay, Agora Market, Nucleus, and Dream Market, in addition to others.¹⁸ Harmon also facilitated transactions on behalf of child exploitation sites, neo-Nazi groups, Iran-based users, and conducted approximately \$900,000 of transactions involving BTC-e.¹⁹





8.1 Tokens Used to Clean Dirty Cryptoassets

The Problem

Tokens are sometimes launched with no requirement for investors to provide KYC information or supply evidence around the source of funds they've used to purchase ICO tokens.

Consequently, tokens provide useful mechanisms for criminals seeking to clean dirty cryptoassets.

In some cases, token issuers with no ill intention are unaware that the cryptoassets they have received come from illicit sources. In other cases, the token issuers are likely to be complicit in the illicit activity. The token itself is of dubious legitimacy, acting as a veil for laundering criminal funds.



Red Flags for Token-Based Laundering

- A customer wishes to exchange a large volume of newly-issued tokens, very suddenly and without explanation. This may occur immediately after an token sale, and the customer may appear unconcerned about sustaining a loss on their trade
- The website of the token in question suggests it does not conduct KYC or CDD of investors or have controls in place to protect against ICOs
- There is little or no information about where the token's founders are based and what jurisdictions they operate in
- The token has not registered as an MSB or securities broker in jurisdictions where this is required.

8.2 Laundering Proceeds from ICO Scams

The Problem

Some token projects have been outright scams. By some estimates, as many as 80% of ICOs launched during the 2017 craze were frauds and scams.²² Individuals, especially the financially vulnerable, are at risk of being coerced by fraudsters in this environment.

As described below, some cases of token scams may involve the laundering of cryptoassets obtained from innocent victims.



Red Flags for Token Scams

- New customers to an exchange demonstrate little or no understanding of cryptocurrencies and indicate they are responding to an ad for a token
- Defrauded customers may attempt to purchase relatively significant amounts of cryptoassets as a one-off, despite their limited understanding of the technology
- The ostensible token may feature on websites or social media, promising huge returns and promises that investors will get rich quickly.



8.3 Laundering of Hacked Tokens and Stablecoins

The Problem

As tokens and stablecoins become more widely available for trading, they are increasingly attractive to cybercriminals. Hackers can steal tokens and stablecoins from exchanges, and launder the funds by trading them for other cryptoassets on both centralized exchanges and DEXs.



Red Flags for Stolen Tokens and Stablecoins

- A customer is in possession of a large volume of tokens and stablecoins with an obscure explanation for how they were obtained
- Blockchain analytics indicates that a customer is in possession of tokens and stablecoins that have been exposed to a known exchange hackA customer suddenly begins sending or receiving tokens and stablecoins to or from DEXs frequently, with no real explanation.



Case Study

Tokens and Stablecoins Involved in Fraud and Hacking

Several hacking incidents have involved the theft of tokens and stablecoins from cryptoasset exchanges.

The largest hack of tokens to date involved theft of over \$400 million NEM tokens from Japanese exchange Coincheck.²³ Hackers stole the funds from Coincheck's hot (or online) wallet, but the team behind NEM tokens resisted calls to recover the funds - ultimately leaving Coincheck on the hook to refund customer losses.

The September 2020 KuCoin hack (see chapter 3 for a detailed description) also involved stolen tokens and stablecoins, but the token issuers opted for a different approach. After hackers stole more than \$150 million worth of tokens and stablecoins, token issuers such as Ocean Protocol and Tether began to freeze balances or forcibly move funds, so that KuCoin could retrieve the stolen assets.

In April 2020, a token issuer Tether, froze \$300,000 of Tether in response to a case of fraud. This case involved an individual who had purchased Tether from a cryptoasset exchange and had some of the funds stolen by a hacker after moving it to his personal wallet. On learning that the funds had been reported stolen, Tether froze them and assisted law enforcement with their investigation into the alleged fraud.²⁴



9 Wallet-Specific Behaviors

The transparency of the Bitcoin blockchain makes it possible to readily identify associated addresses linked to the same entity or individual. Elliptic's software makes it possible to identify these clusters of addresses and associated wallets offering an incredibly powerful tool for detecting and monitoring suspicious activity.

Criminals will still take specific steps to try and mask the connection between the Bitcoin addresses they are using, avoiding the clustering of addresses as a method for laundering.

In addition, groups of customers may engage in patterns of wallet activity that are highly unusual, swapping Bitcoin among one another with a frequency that has no explainable legitimate purpose.

These behaviors are described below. While the examples given involve activity occurring in Bitcoin, similar techniques could in theory, be employed by criminals seeking to hide activity in other cryptocurrencies. These might include Litecoin and Bitcoin cash which rely on the Unspent Transaction Output (UTXO) model.

