



FUTURE OF FINANCE

Priorities, projects and barriers in digital assets



Future of Finance has one overriding goal. It is to host meetings (at the moment virtual meetings) that bring together long-established members of the financial services industry (banks, brokers, asset managers, insurers, financial market infrastructures) with entrepreneurs (challenger banks, technology companies and FinTechs) and market authorities (central banks, regulators and policymakers) to explore how the financial services industry can grow faster by being more open, more innovative and more trustworthy. Education is a crucial component of that mission and Future of Finance Research exists to share information and ideas with incumbents, entrepreneurs and regulators

Table of Contents

1.0 Summary	04
2.0 Introduction	08
3.0 Status	10
4.0 Priorities	16
5.0 Services	24
6.0 Barriers	30
7.0 Conclusion	40

Methodology

The poll was conducted during a period in which the cryptocurrency and Decentralised Finance (DeFi) markets experienced substantial loss of value for the first time since 2018. Respondents were invited to complete a seven-question multiple choice questionnaire. It asked respondents to characterise their institution, locate themselves in the region that was most valuable to them, assess the maturity of their digital asset strategy and itemise their digital asset priorities and use-cases.

The questionnaire also asked respondents to assess what they see as the most significant obstacles to progress in the adoption of digital assets and to describe what they see as the major regulatory constraints on the growth of the digital asset markets.

6,500 invitations to respond were issued and 137 responses were received, of which 122 were complete and useable. They were drawn from 118 unique individuals and organisations around the world in 13 sectors. More than half the respondents were based in EMEA (56.20 per cent of the total), nearly a third in the Americas (30.58 per cent) and the balance (13.22 per cent) in APAC.

1.0

Summary

Introduction

A poll of established financial institutions, FinTechs, technology vendors and independent entrepreneurs, advisers and investors was conducted to assess the current status of digital asset investments, priorities and services, and to identify the obstacles to success.

Status

Engagement with digital assets by established financial institutions, technology vendors and FinTechs is broad. Less than one respondent in 20 has no plans to support or invest in digital assets, though their number includes some unexpected types of organisations.

The depth of engagement varies. More than half the respondents have a client-facing service in hand; two thirds have taken part in at least a Proof of Concept (PoC); and more than 95 per cent are at least at the

planning stage.

Predictably, the respondents most advanced in digital asset investments are crypto-currency brokers and custodians and blockchain technology vendors. The least advanced include asset and wealth managers and - surprisingly, given the threat posed by tokens - central securities depositories (CSDs).

Priorities

Digital asset class priorities vary by the type of respondent. Predictably, crypto-currency brokers and custodians, and wealth managers and traditional custodians providing crypto-currency brokerage and safekeeping services to investors name crypto-currencies and Stablecoins as priorities.

Equally predictably, security tokens are the priority for traditional intermediaries, such as CSDs, stock exchanges, broker-dealers, custodian banks and financial market infrastructures (FMIs), but also for digital exchanges that are

expanding from crypto-currencies into the token markets.

Only one type of respondent (CSDs) named crypto-currencies and Stablecoins as a low priority. This reflects the importance of Stablecoins as entry and exit points to token platforms and for settlement of the cash leg of security tokens in the absence of Central Bank Digital Currencies (CBDCs).

The ability of CBDCs to facilitate settlement of token transactions on blockchain networks is both threat and opportunity to traditional intermediaries. Which is why all those that responded (including CSDs) named CBDCs as a priority. Crypto-currency brokers and custodians did not raise CBDCs at all.

Levels of interest in DeFi are lower overall. Asset managers and crypto-currency custodians and digital exchanges holding crypto-currency on behalf of investors are the most interested, seeing DeFi as a source of yield. Surprisingly, broker-dealers are more interested in DeFi than crypto-currency brokers.

At the level of the individual respondents, priorities are less binary than the asset class categories imply. Firms are

engaged in a wide variety of projects, which range from tokenising loyalty points and real estate to tying ownership of digital assets to digital identities.

Services

The services provided or being developed by the respondents are a truer test of priorities than choosing digital assets in isolation. They divide into trading, investment, advisory or consulting and technology vending services, though many respondents offer combinations of these categories.

Trading is at present largely confined to crypto-currencies and crypto-currency derivatives, because security token markets lack sufficient size and liquidity to attract trading capital and DeFi protocols are of interest to a minority only.

Crypto-currency brokers and custodians, digital exchanges and wealth managers servicing private clients trade crypto-currencies. Less obviously, stock exchanges (as suppliers of listed instruments and prices) and broker-dealers (servicing the buy-side) are also involved in crypto-currency trading.

The more progressive of the traditional custodian banks are providing safekeeping services to buy-side clients investing in

crypto-currencies. The less progressive are expected to buy a crypto-currency custody business once client pressure to provide a service becomes irresistible.

With the help of vendors, established stock exchanges in a number of jurisdictions are developing issuance, trading, settlement and custody platforms for security tokens alongside their traditional platforms. Servicing security tokens is also a priority for CSDs, custodians and broker-dealers.

DeFi is of less interest to all types of respondents. Crypto-currency custodians, digital exchanges and blockchain technology vendors are supporting clients lending crypto-currency into DeFi protocols, as are some wealth managers. Specialist asset managers, including private equity funds, invest in DeFi.

The obstacles to greater enthusiasm for DeFi investing include the reluctance of established firms to support a model that aims to dispense with their intermediary services but also include the unwillingness of institutional money to invest in volatile, speculative and unregulated instruments.

Barriers

The principal obstacle to investment in digital assets is regulatory uncertainty. More than one respondent in four named it as the principal barrier. Counter-intuitively, concern about regulatory uncertainty is even higher among unregulated firms than regulated firms.

This reflects a growing appreciation among FinTechs that institutional investment in digital assets depends on regulatory certainty. Indeed, the poll finds evidence of frustration among respondents at the risks and missed opportunities created by regulatory fragmentation and slowness. This is doubtless in part a reaction to bear market conditions, which greater regulatory engagement and the consequent increase in institutional involvement might have mitigated.

However, there are differences between established firms and challengers. Established firms and vendors crave certainty so they can add requirements to existing compliance systems. FinTechs are more concerned about inadvertent mistakes leading to expensive regulatory actions against them.

The refusal of regulators to

regulate crypto-currencies is seen as detrimental to the growth of the token markets, because the uninitiated struggle to distinguish between digital asset classes. Even though regulation of security tokens is now relatively clear in multiple jurisdictions, the market is not scaling.

Legacy systems are seen as a barrier to progress, because they make it difficult for innovators to integrate their services with established institutions on the buy- and sell-sides. Except at stock exchanges, the appetite of established institutions to adapt their systems to digital assets is low.

Technology vendors and independent consultants ascribe this conservatism to limited budgets, sceptical senior management and lack of the necessary talent. Established firms accept that they lack the necessary expertise, but are less inclined to blame budgets and bosses.

The slow speed and unscalable nature of blockchain technology is seen as a major constraint. Circumventing these problems with permissioned networks can arouse regulatory concerns and retards the impact of network effects by complicating inter-

operability between networks.

With the exception of crypto-currency brokers and custodians that operate exclusively in the crypto-currency and DeFi markets, inter-operability between digital asset networks is seen as an obstacle to growth by every type of respondent. Absent network effects, scale is proving hard to achieve.

