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# The Condition of the Cryptocurrency Market and Exchanges in Poland

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Ireneusz Miciuła

Additional information is available at the end of the chapter

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## Abstract

The development of the cryptocurrency market and the implications for the whole economy and finance for all traders cause a keen interest in this subject. The chapter discusses the functioning of a financial system based on cryptocurrencies and its significance for economies. In this chapter, the development of the global cryptocurrency market was presented and the history of the most popular cryptocurrency, bitcoin, was analyzed. The analysis and the assessment of the state and structure of the Polish cryptocurrencies market were presented on the background of the global cryptocurrency market. Also, we presented the possible development paths for the cryptocurrencies market in Poland and in the world.

**Keywords:** cryptocurrencies, financial innovations, cryptocurrency market, polish market, cryptocurrency exchanges, market regulations for cryptocurrencies

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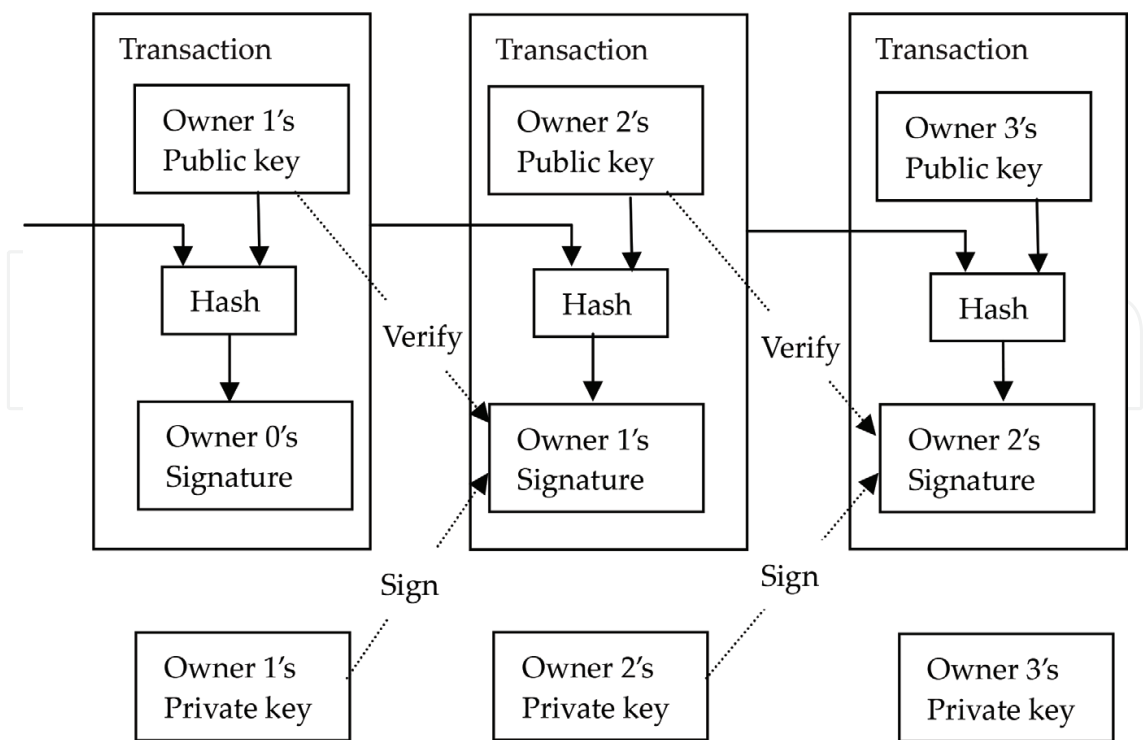
## 1. Introduction

This chapter will include the analysis and the assessment of market developments and cryptocurrency exchanges in Poland, along with the attempt to present the perspectives of development. The evaluation will be made on the background of cryptocurrency world.

Cryptographic currency, popularly known as cryptocurrency, is, in the definition, a distributed accounting system based on cryptography, which stores information about the state of ownership in conventional units. The state of ownership is related to individual system nodes (portfolios) in such a way that only the holder of the corresponding private key would have control over the given portfolio, and it was impossible to issue the same unit twice. The

creator of the most popular cryptocurrency defines it as follows: it is an electronic coin as a chain of digital signatures. Each owner transfers the coin to the next by digitally signing a hash of the previous transaction and the public key of the next owner and adding these to the end of the coin. A payee can verify the signatures to verify the chain of ownership, what we see in **Figure 1**. However, the problem of course is that the payee cannot verify that one of the owners did not double-spend the coin. A common solution is to introduce a trusted central authority, or mint, that checks every transaction for double-spending [1].

Current commerce on the Internet has come to rely almost exclusively on financial institutions serving as trusted third parties to process electronic payments. While the system works well enough for most transactions, it still suffers from the inherent weaknesses of the trust-based model because it cannot avoid mediating disputes. Therefore, needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party [2]. A peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third party is still required to prevent double-spending [1]. The entire system operation cryptocurrency is based on cryptology, the field of knowledge about the transmission of information in a manner protected against unauthorized access [3]. However, this system is also based on trust and institutions certifying the authenticity of even cryptographic keys. On the other hand, the currently operating cryptocurrencies are mostly based on bilateral trust (sellers and investors), and additionally, at the very end, the creators have the ability to manipulate and change



**Figure 1.** Cryptocurrency authentication transaction. Source: own based on: [1].

the operating principles of the algorithms on which the operating system is based. This is the biggest danger, as is evidenced by numerous cryptocurrencies that have gone bankrupt or stopped functioning overnight. That is why this topic is so important. On the one hand, these systems seek solutions that could work without the need for third party trust. The global cryptocurrency system operates despite the lack of confirmation of trust from the countries or institutions. At the same time, it gives the opportunity to speculate and create large estates for private individuals or enterprises, which are basically in the global system unnoticeable to the whole. On the other hand, it can cause great systemic threats and great economic losses around the world and be a source of hiding large crime and financial crises. In this chapter, we will explain how the functioning of cryptocurrency together with the current developments in the world and in this context, analysis and assessment of market cryptocurrency in Poland will be made.

