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# Cryptoassets, expectation gaps and consumer protection: the case of Türkiye

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**Abstract:** Levels of interest in; and curiosity about; cryptoassets have been high in many emerging economies. An example is Türkiye; an economy where some investors have used cryptoassets as a hedge against the volatile fiat currency and as an alternative to the traditional investments in gold. Many find that cryptoassets offer transactional ease and that; among cryptoassets; stablecoins can potentially be solid stores of value; yet other aspects of cryptoassets can present dangers; including a lack of understanding of their nature. Many can be led into unwise investments through expectation gaps based on suppositions that the safeguards that apply to other investment opportunities will be present. Others will have expectation gaps based on stories of success for others bringing survivorship bias combined with a fear of missing out. Personal fortunes can be put at risk without any hope of redress. Stablecoins; although regarded as a safe investment; can on closer inspection be found to lack the protections that might be expected. This article builds on a qualitative study in the empirical legal tradition involving Turkish crypto industry professionals and investors which highlighted the potential for expectation gaps in cryptoasset investments. It then considers three expectation gaps in more detail; considering consumer protections in other contexts and building upon a textual analysis of risk disclosures in the terms and conditions of the 10 leading Turkish crypto exchanges and other sources. The article then identifies a model of vulnerability for Turkish consumers arising from expectation gaps and family circumstances and considers possible consumer protection responses; to suggest a pluralistic and decentred regulatory approach to consumer protection; in order that consumer choice is not unduly hampered; and innovative markets can develop.

**Keywords:** Türkiye; cryptoasset; stablecoins; expectation gaps; consumer protection; decentred regulation; UN Sustainable Development Goal 10; UN Sustainable Development Goal 16

## 1. Introduction

Cryptoassets present both opportunities and threats for consumers, with prospects of greater financial inclusion [1] and prosperity, but also the risk that consumers can be lured into



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unwise investment decisions. Levels of ownership and curiosity about cryptoassets have been strong in emerging economies, including as a hedge against volatile fiat currencies [2]. However, the lack of regulation of cryptoassets has also meant that expectation gaps have emerged. In this context the term “expectation gap” refers to a fundamental gap between the protections that consumers might expect and those, if any, that they actually get. Consumers may expect that safeguards that would apply to other public investment opportunities, including controls on advertising and insider dealing and disclosure requirements, are applicable. The reality is that these controls are often absent [3,4], leaving expectation gaps as consumers lack the protections that they might normally expect to be in place [5 - 7]. Unrealistic expectations can also arise from media stories and social media posts about successful investments leading to behavioural bias [8]. Rash investments can be prompted by a fear of missing out [9].

To date, regulation in many countries has focused on the wider public harms posed by cryptoassets, such as their use as a vehicle for money laundering [10], and a lack of clarity in advertising [11,12]. Other regulatory approaches respond to the risk of cryptoassets presenting systemic risks to the financial system. Beyond this there is a danger that regulation of cryptoassets can exert a chilling effect on the more positive aspects of cryptoassets, and that keeping pace with developing harms, is a careful balancing act, a problem noted by Trubnikov in relation to telecommunications [13]. As Abbott has noted, the regulation of emerging technologies presents significant challenges that are not always best met through strict regulation and are more suited to a pluralistic and decentred approach, including soft laws [14]. This paper builds on this approach and focuses on the consumer to consider how expectation gaps might be addressed under a similar approach.

In order to identify expectation gaps, the study draws upon original interview and textual analysis data, using the example of Türkiye, a major crypto investment jurisdiction. Türkiye was selected as an important example as it is a country where consumers have used cryptoassets as an alternative to a volatile fiat currency, the lira, the government-issued currency which fluctuates in value [15 - 17]. The paper considers the Turkish context and identifies some of the reasons why Turkish citizens invest in cryptoassets as well as some positive benefits found by these consumer investors. It identifies expectation gaps and how they might be addressed. Although Türkiye has enacted a strict new law, also considered in this paper, our paper looks backwards to shed light on consumer conduct in a system without significant regulation. It also looks forward to highlighting a weakness of the new law and suggests a more pluralistic and decentred approach to consumer protection.

The paper begins by outlining the Turkish context of a fiat currency crisis and consumer traditional saving preferences which have in many cases been replaced with crypto investments. It outlines existing literature and the novelty of this study. It then develops the expectation gap concept, identifying how these gaps can arise in the context of consumers buying cryptoassets. It outlines consumer protections in other areas to demonstrate the mismatch between those protections and the limited protections available in relation to cryptoassets. It then draws upon the original findings of the financial industry and investor interviews, as well as a textual analysis of the terms and conditions of 10 leading Turkish

crypto exchanges to discuss the three expectation gaps, namely 1) the lack of legal protections that might have been expected, 2) how survivorship bias in news and social media content can lead to unrealistic expectations of likely gains and 3) how stablecoins can give an impression of robust financial arrangements that are lacking in reality. It concludes that consumers may be vulnerable due to expectation gaps. It then develops a pluralistic and blended approach to consumer protection, with a focus on consumer education. This approach can potentially act as a blueprint for the approach to cryptoassets in other countries with volatile fiat currencies.

## 2. Turkish context: currency crisis and consumer saving preference

To provide some context as to why cryptoassets have become popular in Türkiye this section starts with some economic background. Türkiye is the 19th largest economy in the world and with a Gross Domestic Product (GDP) of roughly US\$720 billion [18]. Although the country was one of the success stories of the early 21st Century<sup>1</sup> [19], current circumstances in the country's economy are more difficult [20]. In November 2022 hyperinflation in the country hit its highest level since the 2002 economic crisis and although inflation fell during 2023 it climbed again in 2024 [21]. As discussed by Askew, this economic downturn pushed many Turkish people to the brink of financial catastrophe [22]. The country's dependence on external financing has led to vulnerability as the repayment costs of debts denominated in US Dollars have risen steeply as the lira has lost value against the dollar [23]. Manifestly, while the lira was at 12.85 for one US Dollar in November 2021, the value of the Lira plunged and in December 2024 stands at 34.86 Turkish Lira for one US Dollar. In the Consumer Price Index, the level of inflation in the country hit a 24 year high of 85.5% in October 2022 [24].

As hedges against the weak lira citizens have long used other more stable stores of value and in recent years some have invested in cryptoassets for the same purpose, often in surprising and concerning ways. Traditional consumer saving behaviour in Türkiye has tended to be based on a range of investment possibilities of stable values, including foreign currencies such as US Dollars or Euros kept in bank savings accounts, or gold in the form of coins or jewellery, kept at home. Gold has long held a culturally significant status and is also used by investors as a hedge against inflation [25]. Cansunar identifies that gold is particularly important for those who find the banking system difficult to access [26].

There are crude parallels between these traditional approaches and the way that cryptoassets are being used by some investors now, but potential concerns arise where consumer behaviour moves from investment of life savings in a relatively stable asset like gold, kept under the control of the individual, towards volatile assets traded through intermediaries without a strong regulatory culture, where there is an expectation gap that greater protections are applicable. Crypto investors may hope through smart investment to become rich in a short period of time, but as Friedrich et al discuss, investment can be

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<sup>1</sup> For instance, the substantial increase in Turkey's economic growth, which stood at 5% per annum from 2003 to 2010, along with the impressive performance of its industrial sector, has spurred the country to explore new markets. With its economic and commercial adaptability, the country has been able to realign its economy and effectively compete on a global level [19].

prompted by a fear of missing out and the reality does not always meet expectation [27]. Financial security can become precarious, depending on which assets are invested, and dangers arise from a lack of understanding of crypto investments. The risk is that a lack of understanding can lead to an expectation gap, and there is already evidence that this can lead some to sell family assets [28,29], borrow or use life savings or lump sums borrowed as student loans [30] for crypto investments in the hope of quick gains.

According to a global cryptoasset user distribution survey conducted by Statista in 2020, Türkiye placed as one of the top five crypto owning countries around the world with 16% of cryptoasset ownership. User numbers are striking and show strong consumer uptake. One recent industry study by Kaiko Smart Data, found increasing and fairly consistent interest in cryptoassets in Türkiye since 2021, in spite of market volatility [31]. A 2024 Turkish industry study by Paribu found, based on survey and interview data, that 30% of those surveyed preferred to invest in crypto rather than traditional investments, attached to short term trading by prospects of high returns and often influenced by social media [32].

**Table 1.** Explanation of unbacked cryptoassets and stablecoins.

	<b>Unbacked cryptoasset</b>	<b>Stablecoin</b>
<b>Properties</b>	A digital currency enabling individuals to trade directly with each other or via an exchange. Typically, unregulated and with no intrinsic value. Can be highly volatile in value.	A cryptoasset whose value is fully or partially tied to a reserve asset, such as a fiat currency or precious metal [33], or which uses an algorithm to adjust the number of coins in response to demand. Less volatile than conventional cryptoassets but not as regulated as many other financial investment opportunities.
<b>Examples</b>	Bitcoin (BTC), Ethereum (ETH), Dogecoin (DOGE), Solana (SOL)	Tether (USDT), USD Coin (USDC,) Binance USD (BUSD) Dai (DAI), True USD (TUSD)
<b>Reason for creation</b>	An alternative to investments requiring traditional financial intermediaries	A less volatile alternative to conventional cryptoassets
<b>Usage</b>	Trading and online payment via e.g. a crypto debit card or directly with some vendors.	Online payment via e.g. a crypto debit card or directly with some vendors. Can be used as a gateway for trades with fiat currency or other crypto. Investment if aiming for a stable value.

At this juncture, the two major types of crypto investments will be explained, to provide context for what follows. Table 1 above outlines what may be termed “unbacked cryptoassets” and compares these with the features of stablecoins, which have emerged as collateral-backed alternatives.

Undoubtedly there are many for whom cryptoassets offer positive benefits [34]. Some are drawn to crypto on account of convenience as compared to traditional banks [35]. Stablecoins are appealing as a store of value that is a hedge against the volatile fiat currency that is also outside the financial mainstream. Stablecoin usage is often for transactional reasons, as those with stable values can be suitable for exchanges with fiat currencies or exchanges between different cryptoassets. The article shows later how stablecoins are favoured by many in Türkiye and that although stablecoins can hold their values reliably, there are expectation gaps as to how some stablecoins operate. There is also, however, evidence of strong levels of interest in Türkiye in memecoins: unbacked cryptoassets often based on cartoon animals and other appealing imagery [36]. Since these are unbacked their value depends on market sentiment and can rise and fall sharply and very rapidly.

To sum up, high inflation in Türkiye, a loss of trust in the stability of the national currency, the lira, and ongoing uncertainty in the country's economy are the driving forces that motivate many Turkish nationals to invest in cryptoassets, with many favouring stablecoins but also strong interest in unbacked crypto, including memecoins. This represents a changing pattern for some investors, from preferences for relatively stable foreign fiat currencies and gold as hedges against instability of the lira, towards cryptoassets, some of which offer potential for high gains, yet also significant risks. Although stablecoins do not have the same inherent volatility, due to their asset reserves, there is often an expectation gap as to how they are regulated.

The aim of this project is to investigate further the influential factors that operate in practice to identify expectation gaps and how they might be addressed in regulation in a way that offers consumer protection without stifling the positive aspects of cryptoassets. This latter aspect is a concern after the introduction of a strict new law in Türkiye, as discussed next.