Conclusion

The transition from established markets to digital assets is multi-faceted and proceeding despite the bear market that erupted in the autumn of 2021. In bull as well as bear markets, convergence between digital assets and between digital and traditional assets would accelerate progress through network effects but requires reduced regulatory uncertainty and increased technical inter-operability.

2.0

Introduction

Into the autumn of 2021 it was still easy to argue that digital assets had become mainstream. The value of cryptocurrencies had increased at a compound annual rate of 77 per cent from 2013 to the peak market capitalisation of US\$2.9 trillion in November 2021. The Decentralised Finance (DeFi) market had grown from next-to-nothing to US\$160 billion at the peak and the Non-Fungible Token (NFT) market had appeared from nowhere to attract more than US\$40 billion in 2021.

As late as February 2022, by which time cryptocurrencies had already lost a third of their value, Coinbase, Crypto.com and FTX Trading were big enough to advertise at the SuperBowl alongside Anheuser Busch and Amazon. In London, crypto brokers were advertising on the side of London Transport buses and on the walls of underground station platforms regularly enough to attract the interest of the Advertising Standards Authority (ASA) and the

Financial Conduct Authority (FCA).

The sight of regulated money managers such as MassMutual and Ruffer Investment Company adding Bitcoin to their portfolios had persuaded even traditional service providers that it was time to act. Stock exchanges, broker-dealers, wealth managers and global custodian banks invested not just in crypto-currency services such as listing, broking, trading and safekeeping but in other blockchain-based technology projects designed to transform the way securities are issued, settled and serviced.

The tokenisation of securities (and funds) began. Crypto-currency exchanges bought regulated entities and applied for regulatory licences, largely because they shared the enthusiasm of multiple start-ups for the long-term potential of tokenisation. Regulators in every established and would-be financial centre began to ponder how to regulate crypto-currencies, and how to re-write securities regulations to accommodate tokens.

Coinmarketcap counted more than 300¹ crypto-currency exchanges doing business. At least 80² securities token exchanges existed, accessible via brokers as well as directly. The list of custodians offering to safekeep crypto-currencies or tokens grew towards 100³ and one popular digital wallet functionality comparison site recorded 85⁴ choices. A diverse digital asset eco-system was emerging.

But in any rapidly growing market there was always a risk that the claims of interested parties and the expectations of potential customers would run ahead of reality. Which is why the onset of a crypto-currency and DeFi bear market was a good time to ask different firms and types of firms what point they had reached in their embrace of digital assets; which digital assets were their highest priorities; and which digital asset use-cases they were actively pursuing. Digital asset enthusiasts could never re-shape reality unconstrained. Their ambitions were always limited by the size of budgets available, access to the necessary skills and experience, the appetite for

change of senior managers, the practical capabilities of blockchain technologies and by the interest of regulators in protecting investors and preserving financial stability – and still are. So it was sensible to ask about these factors too.

To find answers to these questions, a poll of a representative sample of established financial institutions, FinTechs, technology vendors and independent entrepreneurs, advisers and investors was conducted to test the status of their investments in digital assets, the priorities they have chosen, the services they intend to provide and the barriers to success that they must overcome.

1 Coinmarketcap.com

2 Future of Finance Research Institute.

3 Future of Finance Research Institute.

4 Cryptowisser.com

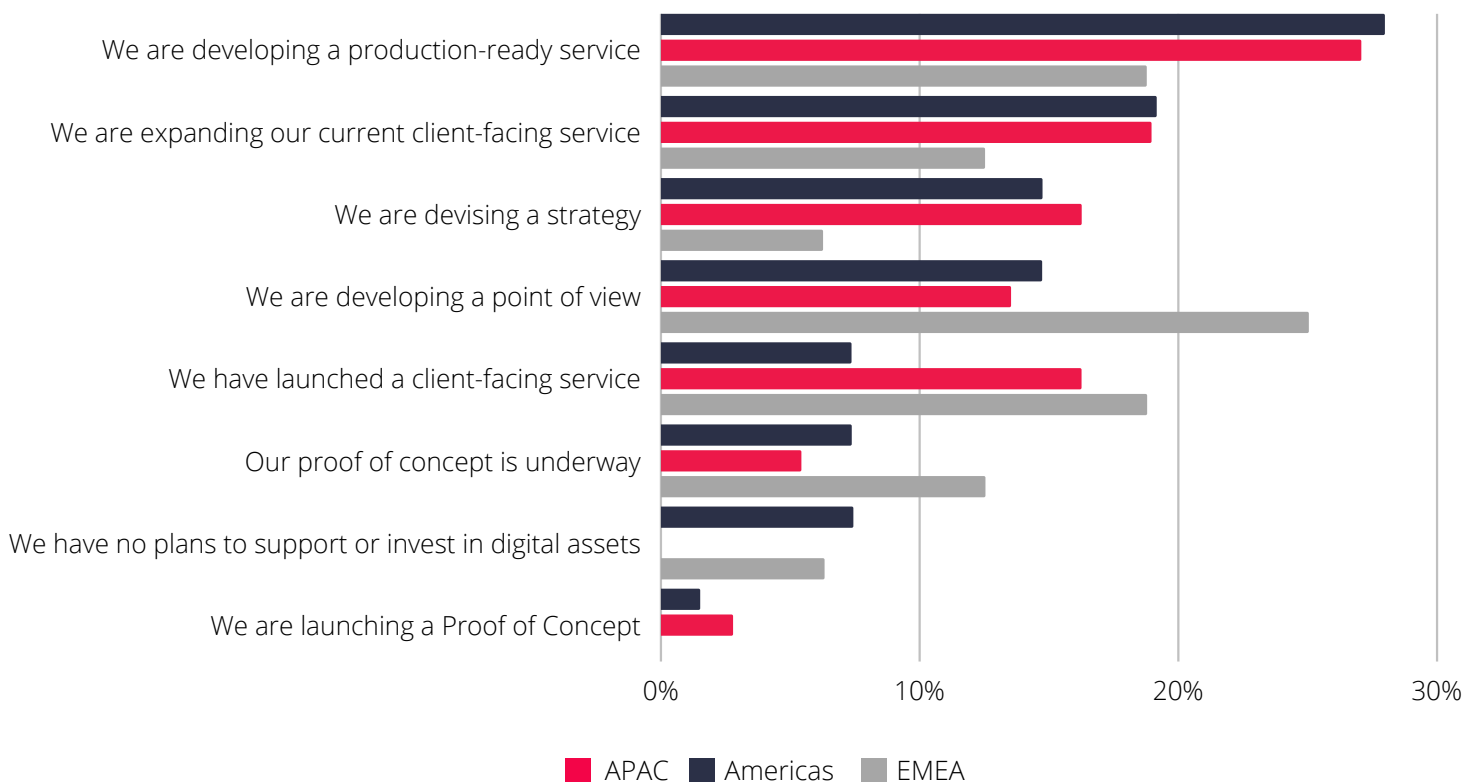
3.0

Status

Engagement with digital assets is neither universal nor uniform. But it is high (see Chart 1). More than half respondents have launched or are expanding a digital assets service already or are poised to put a new service into production. If those conducting or planning to conduct a Proof of Concept (PoC) are included, the proportion of respondents active in digital asset services rises to two thirds.