## **2. The current development cryptocurrencies in the world**

The biggest interest in cryptocurrencies results from two reasons. First of all, this is due to the idea of freedom and independence from third parties, such as state or financial institutions. Secondly, from the point of view of possible investment gains, both legal and illegal. One of the main features of cryptocurrencies is that it acts like a virtual currency. The holder of such a cryptocurrency stores it on his computer or in a smartphone application in the so-called wallet that only he can access. If he wishes to make a transaction, it takes place electronically, directly between him and the contractor. Each unit of cryptocurrencies has a unique code, which contains information preventing its copying or re-spending. The key to the concept of cryptocurrencies is also the fact that there is no regulator in circulation. Therefore, there is no, for example Central Bank of Cryptocurrency, which may decide, for example, to increase the supply of cryptocurrency and thus to decrease its value. The author decides how much of a given cryptocurrency is in circulation at the stage of creating the system. Its value is in the hands of the free market. Trading in cryptocurrencies takes place electronically, without the participation of any banking system directly between users of the cryptocurrency, that is, in peer-to-peer technology. This means that the transaction is not supervised in any way. Therefore, there is no entity that will inform tax authorities if we want to sell a large number of cryptocurrencies, as it happens in the case of banking transactions for an amount exceeding the equivalent of 15,000 Euro. No one can also block our account. The bailiff will not come. Considering the above, it turns out that the mission of cryptocurrency really boils down to one word, which is "freedom." Cryptocurrencies are electronic currencies completely free from the control of politicians, domestic or international financial institutions, whose turnover is not controlled in any way, and is subject only to a strong system of electronic, automated securities.

Cryptocurrencies are, first of all, breakthrough internet technology, and using it as a means of payment is just one of its possible applications. It is a system based on a peer-to-peer network, that is, fully dispersed, without a central unit, organization or place that controls it. System users, their computers, are network nodes through which transactions are exchanged,

authorized, and settled. This system stores information on the state of ownership in contractual units of cryptocurrency. The possession of a given cryptocurrency is related to individual portfolios containing information about the cryptocurrency of a given user.

The wallet is created automatically during the first user authorization in the system. Only the owner of the corresponding encrypted private key has control over the portfolio. Advanced mathematical and cryptographic methods make it impossible to double-issue cryptocurrency, counterfeit or theft. The whole system is based on blockchain technology.

Cryptocurrency is the first invention in the financial system that was developed outside of financial institutions, even without cooperation with them. It is innovative, simple, and does not use existing financial systems. Moreover, it poses a threat to the status quo of the financial system. Therefore, many market regulators, including the countries and international financial institutions, regard this system as a threat primarily of their own income and generally understood power and authority. For this reason, we observe a very different reaction of countries in the world.

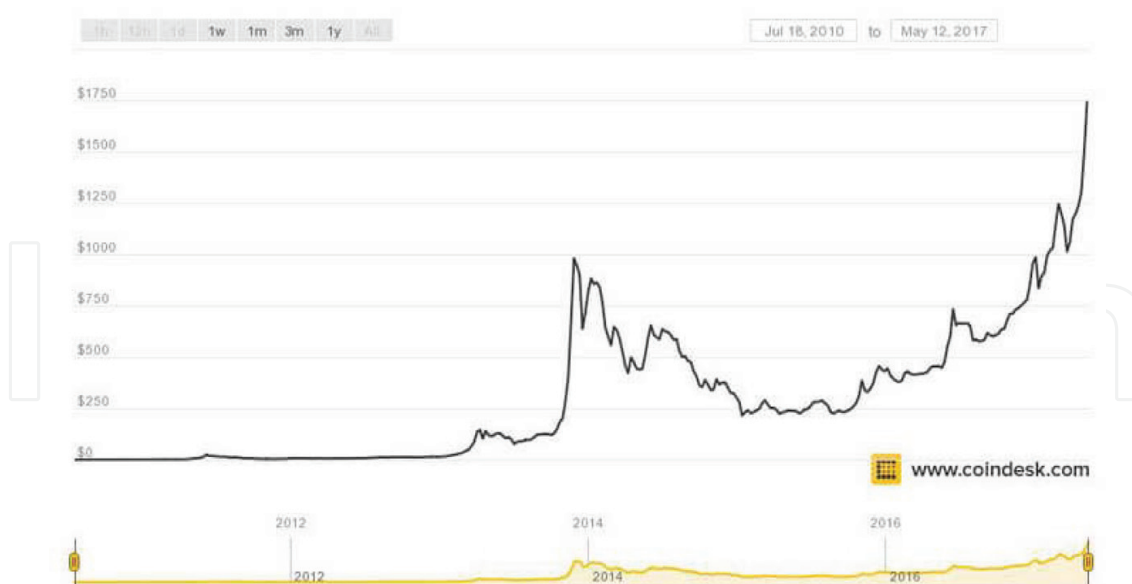
Starting from Japan (as an example of the most far-reaching regulation), one can point to the rapid evolution of the Japanese regulators' approach. Starting from the recognition of cryptocurrency as a means of payment, but not yet as the currency introduced by the act on payment services of 25 May 2016, until the adoption in April 2018 of new regulations fully recognizing cryptocurrencies as legal tender. What is more, the Japanese Central Bank began work on creating its own digital currency, whose working name is J-Coin. On the other hand, we have a contrast. For example, in China, we have a ban on making cryptocurrencies. On the other hand, Bangladesh and Nepal, by introducing the relevant regulations, penalized the marketing of cryptocurrencies. In Bangladesh, the use of cryptocurrencies is currently regarded as a violation of the provisions on money laundering and is punishable by imprisonment of up to 12 years. In Nepal, after introducing changes prohibiting the circulation of crypts, the first detainees of such activities took place [4]. On the other hand, many countries have no regulations on this matter, and in principle, are considering which party to address in relation to cryptocurrencies. For example, in Europe, so far none of the countries has banned trading in cryptocurrencies. However, many countries are preparing the right law because they are aware of the facts that point to the rapid growth of transactions in cryptocurrencies. Most countries see this as primarily a threat system, which will receive the role of management, which takes obvious opportunity to influence the financial and economic phenomena. Maybe a system in which there is no supervision of specific organizations due to a change in rules it's a good direction of development. However, it is certainly not a cryptocurrency system, where one person can play such a role [5].

