

Bitcoin and Turkey: A Good Match or a Perfect Storm?*

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ABSTRACT

There was only Bitcoin in January 2009, but now over 3,000 altcoins are traded; as of October 25, the combined market cap of 3,047 cryptocurrencies is \$248 billion. Bitcoin (at \$ 9,285.89) with a market cap of \$170 billion still dominates 68.4% of the cryptocurrency market. Both market cap figures are significantly below their peaks on December 17, 2017; \$830 billion and \$321 billion respectively. The adoption of Bitcoin in Turkey has seen its fastest rise since 2016 on account of the failed coup attempt by a fraction of the Turkish military, the conviction and sentencing of the U.S. Pastor Andrew Brunson of terror-related charges, rising geopolitical risks on account of the strained US-Turkey relations, and Turkey's ongoing military operations along its borders and into Syria. The confluence of domestic and external factors have been a major catalyst in prompting pockets of people in Turkey to flock to Bitcoin as a safe-haven asset. Cryptocurrencies are known for their extreme volatility, but the Turkish lira's plunge in August 2018 made even most erratic volatilities of cryptocurrencies seem calmer. Bitcoin investors/enthusiasts must keep in mind that the price of Bitcoin has witnessed a total of 16 price corrections (50% or more) in 7 years, and 8 of these have occurred in the last two years. Another substantial price correction, similar to that of December 2017-18 (i.e. price plummeted from almost \$20,000 to \$3,236), would result in a severe financial catastrophe for Turkish Bitcoin holders.

Keywords: Bitcoin; Cryptocurrency; Turkey; Sanctions; Turkish Lira; Volatility

JEL classification: C52, C53, E37, E44, E51, E59, G21, G28, G32

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1.0 Introduction

Economic, financial, and currency crises in the new millennium have been more disruptive. A study by the Government Accountability Office (GAO) reveals that the 2008 global financial crisis (GFC) in systemic nature has cost the U.S. economy¹ alone over \$22 trillion² (see Beachy, 2012; Blinder, 2013; Laeven & Valencia, 2008, 2010; Gorton, 2008; Reinhart & Rogoff, 2009).³ In the aftermath of the GFC, intensified financial turmoil coupled with unfavorable geopolitical environment (i.e. repeated abuse of sanction power⁴ by the U.S.) had accelerated money's inexorable evolution; as a repercussion, this has triggered a shift from credit money to cryptocurrency (for history of money⁵, see Davies, 2002). The GFC's unprecedented impact staged a perfect ground for a mysterious creator by the pseudonym Satoshi Nakamoto to launch⁶ Bitcoin cryptocurrency⁷ in January 2009 (Nakamoto, 2008).

Bitcoin had a rollercoaster ride in this decade in terms of erratic price volatility due to both regulatory uncertainties and corrections (Table 1). After Bitcoin's genesis block was mined in the first few days of January 2009; on January 12, Satoshi sent 10 BTC in a symbolic transaction to a computer engineer Hal Finley (Nakamoto, 2008). However sale of a good involving bitcoin occurred at the end of 2009, a bitcoin user swapped 10,000 BTC for an order of two pizzas from Papa Jones in the U.S.⁸ (Kristoufek, 2015; Phillips & Gorse, 2017). In the face of its arduous journey to stardom, Bitcoin has managed to become a household name (Wallace, 2011), nevertheless some traditional economists still find it very difficult to get a grasp on the Bitcoin phenomenon (see Franco, 2014; Sovbetov, 2018).

¹ During 2007-10, the unparalleled damage caused by the 2008 crisis in the U.S. was 8 million foreclosures and close to 9 million lost jobs; moreover, the median households lost 40% of their assets. Between 0.5% and 1% of the world population slipped into poverty as a result of rising unemployment and falling wages (see Beachy, 2012).

² The IMF estimated the cost of the GFC as \$11.9 trillion (\$10.2 trillion in the U.S. and \$1.7 trillion in developing countries). <https://www.telegraph.co.uk/finance/newsbysector/banksandfinance/5995810/IMF-puts-total-cost-of-crisis>.

³ Developments in technology and financial sectors plus their disruptions have played an important role in the evolution of money. In the 1990s, the Asian crisis of 1997-98 prompted introduction of the Financial Sector Assessment Program (FSAP) jointly developed by the IMF and World Bank in 1999 and stress testing became a mainstay in banking regulation and supervision. The GFC of 2008 marked the birth of Basel III, macro stress testing, and the first successful cryptocurrency Bitcoin. China, Russia, Turkey, and Iran have been searching alternative mediums of exchange since The US' abuse of sanction power and its use of dollar as a weapon of mass economic destruction have been at the center of US foreign policy that caused political tensions (Taskinsoy, 2012; 2013a, b; 2018a, b, c, d; 2019a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, r, s, t).

⁴ The U.S. sanctions and the use of dollar as a weapon of mass economic destruction have become at the center of foreign policy and caused political tensions between the U.S. and a number of countries. The U.S. – China trade war is the latest example to exemplify how the United States is determined and willing to continue its use of sanctions as a foreign policy.

⁵ Before the invention of money (coin or paper), various materials such as leather, parchment, cloth, and wood were used.

⁶ Satoshi Nakamoto (a pseudonym, his identity is unknown) supposedly worked about two years for writing the codes of Bitcoin. Once writing of codes was completed, he registered the domain name bitcoin.org on 18 August 2008 and published his White Paper on 31 October 2008, "*Bitcoin: A peer-to-peer Electronic Cash System*". Next, he kicked off Bitcoin project on November 9, 2008. On January 3, 2009, he created the genesis block (first block); a week later on January 9, 2009, Bitcoin v0.1 was released. As a symbolic first Bitcoin peer-to-peer transaction took place on January 12, 2009 when Satoshi sent 10 BTC to a computer programmer by the name of Hal Finley (see Nakamoto, 2008).

⁷ Also referred to as electronic money, digital money, digital cash, digital coin, virtual money, and digital currency.

⁸ Most expensive two pizzas ever sold in the history; valued at \$208,900,000 at bitcoin price of \$20,089 on December 17, 2017. Available online: <http://www.bitcoin2040.com/bitcoin-price-history>.

Understanding the evolution of money as a medium of exchange is a prerequisite to making any sense of the inception of Bitcoin. Trade has been a vital part of human history⁹, and as Adam Smith brilliantly explained in *The Wealth of Nations*, “every man lives by exchanging” (Smith, 1776). The evolution of exchange began with barter (no monetary unit is used to facilitate exchange), shifted to commodity¹⁰ (various commodities including copper, silver, and gold), to paper money (fiat currencies of sovereign states), to credit money (credit and debit cards, line of credit, revolving business accounts, letter of credit, etc.), and finally to electronic cash (digital or virtual money, Bitcoin, and over 3,000 altcoins). Adam Smith (1776) described bartering as primitive, and pointed out that “difficulties of barter lead to the selection of one commodity as money”. In line, Krugman et al. (2012) state money eliminates difficulties (as well as costs) of barter (also see Hermele, 2014). Karl Marx (1867) views money as a facilitator of exchange; to Aristotle, money is a necessary tool to ease exchange. Conversely, Chapman (1980) argues that bartering has reemerged as a universally-accepted mode of exchange.