Most of the remainder are either pondering what to do about digital assets or devising a strategy. Only a small minority of respondents have no plans to support digital assets at all. Their number includes investors, consultants and vendors that cannot be expected to engage with digital assets directly but also – more surprisingly - stock exchanges and central securities depositories (CSDs).

Chart 1: Current Status of digital asset investment overall



The institutions with no plans are all based outside North America (see Chart 2). Otherwise, there are no significant regional differences in the level of engagement with digital assets. At least half the respondents in each of the three main regions of the world are expanding, launching or running a service for clients investing in or trading digital assets. This is a global industry.

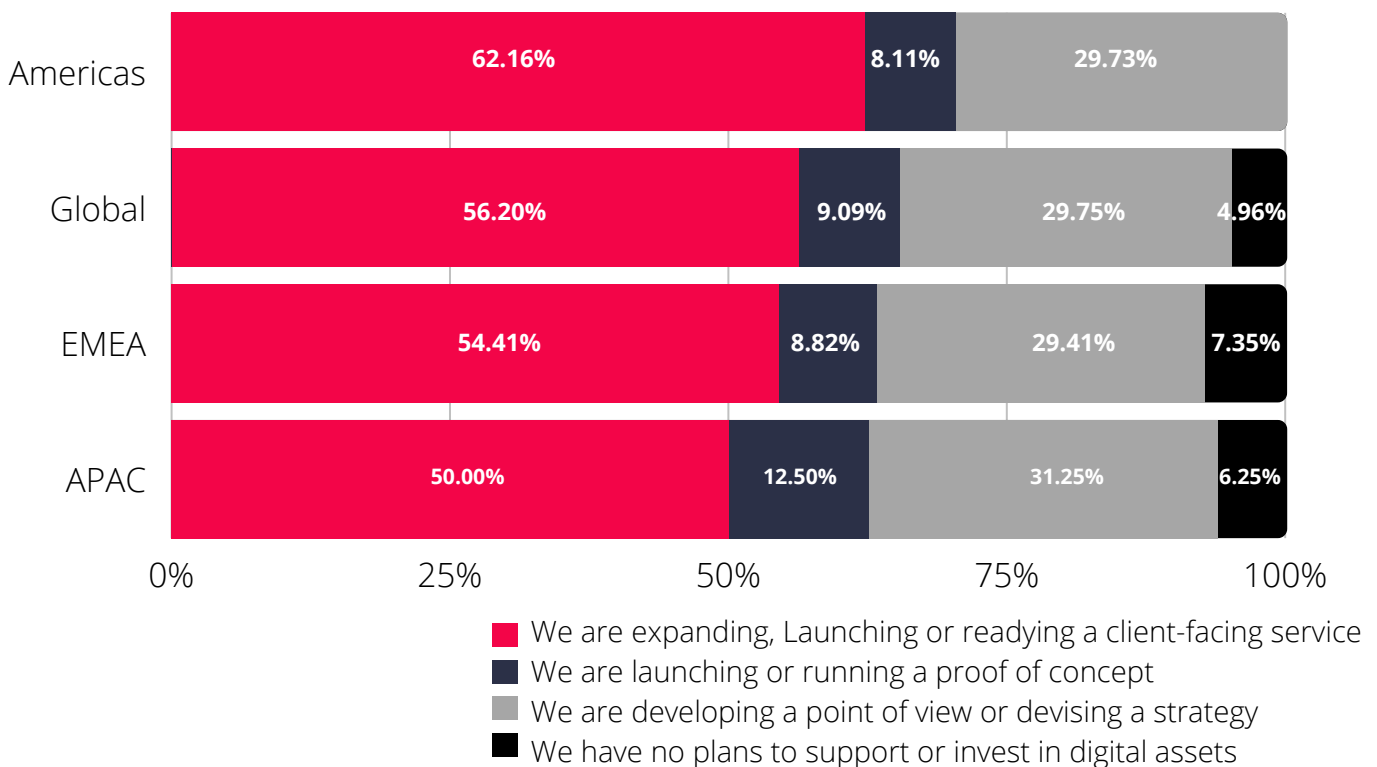
Measurable differences emerge only when the respondents are classified by type, and these are predictable. As Chart 3 shows, crypto-currency brokers and custodians and digital exchanges and blockchain technology vendors – though

not conventional technology vendors - are most advanced in terms of running or expanding or readying a client-facing service. That is scarcely surprising.

At the other extreme, asset managers are least likely to be offering or getting close to offering a client-facing service. More than four out of five have not progressed beyond a PoC. Despite some high-profile asset allocations and venture investments, asset owners are not yet putting asset managers under intolerable pressure to invest in crypto-currencies or tokens.

True, despite an unhelpful

Chart 2: Current Status of digital asset investment by region



degree of regulatory uncertainty, crypto-currency funds are being launched and even listed in tokenised form, but by specialist rather than mainstream managers. Tokenisation is proving particularly attractive to managers of private equity, privately managed and real estate assets, because it offers improved liquidity and distribution to wider classes of investors.

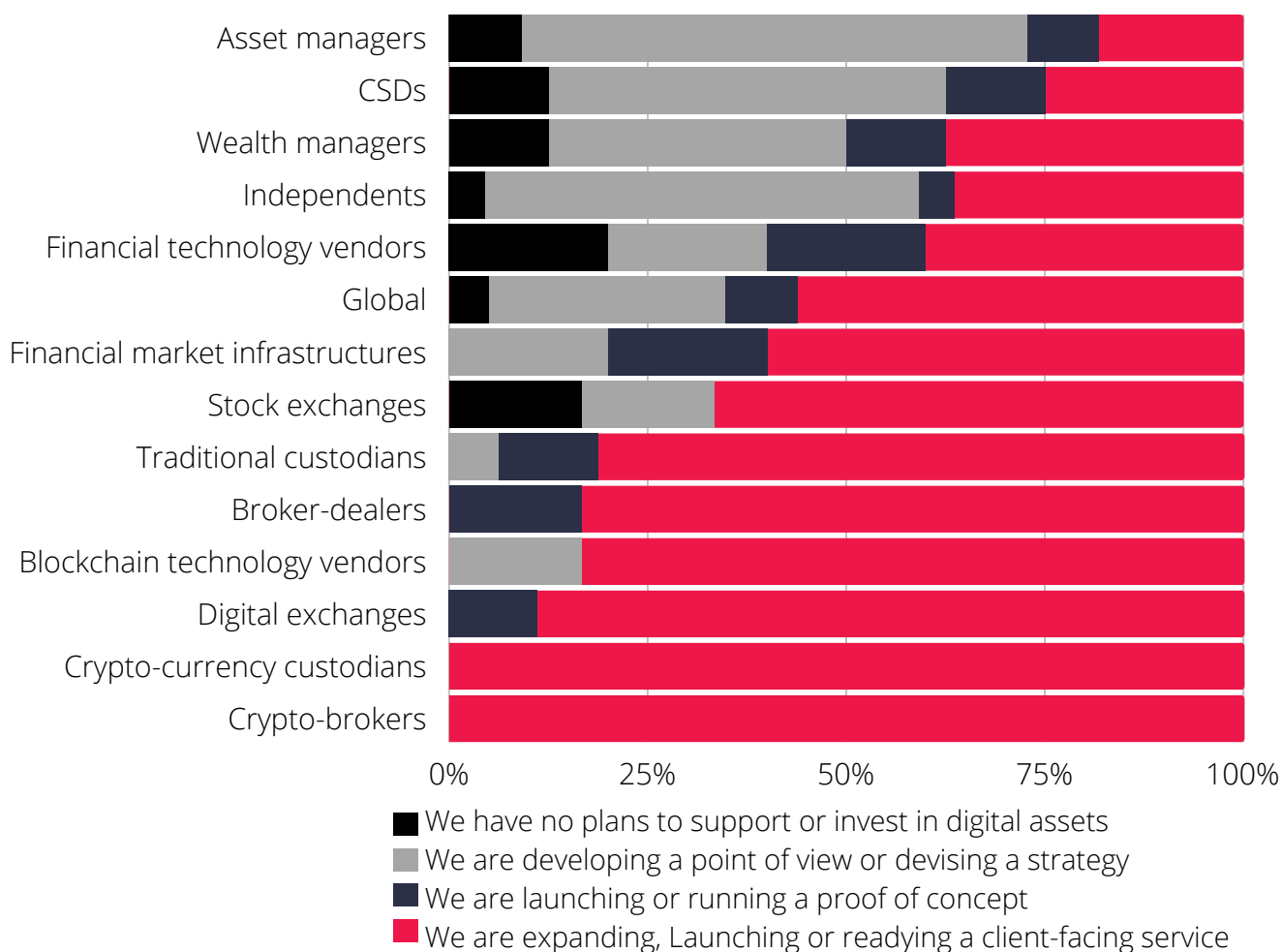
these and investing for eight years,” notes one specialist asset manager. But brand name managers are more cautious. “Too early to tell,” says one. “May be [we do] nothing.”