#### *Current legal and regulatory framework*

In the summer of 2024, the regulatory authority in Türkiye introduced the long-awaited cryptocurrency legislation with the enactment of Law (No. 7518) [37], which amended the Capital Markets Law. This law grants the Capital Market Boards (CMB) exclusive authority to regulate and supervise cryptoasset service providers operating within the country. One of the key features of the new law is a mandatory licensing requirement for cryptoasset service providers operating in Türkiye and strict associated liabilities in article 35(c)/4, under which cryptoasset service providers are responsible for cryptoasset losses resulting from actions such as technical system failures, any form of cyberattacks, information security breaches or the conduct of their personnels within the scope of Article 71 of the Turkish Code of Obligations No. 6098 [38]. We consider below the possible impact of these liabilities. We discuss this law in more detail in Part 6 and examine how a more pluralistic and decentred regulatory approach would have been preferable and can yet still develop.

The study on expectation gaps and consumer protection in Türkiye was conducted prior to the introduction of new regulations and the principal decisions issued by the CMB. A

follow up study is planned, which could provide a deeper analysis of the impact of this legislation, assessing whether it successfully responds to the gaps identified in this study.

### 3. Previous studies on consumer cryptoasset investments

Consumer related aspects of cryptoassets have attracted significant academic attention in recent years. Much of the literature from a legal perspective has addressed sophisticated regulatory approaches in the US and EU [39,40], rather than emerging economies such as Türkiye. There are also numerous studies that consider impacts on consumer cryptoasset decisions from a behavioural bias perspective.

Studies from a legal consumer protection perspective include Kokorin's [41] review of the contract terms of crypto providers, which found that although these contract terms were likely to be important in practice, such as in the bankruptcy of a crypto service provider, there are limitations to the entitlements that consumers would have under these terms. Haentjens, de Graf and Kokorin's study of the custodial arrangements of crypto exchanges also highlighted significant risks for crypto investors that might arise in insolvencies [42]. Another study of contract terms of crypto custodians, by Zetsche and found that important details were missing in the terms of many crypto custodians, certainly when compared with the approaches of traditional finance [43].

Alekseenko, in a study of several jurisdictions, has identified that the insolvencies of crypto businesses raise international complexities around the location of assets and applicable law, as well as presenting various risks for unwary consumers [44]. Sancak notes that although cryptoasset investments can be high risk there can be significant regulatory gaps [45].

Also of relevance to the present study are papers that highlight weaknesses in stablecoin regulation. Notably Bruce, Odinet and Tostato [3], emphasise the lack of legal protection in contracts with stablecoin providers, as well as ways in which the terms can contradict statements in websites and Li, highlights that a lack of disclosure requirements in relation to stablecoins can undermine consumer protection [4]. Arner, Auer and Frost discuss a need for consumer risks to be addressed in stablecoin regulation, including through joining technology, regulation and supervision [46]. The EU approach is considered by Martino [47].

Similarly, Shi, He and Liu [48] emphasise that consumer protection can be enhanced by implementing legal obligations on stablecoin projects, including ensuring sufficient and secure collateral, mandatory white papers as binding promises, and periodic audits of financial and smart contract security, while also highlighting the need for a global regulatory framework to address the cross-border nature of stablecoins and emphasising that international cooperation is essential to harmonize regulatory practices and protect consumers effectively.

From these studies it is clear that the cryptoasset investments can be risky and that the terms and conditions of crypto service providers can offer weak protections to consumers even in high income economies, such as the EU. This article contributes to the literature in examining how these weaknesses can lead to expectation gaps among consumer investors in the emerging economy of Türkiye.



Other relevant literature, which informs the present study, considers behavioural biases in the context of crypto investment. Behavioural economics research has shown that consumers can often make irrational decisions due to various behavioural biases. Consumers can be led to invest by fast, instinctive and emotional responses, rather than more considered, deliberative and logical thinking [49]. Several behavioural finance studies are cited by Ballis and Verousis, noting that cryptoassets and markets differ significantly from traditional finance assets and markets [8]. Gurdigev and O’Loughlin examine behavioural drivers of herding bias and anchoring bias, where undue weight is given to initial information [50]. Some studies (Kraaijveld and De Smedt [51], Poongodi et al [52], Naeem et al [53]) have examined the impact of social media or news media (Caferra [54]) on market sentiment in influencing the prices of cryptoassets.

Existing studies however are often lacking closer perspectives on individual consumer choices. One exception is Al Mansour, in a questionnaire-based study of Middle Eastern investors, found evidence of herding, where people act impulsively and without regard for their own opinions, as well as prospect bias, where potential gains are of greater influence than potential losses, and heuristic impacts on investment decisions [55]. The Financial Conduct authority’s study of cryptoasset users also demonstrated growing interest and understanding of cryptoassets in the UK, with lower levels of understanding among non-users [56].

The present project adds to the empirical understanding of consumer expectations in crypto investments through two related studies: one based around interviews with crypto industry professionals and crypto investors in Türkiye; the other based on a textual analysis of the terms and conditions of the 10 leading crypto exchanges in Türkiye. These studies offer fresh insights into crypto investment in an emerging economy with an unstable fiat currency, where some investors have used cryptoassets as a hedge against the volatile lira. They highlight how there can be expectation gaps for consumers and how, through a pluralistic and decentred, regulatory approach crypto exchanges and others can do much more to relate the risks of cryptoassets and address the expectation gaps that are identified.

#### **4. Methodology**

The project began with a broad exploratory focus employing qualitative research methods in relation to the investment patterns exhibited by Turkish citizens [57]. An approach based on elite interviews, and in the tradition of empirical legal scholarship [58], was selected for the initial phase of this study. Interviewees were selected based on their positions and professional involvement in crypto transactions and included some with legal backgrounds (e.g., lawyers), commercial backgrounds (a director of a cryptoasset service provider), experts with scientific qualifications in the field of blockchain, a journalist in the cryptoasset industry and a technology and social media specialist.

The number and profile of the participants selected was considered likely to present a sufficiently diverse and representative range of experiences. Based on the review of literature an interview schedule was drawn up that was designed to gain insight into and obtain a better understanding of cultural investment trends in Türkiye. Questions related to the factors

leading people to crypto investment, consumer protections against crypto fraud and possible regulatory responses to best inform crypto users against the risk of loss and the influence of social media on crypto consumers' investment decisions. A qualitative semi-structured interview technique was used in view of its flexible and fluid structure when compared with the structured interview technique [59]. In January 2021 there was an initial scoping exercise in Istanbul, Türkiye with 6 interviews. These were followed up in July 2022 with three further interviews, to make a total of 9 industry experts interviewed. The size of the project was constrained by the resources available, and we discuss the limitations of the study in Part 7.

The scoping element of this research project enabled initial insights to be gained as well as testing the adequacy and capability of the research questions designed for this research paper. The initial phase of elite interviews enabled the potential for expectation gaps regarding cryptoasset investments by Turkish citizens to be identified as a key issue and a follow up study then employed interviews with 11 cryptoasset investors in May 2023. Three key expectation gaps were identified for further examination relating to 1) legal protections, 2) survivorship bias and 3) stablecoins for further consideration. The article also draws upon a textual analysis of limitations on liability and risk disclosures in the terms of 10 crypto exchanges. First, we consider expectation gaps more generally.

## **5. Expectation gaps**

In this paper we focus on expectation gaps as a problem of imperfect consumer information requiring a consumer-focused response [60]. This section considers the expectation gaps that were identified in the two studies, as well as in existing literature. The concept of expectation gaps is first introduced before examples in the crypto sphere in Türkiye are identified through a comparison with protections available to consumers in other investments. The article then discusses how they might be addressed under a pluralistic and decentred approach in Part 6.

### *5.1. Expectation gaps overview*

Expectation gaps have been widely discussed in relation to auditing [61,62] but can also provide a useful framing enabling risks to consumer interests to be identified. Such a gap arises in this context where customers have expectations as to products or services but have a different experience in reality, for example in relation to misleading food labels [63]. An example of where a label might create expectations is where the word “organic” is used, as this leads to consumer expectations as to how food was produced and what its quality will be like and can lead to a higher price being paid. Where terms are misused, an expectation gap arises, and consumers can be misled.

A regulatory response to an expectation gap can lead to controls, for example on the usage of particular terms in food labelling to address expectations that products and services are subject to a regulatory regime. A similar recent example relates to greenwashing, which has been the subject of a regulatory response by UK agencies [64,65], partly out of concerns that consumers tend to take at face value the information that they are given and are being



misled, for example by fuel companies that advertise green initiatives without acknowledging their larger polluting operations [66,67].

Next, we consider some of the main expectation gaps in relation to cryptoassets that emerged in our study or are identifiable in literature and we consider how they might have been addressed in Türkiye. Attention to this area is important. Expectation gaps can lead consumers to make rash investments. Whilst for many the sums involved will not impact significantly on their or their families' finances there are already examples of consumers who have lost life savings in crypto insolvencies and scams [28 – 30]. What may have contributed to expectation gaps is a mismatch between the protections available when purchasing cryptoassets, as compared with the protections available to consumers in relation to other investments.

### 5.1.1. Protections of other investments and selection of expectation gaps

Interviews carried out as part of this study revealed three expectation gaps: expectations of legal protections, survivorship bias, and expectations of stablecoin regulation. As to the first of these, there is a risk that consumers can misunderstand the nature of cryptoassets, viewing them as having similar protections to those available for other financial investments [68]. There are greater levels of protection that are available in respect of other assets, such as bank accounts, and that this may contribute to consumers being misled. Notably in Türkiye there are significant protections for deposits in Turkish Lira, foreign currencies and precious metals up to a value of 400,000 Lira (around \$11,000 USD) [69]. Cryptoasset deposits would not appear to fall within this protection, and this could lead to expectation gaps. In addition, many crypto consumers may believe that, *in situations* where an exchange is hacked, their assets are lost, or the exchange becomes insolvent, they can simply file a complaint and/or seek compensation from these crypto exchange platforms. In reality, there is often a mismatch between what consumers expect and what the exchanges disclose in their legal documents. The gap between expectation and reality exposes consumers to significant risks, such as the inability to recover funds in the event of exchange failures, failure of cryptoassets or fraudulent activities.

We chose survivorship bias as the second expectation gap because interviews revealed that many crypto consumers, influenced by media reports or stories shared within their social circles, tend to hear only about the success stories of crypto investments while ignoring the numerous failures and losses experienced by others. This selective exposure creates a distorted perception of risk, leading consumers to enter the crypto market with an inflated sense of confidence in their ability to replicate these success stories. We propose that one effective way to counteract survivorship bias would be to include clear disclosures of the risks associated with cryptoassets, including the likelihood of losses, in a prominent disclosure. Yet we will show that disclosures do little that is effective towards this.

The final expectation gap we chose for this study concerns the regulation of stablecoins, which remains both ambiguous and incomplete in Türkiye. The current legal framework does not explicitly distinguish stablecoins from other digital assets. Instead, it applies general provisions that govern all types of cryptocurrencies. We argue that this creates an expectation

gap, where consumers mistakenly believe that stablecoins are inherently safer and free from the risks associated with unbacked cryptocurrencies. This misconception leads to misguided investment decisions, as consumers may assume that stablecoins are immune to the regulatory and market risks that significantly affect other cryptocurrencies. We argue that the absence of specific regulatory guidelines for stablecoins may foster a false sense of security, potentially resulting in financial losses, especially for unsophisticated investors if a stablecoin were to fail or its underlying assets were to devalue.

#### 5.1.2. Expectation gap 1: expectations of legal protections

We have already noted the greater levels of protection available in relation to bank deposits. We can also note that in many jurisdictions, consumer protections exist to ensure consumers are not misled or have protections and remedies if they are misled. In Turkey, there is the Consumer Protection Law (Law No. 6502). These protections include deceptive advertising and unfair commercial practices. Many of the underpinning rights of consumers reflect the principle that if provided with appropriate information consumers are better capable of making informed choices [70], although admittedly biases can distort decisions.