9.1 Chain peeling

The Problem

Criminals leave themselves vulnerable to detection where they rely on static addresses or repeatedly recycle the same few addresses.

"Chain-peeling" is one method criminals can use to reduce this vulnerability. It refers to the process of a user avoiding address re-use by repeatedly distributing unspent Bitcoin among brand new addresses in small amounts, thereby hiding the connection back to an original address that held illicit cryptoassets.

Fortunately, Elliptic's solutions facilitate the detection of peeling chains, as described here.



Red Flags for Chain Peeling

- A single customer receives cryptoassets at an exchange, with blockchain data indicating a large number of hops, e.g. 20 or greater, through multiple new wallets within a very short period e.g. several hours
- In some cases the cryptoassets associated with the new addresses may be deposited into numerous mule accounts
- Each individual transaction associated with the new wallets will tend to occur in a very short period of time, with all transactions part of the same block or separated by only one or two blocks
- The activity in question may be identified very shortly after a known exchange hack or other major criminal event has occurred involving large amounts of cryptoassets.

9.2 Multi-Customer Cross-Wallet Activity

The Problem

Numerous individuals who are part of a criminal network may work in a coordinated fashion to use hosted or custodial wallets from the same exchange or wallet provider.

They transfer illicit funds between one another's' wallets frequently. Exchanges only record these internal transfers on their books, resulting in no transactional information appearing on the Bitcoin blockchain.



Red Flags for Multi-customer Cross-account Activity

- Multiple customers (sometimes in large numbers, e.g. in excess of 15 or 20 customers) with shared addresses, mobile devices or other common indicators are discovered to create accounts at the same time. They begin sending funds on a continuous basis (e.g. daily), with volumes or values that don't appear to have any legitimate purpose;
- A customer in one jurisdiction (e.g. Europe) transfers funds from his or her wallet to that of another customer in a different jurisdiction (e.g. South America). The funds are immediately cashed out at an exchange or ATM in short succession, with a velocity that appears unusual;
- The individuals in question may have different surnames or nationalities so are unlikely to be family members; and
- The relevant customers are unable or unwilling to provide information about their source of funds and the purpose of their repeated transfers.

10 Privacy Coins & Chain Hopping

Cryptoassets such as Monero, Dash and Zcash are viewed by some cryptoasset enthusiasts as providing advantages over Bitcoin's relative lack of privacy and fungibility.

Privacy coins²⁵ have featured recently in some significant cases of criminal activity. The now-defunct Alphabay dark web marketplace began allowing Monero payments in addition to Bitcoin. Elliptic's research highlights that most new dark web markets now accept Monero. Recent sanctions actions undertaken by OFAC in the US also highlight how cybercriminals are looking to privacy coins as part of their operations.

The use of privacy coins for laundering purposes is also heightened where the exchanges that criminals attempt to exploit are unlicensed and non-compliant. The FATF's report on cryptoasset red flags draws special attention to unlicensed and non-compliant exchanges that offer privacy coins as an area of specific and significant risk.

Not all privacy coins present the same risks. Privacy coins such as Monero remain imperious to AML solutions whilst others such as Zcash are not. Since Zcash transactions do not provide default privacy like Monero does, users of Elliptic's blockchain analytics solutions can screen unshielded Zcash transactions for traces of illicit activity, just as they would with Bitcoin.

In addition to privacy coins, criminal actors may also attempt to move between cryptocurrencies, such as litecoin, Bitcoin cash and others, as a way of hiding the flow of funds by switching between blockchains (a process known as "chain hopping"). This activity has been given a major boost in recent years through the proliferation of dedicated "coinswap" services, or P2P exchange platforms that require little or no KYC for crypto-to-crypto traders.

10.1 Use of Privacy Coins to Layer Illicit Proceeds

The Problem

Owing to its relatively high liquidity, Bitcoin remains by far the favoured choice for criminal actors using cryptocurrencies.

Bitcoin remains highly traceable. Criminals may seek to exploit privacy coins in the same manner that they exploit mixers by using privacy coins to break up the Bitcoin transaction trail.

Privacy coins provide a layering mechanism in the money laundering process, helping to hide the link between the illicit source and ultimate destination of funds.



Red Flags associated with criminals' use of privacy coins to layer funds.

- Bitcoin known to be associated with a large scale criminal event, such as a hack, ransomware or other, is cashed out at an exchange that provides access to privacy coins;
- Bitcoin associated with high risk address clusters move through a complex process of chain-peeling before being cashed out at an exchange that provides privacy coins; and
- The exchange in question may be unregulated or non-compliant, or located in a high risk jurisdiction (see sections 1.1 - 1.2 above for indicators of these types of exchanges).