Of course, managers running hundreds of billions of dollars in assets under management (AuM) can afford to wait for ideas to be brought to them; they do not need to drive events or build infrastructure.

“We have been supporting

The same is not true of a related

Chart 3: Current status of digital asset investments by type of respondent



industry: wealth management. Although they also manage money on a fiduciary basis, wealth managers are under pressure from private clients to offer crypto-currency services. Regulated funds are difficult for them to launch too, but private banks in particular are now offering crypto-currency brokerage and custody services, albeit on a narrow basis.

Global custodian banks are finally following their example. They were slow to enter the business of safekeeping digital assets for much the same reason as asset managers: their institutional buy-side clients were not putting them under pressure to invest. So the fact they are now offering or developing client-facing crypto-currency custody services is a significant indicator of change.

Growing private client and institutional interest in crypto-currencies also explains the rising interest of traditional broker-dealers, many of which are already broking and trading crypto-currencies using Stablecoins as the currency base. The crypto-currency brokerages, which are the most progressive respondents of all, tend to be founded and run by former foreign exchange (FX) dealers.

The apparently limited engagement of the independents is easily explained. Though some are actively engaged in building digital asset businesses ("We advise on these issues and are taking clients to market," says one) or advising start-ups, many are engaged in advisory roles only, in which they are rarely involved in supporting digital asset services directly.

What is surprising is the relatively limited response of traditional financial market infrastructures (FMIs), including stock exchanges but especially CSDs. A muted response to an unregulated asset class such as crypto-currencies is understandable but a lack of energy about tokenisation – which potentially disrupts their core business – is more surprising.

One CSD that is developing a crypto-currency service for bank member-users is offering it as a yield-enhancement product on a non-custodial basis and is careful to distinguish it from lending into Decentralised Finance (DeFi) protocols. After all, CSDs are critical regulated market infrastructures and both crypto-currencies and DeFi currently remain outside the regulatory perimeter.

Security tokens, on the other

hand are regulated either under existing securities laws and regulations (the usual model in common law jurisdictions) or specific new or amended legislation (in civil law jurisdictions). And the automated peer-to-peer trading, settlement and safekeeping that tokenisation promises to deliver are in theory an existential threat to every FMI. An active response seems prudent.

True, the minuscule size of the security token markets provides FMIs with a powerful argument against immediate action. The fastest-growing variant of tokenisation – NFTs – tracked the performance of cryptocurrencies and DeFi through the winter of 2021-22. Yet FMIs should be wary of complacency. NFTs could be revived by rising investment in the Metaverse, where they are likely to fulfil a triple role as a source of tradeable assets, a form of equity investment and a type of exchangeable currency.

CSDs are particularly at risk if security token markets scale quickly, so their limited activity in digital assets is a puzzle. One in eight has no plans to invest in digital assets at all, and one in two has got no further than thinking about what to do.

Only one in four is actually investing in a service, despite the disruptive potential of security tokenisation.

One explanation for the indifference of CSDs is that more than half are owned by their users, so they have limited capital and strategic autonomy. But disengagement from developments in digital assets is almost certainly not a sustainable position for a CSD, even in the short-term, so it is important that nearly nine out of ten CSD respondents are at least thinking about how to respond.

Welcome to Future of Finance.

Future of Finance has one overriding goal. It is to host meetings that bring together long-established members of the financial services industry (banks, brokers, asset managers, hedge funds, insurers, financial market infrastructures) with entrepreneurs and players in the digital asset markets, fintechs, technology companies and market authorities (central banks, regulators and policymakers) to explore how the financial services industry can grow faster by being more open, more innovative and more trustworthy.

If you would like more information on how to work with us, join panels, be involved in our research contact Wendy Gallagher, Co-Founder at Future of Finance on wendy.gallagher@futureoffinance.biz