Table 1: Historical Corrections of Bitcoin (BTCUSD)

No	Correction start date	Correction end date	# Days in correction	Bitcoin high price \$	Bitcoin low price \$	Decline %	Decline \$
1	12 Jan 2012	27 Jan 2012	16	7.38	3.80	-49%	3.58
2	17 Aug 2012	19 Aug 2012	3	16.41	7.10	-57%	9.31
3	6 Mar 2013	7 Mar 2013	2	49.17	33.00	-33%	16.17
4	21 Mar 2013	23 Mar 2013	3	76.91	50.09	-35%	26.82
5	10 Apr 2013	12 Apr 2013	3	259.34	45.00	-83%	214.34
6	19 Nov 2013	19 Nov 2013	1	755.00	378.00	-50%	377.00
7	30 Nov 2013	14 Jan 2015	411	1,163.00	152.40	-87%	1,010.60
8	10 Mar 2017	25 Mar 2017	16	1,350.00	891.33	-34%	458.67
9	25 May 2017	27 May 2017	3	2,760.10	1,850.00	-33%	910.10
10	12 Jun 2017	16 Jul 2017	35	2,980.00	1,830.00	-39%	1,150.00
11	2 Sep 2017	15 Sep 2017	14	4,979.90	2,972.01	-40%	2,007.89
12	8 Nov 2017	12 Nov 2017	5	7,888.00	5,555.55	-30%	2,332.45
13	17 Dec 2017	2 Feb 2018	48	19,666.00	8,094.80	-59%	11,571.20
14	5 Sep 2018	16 Dec 2018	100	7,361.46	3,236.27	-56%	4,125.19
16	27 Jun 2019	24 Oct 2019	120	13,017.12	7,509.73	-42%	5,507.39

Source of data: <https://www.ccn.com/bitcoin-crash-the-history-of-bubble-bursts>

In 2009, without a cryptocurrency exchange, Bitcoin was launched practically at \$0.00 as bitcoin price was arbitrarily negotiated between private Bitcoin enthusiasts. With the establishment of a Japanese-based Bitcoin exchange Mt. Gox in July 2010, on the first day of trading 20 bitcoins changed hands at a price of \$0.05 cents each (see Kristoufek, 2015; Phillips & Gorse, 2017). Nearly a decade has passed

⁹ Money has evolved from coinage (i.e. silver, gold, copper, etc.), paper (banknote), credit (i.e. credit cards, revolving business line of credit, debit cards, etc.) and virtual (i.e. Bitcoin) crypto-currencies (Smith, 2008).

¹⁰ Commodity money was next phase in the evolution of money; various materials and commodities were used to exchange such as leather, parchment, cloth, wood, clay tablet, peppercorns, tea, large stones, barley (Egyptians), salt (Chinese). Native Americans used animal skin, wampum, and white shell beads (see Dalton, 1967; Rolnick & Weber, 1997)

since that historic milestone, price of bitcoin has appreciated mindboggling 92,083%. After peaking at intraday high of \$20,089 on December 17, 2017 (market cap of \$321 billion), the price of bitcoin has come down considerably; as of October 25, 2019, Bitcoin (at \$ 9,285.89) along with 3,047 altcoins have a combined market cap of \$248 billion (peaked at \$830 billion on December 17, 2017), Bitcoin's market cap alone is \$170 billion which dominates 68.4% of the cryptocurrency market (Table 3).

Table 2: Bitcoin Price Fluctuations

Period	Dollar Change (\$)	Percentage Change (%)	Trend
Today (October 25, 2019)	\$786.96	+9.08	↑
Last 7 days	1,484.38	+18.62	↑
Last 30 days	1,382.50	+17.12	↑
Last 6 months	4,211.23	+80.26	↑
Last 1 year	3,021.50	+46.94	↑
Last 2 years	3,570.32	+60.64	↑
Last 3 years	8,784.11	+1,302.59	↑
Last 5 years	9,109.51	+2,610.46	↑
Last 7 years	9,448.21	+92,083.29	↑

Source: Buy Bitcoin Worldwide; <https://www.buybitcoinworldwide.com/price/>

Table 3: Top 10 Cryptocurrencies by Market Capitalization (August 6, 2019)

Rank	Cryptocurrency	Symbol	Price (\$)	Market Cap (\$)	Market Share (%)
1	Bitcoin	BTC	11,802.25	210,787,663,777	68.30
2	Ethereum	ETH	233.56	25,037,379,095	8.07
3	XRP	XRP	0.324940	13,931,047,244	4.49
4	Bitcoin Cash	BCH	347.93	6,238,932,197	2.01
5	Litecoin	LTC	98.06	6,175,663,429	1.99
6	Binance Coin	BNB	27.91	4,341,501,330	1.40
7	EOS	EOS	4.52	4,186,025,579	1.35
8	Tether	USDT	1.01	4,075,942,095	1.31
9	Bitcoin SV	BSV	154.38	2,756,391,635	0.89
10	Stellar	XLM	0.082883	1,625,976,610	0.52
Total market cap & market share				279,156,522,991	90.36

Source: CoinMarketCap; <https://coinmarketcap.com/>

Notes: Market cap of 2,426 altcoins is \$311 billion; \$279.2 billion belongs to top ten cryptocurrencies.

Although Bitcoin has overcome many obstacles and challenges during the past decade, still ongoing legal and regulatory uncertainties pose risks; furthermore, illicit activities involving Bitcoin early on earned itself a bad image and prompted government authorities in many countries to call for greater scrutiny of Bitcoin on terrorism-financing, money-laundering, illegal drugs (Silk Road¹¹) and human trafficking (Bonneau et al., 2015; Gudgeon et al., 2019; Christin, 2013). As of 2018, 24 nations have issued a ban on cryptocurrencies, but mainly on Bitcoin (i.e. 15 implicit and 9 absolute).

¹¹ On October 1, 2013 the FBI shut down the black market website Silk Road and seized its assets including 26,000 bitcoins.

The speculative attacks of foreign origin (i.e. the U.S.) on Turkish lira in August 2018 pushed Turkey's fragile economy into a currency crisis where the lira – dollar exchange rate plunged 25% in just three days (i.e. from 5.55 to 6.93 during August 10-13, 2018). However during the first 8 months of 2018, lira saw one of its fastest depreciation (-88%) against dollar since the 2001 Turkish economic crisis (i.e. from 3.74 on January 1, 2018 to 7.03 on August 13, 2018); the severity of the August rout was so intense that lira's extreme volatility resembled those of cryptocurrencies (Table 4). The speculative attacks on lira, sanctions and tariffs imposed on Turkey by the U.S. has unmistakably demonstrated what happens exactly to an economy when the U.S. demands are not met to its satisfactory (Ceballos et al., 2012; Chiu & Koeppl, 2017; Eken & Schadler, 2012; Gros & Selçuki, 2013; Souza et al., 2017).

Table 4: Returns of Cryptocurrencies and Turkish Lira (January-August 2018)

Crypto/ Currency	Jan 1	Feb 1	Mar 1	Apr 1	May 1	Jun 1	Jul 1	Aug 13 2018	Return %
TRY	100	98.5	100.5	104.4	108.3	122.8	121.9	187.9	-87.9
BTC	100	67.2	80.2	50.1	66.8	55.2	46.8	46.3	-53.7
ETH	100	134.2	112.9	49.1	87.2	75.1	58.7	41.4	-58.6
XRP	100	40.3	38.8	20.3	35.2	26.1	19.3	12.5	-87.5
BCH	100	52.4	53.1	26.4	55.6	41.2	30.4	23.5	-76.5
EOS	100	115.5	97.6	64.0	214.4	139.3	92.0	56.7	-43.3
XLM	100	95.1	70.7	43.0	91.6	60.4	41.4	46.6	-53.4
USDT	100	97.7	99.0	99.0	99.0	99.0	98.9	99.0	-1.00
LTC	100	62.1	91.6	50.3	64.8	52.4	35.0	25.9	-74.1
TRX	100	89.4	94.5	62.2	180.6	113.6	73.3	43.7	-56.3
ADA	100	98.5	41.8	20.7	49.2	30.5	19.5	15.5	-84.5

Source: Author calculations

Notes: TRY: Turkish Lira; BTC: Bitcoin; ETH: Ethereum; XRP: Ripple; BCH: Bitcoin Cash; EOS: XLM: Stellar; USDT: Tether; LTC: Litecoin; TRX: Tron; ADA: Cardano.