10.2 Laundering Illicit-Origin Privacy Coins

The Problem

Criminals may obtain privacy coins directly from illicit sources, as well as using them to obscure illicit Bitcoin or other transparent cryptocurrencies. For example, perpetrators of 'crypto-jacking' campaigns have used victims' hacked computers to mine for Monero, providing criminals with newly minted Monero that appears clean.



Red Flags for Privacy Coins

- Legitimate exchanges experience such activity where a customer transfers in a large volume of Bitcoin from an exchange that offers privacy coins
- The customer engages in frequent transactions involving unregulated coinswap services
- A customer is unwilling or unable to provide information about the source of privacy coins they once held.



Case Study

Sanctioned Russian Cybercriminals Using Privacy Coins

In two September 2020 sanctions actions, OFAC outed Russian cybercriminals and election hackers who rely on privacy coins.

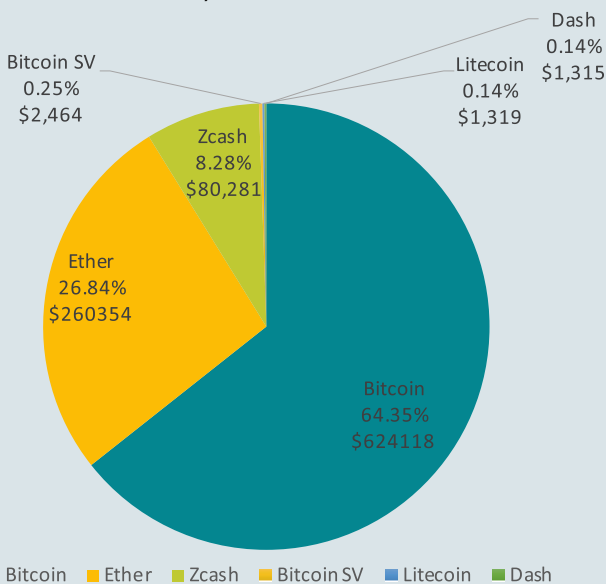
According to OFAC, Danil Potekhin and Dimitri Karasadivi hacked cryptoasset exchanges and undertook complex money laundering operations to clean the funds. This included using numerous accounts at several cryptoasset exchanges to swap the funds for multiple cryptoassets - an example of chain-hopping in action. As part of its sanctions action against them, OFAC listed cryptoasset addresses belonging to the two criminals, including Monero, Dash, and Zcash addresses belonging to Karasadivi.

KARASAVIDI, Dmitrii (Cyrillic: КАРАСАВИДИ, Дмитрий) (a.k.a. KARASAVIDI, Dmitriy), Moscow, Russia; DOB 09 Jul 1985; Email Address 2000@911.af; alt. Email Address dm.karasavi@yandex.ru; Gender Male; Digital Currency Address - XBT 1Q6saNmQKkyFB9mFR68Ck8F7Dp7dTopF2W; alt. Digital Currency Address - XBT 1DDA93oZPn7wte2eR1ABwcFoxUFxkKMwCf; Digital Currency Address - ETH 0xd882cfc20f52f2599d84b8e8d58c7fb62cfe344b; Digital Currency Address - XMR 5be5543ff73456ab9f2d207887e2af87322c651ea1a873c5b25b7fae456c320; Digital Currency Address - LTC LNwgtMxcKUQ51dw7bQL1yPQjBV2h6QEqs; Digital Currency Address - ZEC t1g7wowvQ8gn2v8jrU1biyJ26sieNqNsBJy; Digital Currency Address - DASH XnPFsRWTa5giVauosEwQ6dEitGYXgwznz2; Digital Currency Address - BTG GPwg61XoHqQPnMaucFACuQ5H9SGCDv9TpS; Digital Currency Address - ETC 0xd882cfc20f52f2599d84b8e8d58c7fb62cfe344b; Passport 75 5276391 (Russia) expires 29 Jun 2027 (individual) (CYBER2).

During the same month, OFAC sanctioned four Russian-linked individuals for interfering in the US election. According to OFAC, Artem Lifshits, Anton Andreyev, and Darla Aslanova, supported the activity of a Russian agent; Andrii Derkach, by facilitating cryptoasset transactions that furthered Derkach’s attempts to subvert the 2020 US election online. OFAC listed Zcash and Dash addresses belonging to Lifshits and Andreyev, as well as Bitcoin, Litecoin, and other cryptoasset addresses they control.