Currently, the most popular cryptocurrency in the world is bitcoin. It has the highest market capitalization and the highest rate, and often as part of discussing the topic, cryptocurrencies are a flagship example. The most popular cryptocurrency in the world, bitcoin, was created in 2008. It is not known who are its creators. Almost simultaneously, three IT specialists (King, Oksman, and Bry) patented solutions similar to those on which the bitcoin system was based [6]. So, we see that bitcoin is 10 years old. Due to the review of Bitcoin's development history, you can notice characteristic phases for the entire cryptocurrency market.

- February 9, 2011—for the first time in history, one bitcoin was priced at the same rate as the US dollar.
- April 5, 2011—the Polish bitmarket.eu market is established.
- June 2, 2011—1 BTC was valued at \$ 10.
- August 26, 2011—the Polish bitomat.pl. stock market collapsed, with 17,000 BTC lost.
- November 19, 2013—1 BTC was valued at \$ 1000.
- February 13, 2012—the collapse of the large TradeHill exchange.
- May 11, 2012—the fall of the Bitcoinica platform.
- July 2013—billionaires Winklevoss brothers are entering Bitcoin.
- March 25, 2013—Denmark exempts bitcoin sales from tax.
- September 20, 2013—Bitcoin recognized as a full-fledged private money in Germany.
- December 5, 2013—beginning of the bitcoin ban in China.
- February 28, 2014—the demise of the largest bitcoin exchange—Mt.Gox.

The first characteristic phase, which is noticeable in the graphs of all new cryptocurrencies, is the so-called the phase of gaining confidence. It is visible on the cryptocurrency charts, which have passed to the following phases: the second (interest, growth) and third (determination of the maximum value for the period). The time between consecutive phases is different for specific cryptocurrencies and depends on many factors. There are many examples of cryptocurrencies that have arisen and fallen in the first phase of the life cycle. There are also many examples, often local cryptocurrencies, which have passed to the third phase, where the achieved maximum value is visible, followed by a very fast drop in value or even a momentary fall and the cryptocurrency ceases to function. We also see this on the example of the most popular cryptocurrency, bitcoin. November 19, 2013 reached its maximum value of \$ 1000 after which, among others, also due to the collapse after 3 months of the largest bitcoin exchange. This recession lasted for 2 years, where the value accounted for one-fourth of the maximum value achieved in this period, which can be seen in **Figure 2**. The return to the value of 1000 dollars for one bitcoin was made at the end of 2016, so after 3 years. In addition, the actual revival and return to the maximum value from 2013 took place in 2016. This additionally shows very dynamic movements, both upward and downward, in comparison to the existing system of recognized means of payment. There are many examples where there is not so much interest on the part of investors and co-financing as in the case of bitcoin, which causes bankruptcy of the system and the collapse of these cryptocurrencies. This causes a lot of damage to the trust of the cryptocurrency system and gives arguments to their opponents, which show the use of the system to create financial pyramids and other scams. The same negative consequences for the system are caused by falls of exchanges and cryptocurrency exchange platforms. Although in this case, it often happens that the defenders of the current





**Figure 2.** Bitcoin exchange rate in the years 2010–2017. Source: [7].



**Figure 3.** Bitcoin exchange rate in the years 2015–2018 (today). Source: [8].

system, that is state and financial institutions, also bear responsibility for these events. For example, additional taxes are imposed in Poland, and financial institutions, such as banks, refuse to provide services to such entities. Analyzing the history of the most popular cryptocurrency, we see that states have different approaches to the cryptocurrency system, from a total ban and establishing penalties to full recognition. Some countries often use the tax burden imposed on cryptocurrencies, but do not intend to lay down specific legal provisions on this matter, although it considers this activity to be legal.

The recent history of Bitcoin, basically from the last year of 2017, shows renewed interest and an almost unimaginable increase in value. From the return and breakthrough value of \$ 1000 to as much as \$ 20,000 in mid-December 2017 for one bitcoin. Since then, for less than half a year, we have seen a decline in around a quarter of the historical maximum value, another increase and oscillation around half of this value, as shown in **Figure 3**.