In the crypto context there can often be a lack of clear and reliable information, and we have found that there is much that the typical consumer is likely to misunderstand about the nature of crypto and crypto service providers. This statement is best exemplified by the view of Respondent 20, who receives emails and text messages from crypto exchanges and strangers on Instagram [71]:

These people ask me to use their platforms, but I am very concerned about of these exchanges. This is because a friend of mine had a bad experience with these exchanges when trying to withdraw his cryptocurrencies from these platforms in the past. My friend told me that whenever he wanted to withdraw his assets from these exchanges, they came with excuses such as storing his cryptos in secure cold wallets or having experienced technical issues with their website *etc.* Although they promised to resolve the issue promptly, the real intention of these exchanges is to keep people engaged in crypto market as they do not have sufficient funds to return profits to customers upon withdrawal.

Consumers may believe that they have rights under their contracts with crypto exchanges, based on previous experiences when buying goods or services (including implied guarantees), and that if something were to go wrong, they could complain to the exchange where they made their investment [35]. As is highlighted below, in fact typical exchanges operate wide exclusions of liability.

Other studies have also highlighted gaps and ambiguities in the terms of many crypto service providers [3,42,44]. The lack of contractual protections for crypto consumers is particularly unfortunate in the context of insolvencies. This is illustrated by the cases of Celsius and Gatecoin. These cases show that contractual terms may determine whether a customer has proprietary claim or only a personal claim to be paid alongside other creditors [41]. In the light of these cases Kokorin has highlighted that, although contractual terms proved

important in determining the entitlements of customers in those cases, typical crypto service provider terms are often uncertain as to whether they give rise to proprietary rights, rather than personal rights against the crypto exchange [42]. Kokorin also notes that the contracts typically give few rights in the event that terms are breached [42]. There can also be expectation gaps based on what crypto exchanges, coins and tokens offer in their fine print as compared with what they offer in more prominent materials [3] and no guarantee that a poorly run crypto business will actually comply with the terms [72].

Consumers may also believe that the exchanges that they are dealing with are regulated in the same way as banks and financial investments [44, 73]. However, a lack of similar regulatory control mechanisms puts crypto consumers at risk [74], as illustrated by the failure of several cryptoasset exchanges in recent years (e.g., Blockfi, Celsius Network, Voyager Digital and FTX<sup>2</sup>) [75,76]. The manner in which crypto firms, as well as crypto custodians, hold customer fiat and cryptoassets can vary with some segregating customer accounts from firm funds but others commingling consumer funds and firm funds. Zetsche and Nikolakopoulou have identified that there is often a lack of clarity in terms of use as to which of these is the case [44]. Even where terms indicate that assets are segregated the reality may be different.

The approaches in this regard differ markedly from ways in which banks hold and account for customer funds, particularly as assets held with crypto businesses are not covered by Türkiye's Savings Deposit and Participation Fund Insurance<sup>3</sup> [77], as bank deposits are, yet customers may not appreciate that the position may be different. Typical terminology used in relation to cryptoassets can also contribute to a misleading impression as to the rights that customers will have, such as entitlement to compensation in the event of a failure of a crypto service provider [78,79]. The term 'cryptocurrency' may suggest that the asset is legal tender, has underlying value and can freely be used in trade and we instead in this paper use the term 'cryptoasset' for this reason. In most countries, however, cryptoassets are not legal tender and cannot be used in trade and some types of crypto utility token will have very limited usage or value [80]. The term 'crypto investment' may similarly lead consumers to believe that they will have protections on the same footing as other investment products.

In fact, cryptoasset secondary markets such as exchanges are often not subject to capital markets, securities regulation or other financial regulations, as was the case in Türkiye at the time of our initial study. There is therefore no insider trading system and larger and more sophisticated crypto investors are able to sell their cryptoassets just ahead of significant price drops, while less experienced small crypto investors continue to buy [81]. As Merkley et al discuss, insiders may pump and dump crypto, sometimes having received inducements to do so [82]. The lack of an insider trading regime may be contrary to customer expectations.

Another expectation gap relates to the possibility that there will be someone to complain to or to sue if things go wrong. Turkish consumers will typically purchase cryptoassets

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<sup>2</sup> We note here the prominent Larry David Superbowl commercial for the exchange FTX, which aired not long before the collapse of the exchange [75].

<sup>3</sup> This fund offers deposit protection of up to 650,000 Turkish Lira for deposits with credit institutions and participation fund accounts [77].

through a centralised exchange and may expect that if something goes wrong, they will have the same consumer rights that we have noted in other contexts. To assess whether Turkish exchanges are likely to accept liability for things that have gone wrong the second study discussed in this article featured a comprehensive thematic content analysis of the terms of use of 10 centralised crypto exchanges established in Türkiye in accordance with Turkish Law.

As regards disputes there was a common approach for the terms of crypto service providers to require any disputes to be resolved by arbitration and to specify which arbitral tribunal will handle the case. It is common for cryptocurrency exchange platforms to include arbitration clauses in user agreements. Nevertheless, the validity of such clause may be unenforceable if it is found to have been improperly included [83]. For instance, crypto exchange platforms frequently modify their user agreements often without giving proper notification to their users [84].

Undoubtedly, this unilateral modification leads to confusion and uncertainty about which version of the agreement is in effect and which terms govern any potential disputes [83]. In Türkiye, some of the centralised crypto exchanges have opted to include arbitration clauses in their user agreements and selected Istanbul Arbitration Centre for resolving disputes [84].

However, others opt for Istanbul Çağlayan Courts and Enforcement Offices as the competent judicial authority to resolve the disputes arising from or in connection with user agreements [85 – 87]. Whilst arbitration is a common dispute resolution mechanism, we note that here consumers are given no choice and that also arbitration is potentially very expensive. Once they have agreed to accept the terms, they also agree to accept the method of settling the disputes.

It is also notable that Turkish exchanges, alongside many other international exchanges, will have broad-ranging exclusions of liability as well as broad grounds for force majeure in the event of their non-performance. The table below demonstrates that among the ten exchanges that were studied is a high level of consistency in terms of excluding liability. While customers are also provided in the terms of service with information about the specific risks involved in cryptoassets in risk disclaimers, the risks associated with cryptoassets are often followed by these exclusion from liability statements, based on similar factors<sup>4</sup> [88,89]. Informing and warning are two different concepts. The former serves as a gentle reminder and is often accompanied by exclusion from liability statement. However, the latter aims to caution consumers against risks associated with crypto investment only.

The table below demonstrates an overview of the identified customer warning risks, and it also highlights whether the selected crypto exchanges in Türkiye exclude themselves from these risks and any associated liability.

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<sup>4</sup> The section aims to provide general overview of potential risks associated with cryptocurrency investments, such as volatility risk, regulatory risk etc. However, the risk disclaimer section presents these risks in a single paragraph without delving into further explanation.

**Table 2.** Exclusions from liability in the terms of 10 crypto exchanges in Türkiye.

Crypto Exchanges	Exclusion from Liability								
	Market /Volatility risk	Availability Risk (service update)	Liquidity risk	Security risk	Internet risk	Fiat Currency risk	Legal/Regulation risk	Theft/Cyber-attack risk	Third party risk (custodian, payment providers)
BTC Turk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Binance TR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bitlo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bitci Türkiye	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bitexen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bitturk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coin TR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gate TR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paribu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICRYPEX	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The table illustrates that there is a high level of consistency across the major Turkish crypto exchanges in terms of excluding liability from risks such as the potential volatility of crypto prices, possibilities of down time due to service updates, liquidity, security and internet, fiat currency, regulatory changes, cyber-attacks-theft and third-party risks. In Table 2 above the term “market/volatility risk” was used to categorise clauses that warned of risks of changes in transaction prices and volatility. Customers are warned to be aware of the high volatility risk in the crypto market, which may result in significant losses for holders. The label “availability risk” was applied where a clause warned that service updates and network congestion may occur on the exchange's platform. The term “liquidity risk” was used for clauses which had a warning that assets may not be sold as quickly as expected due to limited demand in the crypto market. The label “security risk”, was used where there was a warning in respect of exchanges and transmissions. Security risk clauses would urge customers to take all necessary security measures, such as choosing strong passwords and double-checking wallet addresses, when withdrawing or transferring their assets to another wallet.

Clauses that relate to "internet risk" highlighted potential communication issues, network failures, or delays that may occur while using crypto exchange platforms. Internet risk clauses also cautioned users about the possibility of trojans, viruses, worms, or other types of malwares that could affect their computers. The label, "fiat currency risk" was applied to clauses which warned customers of potential shortfalls or fluctuations in the value of the fiat money they use to purchase cryptoassets.

Clauses termed as relating to "Legal/regulatory risk" highlighted that the current regulatory landscape for cryptocurrencies is uncertain in many jurisdictions. These clauses typically raised the possibility that in the future, certain laws or regulations may be adopted by one or more jurisdictions that could impact cryptocurrencies' prices, accessibility of crypto exchanges and users. Other clauses warned of possibilities of “cyberattack/theft” in relation to cryptocurrencies, threats and vulnerabilities, such as the risk of hacking, that could compromise the security of digital assets and user data. Finally, clauses addressed "third

party/custodian risk" to warn of the risks of relying on external parties for essential services such as the storage, management, and protection of digital assets.

We have also identified that some of the crypto exchanges have a broad interpretation of force majeure [90]. They consider these events such as cyber-attacks, communication issues, internet failures and legal, administrative and regulatory restrictions as force majeure incidents. These clauses state that users acknowledge, declare and agree that the exchanges cannot be held accountable [90]. As a result, exchanges will not be held liable for any direct or indirect claims for compensation arising from losses or damages caused by any failures or delays in fulfilling their contractual obligations caused by the broadly defined force majeure events [90]. By doing so, they exempt themselves from any liability associated with these risks. There is also an imbalance. In other contexts, in the event of a force majeure, parties have the right to terminate the agreement depending on the impact of such an event. However, in practice, only exchanges have the authority to terminate the agreement, while users do not have the same right [85].

Understandably when the definition of force majeure is narrow, the non-performing crypto exchange will shoulder a higher level of risk, whereas consumers bear greater risk if the definition is made broadly. It is unfair to expect that consumers shoulder the loss/damages whenever cybersecurity incidents occur, however. Providing a secure platform and maintaining the availability of services on these platforms are the sole responsibilities of exchanges not users. Similarly, some exchanges<sup>5</sup> explicitly state in their terms and conditions that they cannot be held liable for any losses arising from cyberattacks or theft. This means that crypto users cannot be eligible for a refund if their assets are stolen.

There has often tended to be a lack of cybersecurity requirements mandated by any regulators or central authorities that crypto exchanges should follow [91], although in the EU some will be subject to the DORA requirements [92] and the new Turkish law also includes provision for monitoring technological infrastructures and security [93]. Even prior to this law it would reasonably be expected that is the responsibility of crypto exchanges to implement adequate security measures to protect their customers' assets. Admittedly, there is no one size fits all solution to protect consumers against cyber-attacks. However, it is the responsibility of exchanges to provide assurance to their users that they take all necessary security measures to protect their customers assets against cyber-attacks risks and prompt and adequate refunds will be provided to their customers in the event of cyberattack to compensate customers' losses/damages. This approach can bridge the gap in expectation that may arise in the future as users generally assume that their investments will be safeguarded by exchanges if something goes wrong.