www.futureoffinance.biz



4.0

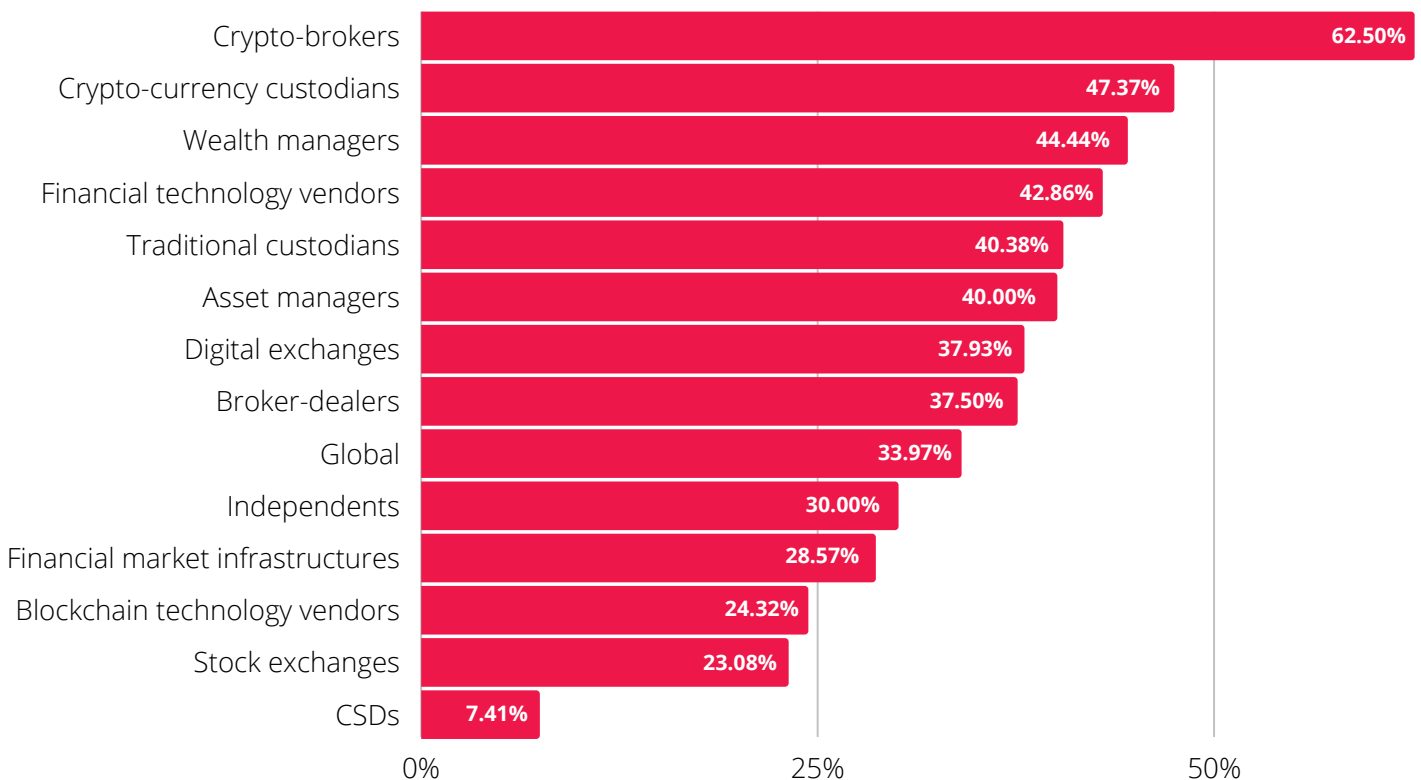
Priorities

To respond is to choose. Any response to the threats and opportunities presented by digital assets must choose between competing priorities. Resources are not infinite, so trade-offs have to be made. Time and money tend to be allocated to projects that are well-defined and likely to produce high returns quickly. But in competitive markets priorities choose themselves as

much as they are chosen.

Crypto-brokers trading crypto-currencies against Stablecoins as the base currency are bound to continue to see these two digital assets as the priority despite plunging market values (see Chart 4). So are the crypto-currency custodians that work with them; the wealth managers offering private clients access to crypto-currencies; and the

Chart 4: Prioritising Crypto-currencies and Stablecoins



traditional custodians supporting buy-side clients investing in crypto-currencies.

Before the bear market, asset managers had indeed launched or investigated how to launch crypto-currency funds within existing regulations as well as investing in crypto-currencies directly or via derivatives. Conventional broker-dealers, which have expanded their private wealth management activities in recent years, were also looking to provide clients with exposure to crypto-currency risk.

Conventional financial technology vendors found both

sell- and buy-side clients exceed their support in accessing the crypto-currency markets. Their blockchain technology rivals, on the other hand, even now retain their commitment to change the way financial markets work by encouraging clients to look beyond crypto-currencies and Stablecoins to the potential of tokenisation.

But whatever the degree of commitment of individual firms, what Chart 4 really shows is that virtually every type of respondent retained a non-trivial level of interest in crypto-currencies and Stablecoins even as market values plunged. The exception is a familiar one: CSDs. And while a degree of indifference is

Chart 5: Prioritising security tokens

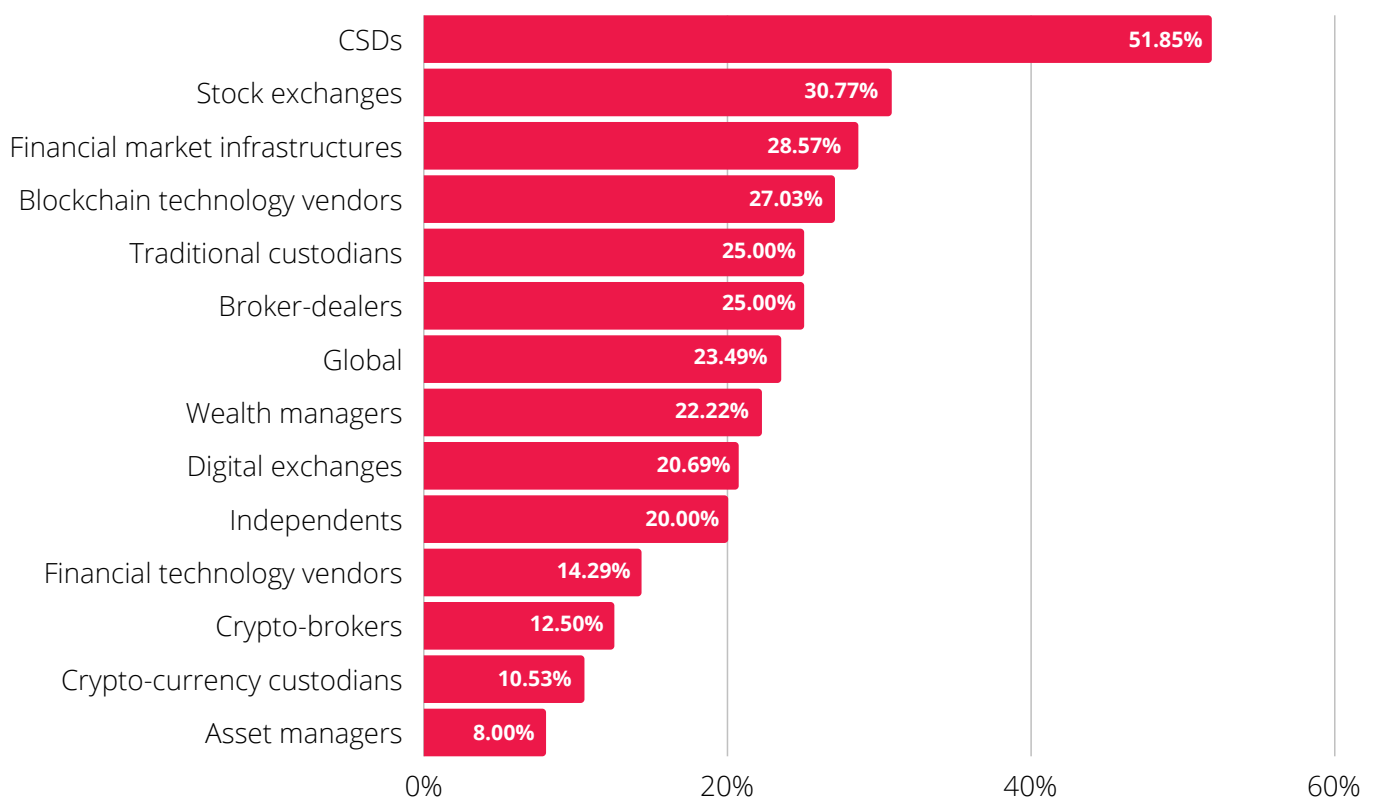
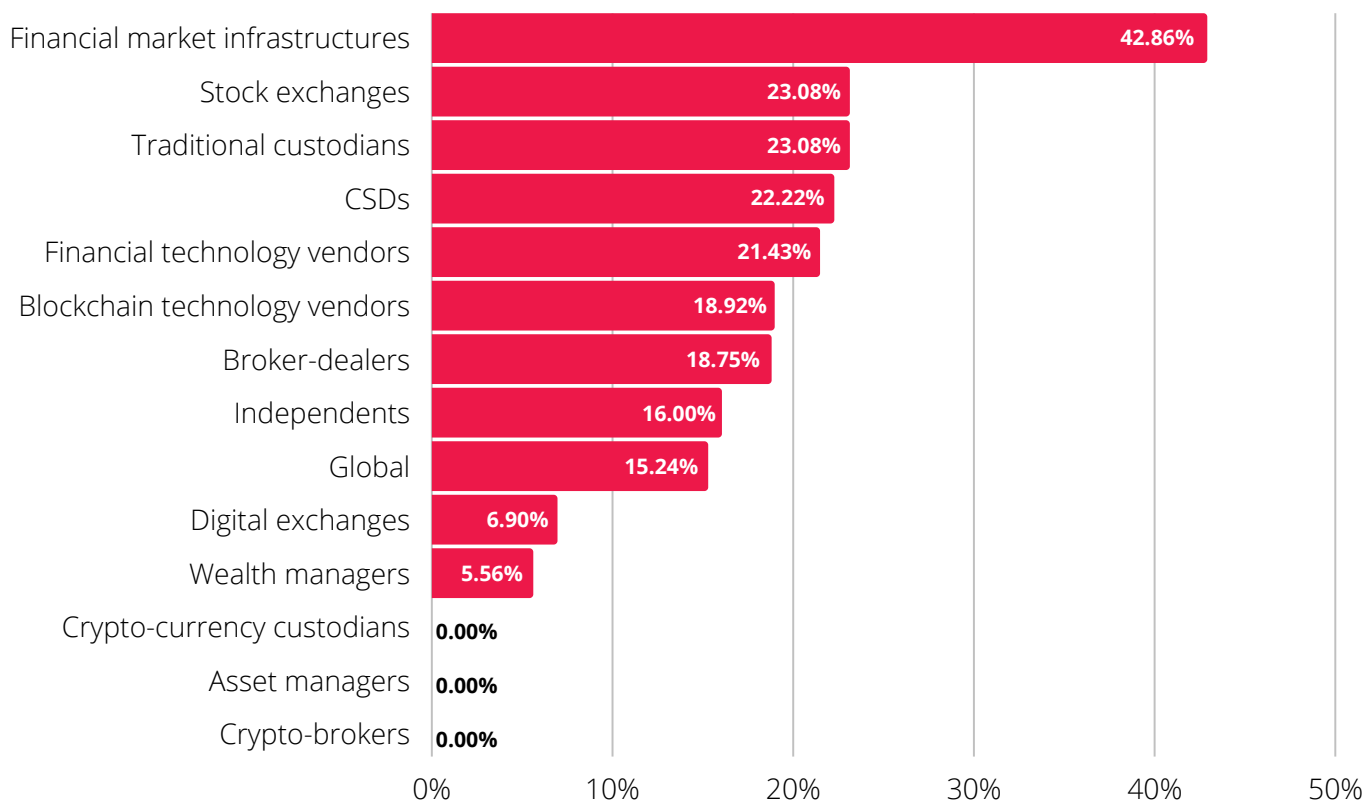