- February 20, 2017—you can receive 1055,26 USD for 1 bitcoin.
- March 2, 2017—bitcoin worth more than gold at \$ 1268 for 1 BTC.
- December 2017—historical maximum value of 1 bitcoin worth 20,000 dollars.
- May 1, 2018—for 1 bitcoin you can receive 8951.64 USD (31.105 PLN).

Bitcoin is a flagship example of a cryptocurrency system, most of which repeat the regularity of the system's behavior. However, there are several hundred other cryptocurrencies, which are referred to as altcoins (alternative coins, including the "bitherin's younger brother" currency ethereum). The creation of some of them had at the same time to achieve other goals, for example, namecoin creates a decentralized DNS system and peercoin tries to spread the income from the extraction of its units more evenly. There are also plans to build cryptocurrencies on the forecasting market.

New cryptocurrencies are constantly being created due to the use of open source software and P2P networks. The source code is based on free software, so anyone can download it and create your cryptocurrency. Currently, there are more than 1500 individual cryptocurrencies. Many of them work on the same code principle, they present only a few minor changes and different parameters (time distribution of blocks or number of coins) in contrast to the original coin.

Currently, more than 1500 cryptocurrencies are listed on more than 7000 special exchanges market. Each of them has some advantages and unfortunately disadvantages. A large number, especially local cryptocurrencies, have a short history of functioning and then disappear from the market. It has the negative effect of receiving the cryptocurrency system as a whole, because there are many examples for using it for financial fraud purposes. Undoubtedly, however, there are also advantages, the emphasis, and full use of which would require certain legal and technological solutions. To confirm the importance of the subject matter in the world of finance and economies in the world, **Table 1** presents cryptocurrencies, whose market capitalization currently amounts to over 1 billion US dollars.

**Table 1** contains a list of cryptocurrencies with market capitalization exceeding USD 1 billion. Currently, such cryptocurrency is 25. Market capitalization is the value of all coins that are in circulation, multiplied by their current value (Eq. (1)).

$$\text{market capitalization} = \text{number of coins in circulation} \times \text{current value of one coin} \quad (1)$$

The rate defines the price of one digital coin in US dollars. Cryptocurrency is the first invention in the financial system that was developed outside of financial institutions, even without cooperation with them. It is innovative and does not use existing financial systems. Moreover, it poses a threat to the status quo of the financial system. Undoubtedly, this trait of independence and lack of trust in the third party (institutions that create and regulate the financial system) would be a revolution in the world of finance, where only two parties would be required. This is the main argument for creating a system that is not dependent and subjected to the influence of financial regulators. Unfortunately, however, in practice, despite the vision



No.	Cryptocurrency	Code	Exchange rate	Number of coins	Market capitalization
1.	Bitcoin	BTC	\$ 8951.6394	17,180,188	\$ 153,790,855,757
2.	Ethereum	ETH	\$ 646.5789	100,154,753	\$ 64,757,950,249
3.	Ripple	XRP	\$ 0.80371665	39,541,619,593	\$ 31,780,258,035
4.	Bitcoin Cash	XBC	\$ 1281.7728	17,275,946	\$ 22,143,838,920
5.	EOS	EOS	\$ 16.7904	835,329,772	\$ 14,025,521,010
6.	Cardano	ADA	\$ 0.3254823	26,188,960,137	\$ 8,524,042,980
7.	Litecoin	LTC	\$ 143.9658	56,898,395	\$ 8,191,423,098
8.	Stellar Lumes	XLM	\$ 0.39935016	18,759,309,869	\$ 7,491,533,398
9.	Tronix	TRX	\$ 0.09088398	66,412,089,292	\$ 6,035,794,995
10.	NEO	NEO	\$ 80.4078	65,659,718	\$ 5,279,553,500
11.	IOTA	IOT	\$ 1.8513	2,800,940,157	\$ 5,185,380,514
12.	Monero	XMR	\$ 230.3433	16,146,465	\$ 3,719,230,081
13.	Dash	DASH	\$ 454.2615	8,121,006	\$ 3,689,060,743
14.	Nem	XEM	\$ 0.39074508	9,090,909,088	\$ 3,552,227,999
15.	Tether	USDT	\$ 0.99	2,450,101,824	\$ 2,425,600,806
16.	Vechain	VEN	\$ 4.3362	530,773,566	\$ 2,301,540,339
17.	Ethereum Classic	ETC	\$ 20.7207	102,514,915	\$ 2,124,180,807
18.	Qtum	QTUM	\$ 21.4731	89,476,920	\$ 1,921,346,857
19.	OmiseGO	OMG	\$ 16.1964	103,074,544	\$ 1,669,436,555
20.	Binance Coin	BNB	\$ 13.7511	115,221,419	\$ 1,584,421,260
21.	Lisk	LSK	\$ 12.2463	106,472,521	\$ 1,303,894,445
22.	RaiBlocks	XRB	\$ 9.4347	134,639,002	\$ 1,270,278,593
23.	Bitcoin Gold	BTG	\$ 69.7455	17,146,505	\$ 1,195,891,577
24.	Verge	XVG	\$ 0.07307982	15,092,890,527	\$ 1,102,985,723
25.	Zcash	ZEC	\$ 272.6064	3,856,723	\$ 1,051,367,505

Source: own study based on the courses of 01/05/2018.