It is also notable that decentralised approaches in many aspects of crypto service provision will bring complexities that consumers may not anticipate if something goes

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<sup>5</sup> For example, both Bitci Türkiye and Gate TR, as crypto exchanges, include provisions in their user agreements that consider cyber-attacks as force majeure events. These provisions, specifically Section 13.1.3 in the Bitci Türkiye agreement and Section 7 in the Gate TR agreement, relieve the exchanges from liability for any delays or disruptions in fulfilling their obligations caused by such attacks. These sections also highlight that non-performance should not be interpreted as breach of their agreements.



wrong. For example, El Menshawy highlights that if a problem arises with a coding error in an unpermissioned blockchain or decentralised exchange it may be difficult to attribute fault to anyone involved in the blockchain or decentralised exchange [94]. Similar issues may arise where the crypto is controlled by a DAO, a ‘decentralised autonomous organisation’, such as the DAI Stablecoin operated by Maker DAO.

A DAO operates using smart contracts to determine governance issues. It may be difficult for consumers to gain redress in the event of a problem with the DAO due to its dispersed nature and lack of separate legal personality. Many DAOs will operate through a legal wrapper such as a Swiss foundation, which could ease some attribution issues. Not all will do so however, and this presents the question of how a DAO should be regarded, for example as an ordinary partnership or an unincorporated association, as discussed by the UK Law Commission [95]. There is presently a lack of case law on how DAOs would be treated in any jurisdiction and any consumer who addressed the issue might have to be a trailblazer.

A further expectation gap for consumer holders of cryptoassets in Türkiye that was highlighted by an interviewee during the first study [96] arises from the legal status of individuals holding cryptoassets being classified as that of an investor, subject to commercial laws, as opposed to that of a consumer, subject to consumer-related legislation. There are currently two codes protecting investors’ rights in Türkiye, namely the Code of Obligations and the Commercial Code [96]. Therefore, if a dispute arises between the parties (*i.e.* crypto service providers and digital asset investors), the competent court (if arbitration isn’t required under the terms of the crypto service provider) would be the civil courts of first instance, not the consumer-protection court [96]. Whilst this would still give an avenue for redress, in practical terms it could lead to a frustrating wait. Cases that reach the consumer-protection courts are dealt with relatively swiftly, whereas disputes before the commercial courts take 5–6 years on average to be resolved [95]. Arguably this position might be reconsidered.

### 5.1.3. Expectation gap 2: survivorship bias

News and social media content can potentially overemphasise the benefits of crypto transactions without paying sufficient attention to risks and challenges [96]. This can lead to what may be regarded as survivorship bias. For instance, where a surge in crypto prices is reported this often attracts crypto investors to enter into the crypto market with an expectation of making fast and substantial capital gains from their investments, discussed by Cornelli *et al* [98], whereas Miller shows the reality can be different [99]. Survivorship bias is a cognitive fallacy that arises when an individual perceives the success of a subgroup as representing the success of the entire group, ignoring that there are examples of failure within the entire group [99]. A cross-section of the fields of behavioural psychology and finance, a survivorship bias framing can be used to analyse how psychological factors influence the decision-making processes of individual investors or groups in relation to their crypto investment commitments. Kengatharan and Kengatharan [100] used the concept to understand how emotion and cognitive error affect stock exchange investment behaviours.

In the context of the present study survivorship bias occurs when investors focus solely on the success stories of successful individual investors [101] that have outperformed the norm to the exclusion of conflicting evidence of those whose experiences were less positive. According to social media expert Deniz Unay:

People generally want to hear what they wanted to or focus on the news that they are interested. The news on social media effectively increases survivorship bias risk. Most crypto people (particularly they are called small investors) want to adopt the story of successful people as a model for themselves. They do not want to accept the fact, the possibility of losing their assets one day by investing in a risky crypto currency which luckily made some small investors rich in the past. It is almost impossible to see about success story of crypto investors on tv channels because they have their own daily schedules to follow, and they have more responsibility against the public. But these kinds of news are mostly published on social media platforms or unserious online newspapers.

One possible way to counteract survivorship bias would be disclosure that this type of asset can be risky, and losses are likely. Study two also therefore considered the risk disclosure statements in the terms of each exchange selected for this study, although accepting that this disclosure would not be likely to be read by most consumers. Subsequently, researchers systematically coded and carried out a deductive review, resulting in the identification of 9 recurring customer warning themes that frequently appeared in the risk disclosure documents.

**Table 3.** Terms of 10 crypto exchanges in Türkiye warning customers of risks of crypto investments. Compiled by the authors.

Crypto Exchanges	Consumer Warning themes								
	Market/Volatility risk	Availability Risk (service update)	Liquidity risk	Security risk	Internet risk	Fiat Currency risk	Legal/Regulation risk	Theft/Cyber-attack risk	Third party risk (custodian, payment providers)
BTC	□	□	□	□	□	□	□	□	□
Turk Binance TR	□	□	□	□	□	□	□	□	□
Bitlo	□	□	□	□	□	□	□	□	□
Bitci Türkiye	×	×	×	×	×	×	×	×	×
Bitexen	×	×	×	×	×	×	×	×	×
Bitturk	×	×	×	×	×	×	×	×	×
Coin TR	□	□	□	□	□	□	□	□	□
Gate TR	×	×	×	×	×	×	×	×	×
Paribu	×	×	×	×	×	×	×	×	×
ICRYPEX	×	×	×	×	×	×	×	×	×

The table above uses the same concepts as in Table 2 above and illustrates identified consumer warning themes against certain risks in risk disclosure documents of these selected centralised exchanges for each theme.

It will be observed from Table 3 that exchanges either warned of the full range of risks or failed to identify any risks at all. There were therefore some cryptoasset exchanges that did not provide risk disclosure statements to warn consumers about potential risks at all, either on their websites or in their terms and conditions. Notably, BTCTurk, Binance TR, Coin TR and Bitlo are the crypto exchanges that did provide risk disclosure statements on their websites.

Furthermore, among the 10 crypto exchanges, Bitexen and Bitci there was evidence of differential treatment in different geographical regions. Bitexen has established “Bitexen Europe” in Lithuania, in accordance with the Lithuanian law. The Bitexen Europe entity provides to its customers a comprehensive risk disclosure statement on its website. However, the Bitexen entity that operates in the Turkish territory, when consulted did not offer the same level of transparency and consumer warning to its customers [102].

Moreover, Bitci is a centralised Turkish crypto exchange that manages two separate crypto exchanges called Bitci Global and Bitci Brazil [103]. It was also found that unlike Bitexen Europe, neither Bitci Global nor Bitci Brazil offer any risk disclosures for consumers on their websites or in their legal documents. This may indicate that crypto exchanges operating in countries with lax regulatory oversight are less likely to provide risk disclosures on their website or in their legal documentation as opposed to exchanges established within European Union member states, where there are stringent regulatory and compliance checks.

At this stage the most effective approach to address influences of survivorship bias would arguably be to focus on public understanding of crypto investments. This approach could deepen public understanding of the risks that they are taking on when they invest in these complex products [96,101,104]. Study Two focused on the terms of use of the crypto exchanges as one way to emphasise risks and counterbalance survivorship bias. This would not tend to be the most effective approach, however, as Bakos, Marotta-Wurgler and Trossen highlight that many consumers will not read these terms [105]. An informative approach might most effectively be highlighted through public announcements on social media and news platforms [96]. Warnings about risks to assets could be presented through targeted content for those who show interests in cryptoassets. This informational approach could focus on the volatility of crypto market and lack of consumer protections to enable consumers to make more informed investment decisions. In Study One some interviewees also supported a greater informational approach to raise awareness of the potential for crypto frauds [96,104]. These possibilities will be considered further in Part 6 when we discuss our favoured approach.

#### 5.1.4. Expectation gap 3: stablecoin regulation

Another expectation gap can arise in relation to stablecoins, which may be seen as a less risky option due to their normally having an asset backing, but where reality might not match this expectation [3]. In Bruce, Odinet and Tostato’s extensive United States study, stablecoins were found to lack real stability and reliability [3]. It is true that most stablecoins do not suffer from the same volatility as unbacked cryptoassets but this type of cryptoasset can also carry risks,

as illustrated by the death spiral of the stablecoin Terra UST and its stabilising algorithmic token Luna, leading to Terra UST becoming depegged, as described by Briola et al [106].

Li has identified that consumers may believe that a stablecoin's underpinning assets can offer protection and that they will be able to readily exchange their stablecoin holdings for fiat, and that there are requirements as to underlying assets and how they are to be kept [46]. In reality the level of protection offered by stablecoin providers can be very patchy and there will often be a lack of regulation [3], although this position is rapidly changing. Few crypto exchanges warn against the unregulated nature of stablecoins and in a study of the terms and conditions of 50 crypto exchanges conducted for another project by the authors and others [107], only one addressed stablecoin risks at length [108] and only two others addressed these risks at all [109]. Where a stablecoin is operated by DAO protocol a purchaser may, as already noted, not even be able to identify an operating entity in the event of a dispute [3].

Nonetheless, the interviews carried out for this study revealed a preference among some crypto investors for stablecoins as an investment option for several reasons. Stablecoins were favoured due to their lower levels of volatility, expected to be approaching those of gold or foreign currency investment providing a means to safeguard their assets. In addition, as these stablecoins are often backed by real-world assets such as U.S dollars, this can potentially give crypto users a safeguard that the value of stablecoins will hold over time, even if the spectacular gains of more volatile unbacked crypto are unavailable. Some crypto investors that were interviewed in Study One also expressed a preference for stablecoin investments because of their speed and efficiency in cross-border transactions and transactions involving different cryptoassets [111]:

My diamond supplier in India introduced me to Tether. I have been actively using this stablecoin in my business's commercial activities since then. I owed my diamond supplier \$38,000 after purchasing diamonds from him last year. The supplier knew that I was into crypto investment and suggested me to make the payment with Tether instead of international bank transfer. He said that Tether's transaction cost was less expensive and much faster than normal bank transfer. I must admit that the most attractive side of Tether is that it appears in the recipient's digital wallet within 10 seconds. After transferring the money, the diamond supplier contacted me to confirm that he received the amount. To be honest, if I had sent this amount via an international bank transfer, it would have taken at least three days to reach the recipient's bank account.

The stablecoin Tether has emerged as one of the most favoured cryptoassets, partly due to its usefulness in intermediate transactions where a cryptoasset is converted into fiat currency. In Türkiye, it is also favoured on account of the pegging of its value to the US dollar, although other stablecoins also do this. This pegging provides crypto consumers with an expectation of the security afforded by a relatively stable fiat currency. There is strong potential for an expectation gap in relation to stablecoins as there presently no global

regulatory requirement as to how the security should be held or composed, although some stablecoins have been treated as securities in the US<sup>6</sup>.

Stablecoins are also prominently addressed under the EU's Regulation on Markets in Crypto-assets, 'MiCAR', Title III as 'asset-referenced tokens'. Under this Part MiCAR will require registration, the production of a white paper, as well as conduct and governance requirements and prudential requirements to ensure sufficient liquidity and the ability to meet redemption requests [113]. There might have been hopes that MiCAR could more generally have an 'EU-effect', as described by Crippa et al [114], similar to the effect of the GDPR in influencing higher data protection standards outside the EU, as discussed by Ius Laboris [115]. Faced with stringent regulatory requirements, however, many crypto businesses will engage in regulatory arbitrage and exclude customers in the highly regulated jurisdictions. Study Two already hinted above in relation to customer warning clauses that standards within the EU will not necessarily result in higher standards outside it.

An analysis of the Turkish experience suggests that consumers seeking a long-term store of value may avoid rash and hazardous speculation and invest in cryptoassets that are likely to be less volatile. There can however be an expectation gap that stablecoins are on regulated footing as to the underlying assets. The adoption of stablecoins could also ultimately destabilise fiat currencies. Stablecoins would therefore be a more suitable target for regulation, such as to require that underpinning asset reserves are regularly audited and whether there are sufficient reserve funds in place to maintain value stability in the event of a transaction error and to protect customers in the event of insolvency on the part of stablecoin issuers [116].