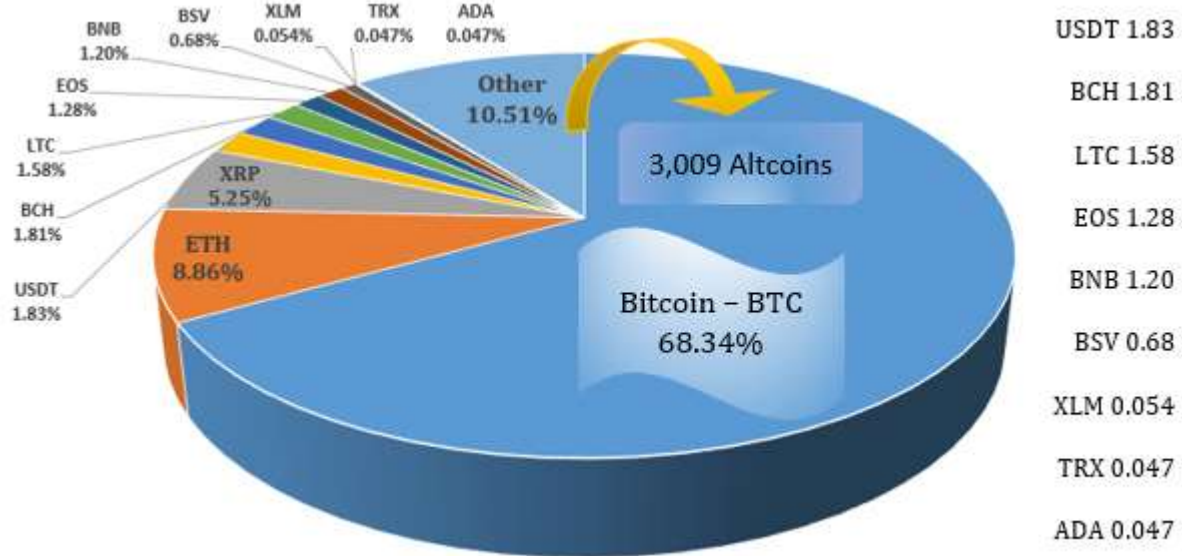
In the case of cryptocurrencies, a figure over 100 indicates an increase in value (return); in the case of the lira and dollar exchange rate, over 100 indicates lira's depreciation against the dollar.

2.0 Literature Review

Satoshi Nakamoto¹² created Bitcoin as a decentralized (i.e. permissionless) purely peer-to-peer (P2P) network of electronic cash without the need of a trusted-third party (i.e. bank or central authority). Prior to Bitcoin's launch in January 2009, Nakamoto registered a domain name "*bitcoin.org*" in August 2008 and posted a White Paper to Cypherpunks mailing list in October 2008 entitled "*Bitcoin: A peer-to-peer Electronic Cash System*" (Nakamoto, 2008). The launch of the first successful cryptocurrency – Bitcoin following the GFC of 2008 had *big bang* effect in ecommerce (e.g. Kelly, 2014). However, in the absence of an exchange, Bitcoin's arduous existence began with particularly \$0.00 (see Bouoiyour

¹² Satoshi Nakamoto is a pseudonym; his identity is unknown whether Satoshi even exists, and it is a he or she.

& Selmi, 2016; Cermak, 2017; Chiu & Koepl, 2017).¹³ Skeptic risk averse investors and opponents to this day still debate whether Bitcoin is a crypto-currency (Blundell-Wignall, 2014; David, 2014), an asset class, or a speculative investment vehicle (Baek & Elbeck, 2015; Wolla, 2018). Even though along with Bitcoin over 3,000 altcoins are traded today, only Japan has passed a law to accept Bitcoin as a legal payment and treat it similar to fiat currencies. Bitcoin's value comes from trust, acceptance, and a degree of speculation; however, extreme price volatility since 2016 had adversely affected Bitcoin's store of value aspect (Katsiampa, 2017; Souza et al., 2017; Wallace, 2011; Wolla, 2018); nonetheless, Bitcoin is still most dominant among over 3,000 cryptocurrencies (see Figure 1).



Source: Author; data is from CoinMarketCap; <https://coinmarketcap.com/>

Figure 1: Market Capitalization of Top 12 Cryptocurrencies

Unlike non-mineable cryptocurrencies, Bitcoin is mineable and minted via a mining process¹⁴ where miners (nodes) earn bitcoins by solving double-spend problem; validation and addition of new blocks are based on proof-of-work (PoW) algorithm (proof-of-stake – PoS does not give rewards). Therefore, new bitcoins can only enter circulation via mining; the maximum supply of bitcoins is capped at 21 million, and so far 17.97 million have been mined (Hayes, 2017). The incentive (reward size) for every block successfully added by miners to the blockchain started with 50 BTC per block in 2009 (Houy,

¹³ Two notable attempts at creating a decentralized digital currency emerged in the late 1990s; “b-money” (proof-of-stake POS) by Wei Dai (Dai, 1998) and Bitgold by blockchain pioneer Nick Szabo (see Goldschlag & Stubblebine, 1998; Vishnumurthy et al., 2003; Okamoto & Ohta, 1992; Kocherlakota, 1998; Sander & Ta-Shma, 1999). At the time of designing Bitcoin, Nakamoto (2008) had knowledge of Back’s Hashcash (Back, 2002) and the proof-of-work (PoW) algorithm.

¹⁴ A majority of 2,467 traded cryptocurrencies are non-mineable. Bitcoin as a mineable cryptocurrency is the most dominant with 68% of the market share; Out of the top-100 list by market capitalization, about two-thirds or 64 of them are non-mineable such as Ripple-XRP, Binance Coin, Tether, EOS, Stellar, UNUS SED LEO, Chainlink, Tezos, NEO, and IOTA.

2014; Kroll et al., 2013) and has been halved approximately every four years (210,000 new blocks). The first halving occurred in 2012, the reward size was reduced from 50 BTC to 25 BTC, and second halving took place in 2016 (from 25 BTC to 12.5 BTC). In 2020, the current reward size of 12.5 BTC will be halved again for the third time to 6.25 BTC. Between 2016 and 2019, about 150 bitcoins are mined per hour (3,600/day and 1,314,000/year); however, almost half of the mined bitcoins are sold to cover operational expenses. The cost of mining a single bitcoin varies significantly among countries due to electricity cost, the U.S. ranks 41st (\$4,758), Russia (\$4,675) and Iceland (\$4,746) rank slightly better than the U.S.; South Korea is the costliest (\$26,170) while Venezuela is the cheapest (\$531).¹⁵

Blockchain pioneer and cryptographer Nick Szabo recently spoke at the Israel Bitcoin Summit¹⁶ at Tel Aviv University on 8 January 2019, he said that “the use of censorship-resistant cryptocurrencies will rise in countries sanctioned from trade and economies suffering from failed monetary planning. Szabo also argued that the world’s central banks (i.e. Turkey) might turn to cryptocurrency reserves in the future in order to supplement national gold reserves”. He also asserted that “even central banks may attempt to hoard Bitcoin reserves over gold”. For a longer discussion, see Andolfatto (2018); Chiu and Wong (2014); Duffie (2019); Fung et al (2014); Kahn and Roberds (2009); Kocherlakota (1998).