**Table 1.** A list of cryptocurrencies with market capitalization of over USD 1 billion.

of the scattering of the system and dependence only on the parties to the transaction, so it does not work. In fact, a technology-based system also has regulators and is based on trust, but this can be a natural feature of social systems that must be based on social recognition. However, unfortunately many cryptocurrencies and exchange market depend on a group of people or even one person, who may have malicious intentions, as exemplified by many scams related to the cryptocurrency market. On the one hand, manipulations are made by the creators or regulators of the rules of operation, including changes in the algorithm itself, and

on the other, players who have a huge impact on the entire market. An excellent example is the most popular cryptocurrency (bitcoin), where 97% of the currency is in the hands of only 4% of all portfolios [9]. Therefore, more and more people and institutions from the financial world warn against investing in cryptocurrencies, speaking about the financial pyramid, the speculative bubble, or ordinary scams. Currently, when they do not function as legal means of payment, it is a form of speculation or thesaurisation of values. However, undoubtedly this technology has great possibilities, which is why it is so difficult to define a system that would function in a safe way. You can store any type of transaction in transaction books. It does not matter if bitcoin represents currency, property, real estate, or shares. Users can decide themselves by defining the bitcoin parameters, which the given bitcoin unit represents. Each bitcoin is individually identifiable and programmable. This means that users can assign different properties to each individual. The user, using specialized applications, can program bitcoin to represent eurocents, company shares, kilowatt hours of energy, votes in elections, loans, or digital holding certificates. Because of this, this cryptocurrency is much more than just money and payments. Bitcoin behavior rules can also be programmed as needed. They can be automatically deleted after the expiration date and can be exchanged; they can automatically return to the owner, if the recipient does not meet, for example, the agreed terms of the transaction, will not pay on time or will not send the goods to the buyer. Just this feature could be used against fraudsters. However, establishing such a system is in fact not an easy task and undoubtedly requires a trusted party, otherwise regulators, who will somehow watch over the safety of turnover. It seems that a financial system based on the discussed technology should go this way. Currently, despite the great interest, the problem itself is not fully recognized as evidenced by, for example, different approaches of countries around the world to properly apply this technology. In the next section, we will look at the development of cryptocurrencies and their exchange market in Poland against the background discussed cryptocurrency market in the world.

### **3. The condition of the cryptocurrency market and exchanges in Poland**

Undoubtedly, the development of the cryptocurrency market in a given country depends on government legal decisions in relation to this market. As discussed before, the possibilities are a lot, from a total ban to full acceptance as a full-fledged currency, and there are many important options and solutions. At present, Poland has taken 24th place on the list of countries through which the largest cryptocurrencies take place. Of course, this also has to do with the state's decisions in relation to the cryptocurrency market.

Currently in Poland, cryptocurrencies are not considered a currency unit, a payment instrument, or electronic money. However, in spite of this, creating units as part of the built-in algorithm (so-called mining or digging) is legal under the law. However, as a result, it often happens that cryptocurrencies do not benefit from the tax relief provided for currency trading. In any case, the impression is often that, just like in Poland, states deliberately impose tax burdens, on the one hand, for profitable purposes for the state budget, and on the other

hand, for the purpose of authenticating and protecting potential clients. The Commission on Financial Supervision (KNF) and the National Bank of Poland (NBP) also launched a campaign on this subject. They remind about the risk associated with investing in cryptocurrencies and issuing an official warning, where they pay attention to the possibility of theft, high price volatility, and the lack of any guarantee of invested capital.

In tax matters, many countries see short-sightedly only the desire to tax for profit. In addition, disinformation and lack of regulation occur in many countries. However, even without such regulations, tax officials collect data on the circulation of cryptocurrencies and in order to show income in testimony and pay tax. Therefore, the taxation of trading in cryptocurrencies raises a number of controversies on the basis of tax law due to the lack of detailed regulations relating to these issues. It can be safely said that this is one of those examples where legal regulations, including tax regulations, do not keep up with the economic reality. In addition, on April 20, 2018 in Poland, there was a protest against the unclear introduction of tax obligations in relation to trading in cryptocurrencies. The regulators themselves did not understand the clarity of the cryptocurrency market and introduced defective legal provisions. At present, in Poland in the area of personal income tax, the income from the sale of purchased cryptocurrencies will constitute income from property rights referred to in the abovementioned Art. 18 of the act on personal income tax [10].

The consequence of obtaining income from property rights is an obligation on the seller to prove this income and to calculate the tax due on the sum of income obtained according to the tax scale. However, during the tax year, there is no obligation to pay advance payments for personal income tax. On the other hand, with regard to VAT, the turning point in the tax authorities' approach to taxation with this trade tax was the judgment of the Court of Justice of the European Union (CJEU) in the *Skatteverket/David Hedqvist* case, in which the CJEU stated that the exemption from VAT provided for in Art. 135 of law 1e) [11]. The VAT Directive also covers the provision of services consisting in the exchange of traditional currencies into units of virtual currency, and vice versa, made on payment of an amount corresponding to the margin resulting from the difference between the price at which the trader acquires currencies and the price at which he sells them to clients. The above position of the CJEU is currently applied by tax authorities, who previously refused to apply exemption to this type of services. In current interpretations, tax authorities take the view that the cessation of the use of Art. 43 section 1 point 7 of the act on goods and services tax relating to transactions in currencies, banknotes, and coins used as legal tender [12].