## 6. Regulatory challenges

This article has identified the potential for expectation gaps in relation to Turkish consumers, focusing on three points 1) a lack of regulatory protection, as well as 2) instances where consumers are being misled by survivorship bias, whilst not understanding the inherent risks in their investments 3) being misled about the assets underpinning stablecoins, as well as their broader regulatory framework. Attention is drawn to this area in this article as there are potentially serious consequences of financial precarity in some instances based on investment of lifesavings, significant assets such as a car or finance such as a student loan in crypto, or household budgets which can impact on families, pensions and livelihoods. There were examples of such significant assets being used to buy crypto in our initial research and interviews, as noted above. Whereas many consumers in Türkiye still use gold as a store of long-term value, others will see cryptoassets, including memecoins, as a way to grow their resources exponentially but may not realise the risks involved. Others may be vulnerable to scams [117]. In this part the article turns to possible regulatory responses, considering how cryptoassets and crypto businesses are presently regulated, considering the current Turkish

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<sup>6</sup> In the US, the focus of the SEC has been whether stablecoins are to be regarded as securities and therefore subject to stringent requirements. The UK Financial Conduct Authority and Bank of England have consulted on plans to regulate stablecoins [110,112].

approach, as compared with the EU's MiCAR, and explaining why, we favour a more pluralistic and decentred approach to supplement a hard law approach.

### *6.1. Crypto regulation*

If considering regulation, one starting point, as identified by Black, is to consider where the market has failed to address risks and whether regulation can achieve what the market has not [118]. Prior to the revised crypto law there were examples of hard laws<sup>7</sup> [119] applicable in the crypto sector responding to specific risks, including money laundering regulations<sup>8</sup> [120] and macroprudential limitations placed on financial intermediaries, such as banks, to prevent cryptoassets bringing systemic risks<sup>9</sup> [121]. Attention in this latter respect has been driven at a global level by the Financial Stability Board, which adopted a functional approach in looking at crypto risks and applied an approach of “same activity, same risk, same regulation” [122], so that crypto, in particular stablecoins, which pose threats to financial stability will be considered closely. There are also laws such as the EU's Markets in Crypto Assets Regulation, MiCAR, noted previously. This is a harmonising instrument which will bring many aspects of crypto onto a regulated footing, in particular asset referenced tokens (referred to in this paper as stablecoins) and e-money tokens, which are to be subject to registration requirements and other registration requirements for cryptoasset service providers. As a complex regulatory instrument we briefly compare the MiCAR with the new Turkish law in the next part, focusing on their approaches to exchanges.

### *6.2. Turkish approach and brief comparisons with MiCAR*

As discussed above, a recent development in Turkish law considerably tightens up the regulation of exchanges and it does address some of the consumer protection issues discussed above. As previously outlined, exchanges are now required to register and are put on a similar regulatory footing to banks, with regulation and supervision by the Capital Markets Board, ‘CMB’. In this section we briefly highlight some strengths and weaknesses of the new Turkish law compared to MiCAR, as it applies to crypto asset service providers, ‘CASPs’. A more detailed comparison has been done by Demitras and Karatay [123]. One limitation to this part is that the Turkish law is much less detailed in many respects than MiCAR, including in relation to safeguarding and custody of client assets, governance and prudential requirements, addressed under articles 75, 68 and 67 respectively [113]. Notably, however, further regulatory details will be issued by the CMB [38]. In this regard, in September 2024, the CMB issued outlining guidelines for the issuance, distribution, trading, custody of cryptoassets, as well as rules regarding advertising and consumer fund protection [124]. Many further details are yet needed and it may be that some points identified below will be

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<sup>7</sup> There are also laws clarifying the status of cryptocurrencies for payment purposes [119].

<sup>8</sup> Money laundering aspects are addressed under Financial Action Task Force (FATF) Recommendation 41 report, which has been followed in Türkiye's Regulation [120].

<sup>9</sup> Regulations on Prohibiting Payments with Cryptoassets. This law prohibits licensed payment institutions and electronic money institutions from the direct or indirect use of cryptoassets. It therefore does not impose any restrictions against crypto exchange trading platforms using cryptoassets in their daily operations, nor does it restrict individual investors [121].



addressed in the same way later to bring it up to the level of detail of MiCAR. We focus on CASP regulation in this part, rather than MiCAR's approaches to stablecoins and e-money, since those do not feature in the Turkish law, nor can we consider every aspect in detail.

Both laws take a regulatory approach to CASPs based on licensing and authorization. MiCAR's authorisation requirements for CASPs, include varying minimum capital requirements under Annex IV, depending on the size of the CASP [113], as well as a stronger regime under article 85 for significant CASPs [113]. There are other requirements for stablecoin issuers and e-money issuers, under Articles 16 and 48 of MiCAR, which we do not discuss here [113]. The Turkish law under article 35/B requires CASPs, including trading platforms, custodians, transfer services and issuance platforms, to obtain licenses from the Capital Markets Board [38] It is also clear that the Turkish law is not a complete and detailed system in itself, as matters such as the minimum capital requirements for CASPs have been left under article 35/B(1) to secondary legislation [38]. Nor does the Turkish law follow the EU's approach of identifying significant CASPs. There are strict penalties under article 109/A for those who trade in cryptoassets whilst unauthorized [38], including under article 110/A(3) where activities are carried on after a license has been revoked [38]. There are also specifications under Article 35/B(2) as to information systems and regulation, which is a point of key importance for online businesses and is addressed by is addressed by The Scientific and Technological Research Council of Turkey, TUBITAK [38]. The requirements also apply to foreign CASPS, under article 35/B(1), which addresses a possible loophole [38], although enforcement may be a challenge.

In putting CASPS on a regulated footing the new Turkish law represents a strong consumer protection approach, addressing some of the issues that we highlighted above. The contractual terms that were noted above in Table 2 as broadly limiting CASP liability are no longer valid: article 35/C(1) [38]. There are rules under article 35/C(1) and (5) as to clear written contracts with customers and transactions being securely and accessibly recorded [38]. There are requirements under article 35/C(6) that crypto assets are either to be stored in the customer's own wallet or at a bank [38], under article 35/C(3) that steps to be taken in the event of price distortion [38], under article 35/C(7) there are requirements for segregation of customer cash, which will not be available to meet the claims of the CASP's creditors in the event of an insolvency [38], and there are audit requirements under article 99A(2)[38]. There are also failure prevention mechanisms under article 99A(2) and CMB can order the CASP to strengthen their financial structure if there is a risk of defaulting on liabilities [38]. Article 66 of MiCAR however provides greater clarity as to the information that is to be given to clients and warning about potential risks [113]. There is also a requirement in the new Turkish law under Article 35/C(1) for CASPS to establish effective internal complaints handling and dispute resolution procedures [38]. This provision is notably vague, however, and again lacks the detail that is provided in Article 71 of MiCAR [113].

The Turkish law arguably goes too far however in providing a wide potential for personal liability for those involved with the exchange, described by Demirtaş and Karatay as very strict [123]. It is unsurprising that CASPs are liable for losses resulting from illegal activities, and the individuals associated with the crypto exchanges may be held accountable for the

extent to which the damages can be attributed to them, considering their faults and the specific circumstances of the situation, but the same applies to an inability to pay debts, which may not be within the control of those running the CASP [38]. CASPs are also liable for losses arising from acts such as the operation of information systems, all kinds of cyber-attacks and information security violations and there is personal liability for employees where they are at fault [38].

The Turkish law goes beyond liability under MiCAR, which is more precise as to the scope of liabilities [113]. MiCAR in Title VI sets out anti money laundering, prudential and conduct requirements, as well as provisions against market abuse and insider trading, as well as actions that can lead to price manipulation. It is more detailed than the Turkish law in relation to these offences and associated liabilities. MiCAR also sets out enhanced requirements for significant cryptoasset service providers, which shows a more nuanced approach than under the Turkish law.

Potentially the Turkish approach to liability could deter innovative businesses from doing business in Türkiye, resulting in less choice. Inevitably there will also be greater administrative costs in running a regulated business, including annual fees [38], and a possible need for insurance to cover potential liabilities, so some firms may leave the market. In addition, there would not seem to be any policy need for a strong regulatory response to liability. As will be discussed, the approach presents a threat of reduced choice and damage to innovation and a pluralistic and decentred approach to regulation would have been preferable.

### *6.3. A pluralistic and decentred approach*

Our approach responds to the danger is that excessive regulation, in this case the broad potential scope for liability identified above, can potentially hamper the development of the Turkish crypto environment. New technologies are still in a state of development and a responsive regulatory approach is arguably preferable to enable the technology to develop without being stifled by strict regulation. In offering an alternative to traditional finance crypto investments are innovative and many can invest in these assets without great risk of financial precarity. Study One revealed that many Turkish users are finding that cryptoassets offer transactional convenience compared with traditional finance and similar benefits may be found in other emerging economies. These and other positive aspects of transactions without traditional intermediaries may develop further in ways that are unexpected. Lighter touch regulation can be a starting point with educational and advice-based approaches only being followed by escalating means of enforcement in the event of problems [125].

Taylor found that consumer behaviour inherently includes risk taking with uncertainty as to likely outcomes and consequences [126]. Many will invest manageable sums in cryptoassets, and our study has found that cryptoassets offer practical alternatives to banks and traditional assets. It is often only in cases of clear public risk, particularly health risks<sup>10</sup>, that consumer choice tends to be restricted for paternalistic reasons [130]. Indeed Lande notes

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<sup>10</sup> There can be restrictions on consumer choice in some societies based on morality, and we noted above Islamic scholarship considering a ban on crypto investments. We do not consider this aspect further here [127-129].

that regulation primarily strives to promote consumer choice to create a healthy market, so that worthwhile options are available to consumers to choose from [131], and cryptoassets can be regarded as potentially offering that as long as consumers are able to understand the choices before them as regards cryptoasset purchases. As we note, a broad scope of liability, as under the new law, could result in reduced consumer choice. Even if it drives away bad actors, good options could be lost.

A preferred policy objective is therefore to address expectation gaps through raising public understanding of cryptoassets, both through state and non-state actions, in order that risks can be more properly understood and assessed. This pluralistic soft-law informational and educational approach is preferred to a more market-interventionist regulatory approach, for several reasons. Firstly, as perceptively noted by Abbot, there are aspects of fast-moving technologies such as cryptoassets that may be difficult for state-led regulation to effectively address, that would be better addressed through blended regulation involving a variety of state and nonstate agencies [14]. State regulators can suffer from resource asymmetry as they tend to lack the specialist expertise that those in the industry have and therefore regulators may find it difficult to keep pace with fast moving industries<sup>11</sup> [132]. Therefore, even if there are clear policy objectives that underpin a hard law approach there is a danger that harder regulatory approaches can fail to address risks effectively, as there may be gaps, loopholes and aspects can become outdated, as the technology develops faster than a pace to which regulation can respond.

A related point is that regulatory choices may be regarded as endorsing some types of investment, even if they are not optimal. Shelanski also suggests that markets may evolve in ways that address risks [133]. For example an accreditation system for crypto exchanges could be offered by an independent body to provide assurance for customers that crypto service providers have reached and complied with good standards. Such an approach would inform customers and would be independent of whether governments have taken regulatory action.

There have also been arguments by Shetty [134] and by Kruger [135] regarding caution in regulating digital industries, for fear that it stifles innovation. A high regulatory approach would also be administratively burdensome to implement in emerging economies, potentially likely to go out of date at a faster pace than it can be revised, as well as potentially resulting in regulatory arbitrage that can harm consumer choice, as discussed by Draganidis [136]. In any case consumers may find other options through VPN usage and this is another reason to favour an educational approach. The new Turkish law does apply to foreign CASPs offering services in Turkiye but, as we have noted, there may be difficulties in enforcing this approach.