Chart 6: Prioritising Central Banks Digital Currencies (CBDCs)



predictable - CSDs service securities, and crypto-currencies and Stablecoins are not securities - it is also unintelligible.

CSDs, as Chart 5 shows, attach a higher priority to security tokens than any other type of respondent. And despite the problems afflicting the algorithmic variety, Stablecoins matter immensely in security token markets. This is because they have emerged as the best short-term answer to the biggest problem security token networks face: how to complete the cash leg of purchase and sale transactions when fiat currency is

unavailable on the networks.

A large part of their raison d'être of a CSD is to deliver cash payment against securities to settle transactions.

Tokenisation allows direct delivery of tokens against payment between digital wallets on blockchain networks. At present, purchasers and sellers of tokens must rely on payment tokens (such as Stablecoins) for the cash leg. They must also exit the network altogether to obtain fiat currency.

The long-term answer to this problem is Central Bank Digital Currencies (CBDCs), which is why CSDs are among the

respondents that attach a high priority to being ready to accept central bank money in a fully realised digital form as soon as it becomes available in major markets (see Chart 6). For CSDs, CBDCs are a potentially existential threat to their settlement revenues if they do not adapt.

Similar choices confront the other entities that see CBDCs as a high priority (see Chart 6). For custodian banks, CBDCs threaten their control of settlement in central and commercial bank money. Settlement of securities transactions across national borders, currently intermediated by a combination of payments market infrastructures and correspondent banks, could also be disrupted by CBDCs.

But there is opportunity in CBDCs too. FMIs, stock exchanges, custodian banks and technology vendors of all kinds recognise that CBDCs could be the spark that propels blockchain-based security token networks into a rapid and self-sustaining form of growth from which they could profit, if their services are correctly positioned, as well as lose.

Blockchain technology vendors in particular are building end-

to-end platforms for the issuance, trading, settlement and custody of tokenised assets, sometimes with a broad focus and sometimes with a narrow one. One blockchain vendor respondent describes its mission simply as “streamlining cross-border settlement and asset servicing.”

Likewise, digital exchanges see security tokens as a logical extension of their existing business of listing, trading, settling and safekeeping cryptocurrencies (see Chart 5). Securities are a regulated business, so some have encountered regulatory resistance to their plans, but others have either purchased a regulated firm or secured a regulatory licence of their own.

DeFi markets have spawned digital exchanges – decentralised exchanges, or DEXs – of their own. However, digital exchanges that have established themselves in the crypto-currency markets are enabling clients that hold crypto-currency to stake or lend it in DeFi protocols too (see Chart 7). Naturally, the crypto-currency custodians that hold crypto-currencies for clients are supportive.

Nor is it surprising to find broker-dealers interested in DeFi as a

trading opportunity. “Lending against crypto/crypto mining” is named by one brokerage house as its top priority, though this may change if value and volumes remain subdued and rising interest rates create opportunities elsewhere. What is unexpected is the enthusiasm for DeFi protocols of a minority of forward-thinking wealth and asset managers and CSDs. The reason why may well be crucial in the longer term: it is that they see synergies between DeFi techniques and other forms of tokenisation, such as securities and NFTs. Securities are a regulated business, so some have encountered

regulatory resistance to their plans, but others have either purchased a regulated firm or secured a regulatory licence of their own.

Indeed, as Chart 7 shows, most respondents had limited interest in DeFi by comparison with other digital assets even before the recent market weakness. Traditional firms and their clients were already uncomfortable with the price volatility and speculative nature of DeFi and adjacencies such as NFTs. That DeFi protocols and NFTs were a minority interest is starkly evident in the ranking of priorities by respondents as a whole (see Chart 8).