The KNF wants to clearly separate the topic of cryptocurrencies and new financial technologies. We are positive about new technologies in the financial market. When it comes to blockchain technology, we support it and see it as a chance for development, so it is not like crypts and blockchain have to be put in one bag. The KNF explains that the first step was the Anti-Money Laundering and Terrorism Financing Act. In his opinion, however, there are still no mechanisms to protect cryptocurrencies from dishonest sellers. It is an unregulated market, so there are no tools to protect consumers. At the time when such an entity would cease its activity from day to day, the institutions are not able to help clients to recover their funds. Undoubtedly, there is an unfavorable regulatory and tax climate in Poland, as well

as information chaos, which limits the use of cryptocurrencies. In addition, four banks (BZ WBK, mBank, PKO BP, and Alior Bank) terminated contracts with companies that ran platforms allowing them to invest in cryptocurrencies. As a result of such actions, the largest stock exchange of cryptocurrencies in Poland announced that they are considering relocating their activities abroad. **Table 2** presents the largest stock exchange of cryptocurrencies operating in Poland.

Percentage share in 2017 of the listed cryptocurrency exchanges in Poland was as follows: BitBay (49%), Bitmarket.pl. (28%), Coinroom (16%), Nevbit (4%), and Bitmachin (3%). Daily turnover on the cryptocurrency market in Poland reached PLN 50 million in 2017. According to Morgan Stanley, most of the registered cryptocurrency exchanges are in the UK [14].

The creator of the first Polish coin was at the beginning of January 2014 “djbartek” —author of Dubstepcoin (abbreviation: WUBS). His coin referred to the popular genre of electronic music—dubstep—and had the chance to get something from this popularity. She did not make it because she fell. However, he is about to make his debut again, but currently it is only plans. Therefore, taking into account the currently existing cryptocurrencies, the first three Polish cryptocurrencies, which were created at the beginning of 2014, include:

1. PolCoin (PLC), is the first Polish virtual currency. Established in January 2014 as a clone gaining Bitcoin popularity. It is based on the same SHA256d algorithm. Currently, it is a completely Polish project in which only the Polish team of creators and Polish capital are involved. Currently, it is being developed by the third team of developers. The reborn Polcoin project is based on a new block chain. Polcoin has a stable network of nodes and developers are working on its development. The main assumption, like other world cryptocurrencies, is the release from the bondage of banks. According to the assumptions, the value of Polcoina should grow in the long-term perspective due to the rigid limitation of supply embedded in the system while increasing demand. An additional reason for increasing the rate of increase in the value of the currency is the growing awareness of the widely understood cryptocurrencies and their usefulness. The history of transactions between addresses is public and available to anyone, when the assumptions of the Satoshi Nakamoto manifesto are guaranteed, the far-reaching anonymity of the transaction is guaranteed by the inability to explicitly state, who is the holder of the given address. This is the first and one of the major differences compared to banking systems in which transaction logs are one of the most watched types of registers. Polcoin is above the state, it is not issued by an organ connected with any state administration, and the auditor is the Polcoina community. It is already used as a means of payment. At present, you can pay with Polcoin, among others, in one stationary store and several online stores [15].
2. PolishCoin (PCC)—created to help Polish people in making the first step in the world of digital money. In terms of new technologies, access to them, and even awareness of their existence, Poland is at the back of the world and Europe. That is why we created PolishCoin (PCC). Experts believe that so far, it is the best prepared cryptocurrency from Poland and is available on one of the exchange cryptocurrency exchanges. Ultimately, the creators want to disseminate PolishCoin enough to hit the global cryptocurrency exchanges.

	BitBay	BitMaszyna	Coinroom	NevBit	BitMarket.pl
Company's headquarters (address)	BitBay Sp. z o.o. st. Zacisze 2/6, 40-025 Katowice	Androbayt Sp. z o.o. st. Słowackiego 12, 87-800 Wrocław	Coinroom Sp. z o.o. st. Janka Muzykanta 60 02-188 Warsaw	Nevonet Sp. z o.o. st. Kołłątaja 47/43 81-333 Gdynia	Michau Enterprises Limited Chytron 26, Office 21 1075 Nikozja Cypr
Registered Capital	100,000 PLN	50,000 PLN	100,000 PLN	10,000 PLN	—
Available cryptocurrencies	BTC, LTC, ETH, XRP, XBC, DASH, LSK, BTG	BTC, LTC, LSK, DOGE, KBM	BTC, LTC, ETH, DASH, XMR, BCC, PIVX, ZCOIN, LSK, ZEC, ETC, VTC ZOI, HUSH	BTC, LTC	BTC, LTC, PPC, DOGE, XRP, BTG
Available currencies	PLN, USD, EUR	PLN	PLN, USD, EUR, GBP, NOK, CHF, CZK, DKK	PLN	PLN, EUR
Commissions on transactions	0.43-0.25%	0%	0.39-0.15%	0%	0.00-0.45%
Commissions on deposits/withdrawals in PLN	0/1 PLN—simple transfer, 10 PLN—fast transfer 10-20PLN—withdrawal from an ATM	0 (Simple transfer), 1.9% (Pay By Link)/1 PLN (simple transfer), 10 PLN (fast transfer)	0 (Simple transfer), 2% (dotpay)/1 PLN (for PLN, USD, EUR—simple transfer)	0/1 PLN	0/1 PLN—simple transfer, 0.95% payment amounts—fast transfer, 10-20PLN—withdrawal from an ATM
Commissions on deposits/withdrawals in BTC	0 BTC/0.0002 BTC	brak/0.0001 BTC	brak/0.0001 BTC	brak/0.0001 BTC	brak/0.0001 BTC
The minimum number of BTC confirmations	3	3	3	6	3
The minimum value of the offer (purchase/sale) of BTC	5 PLN	10 PLN	debt: 1 crypto: 0.001	0.01 BTC	0.01/0.01
The minimum withdrawal amount (PLN \ BTC)	5 PLN/0.001 BTC	Greater than fees/BTC without limits	Greater than fees/BTC without limits	10 PLN/0,0002 BTC	10/0.01
Lever	—	—	—	—	Lever + Swap