There might be some scepticism as to an informational approach, and we have previously noted studies of how consumers tend not to be rational decision makers. Although we examined terms of service and found significant limitations of liability in Table 2, a point addressed under the new law, we do not focus on improvements in the contents of terms as a means of improving consumer information. Whilst the terms can be of importance in the event of a failure of a crypto firm, in disclosing risks and establishing rights of the consumer,

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<sup>11</sup> In some areas this asymmetry can be addressed by information sharing between firms and regulators.

they are not suitable to address information needs [137]. Typically, terms are too long and technical for consumers. There can be better approaches to an informational response, however.

Our favoured approach is a blended one as the informational aspect is arguably also the responsibility of crypto businesses as they may find that their business prospects are enhanced by informed consumers who are less prone to fall for hype and scams. In an adaptation of the ‘technology acceptance’ model to cryptoassets Shahzad et al identify the development of deeper knowledge of cryptoassets as a necessary step for those who are interested in promoting cryptoassets [138]. Primarily the task of informing the consumer can therefore be for crypto service providers as part of their building of business and there are many which already do promote consumer awareness through offering foundational guidance on cryptoassets and crypto businesses [139,140]. It is arguably in the interests of other crypto businesses and financial institutions to do more to highlight risks and enable customers to understand them, with other roles to be played by policymakers and educators.

## **7. Limitations of this study**

Study One was based on interviews in Istanbul with industry professionals and individuals who have purchased cryptoassets. The sample size was relatively small given the resources available to the project and a greater number of interviewees and a greater range, including users in other parts of Türkiye would preferably have been used. Study Two examined the terms and conditions of ten exchanges and this represents the main exchanges by trading volume in Türkiye. Both studies were carried out before the new crypto law was introduced but are of value as a snapshot of consumer behaviour before the revised law and it would preferably be followed up later to examine the impact of this law, combined with a quantitative study.

## **8. Conclusion**

This paper has shed light on approaches to cryptoasset investments in Türkiye, identifying expectation gaps that can influence investments by consumers. It has identified dangers of rash investments prompted by survivorship bias, as well as misunderstandings of stablecoins, although noting that there are also many other possible influences. These types of investment are often poorly understood by consumers, leading to expectation gaps. Consumers can be misled as to the protections available if things go wrong with cryptoasset investments, believing that the protections are the same as in relation to other financial investments. Crypto exchanges in Türkiye at the time of the study did little to warn of the risks and they took a broad approach to limit their liability and excuse non-performance with wide force majeure clauses. The amended Capital Markets Law addresses some of the expectation gaps but generally lacks the detail and complex development of the EU’s MiCAR. We have demonstrated how many of the issues identified in this article can be addressed under consumer education approaches and crypto service providers have a part to play in this. Providing consumer education in a pluralistic and decentred way would complement regulatory efforts and mitigate misleading marketing and information asymmetry. Tightening

up of the law to bring the regulation of cryptoassets investments alongside the framework for banks, including a severe approach to liability, has arguably gone beyond what is needed.

The authors of this research paper hope that this study has successfully addressed the key expectation gaps identified and that the analysis provided stimulates further research into related issues which have not been discussed or to apply methodology which has not utilised for this article. This research links crypto adoption with the traditional saving preferences of Turkish consumers, providing valuable insights into how cultural and economic factors influence consumer behaviour from the perspective of an emerging economy. Further studies on cryptoassets and consumer protection might look further afield to other emerging economies where cryptocurrency adoption rates are also high and to employ a comparative approach to better understand factors influencing crypto consumers behaviours. The transferability of the research findings could be enhanced by extending the sample interviews with more diverse crypto consumers from different countries.

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### **Conflicts of interests**

The authors declare no conflicts of interest.

### **Ethical statement**

For this study, ethical approval was granted by the research ethics panel members of the School of Business, Law, and Social Sciences Research Ethics Committee of the Nottingham Trent University on 17 December 2021. Before the semi-structured elite interviews were carried out, a participant information sheet (in English and Turkish) explaining the project, participant's right to anonymity, how the data would be stored and offering participants the right to withdraw using their unique ID at any time within the six months following the interviews. Prior to the semi-structured interviews being carried out, research project information and consent forms were also provided to each interviewee to obtain their permission to be contacted for follow-up interviews within the grant period and for the information obtained from them to be retained and reused in the future. The details of the participant consent form were read aloud and explained to each participant by the researcher who conducted the interviews. Each of the respondents of the interviews was required to sign each section of the form in order to ascertain that they were taking part in the research of their own free will. The researchers also informed the participants that the findings of this research could be sent to them if they wished after the completion of the research project. The interviews did not cause distress or any harm to interview participants, whether physically, emotionally, or psychologically. Those used as sources for points appear in the References list below. A full list of respondents is available upon request.

## Authors' contribution

Conceptualization, Rebecca Parry and Hakan Sahin; methodology, Rebecca Parry and Hakan Sahin; software, Rebecca Parry and Hakan Sahin; formal analysis, Rebecca Parry and Hakan Sahin.; investigation, Rebecca Parry and Hakan Sahin; Rebecca Parry and Hakan Sahin; writing—original draft preparation, Rebecca Parry and Hakan Sahin.; writing—review and editing, Rebecca Parry and Hakan Sahin. All authors have read and agreed to the published version of the manuscript.

## References

- [1] Vincent O, Evans O. Can cryptocurrency, mobile phones, and internet herald sustainable financial sector development in emerging markets? *J. Transnatl. Manag.* 2019, 24(3):259–279.
- [2] Visa Global and Fintech Group White Paper. The Crypto Phenomenon 2022: Consumer Attitudes & Usage. 2022. Available: <https://usa.visa.com/content/dam/VCOM/regional/na/us/Solutions/documents/visa-cryptocurrency-a-and-u-2022-final-white-paper.pdf> (accessed on 13 December 2024).
- [3] Bruce K, Odinet CK, Tosato A. The private law of stablecoins. *Ariz. St. LJ.* 2022, 54:1073.
- [4] Li S. Beyond Consumer Protection: Standardized Stablecoins Disclosure as Information Infrastructure. *J. Int'l L.* 2022, 48: 616–671.
- [5] Testimonies of consumers who had lost life savings In re Voyager Digital Holdings, Inc., No. Chapter 11, 2022 BL 393913 (Bankr. S.D.N.Y. July 20, 2022).
- [6] Sigalos MK. Voyager Customer Lost \$1 Million Saved Over 24 years and is One of Many Now Desperate to Recoup Funds. 2022. Available: <https://www.cnn.com/2022/08/15/voyager-customers-beg-new-york-judge-for-money-back-after-bankruptcy.html> (accessed on 3 May 2023).
- [7] Voyager UCC Town Hall. 2022. Available: <https://www.youtube.com/watch?v=ZLk4qsLpPck> (accessed on 3 May 2023).
- [8] Ballis A, Verousis T. Behavioural finance and cryptocurrencies. *Rev. Behav. Finance* 2022, 14(4):545–562.
- [9] Friederich F, Meyer JH, Matute J, Palau - Saumell R. CRYPTO - MANIA: How fear - of - missing - out drives consumers' (risky) investment decisions. *Psychol. Mark.* 2024, 41(1):102 - 117.
- [10] Financial Action Taskforce guidance on 'Virtual Assets' (Financial Action Task Force). 2023. Available: <https://www.fatf-gafi.org/en/publications/Virtualassets/Virtual-assets.html> (accessed on 3 May 2023).
- [11] Financial Conduct Authority, PS23/6: Financial promotion rules for cryptoassets. 2023. Available: <https://www.fca.org.uk/news/press-releases/fca-introduces-tough-new-rules-marketing-cryptoassets> (accessed on 3 May 2023).
- [12] Advertising Standards Council of India. ASCI frames guidelines for advertising and promotion of virtual digital assets and services. 2022. Available: <https://www.ascionline.in/wp-content/uploads/2022/09/vda-guidelines-press-release-feb-23.pdf> (accessed on 16 August 2024).
- [13] Trubnikov D. Analysing the impact of regulation on disruptive innovations: The case of wireless technology. *J. Ind. Compet. Trade* 2017, 17:399–420.
- [14] Abbot C. Bridging the gap - non - state actors and the challenges of regulating new technology. *J. Law Soc.* 2012, 39(3):329 - 358.
- [15] Ostroff C, Malvin H, Malsin J. Turks Buy Crypto to Flee the Lira. 2022. Available:



- <https://www.wsj.com/articles/turks-pile-into-bitcoin-and-tether-to-escape-plunging-lira-11641982077> (accessed on 2 May 2023).
- [16] Michaelson R. Tales from the crypto: lira crisis fuels Bitcoin boom in Turkey. 2022. Available: <https://www.theguardian.com/business/2022/jan/21/tales-from-the-crypto-lira-crisis-fuels-bitcoin-boom-in-turkey> (accessed on 2 May 2023).
- [17] Clyne H. Cryptocurrencies and Bitcoin Surge Help Mitigate Floundering Turkish Economy. 2022. Available: <https://www.newarab.com/features/cryptocurrencies-help-mitigate-floundering-turkish-economy> (accessed on 2 May 2023).
- [18] The World Bank in Türkiye. 2022. Available: <https://www.worldbank.org/en/country/turkey/overview> (accessed on 24th November 2022).
- [19] Levaggi AG. Turkey and Latin America: A new horizon for a strategic relationship. *Percept. J. Int. Aff.* 2013, 18(4):99–116.
- [20] Taskinsoy J. A Hiccup in Turkey’s Prolonged Credit Fueled Economic Transition: A Comparative Analysis of Before and After the August Rout. 2019. Available: <https://ssrn.com/abstract=3431079> (accessed on 2 May 2023).
- [21] Turkey Inflation Rate. 2024. Available: <https://tradingeconomics.com/turkey/inflation-cpi> (accessed on 16 August 2024).
- [22] Askew J. Soaring Inflation and A Collapsing Currency: Why is Turkey’s Economy in Such a Mess? 2022. Available: <https://www.euronews.com/2022/11/09/everything-is-overheating-why-is-turkeys-economy-in-such-a-mess?> (accessed on 24 November 2022).
- [23] Sabga P. Why is Turkey’s Lira Crashing and Will Currency Crisis Worsen? Available: <https://www.aljazeera.com/economy/2021/12/1/turkey-lira-crashing-will-currency-crisis-worsen> (accessed on 24 November 2022).
- [24] Consumer Price Index. 2021. Available: <https://www.tcmb.gov.tr/wps/wcm/connect/EN/TCMB+EN/Main+Menu/Statistics/Inflation+Data/Consumer+Prices> (accessed on 24 November 2022).
- [25] How Turkey Puts “Under the Pillow” to Gold Work. 2015. Available: <https://www.americanbullion.com/how-turkey-puts-under-the-pillow-gold-to-work/> (accessed on 14 June 2023).
- [26] Cansunar A. Cultural Differences in Household Savings. 2019. Available: <https://wealthpol.web.ox.ac.uk/article/wealthblog-cultural-differences-household-savings> (accessed on 14 June 2023).
- [27] Friederich F, Meyer JH, Matute J, Palau - Saumell R. CRYPTO - MANIA: How fear - of - missing - out drives consumers’ (risky) investment decisions. *Psychol. Mark.* 2024, 41(1):102 - 117.
- [28] Kale S. I Put My Life Savings in Crypto’: How a Generation of Amateurs got Hooked on High-Risk Trading. *The Guardian*, 2021. Available: <https://www.theguardian.com/lifeandstyle/2021/jun/19/life-savings-in-crypto-generation-of-amateurs-hooked-on-high-risk-trading> (accessed on 14 June 2023).
- [29] Hendley S. My Husband Bought Cryptocurrency with My Kid's Savings. 2021. Available: <https://www.kidspot.com.au/lifestyle/money/my-husband-bought-cryptocurrency-with-my-kids-savings/news-story/15cb565505ffc94a86e2f28c12a33165> (accessed on 16 August 2024).
- [30] Atagün Z. Harclik Bile Kriptoya! Herseyini Kaybeden Ogrenciler Var... 2021. Available: <https://www.hurriyet.com.tr/galeri-harclik-bile-kriptoya-her-seyini-kaybeden-ogrenciler-var-41932405> (accessed on 5 April 2023).
- [31] Aubert D. What’s Behind Turkey’s Booming Crypto Market. 2024. Available: <https://research.kaiko.com/insights/whats-behind-turkeys-booming-crypto-market> (accessed on 11 December 2024).
- [32] Paribu. Cryptocurrency Awareness and Perception Survey. 2024. Available: [https://www.paribu.com/blog/wp-content/uploads/2024/10/2024\\_Cryptocurrency\\_Awareness](https://www.paribu.com/blog/wp-content/uploads/2024/10/2024_Cryptocurrency_Awareness)