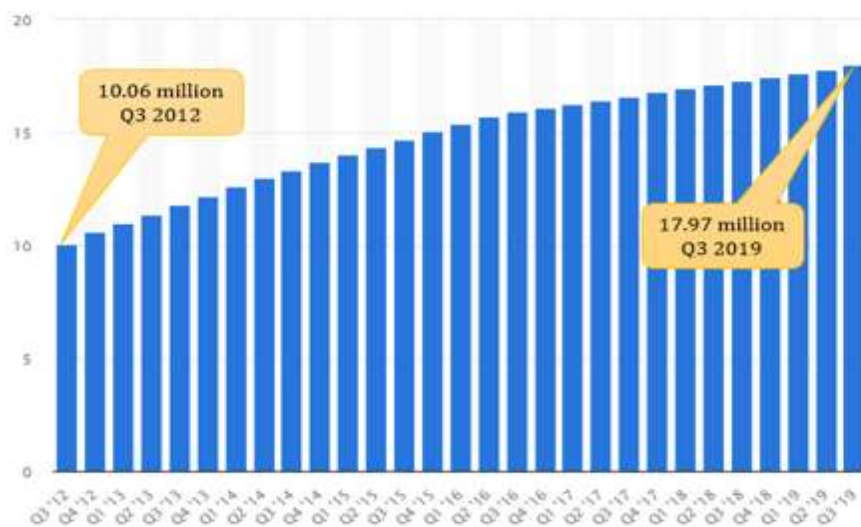
Bitcoin offers benefits as well as risks; it has gained immense popularity due to its anonymity feature which, at the same time, prompted governments to call for greater scrutiny of Bitcoin on terrorism financing, money laundering, illegal drugs and human trafficking (Adrian & Mancini-Griffoli, 2019; Duffie, 2019). On the down side, scalability is a serious concern for Bitcoin permissionless blockchain, where the size of blocks are preset and the average confirmation time for a new block is about 10 minutes. Bitcoin blockchain processes 7 payment transactions per second¹⁷ (Figure 2), which is low when compared with Ethereum (25+), Ripple (1,500+), Libra (estimated 1,000+), OES (3,000+), and Visa (25,000+). Another major issue is the level of energy consumption which is the highest for Bitcoin blockchain; private/consortium permissioned blockchains (i.e. Facebook Libra) are an improvement over Bitcoin, not only they consume less energy but can be easily scaled up. Bitcoin’s lower scalability, higher latency and massive energy cost make it a less attractive medium of exchange. Moreover, the fixed maximum supply of 21 million makes Bitcoin more of an asset or an investment vehicle than a currency open to speculation. Although Bitcoin blockchain is highly resilient to cyberattacks either by malicious nodes or hackers, it is still susceptible to attacks due to its inherent permissionless access in combination with numerous technical challenges related to security issues.

¹⁵ <https://www.marketwatch.com/story/heres-how-much-it-costs-to-mine-a-single-bitcoin-in-your-country-2018-03-06>

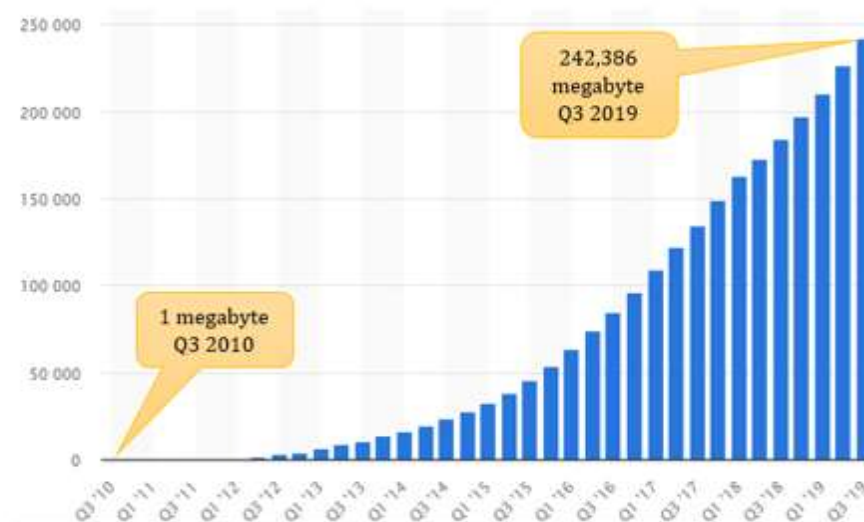
¹⁶ Redman (2019), <https://news.bitcoin.com/nick-szabo-central-banks-may-turn-to-cryptocurrency-reserves-over-gold/> (January 9, 2019), Economics (Accessed August 14, 2019).

¹⁷ According to BitPay, 200,000 Bitcoin transactions in December 2017 when Bitcoin was at its peak (180,000 on average).

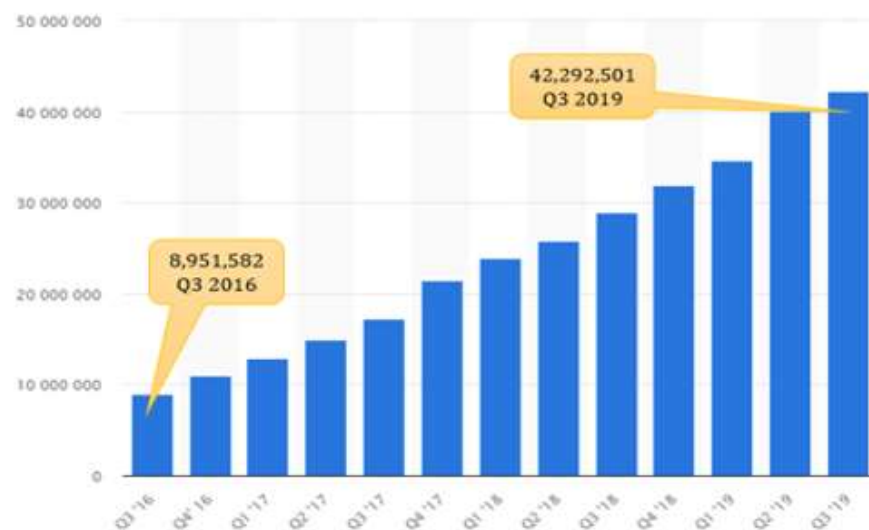
Number of Bitcoins in Circulation Worldwide



Size of Bitcoin Blockchain (2010-2019)



Number of Blockchain Wallet Users Worldwide



Monthly Payments Count



Source: Statista, <https://www.statista.com/statistics/>

Figure 2: Bitcoin Statistics

Turkey's love affair with Bitcoin flourished amid its current gloomy economic problems (double-digit inflation, high unemployment, and chronic deficits). It dates back to the Ottoman Empire's borrowing spree prior to and during the Crimean War of 1853-56 which marked the beginning of an everlasting addiction to foreign loans (Blaisdell, 1929; Eldem, 2005; Fişek, 1968). Ottoman's excessive borrowing resulted in a default on its public debt in 1876 (i.e. similarly Turkey in 1979), prompting France and Britain to take control of the Ottoman finances (i.e. Congress of Berlin in 1878), this forced then sultan Abdülhamid II to establish the Ottoman Public Debt Administration - OPDA in 1881 to administer war reparations and the Empire's debt (Caillard, 1894; Goodhart, 1972; also see Birdal, 2010 for striking similarities between the OPDA and the IMF). Unfortunately, the Turkish Republic inherited Ottoman's remaining debt at a reduced rate and its financial misfortunes. Although Turkey's financial indicators have stabilized since the August rout of 2018, the resultant inflation and key interest rate peaking at 26% and 24% respectively in October 2018 caused massive cracks in the economy (see Figure 3 and 4), plus dollarization has passed over \$200 billion (Arteta, 2003; Leiderman et al., 2006) which makes Turkey become more prone to future crises (Plata & Herrero, 2007; Reinhart et al., 2003).

Political instability¹⁸ throughout the history of the Turkish Republic is perhaps another reason for Turkey's increased flirtation with Bitcoin, but only time will tell if this is a good match or a recipe for perfect storm. Turkey's transition from monarchy to semi-democracy by an authoritarian single party regime began when Mustafa Kemal¹⁹ (Mango, 2000) and his closest associates formed the Republican People's Party (RPP) in August 9, 1923 (CHP – Cumhuriyet Halk Partisi in Turkish).²⁰ After being expelled from the CHP in 1945, Adnan Menderes together with three friends founded the opposition Democratic Party (DP) in 1946 that ended one-party regime (1923-1946). And CHP's dominance²¹ as a single party took a blow in the 1946 general elections, the DP won 61 seats (Karpas, 1959; Weiker, 1975), but Turkey's transition into a multi-party political system commenced strongly when the DP won 396 out of 487 seats (i.e. 54% of the votes) in the 1950²² general elections; Celal Bayar²³ became President and Adnan Menderes became Prime Minister (Lipovsky, 1991; Szyliowicz, 1966; Schick &

¹⁸ Out of 63 governments since October 30, 1923 (single party period from 1923 to 1946; 62 of them after 1946), 6 of them as a result of military coups, 3 temporary governments due to early elections, 4 governments not winning majority votes, 16 governments through a coalition, and only 34 single party governments.