Chart 7: Prioritising Decentralised Finance (DeFi) Protocols

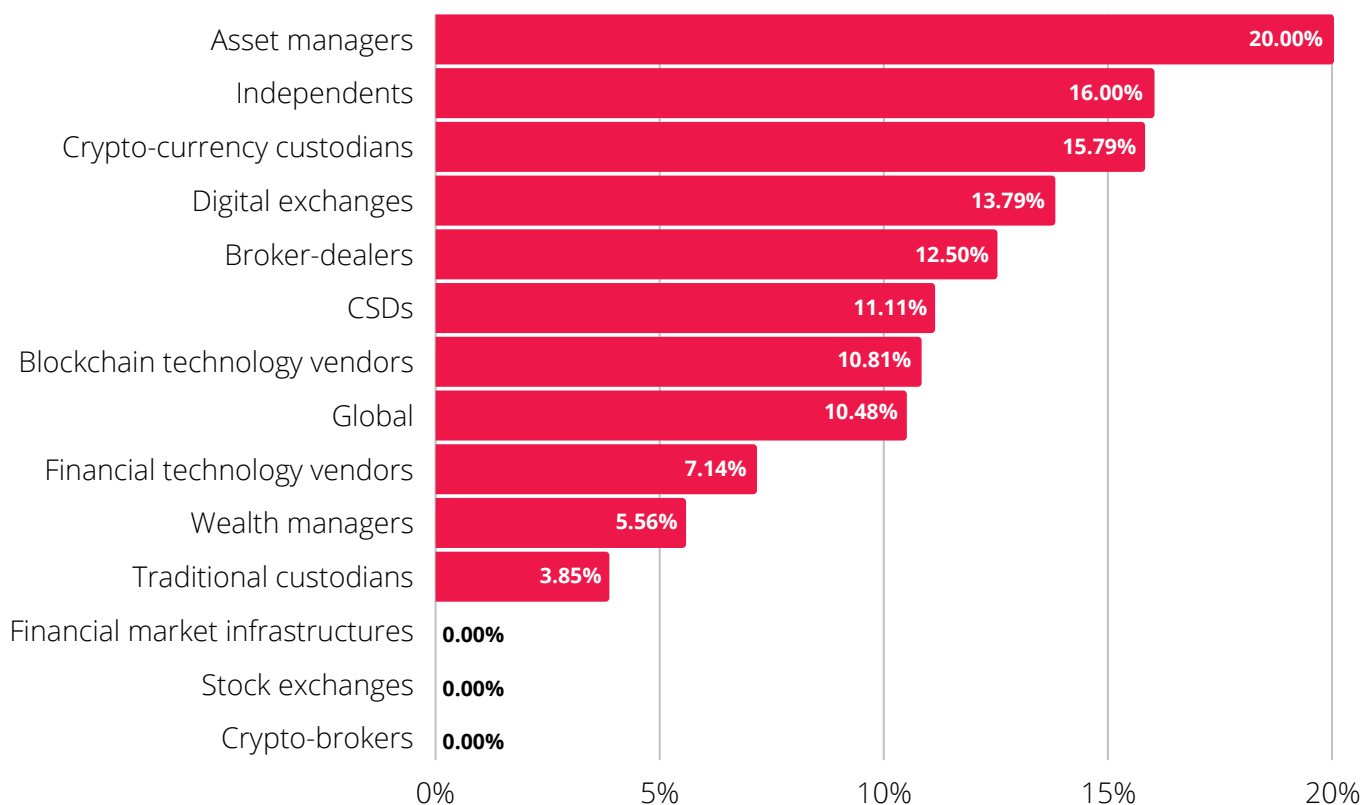
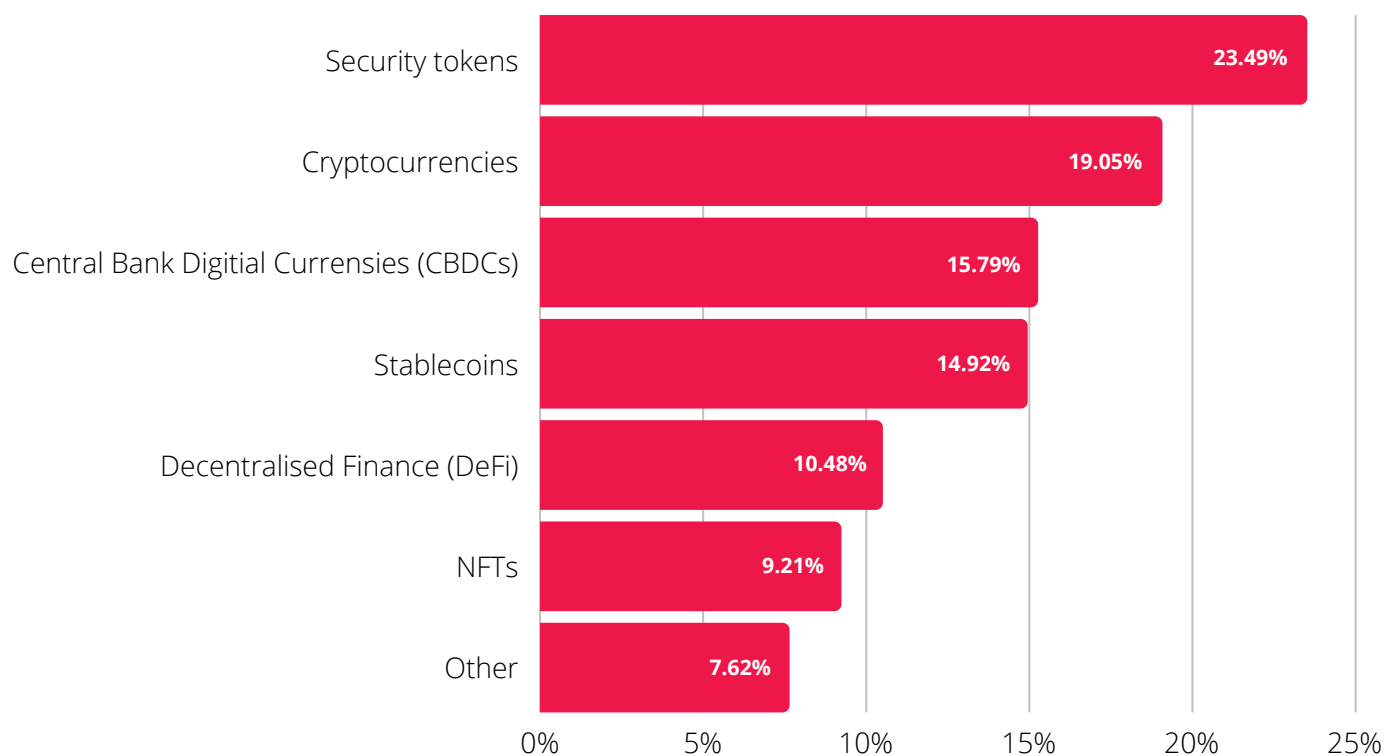


Chart 8: Digital asset class priorities overall

Overall, the priorities for a mainly institutional audience are not surprising. Cryptocurrencies are still the largest class of digital assets and – despite some recent well-publicised failures – continue to be supported by a panoply of specialist and traditional service providers. Security tokens are regulated, less risky and expected to grow rapidly and soon. Stablecoins remain crucial ingredients in that process of growth, and CBDCs the key to sustained growth.

Yet Chart 8 conceals as much as it reveals. As the “other” category in the Chart suggests, the day-to-day work of

respondents resists neat abstractions. Respondents do not understand their strategies as binary choices between “crypto-currencies” or “security tokens” or “DeFi protocols” or “Stablecoins” or “CBDCs,” but as a process of using innovative technologies to discover profitable opportunities.