- \_and\_Perception\_Survey.pdf (accessed on 11 December 2024).
- [33] Alloy by Tether uses gold reserves. 2024. Available: <https://tether.io/news/tether-announces-launch-of-alloy-by-tether-a-new-digital-asset-backed-by-tether-gold/> (accessed on 14 June 2024).
- [34] Parker E. ‘Basically a Savior’: Why Crypto Is So Popular in Turkey. 2022, Available: <https://www.coindesk.com/layer2/2022/10/25/turkey-cryptocurrency-explained/> (accessed on 16 August 2024).
- [35] Aju M, Burrell T. Financial Conduct Authority Research Note: Cryptoassets Consumer Research 2023 (Wave 4). 2023. Available: <https://www.fca.org.uk/publication/research-notes/research-note-cryptoasset-consumer-research-2023-wave4.pdf> (accessed on 16 August 2024).
- [36] Aubert D. What’s Behind Turkey’s Booming Crypto Market. 2024. Available: <https://research.kaiko.com/insights/whats-behind-turkeys-booming-crypto-market> (accessed on 11 December 2024).
- [37] Law No. 7518 on the Amendment of the Capital Markets Law, Official Gazette, No. 32590. 2024. Available: <https://www.resmigazete.gov.tr/eskiler/2024/07/20240702.pdf> (accessed on 10 December 2024).
- [38] Capital Markets Law, Law No. 6362, as amended by Law 7518. Available: <https://www.resmigazete.gov.tr/eskiler/2024/07/20240702-1.htm> accessed 30 December 2024
- [39] Winnowicz K, Au CD, Stein D. Regulation of Cryptocurrencies in the European Union-Impact of European Regulation Notification on the Cryptocurrency Market. In *4th International Conference on Applied Research in Business, Management and Economics*, Prague, Czech Republic, 18 – 20 March 2022.
- [40] Benson V, Adamyk B, Chinnaswamy A, Adamyk O. Harmonising cryptocurrency regulation in Europe: opportunities for preventing illicit transactions. *Eur. J. Law Econ.* 2024, 57(1):37–61.
- [41] Kokorin I. Crypto Insolvencies and the Limits of a Contract and Contract Law. *Eur. Rev. Priv. Law* 2023, 31(6):1245–1272.
- [42] Haentjens M, De Graaf T, Kokorin I. The failed hopes of disintermediation: Cryptocustodian insolvency, legal risks and how to avoid them. *Sing. J. Leg. Stud.* 2020:526–563.
- [43] Zetzsche DA, Nikolakopoulou A. Crypto Custody and Crypto Wallets—An Empirical Assessment. 2024. Available: <https://ssrn.com/abstract=4769396> or <http://dx.doi.org/10.2139/ssrn.4769396> (accessed on 10 December 2024).
- [44] Alekseenko AP. Model Framework for Consumer Protection and Crypto-Exchanges Regulation. *J. Risk Financial Manag.* 2023, 16(7):305.
- [45] Sancak IE. 2023. *Protection of Portfolios and Financial Consumers from Cryptoasset Frauds*. Baker K, Benedetti H, Nikbakht E, Smith SS, Eds. *The Emerald Handbook on Cryptoassets: Investment Opportunities and Challenges*. Bingley: Emerald Publishing Limited, 2023, pp. 199–215.
- [46] Arner DW, Auer R, Frost J. Stablecoins: Risks, Potential and Regulation. 2020. Available: <https://ssrn.com/abstract=3979495> (accessed on 10 December 2024).
- [47] Martino ED. Regulating Stablecoins as Private Money between Liquidity and Safety: The Case of the EU ‘Market in Crypto Asset’ (MiCA) Regulation. (Amsterdam Law School Legal Studies research paper; No. 2022-22), (Amsterdam Centre for Law & Economics working paper; No. 2022-07). Available: <https://doi.org/10.2139/ssrn.4203885> (accessed on 10 December 2024).
- [48] Shi Z, He W, Liu J. On the Legislation Prospective for Consumer Protection of Stablecoin. In *Proceedings of the 2021 IEEE International Conference on Blockchain*, Melbourne, Australia, 2021, pp. 205–212.
- [49] Kahneman D. *Thinking Fast and Slow*. London: Penguin Books, 2012.
- [50] Gurdgiev C, O’Loughlin D. Herding and anchoring in cryptocurrency markets: Investor reaction to fear and uncertainty. *J. Behav. Exp. Financ.* 2020, 25:100271.
- [51] Kraaijeveld O, De Smedt J. The predictive power of public Twitter sentiment for forecasting cryptocurrency prices. *J. Int. Financ. Mark. Inst. Money* 2020, 65:101188.

- [52] Poongodi M, Nguyen TN, Hamdi M, Cengiz K. Global cryptocurrency trend prediction using social media. *Inf. Process. Manag.* 2021, 58(6):102708.
- [53] Naeem MA, Mbarki I, Suleman MT, Vo XV, Shahzad SJ. Does Twitter happiness sentiment predict cryptocurrency? *Int. Rev. Financ.* 2021, 21(4):1529–1538.
- [54] Caferra R. Good vibes only: The crypto-optimistic behavior. *J. Behav. Exp. Financ.* 2020, 28:100407.
- [55] Al-Mansour BY. Cryptocurrency market: Behavioral finance perspective. *J. Asian Financ. Econ. Bus.* 2020, 7(12):159–168.
- [56] Financial Conduct Authority. Cryptoassets consumer research 2024 (wave 5). 2024. Available: <https://www.fca.org.uk/publications/research/research-note-cryptoassets-consumer-research-2024> (accessed on 12 December 2024).
- [57] Leavy P. *Research design: Quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches*, 2nd eds. New York: Guilford Press, 2022.
- [58] LoPucki LM. Disciplining Legal Scholarship. *Tul Law Rev.* 2015, 90:26–30.
- [59] Adams WC. Conducting Semi-Structured Interviews. Chapter In *Handbook of Practical Programme Evaluation*, 4th ed. New Jersey: Wiley & Sons, 2015, p. 493.
- [60] Pappalardo JK. Product literacy and the economics of consumer protection policy. *J. Consum. Aff.* 2012, 46(2):319–332.
- [61] Liggio CD. The Expectation Gap: The Accountant's Legal Waterloo? *The CPA (pre-1986)*. 1975, 45(000007):23.
- [62] Chye Koh H, Woo ES. The expectation gap in auditing. *Manag. Audit. J.* 1998, 13(3):147–154.
- [63] von Meyer-Höfer M, Nitzko S, Spiller A. Is there an expectation gap? Consumers' expectations towards organic: An exploratory survey in mature and emerging European organic food markets. *Br. Food J.* 2015, 117(5):1527–1546.
- [64] Competition and Markets Authority. Green Claims Code. Available: <https://greenclaims.campaign.gov.uk/> (accessed on 12 December 2024).
- [65] Competition and Markets Authority. Making Environmental Claims on Goods and Services. 2021. Available: <https://www.gov.uk/government/publications/green-claims-code-making-environmental-claims/environmental-claims-on-goods-and-services> (accessed on 20 August 2024).
- [66] Advertising Standards Authority. Greenspeaking with Confidence. 2023. Available: <https://www.asa.org.uk/news/greenspeaking-with-confidence.html> (accessed on 20 August 2024).
- [67] Yousfi O, Elkateb M. Greenwashing: energy companies make false claims about sustainability—they should be held to account. 2023. Available: <https://hal.science/hal-04687539/> (accessed on 20 August 2024).
- [68] Moffatt P, Skauradszun D. The Jam in the Sandwich – the European Insolvency Regulation's strengths and shortcomings in a crypto-asset market. Ghio E, Vaccari E, Eds. *The Perpetual Renewal of European Insolvency Law: Papers from the INSOL Europe Academic Forum Conference*. Amsterdam, Netherlands, 11–12 October 2023, pp. 65, 67.
- [69] Coverage and Limit of Deposit Insurance. Available: <https://www.tmsf.org.tr/en/Tmsf/Mevduat/mevduat.kapsam.en> (accessed on 20 August 2024).
- [70] Hadfield GK, Howse R, Trebilcock MJ. Information-based principles for rethinking consumer protection policy. *J. Consum. Policy* 1998, 21(2):131–169.
- [71] Respondent 20, a crypto investor and goldsmith in Istanbul Grand Bazaar, interviewed on 8 May 2022. Anonymity guaranteed.
- [72] Dale B, Salmon F. FTX's terms-of-service forbid trading with customer funds. 2022. Available: <https://www.axios.com/2022/11/12/ftx-terms-service-trading-customer-funds> (accessed on 22 August 2022).
- [73] Bjerre CS, Rocks SM, Smith EE, Weise SO. Missing an Opportunity: Cryptocurrency Exchanges and Their Customers should consider using Article 8. 2023. Available: [https://www.americanbar.org/groups/business\\_law/resources/business-law-today/2023-april/missing-opportunity-cryptocurrency-exchanges-their-customers/](https://www.americanbar.org/groups/business_law/resources/business-law-today/2023-april/missing-opportunity-cryptocurrency-exchanges-their-customers/) (accessed on 20 July 2024).
- [74] Bank for International Settlements. The crypto ecosystem: key elements and risks. 2023. Available: <https://www.bis.org/publ/othp72.pdf> (accessed on 8 May 2024).