¹⁹ After Mustafa Kemal's resistance army won the Turkish War of Independence; he abolished the Ottoman Empire in 1922 by overthrowing Sultan Mehmet VI Vahdettin and established the Turkish Republic in 1923. Atatürk was elected as the first President in 1923 and had remained in this position until he passed away on November 10, 1938.

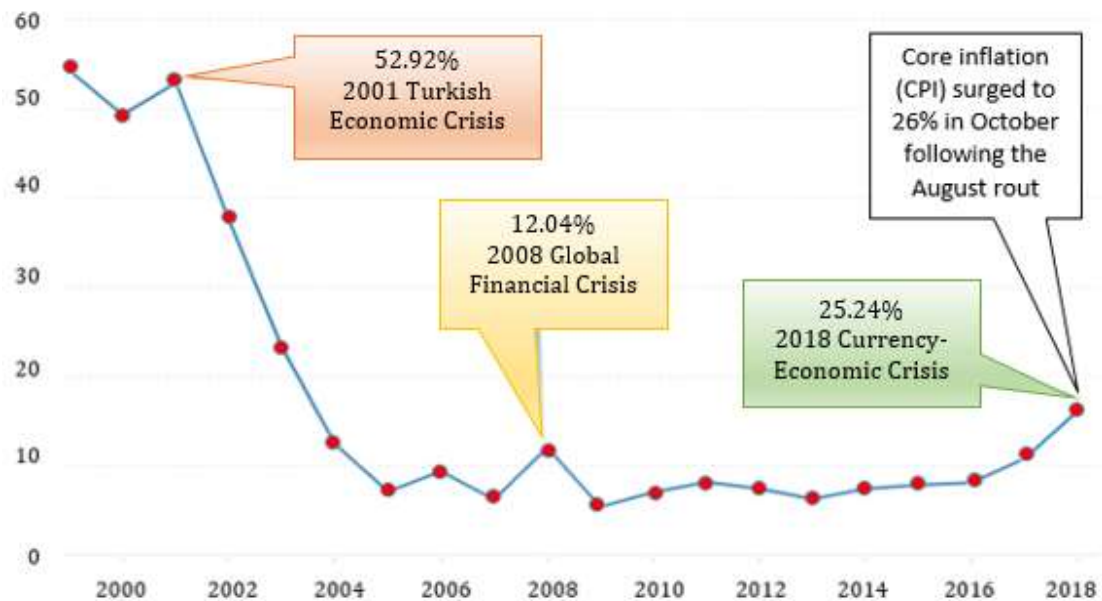
²⁰ Mustafa Kemal Atatürk introduced many radical reforms in every facet of life with a promise of great modernization (for review of history, see Zürcher, 2004; Mango, 2000; Kedourie, 1989; Ahmad, 1993; Nas, 1992; Findley, 2004)

²¹ CHP's policies were based on Mustafa Kemal's six principles which were also basis of Turkey's first constitution written in 1937; republicanism, nationalism, populism, statism, secularism, and revolution.

²² In the 1950 elections, Democrat Party (DP) won 396 of 487 seats compared with only 68 seats won by CHP.

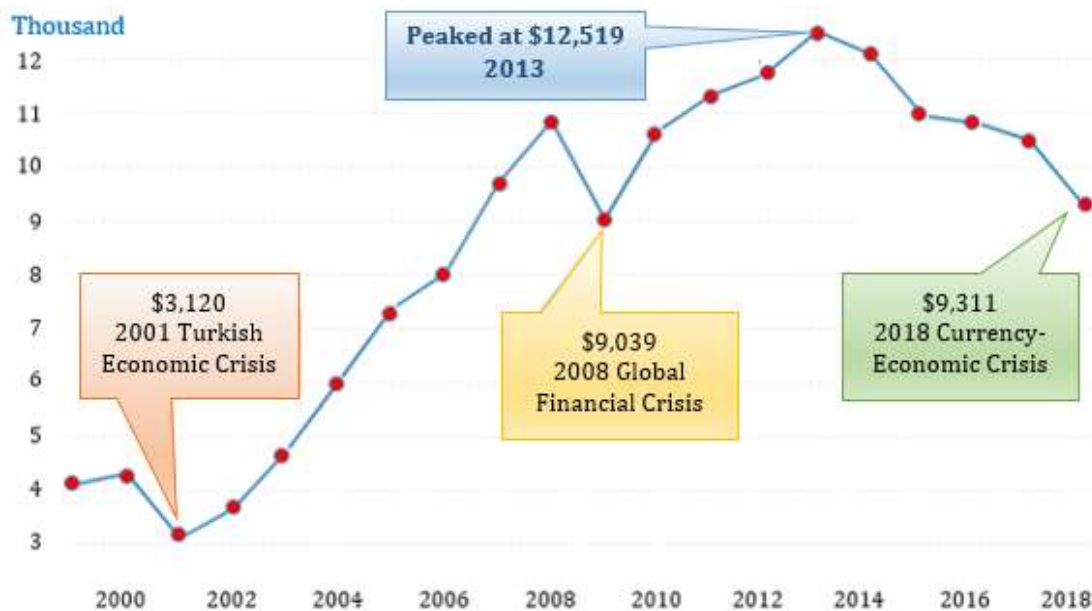
²³ Celal Bayar, longest lived state leader (1883-1986), was Prime Minister (1937-39) and President (1950-60). On 27 May 1960 coup, along with Prime Minister Adnan Menderes, President Celal Bayar was sent to military court which convicted him to life imprisonment. He was released in 1964 due to poor health and pardoned in 1966.

Tonak, 1987; Özbudun, 1976). Turkey has achieved both political stability and economic growth since 2002 thanks to a ruling party (Justice and Development Party - AKP) without a coalition.



Source of data: World Bank Group, <https://data.worldbank.org/country/turkey>

Figure 3: Inflation (CPI) in Turkey 2000 – 2018 (annual %)

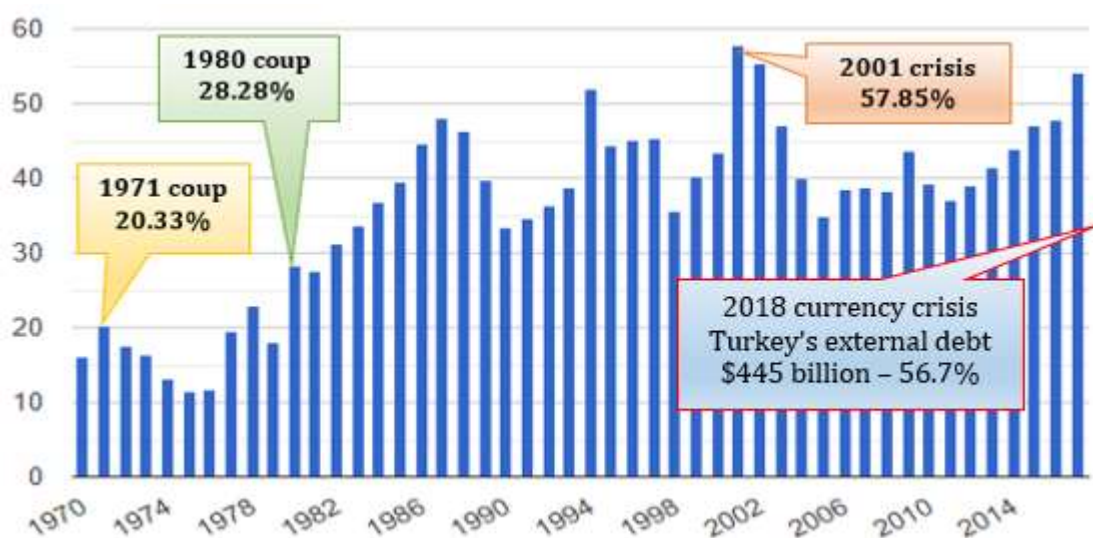


Source of data: World Bank Group, <https://data.worldbank.org/country/turkey>

Figure 4: GDP Per Capita Growth in Turkey 2000 – 2018

Note: Consequent of the August rout of 2018, the citizens of Turkey are a lot poorer than they were in 2017; the per-capita income has declined more than \$1,000 between 2017 and 2018.