Elliptic’s analysis of their activity indicated that they had engaged in Zcash transactions totalling approximately \$80,000.

Analysis of asset breakdown



Source: Elliptic

Part II: Terrorist Financing



The number of reliable and publicly confirmed cases of Terrorist Financing (TF) involving cryptocurrencies remains relatively small in comparison to general money laundering activity. And in comparison to their use by sanctioned actors.

Analysis of TF campaigns in 2019-2020 suggest that they have become more sophisticated in their use of cryptoassets through the following:

- Successfully raising greater amounts than before
- Identifying new methods for obtaining cryptoassets
- Taking additional steps to obfuscate their use.
- TF often involves only very small amounts of funds directed towards specific activities, therefore making it extremely difficult to detect. A cryptoasset business might struggle to identify that TF is occurring at all, with no knowledge of specific terrorist-associated cryptoasset addresses, or being supplied with direct information from law enforcement that a customer is a terrorist suspect.

Nonetheless, there are instances of TF using cryptocurrencies which are important to be aware of.

11 Crowd-Funding Through Charities and Other Organizations

Jihadist Activity

Jihadist actors have been identified engaging in cryptoasset-enabled fund-raising activities through apparent charities, media or propaganda offices, and other organizations.



Red Flags for Jihadist and Extremist Groups

- Cryptoassets identified as deposited to, or originating from, a specific wallet address that has appeared on jihadist or extremist-sponsored social media and messaging sites, associated with Twitter and Telegram
- Cryptoassets identified as deposited to, or originating from, a specific wallet address that has appeared on jihadist or extremist-sponsored ads on fundraising sites such as Kickstarter, Patreon, or on sites such as Hatreon
- Cryptoassets identified as deposited to, or originating from, a specific wallet address that has appeared on jihadist or extremist-sponsored sites on Tor
- Funds deposited to, and withdrawn from, relevant cryptoasset addresses may trace to unregulated and non-compliant exchanges.

12 Individuals or Small Cells

Individual and small cell terrorist supporters have been identified as attempting to fund activity using cryptocurrencies in some limited instances.

Small cell and lone actor TF activities can sometimes be nearly impossible to spot, or to distinguish from normal customer activity, or from patterns of generic money laundering. It is important to be aware of the threat in case a cryptoasset business is ever directly exposed to it.



Red Flags for Lone Actors and Small Cells

- Customer attempts to establish accounts with false identity documentation and purchasing cryptocurrencies with stolen card detail
- Customer withdraws cryptoassets from an exchange. The cryptoassets trace immediately, or through multiple hops, to an address associated with terrorist and extremist content on social media, Tor-hosted sites or general crowdfunding platforms;
- Customer attempts to swap cryptoassets at an exchange for fiat, funds ultimately trace to an address associated with terrorist or extremist content
- The customer's social media presence may indicate that they post on sites or share information about extremist content, such as jihadist or Neo-Nazi material on platforms such as Twitter, Facebook and others
- Multiple individuals operating together may open accounts at a similar time and transfer funds among one another's wallets. Transfers may be made to or from wallets associated with individuals, exchanges or other services located in high risk terrorist financing jurisdictions
- Immediately after swapping cryptoassets for fiat, the fiat funds may be transferred onward to accounts in high risk terrorist financing jurisdictions.



Case Study

Terrorist Cell Using Bitcoin Coupons

In September 2020, French law enforcement announced the dismantling of a terrorist financing cell that used cryptoassets to support militants in Syria.

According to reports, France arrested 29 individuals associated with Al-Qaeda affiliate Hayat Tahrir Al-Sham. Those arrested were involved in purchasing Bitcoin coupons from licensed tobacco shops around France. The cell members used cash to purchase the coupons, which can be redeemed in Bitcoin, in values ranging from 10 to 150 euros. Once they were in possession of the Bitcoin, the members of the network transferred them to French jihadists residing in Syria.²⁶



A Final Word

We hope you found this concise guide informative and actionable. We set out to provide compliance teams with a better understanding of how criminals exploit crypto with new techniques.

Like you, we believe that compliance isn't just a regulatory requirement, it helps businesses manage risk and grow sustainably by rooting out illicit actors to keep crypto clean.

However, we cannot do this on our own. Elliptic will continue to work with our customers, compliance professionals, regulatory bodies, and the wider crypto community to prevent financial crime in crypto.

This concise guide was developed especially for compliance leaders. Your compliance operations teams may wish to reference the *Ultimate Guide for Compliance Teams* which is only available to compliance professionals upon request.

Please register your interest [here](#) so Elliptic can review your eligibility.

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London



Tokyo



New York



Singapore