	BitBay	BitMaszyna	Coinroom	NevBit	BitMarket.pl
Payment methods	Simple transfer, fast (express) transfer, payment by InPost money transfer, withdrawal at an ATM	Simple transfer, fast transfer	Simple transfer, fast transfer	Simple transfer	Simple transfer, BlueCash
Two-factor authentication	Token SMS, Rublon or Google Authenticator	TAK (2FA)	Google Authenticator	—	TAK (2FA)
Requirement of verification	After exceeding 15,000 euros payments per account per year	Trade	Payment of fiats	Payment of fiats	After exceeding 1000 euro payments to the account
Verification method	Scan/photo of the identity document	Execution of a bank transfer to a designated account	Supply from your bank account with any amount or scan of your ID	Supplying from your bank account with any amount	transfer from a Polish bank account and sending a code to the address of the registrant or scan identity document
Limitations of an unverified user	Not to exceed the amount of payments/above 15,000 EUR per year	Blocked: deposit/ withdrawal of funds-trade	Blocked: payments of classic currencies	Blocked: payments of classic currencies	Blocked: withdrawal from the account—account closure
The duration of the verification process	Up to 12 hours	Up to 24 hours	Up to 48 hours	—	Up to 48 hours
Source: [12, 13].					

**Table 2.** The five largest stock exchange of cryptocurrencies in Poland.



3. PLNcoin (PLNc)—on March 17, 2014, another Polish cryptocurrency started—PLNcoin. The creators of this coin, before the official opening, extracted 2 million coins. They distributed them for free in exchange for setting up an account on their site. 16,000 profiles have been created on their website. The currency appeared on several stock exchanges, and the company organizing foreign travels declared that it respected payments in PLNc next to Bitcoin and Litecoin.

The creators of these Polish cryptocurrencies declare that we have created them in order to be able to pay in the virtual world for what we want and to whom we want without the control of banking institutions or the government [16]. This is the most frequently mentioned argument emphasizing the advantages of developing a new financial system based on cryptocurrencies. Unfortunately, there are also many uncontrolled threats. For example, skeptics indicate that many cryptocurrency writers are trying to use the prevailing socio-economic climate to earn from “pump and dump”—artificial price raising to sell coins or stocks when others are interested in them. They elevate the value of cryptocurrencies without any intention of building new economic infrastructure. Creators of all are dreaming that one day, their coins will become the means of payment. And for people, who decide to dig and collect coins that will make up for the chance to sleep on bitcoin. There is no point in cheating. Most coins will go into nonexistence after few months [17].

In the Polish market cryptocurrency, unfortunately, is dealing with chaos and destruction—in the best Polish execution. The only positive movement in relation to the cryptocurrency market is the issued statement of state authorities that the circulation of cryptocurrencies does not violate national and EU law, but their possession is associated with high risk, although it is definitely too small activity of legislative bodies. On the other hand, on the basis of global events in Poland, we are also moving toward the introduction of cryptocurrencies on certain legal regulations. An example will be new information obligations. The Ministry of Finance wants to cover the information obligation of the company trading in cryptocurrencies, such as bitcoin. The idea was dealt with by members of the Public Finance Committee, who were working on a government bill on counteracting money laundering and financing of terrorism. Currently, the first Polish act on cryptocurrencies awaits the signature of the president. They talked about them and blockchain technologies yesterday, among others experts from the National Bank of Poland and the Polish Financial Supervision Authority. As they said, we will have to wait at least 2 years for a full legal regulation of this issue. This is a good direction that already works, for example, in Japan. Undoubtedly, one should analyze the history of cryptocurrencies in countries that have experience in this sector due to faster development and that can be said for years. Because the collapse of the cryptocurrency exchange market in Japan took place already in 2014 and on these experiences regulations were introduced, which will now be introduced in Poland. It is a pity that it was not done earlier, learning from experience from other markets that already existed. In Poland, history has repeated itself and the regulations introduced are the aftermath of the fall of Bitcurex cryptocurrency in October 2016. Suddenly it was closed, and more than 2000 Bitcoin belonging to users were embezzled. However, as a result of the lack of regulation, no investor or consumer protection institutions have legal assistance options.

## 4. Conclusions

Cryptocurrencies are not controlled by governments or central banks. Countries usually use two tactics. Some adopted the ostrich strategy, hoping that the fashion will pass by itself and generally does not introduce any regulations on this subject, only those that result from the law of the associated countries, that is, refer to, for example, European Union Member States, as in the case of Poland. The other part, however, wants to try and partly take control and earn on it. For example, in Japan, bitcoin has become a fully-fledged payment instrument. However, due to experience (the collapse of the Mt.Gox stock exchange in 2014 and the disappearance of 850,000 bitcoins), the government of Japan has clearly defined regulations. For example, entities that want to run cryptocurrency exchange services must appear in the register of the Financial Services Agency of Japan, which carries out additional supervision.

Countries such as Russia, Ukraine, Belarus, and Lithuania are in favor of earning money. These countries near Poland, due to the restrictions and unclear actions of state authorities, will simply take over cryptocurrency market participants and they will be earning money. On the other hand, the Polish government does not do much as part of real activity. Admittedly, the chaos related to the tax interpretation of the cryptocurrency market has finally been partially resolved, but no doubts have been finally resolved, which has a negative impact on investors. Because the Polish government stated that it is not going to issue a general tax interpretation in this matter. According to analysts, these negligence (lack of legal regulations) and lagging behind simply lose the chance of big money. For example, in 2016, the industry cryptocurrency in Poland paid over PLN 100 million in taxes.