Geopolitical risks for Turkey in the aftermath of the GFC of 2008 rose substantially. At the 2009 World Economic Forum in Davos–Switzerland, then Prime Minister Recep Tayyip Erdoğan left the meeting abruptly and said afterwards that "Turkey's ledger with the IMF is closed and will not open again".²⁴ Regarding the IMF's future role in Turkey, President Erdoğan stressed that "the IMF will never have a role in the future of the Turkish economy".²⁵ A coincidence or interrelated, Turkey's prolonged bid for accession to the EU was blocked by the Republic of Cyprus in December 2009; prior to the block, only 16 out of 35 chapters necessary to complete the accession process were opened. Since 2010, no new chapters have been opened; as feared, the negotiations came to standstill in 2016 as Turkey has been criticized for its bad record of human rights violations and accused for its deficits in rule of law (for longer discussion, see Lippert, 2008; Wimmel, 2006; Wendt, 1992). Turkey's divorce from the IMF, Cyprus' veto of Turkey's accession to EU, excessive external debt (see Figure 5), a failed coup by a fraction of military (July 15, 2016), the August rout (2018) and the resultant massive dollarization (Figure 6) have fueled Bitcoin adoption in Turkey (i.e. one of the fastest growing Bitcoin markets).



Source: World Bank; www.ceicdata.com

Figure 5: Turkey's External Debt (% of GDP from 1970 to 2018)

Notes: Turkey's external debt on average was 36.19% of GDP between 1970 and 2017; minimum debt of 11.37% in 1975 and maximum debt of 57.85% in 2001, 55.37% in 2002, and 54.13% in 2017.

Following the failed coup attempt in Turkey (July 15, 2016), the macroeconomic environment turned increasingly negative for Turkey. Furthermore, the ties between the United States and Turkey became severely strained when Turkey's high criminal court convicted U.S. Pastor Andrew Brunson of terror-

²⁴ <https://www.dailysabah.com/politics/2019/02/05/turkey-has-closed-imf-chapter-for-good-president-erdogan-says>

²⁵ <http://www.hurriyetdailynews.com/no-imf-in-turkeys-future-erdogan-141401>

related charges and sentenced him to 38 months in prison after he was found guilty for taking part in the failed 2016 military coup attempt by a fraction of the Turkish military. The tit-for-tat²⁶ prompted President Donald Trump to retaliate with sanctions, imposing 50% tariffs on steel imports by Turkey. Turkey was also removed from the Generalized System of Preferences (GSP)²⁷. These issues between Washington and Ankara became at the center of foreign policy and political tensions almost came to a point of breaking. Most economists believe that sanctions are not only counterproductive but also damaging for the economies of all nations involved. For the past two decades, repeated U.S. sanctions imposed on Iran, Russia, and North Korea have proved to be non-deterrent in the behavioral change of offenders (see Martin, 1990; Rogers, 1996; Pape, 1997). Just as the strained U.S. – Turkish relations began to improve slightly after U.S. pastor Andrew Brunson was released in October 2018, tensions flared again over two new events; Turkey’s purchase of an S-400 missile defense system from Russia; and US-backed Kurdish forces in Syria. The former resulted in new sanctions and removal of Turkey from the US F-35 stealth fighter program, and the latter further pushed Turkey closer to Russia.



Source: Turkish Central Bank (TCMB), <https://www.tcmb.gov.tr>

Figure 6: Dollarization in Turkey (\$ Billion)

Since the GFC of 2008, but more specifically since 2016 with increased abuse of US sanction power and its repeated use of the dollar as a weapon of mass economic destruction, China and Russia along with Turkey have called for a new international reserve currency other than the dollar (Calomiris, 1999). Because gold correlates negatively with dollar and is regarded as safe haven against the dollar

²⁶ The U.S. Pastor Andrew Brunson was arrested in October 2016, indicted on espionage charges, and sentenced to 38 months in prison. In response, Mehmet Hakan Atilla (a banker at Turkey's state-controlled Halkbank) was arrested in New York in March 2017 and sentenced to 32 months after he was found guilty of helping Iran evade US sanctions.

²⁷ By the Trade Act of 1974, the United States designed GSP on January 1, 1976 to promote economic growth in developing countries and U.S. territories; GSP provides preferential duty-free entry for almost 5,000 products.

shock, as shown in Table 5 the three countries that have been subject to sanctions and tariffs imposed by the U.S. have accumulated huge amounts of gold (Bordo & Rockoff, 1996; Cohen, 2010). In the midst of transitional issues²⁸, Turkey has increased its gold share of reserves to 25% in 2019.

Table 5: Gold Holdings & Foreign Reserves (2011 and 2018)

Country	GDP (USD billion)		Gold Reserves (metric tons)		Total Reserves (USD billion)		Gold Share of Reserves %	
	2011	2018	2011	2018	2011	2018	2011	2018
United States	14,527	20,494	8,134	8,134	530	453	74.2	75.2
Germany	3,286	4,000	3,401	3,374	231	201	71.4	70.4
IMF	-----	-----	-----	2,814	-----	-----	-----	-----
Italy	2,055	2,072	2,452	2,452	167	152	71.2	67.7
France	2,563	2,774	2,436	2,436	178	157	66.2	65.1
China Mainland	5,878	14,500	1,054	1,843	3,271	3,236	1.6	2.4
Russian Federation	1,480	1,578	837	1,839	525	433	7.7	17.8
Switzerland	528	679	1,040	1,040	290	811	17.3	5.4
Japan	5,459	4,972	765	765	1,138	1,264	3.3	2.5
Turkey	735	714	116	565	99	108	5.7	21.9