- [75] FTX Super Bowl Don't Miss Out with Larry. Available: <https://www.youtube.com/watch?v=hWMnbJJpeZc> (accessed on 21 May 2024).
- [76] Godoy J. FTX celebrity promoters say crypto investors cannot sue over accounts. Available: <https://www.reuters.com/legal/ftx-celebrity-promoters-say-crypto-investors-cannot-sue-over-accounts-2023-04-17/> (accessed on 21 May 2024).
- [77] Savings Deposit Insurance Fund. Available: <https://www.tmsf.org.tr/en/Default/Index>, (accessed on 11 December 2024).
- [78] Financial Services Compensation Scheme. Available: <https://www.fscs.org.uk/what-we-cover/investments/> and compare the next source.
- [79] Financial Services Compensation Scheme, 'Five things to consider about cryptoassets' 11 May 2023, <https://www.fscs.org.uk/news/protection/cryptocurrencies-risk-cover/> (accessed on 21 May 2024).
- [80] Fang V, FTX Bankruptcy—A Failure of Centralized Governance in the Name of Decentralized Cryptocurrencies. 2023. Available: <https://bankruptcyroundtable.law.harvard.edu/2023/02/28/crypto-bankruptcy-series-ftx-bankruptcy-a-failure-of-centralized-governance-in-the-name-of-decentralized-cryptocurrencies/> (accessed on 21 August 2024).
- [81] Martineau P. Inside the Group Chats Where People Pump and Dump Cryptocurrency. 2018. Available: <https://theoutline.com/post/3074/inside-the-group-chats-where-people-pump-and-dump-cryptocurrency> (accessed on 11 December 2024).
- [82] Merkley KJ, Pacelli J, Piorkowski M, Williams B. Crypto-influencers. *Rev. Acc. Stud.* 2024, 9: 2254–2297.
- [83] Reedsmit Client Alerts. Cryptoasset platforms and arbitration: more lessons from the New York courts. 2024. Available: <https://www.reedsmit.com/en/perspectives/2024/04/crypto-asset-platforms-and-arbitration-more-lessons> (accessed on 16 August 2024).
- [84] Brown S. Arbitration of Cryptoasset and Smart Contract Disputes: Arbitration Unchained? 2023. Available: <https://www.cliffordchance.com/content/dam/cliffordchance/briefings/2023/08/arbitration-of-cryptoasset-and-smart-contract.pdf> (accessed on 16 August 2024).
- [85] Article 8—Settlement of Dispute clause in the user agreement of Bitci Türkiye. Available: <https://www.bitci.com.tr/en/page/legals/user-agreement> (accessed on 16 August 2024).
- [86] Article 6—Applicable law and the competent judicial authority of Bitexen user agreement.
- [87] Article 15—Applicable law and Dispute resolution clause of the BTC Turk user agreement. Available: <https://kripto.btcturk.com/en/legal-information/terms-of-use> (accessed on 16 August 2024).
- [88] Article 11—Governing Law and Dispute Resolution clause of Binance Türkiye. Available: <https://www.trbinance.com/en/agreement> (accessed on 16 August 2024).
- [89] Gate TR's Disclaimer and Risk Reminder section 13. Available: [https://www.gate.com.tr/docs/Gate\\_turkey\\_new\\_agreement\\_en.pdf?v=1688443942](https://www.gate.com.tr/docs/Gate_turkey_new_agreement_en.pdf?v=1688443942) (accessed on 20 July 2024).
- [89] ICRYPEX's White Paper's Risk disclaimer section at page 5.
- [90] Section 7 in the user agreement of Gate TR. Available: [https://www.gate.com.tr/docs/Gate\\_turkey\\_new\\_agreement\\_en.pdf?v=1688443942](https://www.gate.com.tr/docs/Gate_turkey_new_agreement_en.pdf?v=1688443942) (accessed on 16 August 2024).
- [91] Ghosh S. In Crypto World, the hacker is God. 2024. Available: <https://economictimes.indiatimes.com/tech/tech-bytes/in-crypto-world-the-hacker-is-god/articleshow/112084619.cms?from=mdr> (accessed on 16 August 2024).
- [92] Regulation (EU) 2022/2554 of the European Parliament and of the Council of 14 December 2022 on digital operational resilience for the financial sector.
- [93] Kirman S. Technical Regulation of the Crypto Asset Ecosystem in Turkey. 2024. Available: <https://coincub.com/technical-regulation-of-the-crypto-asset-ecosystem-in-turkey/> (accessed on 13 December 2024).
- [94] El Menshawy A. An assessment of the potential for legal redress for systematic errors in unpermissioned blockchain technology under English law. 2023. Available: <https://irep.ntu.ac.uk/id/eprint/49822/> (accessed on 13 December 2024).
- [95] Law Commission. Decentralised Autonomous Organisations (DAOs) A Scoping Paper. 2024. Available: <https://lawcom.gov.uk/document/decentralised-autonomous-organisations-scoping-paper/> (accessed on 13 December 2024).
- [96] Respondent 6, a lawyer in Istanbul interviewed on 10 January 2022. Anonymity guaranteed.
- [97] Ozili PK. Decentralized finance research and developments around the world. *J. Bank.*



- Financ. Technol.* 2022, 6(2):117–133.
- [98] Cornelli G, Doerr S, Frost J, Gambacorta L. Crypto Shocks and Retail Losses. 2023 Available: <https://www.bis.org/publ/bisbull69.pdf> (accessed on 9 May 2024).
- [99] Miller B. How ‘survivorship bias’ can cause you to make mistakes. Available: <https://www.bbc.com/worklife/article/20200827-how-survivorship-bias-can-cause-you-to-make-mistakes> (accessed on 12 July 2023).
- [100] Kengatharan L, Kengatharan N. The Influence of Behavioural Factors in Making Investment Decisions and Performance: Study on Investors of Colombo Stock Exchange, Sri Lanka’. *Asian J. Financ. Account.* 2014, 6(1):1–10.
- [101] Respondent 8, Deniz Unay, a technology journalist in Istanbul interviewed via Microsoft Teams on 20 June 2022. Anonymity waived.
- [102] According to the website: <https://global.bitexen.com/help/risk-statement> when accessed in July 2024
- [103] Bitci Overview. 2018. Available: <https://pitchbook.com/profiles/company/509457-61#overview> (accessed on 16 July 2024).
- [104] Respondent 7, a lawyer in Ankara interviewed via Microsoft Teams on 3 June 2022. Anonymity guaranteed.
- [105] Bakos Y, Marotta-Wurgler F, Trossen DR. Does anyone read the fine print? Consumer attention to standard-form contracts. *J. Leg. Stud.* 2014, 43(1):1–35.
- [106] Briola A, Vidal-Tomás D, Wang Y, Aste T. Anatomy of a Stablecoin’s failure: The Terra-Luna case. *Fin. Res. Lett.* 2023, 51:103358.
- [107] Mapping Grey Areas in International Legal Approaches to The Failure of Crypto Firms. AHRC Grant Ref: AH/Y006674/1. Available: [www.crypto-insolvencies.com](http://www.crypto-insolvencies.com) (accessed on 16 July 2024).
- [108] Backpack Exchange. Risk Disclosures. 2023. Available: <https://support.backpack.exchange/en/articles/484545> (accessed on 16 May 2024).
- [109] Hotcoin’s User Agreement. 2019. Available: <https://www.hotcoin.com/support/article?code=11675574997487617>. Upbit Global. Terms of Use. Available: [https://sg.upbit.com/terms\\_of\\_service](https://sg.upbit.com/terms_of_service) (accessed on 8 January 2024).
- [110] Financial Conduct Authority. DP23/4: Regulating cryptoassets Phase 1: Stablecoins. 2023.
- [111] Respondent 18, a crypto investor and diamond merchant in Istanbul Grand Bazaar, interviewed on 8 May 2022.
- [112] Bank of England. Regulatory regime for systemic payment systems using stablecoins and related service providers. 2023.
- [113] Regulation of the European Parliament and of the Council on Markets in Crypto-assets, ‘MiCAR’, COM/2020/593 final, Arts 3(6) and 3(7).
- [114] Crippa M, Janssens-Maenhout G, Guizzardi D, Galmarini S. EU effect: Exporting emission standards for vehicles through the global market economy. *J. Environ. Manag.* 2016, 183:959–971.
- [115] Ius Laboris. The Impact of the GDPR Outside the EU. 2019. Available: <https://www.lexology.com/library/detail.aspx?g=872b3db5-45d3-4ba3-bda4-3166a075d02f> (accessed on 28 August 2024).
- [116] MiCAR, Article 47.
- [117] Scatena J. He Emptied an Entire Crypto Exchange Onto a Thumb Drive. Then He Disappeared. 2024. Available: <https://www.wired.com/story/faruk-ozler-turkey-crypto-fraud/> (accessed on 16 December 2024).
- [118] Black J. *The Role of Risk in Regulatory Processes*. Baldwin R, Cave M, Lodge M, Eds. The Oxford Handbook of Regulation. Oxford: Oxford University Press, 2010.
- [119] See Law no. 6493 on Payment Securities Settlement Stem, Payment Services and Electronic Money Institutions (2013).
- [120] Regulation Amending the Regulation on Measures Regarding Prevention of Laundering Proceeds of Crime and Financing Terrorism, which entered into force in May 2021.
- [121] The Central Bank of the Republic of Türkiye issued the Regulations on Prohibiting Payments with Cryptoassets, which came into force on Friday, 30th April 2021 after their publication in the Official Gazette.
- [122] Financial Stability Board. FSB Global Regulatory Framework for Crypto-Asset Activities Umbrella public note to accompany final framework. 2023. Available: <https://www.fsb.org/wp-content/uploads/P170723-1.pdf> (accessed on 11 April 2024).

- [123] Demirtaş A, Karatay E. Türkiye's Regulation Path on Crypto Assets: Brief Comparison Between New Turkish Law and MiCAR. *Int. J. Blockchain Law* 2024, 9:9–13.
- [124] Capital Markets Board Principal Decision No. 1484. 2024. Available: <https://spk.gov.tr/data/66ec7a468f95db223cb0e1a1/2024-48.pdf> (accessed on 9 December 2024).
- [125] Ayres I, Braithwaite J. *Responsive Regulation: Transcending the Deregulation Debate*, Oxford: Oxford University Press, 1992.
- [126] Taylor JW. The role of risk in consumer behavior: A comprehensive and operational theory of risk taking in consumer behavior. *J. Mark.* 1974, 38(2):54–60.
- [127] Polas MR, Muhibbullah M, Bhattacharjee A. Is bitcoin halal or haram in the Islamic banking and finance? An overview. *J. Econ. Bus. Mark. Res.* 2020, 1(2): 101-102.
- [128] Asif S. The Halal and Haram Aspect of Cryptocurrencies in Islam. *J. Isl. Bank. Finance* 2018, 35(2):91–101;
- [129] Evans CW. Bitcoin in Islamic banking and finance. *J. Isl. Bank. Finance* 2015, 3(1):1–11.
- [130] Hodge Jr JG, Scanlon M. The Legal Anatomy of Product Bans to Protect the Public's Health. *Annals Health L.* 2014, 23:20.
- [131] Lande RH. Consumer choice as the ultimate goal of antitrust. *U. Pitt. L. Rev.* 2000, 62:503.
- [132] US Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence, (October 30, 2023) 5.2(d)(3).
- [133] Shelanski HA. Information, innovation, and competition policy for the Internet. *U. Pa. L. Rev.* 2012, 161:1663–1706.
- [134] Shetty A. Regulating Cryptocurrencies: Balancing Innovation and Financial Security. *Jus Corpus Law J.* 2022, 3:197.
- [135] Kuegler AJ. Cryptocurrency and the SEC: How a Piecemeal Approach to Regulating New Technology Selectively Stifles Innovation. *Conn. L. Rev.* 2020, 52:989.
- [136] Draganidis S. Jurisdictional arbitrage: combatting an inevitable by-product of cryptoasset regulation. *J. Financ. Regul. Compli.* 2023, 31(2):170–185.
- [137] Ben-Shahar O, Schneider CE. The Failure of Mandated Discourse. *U. Pa. L. Rev.* 2011, 159:647.
- [138] Shahzad MF, Xu S, Lim WM, Hasnain MF, Nusrat S. Cryptocurrency awareness, acceptance, and adoption: the role of trust as a cornerstone. *Humanit. Soc. Sci. Commun.* 2024, 11(1):1–4.
- [139] Coinbase's explanation of different cryptoassets and risks: Coinbase, Asset Category Overviews. Available: <https://www.coinbase.com/en-gb/asset-risks> (accessed on 12 August 2024).
- [140] Kraken's Learn Centre. Available: <https://www.kraken.com/learn> (accessed on 12 August 2024).