An example is the Auroracoin cryptocurrency (Iceland's national coin) introduced in 2014. During the year, half of all coins were distributed to Iceland's citizens. Everyone is eager (Icelandic population is about 330,000 people), he got 31 coins, worth about 380 dollars. The goal of the creators is to decentralize control over money and revive the local economy, which has long been struggling with the fall in the value of the Icelandic crown. In the coming years, all eyes will look to Iceland. What the Icelanders will do—whether they are interested in the coin and whether they will start trading it—may depend on the future of national crypts in other countries. According to the Wall Street Journal, more than 70 hedge funds are currently investing in cryptocurrencies, and each day, the value of operations carried out with bitcoins reaches 750 million dollars. For the development of the cryptocurrency market, solutions that increase the security of cryptocurrencies will be necessary, which is another fundamental problem to be solved [18].

The most important factors that fundamentally affect the cryptocurrencies include:

1. Confidence of users and investors—cryptocurrencies are virtual money that do not settle in any physical form. Their value is mainly justified by the offer and demand of users [19]. If the demand for cryptocurrencies increases, their exchange rate also increases. Conversely, if people get rid of cryptocurrencies, their exchange rate will decrease.
2. Use of cryptocurrencies—cryptocurrencies were created as a virtual currency for fast and cheap internet transactions. The more vendors support and accept cryptocurrencies, the

more they are used in practice and the greater the user community will be. Due to the long-growing value of cryptocurrencies, they are increasingly used for investment purposes. In countries with an unstable economy, virtual currencies are bought in order to preserve the value of their own money. Some cryptocurrencies (e.g., Ethereum) are also used by the so-called smart contracts. Cryptocurrencies without practical use, sooner or later cease to exist.

3. Intervention of regulatory and supervisory authorities—if the government of an economically significant state starts supporting cryptocurrencies, the trust of users will usually increase, which will also increase the value of this cryptocurrency [20]. For example, when in April 2017, Japan recognized Bitcoin as a legal currency, its value increased significantly. But it works the other way round. Restrictions or bans on cryptocurrencies by state offices may start a sharp drop in the market. For example, in September 2017, China banned cryptocurrencies, which resulted in a fall in the exchange rate. The Bitcoin and cryptocurrency regulations are also prepared by the European Central Bank.
4. Media attention—information about the growing value of cryptocurrencies attracts new investors, which increases demand and the cryptocurrency rate increases. Also, the views of well-known personalities and companies influence price increases or decreases. An example was the opinion of JPMorgan general director, Jamie Dimon, from September 2017, who described Bitcoin as a fraud and said that the owners of bitcoins will suffer great losses in the future. The Bitcoin market reacted to this message with a decline [21].
5. Manipulating courses—investors use a manipulation technique known as “pump and dump.” This technique involves the purchase of cryptocurrency for a low rate and its subsequent media propagation. This will attract new investors who will increase the rate. In the case of liquid markets, we can also increase the price by buying currency in large quantities [22]. When people notice that the rate of a given cryptocurrency increases, they will start investing, which will increase it. In the meantime, we can gradually buy a cryptocurrency for a much higher price than the purchase price. Without media propagation and other investors, the cryptocurrency will start to fall, but this does not apply to us because we have already sold the currency. This often also applies to the creators themselves or organizers and managers of many cryptocurrencies, which arise in order to create such a specific pyramid of finance, only for the purposes of their own income. This method (buy cheap—to convince others to buy—expensive to sell), unfortunately, the natural development of cryptocurrencies is not conducive and increases the high volatility of cryptocurrencies.
6. Technological factors (creators, managers, regulators)—a change of course can also be manipulated by changes in the source code, for example, by implementing various improvements or changes in the number of coins available on the market.
7. Organizational factors—for example, factors affecting the extraction of cryptocurrencies (difficulties in mining, or the price of energy, which, as studies in the literature show, reach huge values comparable to the energy needed to satisfy thousands of households) [23].
8. Substitutes—after all, even assets on the stock exchange affect each other, Bitcoin’s growing interest is believed by some to fall in gold, etc. Bitcoin’s value influences the rates of other cryptocurrencies, which becomes an alternative to other investments or speculation.

The maximum number of bitcoins created by creators is 21 million, and currently over 17 million are in use, so there will certainly be changes in the assumptions and functioning of entire cryptocurrency markets [24]. The most common opinions are that virtual currencies will be a new stage of development or a haven for cheaters. Certain solutions and regulations should be introduced, including possible ones, based on trust in international institutions that will cause a shift in the likelihood of using the possibility of using cryptocurrencies toward the development of the information society, thus limiting the opportunities of fraudsters and other crimes. Therefore, the main conclusion of the analyzes carried out regarding the cryptocurrency markets is that it will undoubtedly be the future of the financial payment system, but certainly not in its current form. Many local markets will repeat the already known cryptocurrency history, many of which will cease to function in a short time, resembling the financial pyramids. Certainly, cryptocurrency markets will develop and limit negative phenomena that affect confidence in the entire market. It is also possible that, as a result of the lack of other solutions, there will be a need to base cryptocurrencies on trust in states or international organizations. One thing is certain, some solutions will go down, and some will go into widespread use, laying the foundations for the digital financial system of the information society.

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"The author declares no conflict of interest."

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## **Author details**

Ireneusz Miciuła

Address all correspondence to: irekmic@wp.pl

University of Szczecin, Faculty of Economics and Management, Institute of Finance,  
Szczecin, Poland

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