Source: 2018 data from GFMS, Thomson Reuters; IMF

2011 data from Astrow (2012) - Chatham House Gold Taskforce

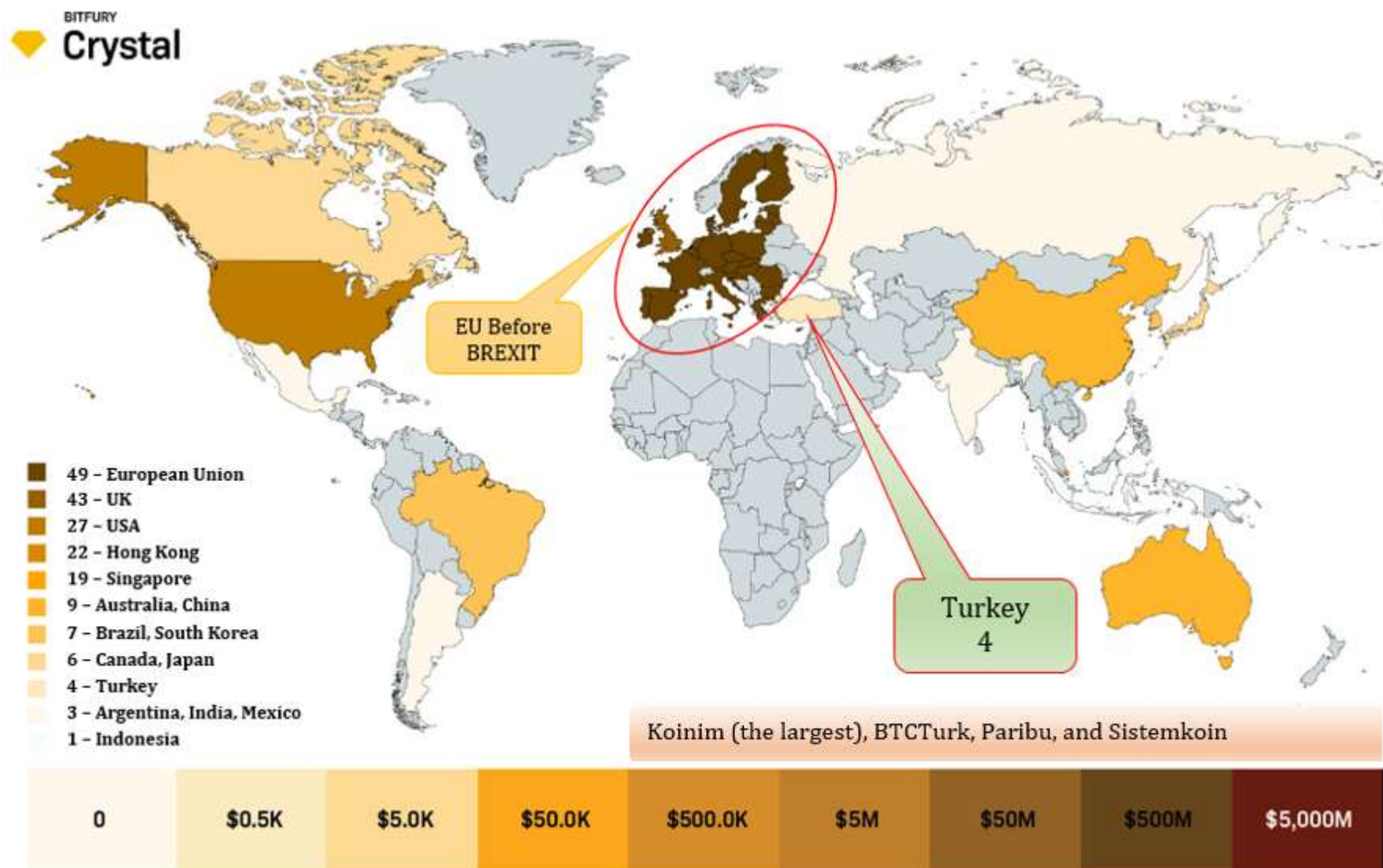
2.1 Bitcoin and Turkey

Bitcoin and Turkey; a good match to hedge against inflation and lira's unprecedented plunge in value against the dollar following the currency crisis in August 2018, or recipe for a perfect storm? Rising geopolitical risks (i.e. strained US-Turkey relations consequent of previously explained reasons) plus Turkey's ongoing military operations along its borders and in Syria have been a major catalyst for a huge spike in Bitcoin adoption.²⁹ At times of financial or economic crises, traditionally ordinary folks and investors in Turkey buy gold as a safe-haven asset; but not this time, pockets of people in Turkey flocked to Bitcoin in the hours and days of speculative attacks on the Turkish lira on August 13, which drove the dollar-lira exchange rate to intraday high of 7.23 closing at 6.93 (i.e. in just few hours, lira plummeted over 20% against dollar, and more than 40% in three days).

Lira's volatility in the first eight months of 2018 made even erratic volatilities of cryptocurrencies seem calmer (see Table 4 on page 5); dollar-lira exchange rate skyrocketed from 3.74 on January 1 to 7.03 on August 13, which translates to almost 87% of lira's devaluation against dollar. The August rout of 2018 was the worst currency crisis since the unprecedented 2001 Turkish economic crisis; as a result, Bitcoin exchanges in Turkey (Figure 7) saw volume increases of over 50%.

²⁸ A number of territorial disputes with Greece, conflict with Cyprus, no diplomatic ties with Armenia, stalled accession to the EU, persistent imbalances in the economy, import-dependent on energy, excessive private and household debt due to increased credit expansion, substantial exchange rate volatility, and massive dollarization.

²⁹ <https://bravenewcoin.com/insights/turkish-turmoil-fuels-bitcoin-adoption>



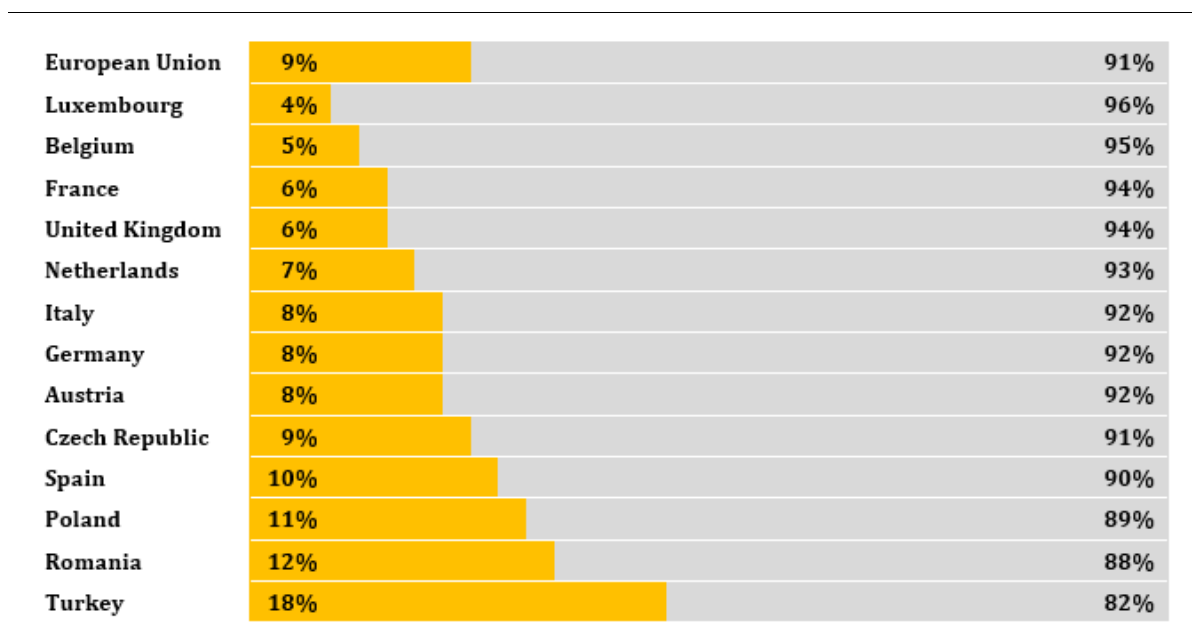
Source: Adapted from Bitfury Crystal (2019)

Figure 7: Bitcoin Transfers Between Exchanges

Note: Different colors on the chart indicate the total amount of bitcoin transferred between exchanges located in different countries. The amount of bitcoin transferred increases from lighter colors to darker colors (i.e. red color is the highest).

The Turkish government along with the country's Banking Regulation and Supervision Agency (it is abbreviated as BDDK in Turkish) does not recognize Bitcoin or other popular cryptocurrencies as a legal tender similar to fiat currencies; moreover, the BDDK has the “wait-and-see mode”, therefore has taken no actions to ban or regulate cryptocurrencies. Nevertheless, the BDDK has issued press releases on the topic to warn the public on potential risks involving Bitcoin and more than 3,000 altcoins. The law on Payment and Securities Reconciliation Systems, Payment Services, and Electronic Money Institutions³⁰ provides legal information concerning matters related to how cryptocurrencies are used, surveilled, and supervised (LLC, 2018). Geopolitical tensions coupled with an unfavorable macroeconomic environment put Turkey among the top ten countries³¹ with most Bitcoin holders; in fact, about one in five people in Turkey has invested in Bitcoin or other digital coins.

Cryptocurrencies are not regulated in Turkey; moreover, the Turkish government has not considered of taking any measures to curtail the popularity of Bitcoin and other virtual currencies, plus residents of Turkey are not banned from trading or exchanges from operating. Turks own twice more Bitcoin than the European overall average of 9% owing to the recent currency crisis (Figure 8 and 9).

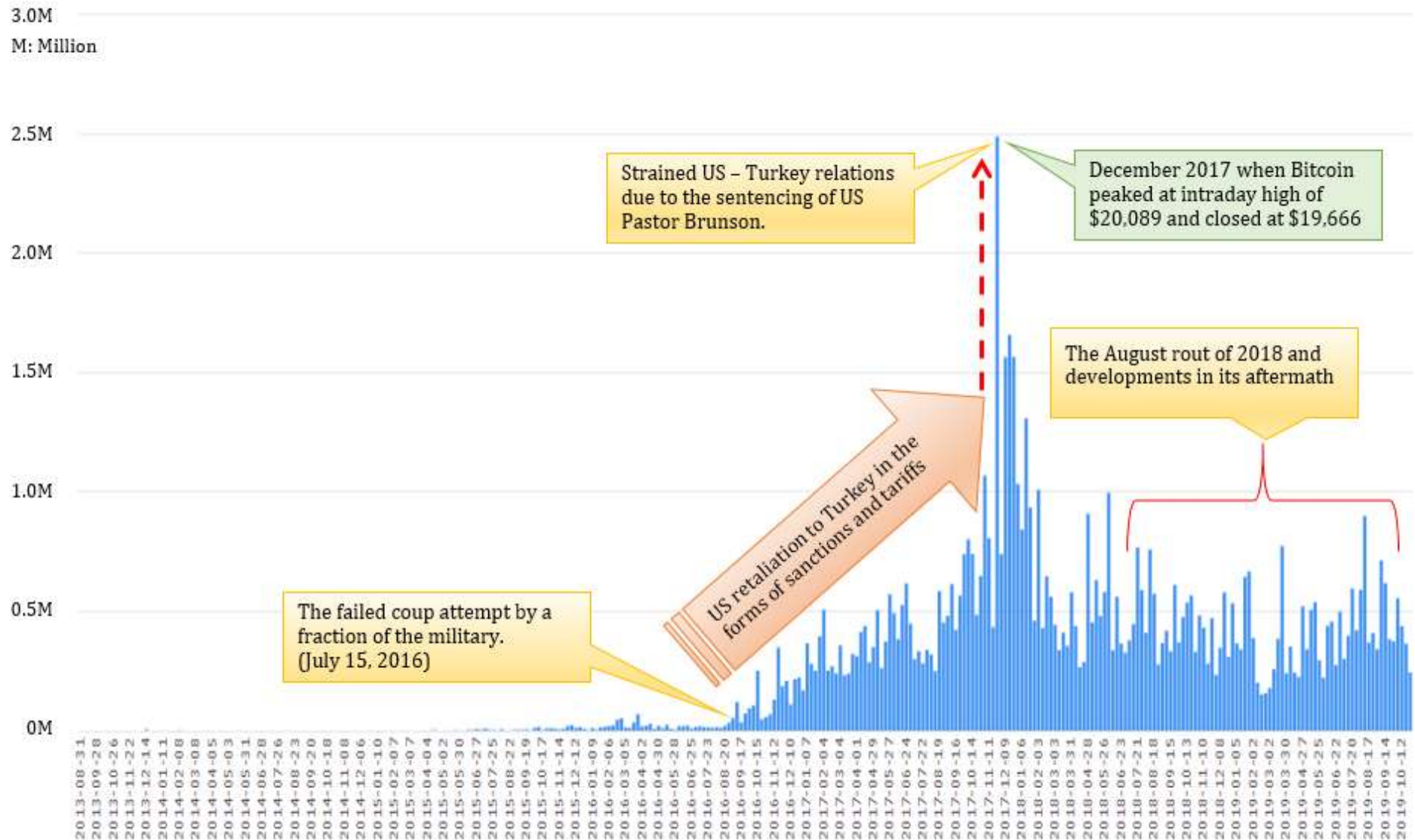


Source: Adapted from Bitcoinist; <https://bitcoinist.com/turkey-cryptocurrency-europe-owners/>

Figure 8: Cryptocurrency Owners (%)

³⁰ Ödeme ve Menkul Kıymet Mutabakat Sistemleri, Ödeme Hizmetleri ve Elektronik Para Kuruluşları Hakkında Kanun [Law on Payment and Securities Reconciliation Systems, Payment Services, and Electronic Money Institutions] (June 20, 2013), No. 6493, 28690 RESMÎ GAZETE [OFFICIAL GAZETTE] (June 27, 2013), <http://www.resmigazete.gov.tr/eskiler/2013/06/20130627-14.htm> (Turkey).

³¹ The United States (also has 25% of the total number of active nodes), Romania, the Czech Republic, China, Spain, Poland, Turkey, Japan, Switzerland, and South Korea. <https://usethebitcoin.com/10-countries-with-the-most-bitcoin-hodlers/>



Source: Adapted from Coin Dance; <https://coin.dance/volume/localbitcoins/TRY> (October 29, 2019)

Figure 9: Weekly Local Bitcoin Volume (Turkish Lira)

3.0 Conclusion

This decade has witnessed both the impressive rise and the agonizing fall of Bitcoin and many altcoins sprouted after historic valuations achieved by the blockchain's Bitcoin phenomenon. Bitcoin began its arduous journey to stardom with practically \$0.00 since its intrinsic value (if any) was arbitrarily negotiated between nodes (miners) and private Bitcoin enthusiasts. Almost a decade later since its successful launch as the first cryptocurrency, Bitcoin has managed to become a household name amid countless challenges along with regulatory uncertainty. After peaking at intraday high of \$20,089 on December 17, 2017 with a market cap of \$321 billion, price of bitcoin has come down considerably; as of October 25, 2019, Bitcoin (at \$ 9,285.89) along with 3,047 altcoins had a combined market cap of \$248 billion which is still significantly below its peak of \$830 billion on December 17, 2017; Bitcoin's market cap alone is \$170 billion which dominates 68.4% of the cryptocurrency market.

The failed coup attempt by a fraction of the Turkish military, the conviction and sentencing of the U.S. Pastor Andrew Brunson of terror-related charges, rising geopolitical risks on account of the strained US-Turkey relations, and Turkey's ongoing military operations along its borders and into Syria have been a major catalyst for an enormous spike in Bitcoin adoption. Traditionally, ordinary Turkish folks and investors buy gold as a safe-haven asset; but not this time, pockets of people in Turkey flocked to Bitcoin in the hours and few days of speculative attacks on the Turkish lira on August 13, which drove the dollar-lira exchange rate to all-time intraday high of 7.23 closing at 6.93 (i.e. in just few hours, lira plummeted over 20% against dollar, and more than 40% in three days).

Cryptocurrencies (the top ten digital coins in particular) are known for their extreme volatility, but the Turkish lira's exchange rate fluctuations, has depreciated 87% against dollar during January 1 – August 13 2018, made even most erratic volatilities of cryptocurrencies seem calmer. Bitcoin and over 3,000 altcoins maybe be regarded as safe haven assets and they may provide an effective hedging against the dollar shock, but Turkish Bitcoin investors/enthusiasts must not forget that Bitcoin has witnessed a total of 16 price corrections of 50% or more in 7 years, and amazingly 8 of these massive price corrections have occurred between 2017 and 2019.

It seems that the number of Bitcoin holders in Turkey will continue to rise (i.e. currently one in five people own Bitcoin or other digital coins) because geopolitical risks are still tilted to downside and the US-Turkey relations remain strained on account of Turkey's military operations in Syria and the resultant looming sanctions to be imposed by the United States. Nevertheless, a substantial correction in the price of Bitcoin, similar to that of December 2017 – December 2018 (i.e. price plummeted from almost \$20,000 to \$3,236, would result in a severe financial catastrophe for Bitcoin holders.

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