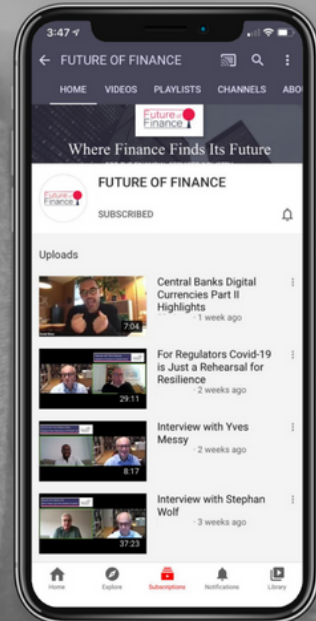
Respondents are looking to issue utility tokens, digitise financial advice, real estate and depositary receipts, tokenise loyalty points, list and trade crypto-currency derivatives, design crypto-currency investment funds, explore alternative methods of tokenising cash and find ways of

tying digital assets to digital identities. They are even trading and custodying fiat currencies as well as crypto-currencies.

In short, the digital asset markets are in a ferment of experimentation, and indeed counter-experimentation, as challengers and incumbents endeavour to make money. In this environment, it is facile to deem any class of digital asset the highest priority. A FinTech and an incumbent may both regard tokenisation or CBDCs or Stablecoins or DeFi as crucial, but for completely different reasons.

Incumbents can appear to FinTechs as vulnerable but also as immovable, thanks to their installed client base and revenues. Likewise, the threat posed by FinTechs can appear to incumbents as existential, but also as inconsequential. In the end, priorities are chosen, pursued and implemented much more subjectively than the bare arithmetic of a poll can capture.





Read, Listen, Watch.

Sign up now for free to get the full Future of Finance experience.

www.futureoffinance.biz

Future of
Finance

5.0

Services

Which is why the priorities of respondents cannot be understood by the choice of digital asset alone. Knowing the types of services which firms intend to offer to exploit the digital asset - or enable others to exploit it - is also essential. It is services provided now, not beliefs about the future, that enable respondents to be judged by what they are actually doing rather than by what they say.

Services divide into four categories. The first is trading services, in which a firm acts as either a principal or an agent on behalf of others. The second is investment services, such as those provided by a custodian or asset manager. Of course, different firms provide different combinations of these services and some - notably digital exchanges - provide all of them, so there is considerable overlap.

The third category is advisory or consulting services, in which independent firms offer strategic, technical or

management advice to FinTechs, banks, issuers and investors. The fourth and final category is technology vending, in which companies sell software and hardware and various other forms of know-how to third parties engaged in the digital asset markets.

In the crypto-currency markets, which remain large relative to the token markets, it is the providers of trading services (crypto-currency brokers and digital exchanges) and the most committed providers of investment services (wealth managers and crypto-currency custodians) that have in the last four years engaged most actively in trading or broking or safekeeping crypto-currencies and crypto-currency derivatives (see Chart 9).

Conventional providers of both trading and investment services - stock exchanges, broker-dealers and custodian banks - were and are much less densely involved in crypto-currency trading. But, with the familiar exception of CSDs, they were not

completely uninvolved either. Traditional brokers and custodians have helped clients access crypto-currencies for years, as have some traditional stock exchanges.

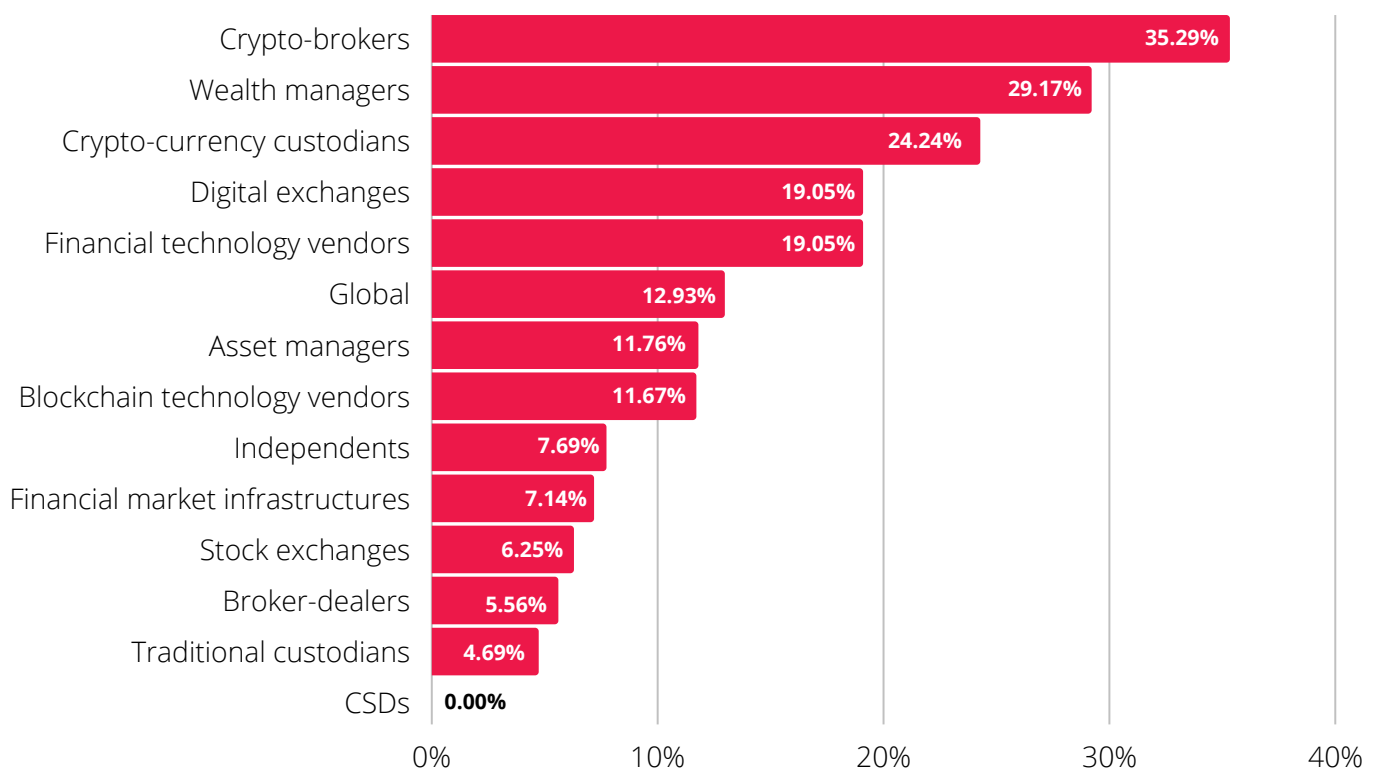
Indirectly, exchanges benefited from capital-raising by successful crypto-currency ventures. Nasdaq, for example, hosted the initial public offering (IPO) of crypto-currency exchange Coinbase in April 2021. Listing stocks and funds that benefited from the growth of the crypto-currency markets, such as Bitcoin miners, also provided exchanges with indirect exposure. But some exchanges chose to provide direct access

too.

CME has operated a market for Bitcoin futures since 2017 and offered options on futures since 2020. It later added Ether and other crypto-currencies. ICE offered a price data feed for crypto-currencies to asset managers from January 2018, and even now provides prices for more than 100. Nasdaq continues to provide price information on 20 crypto-currencies.

Börse Stuttgart developed both a smartphone trading app for seven crypto-currencies and a regulated exchange for trading crypto-currencies. The SIX Digital Exchange (SDX) recently

Chart 9: Trading crypto-currencies or crypto-currency derivatives as agent or principal



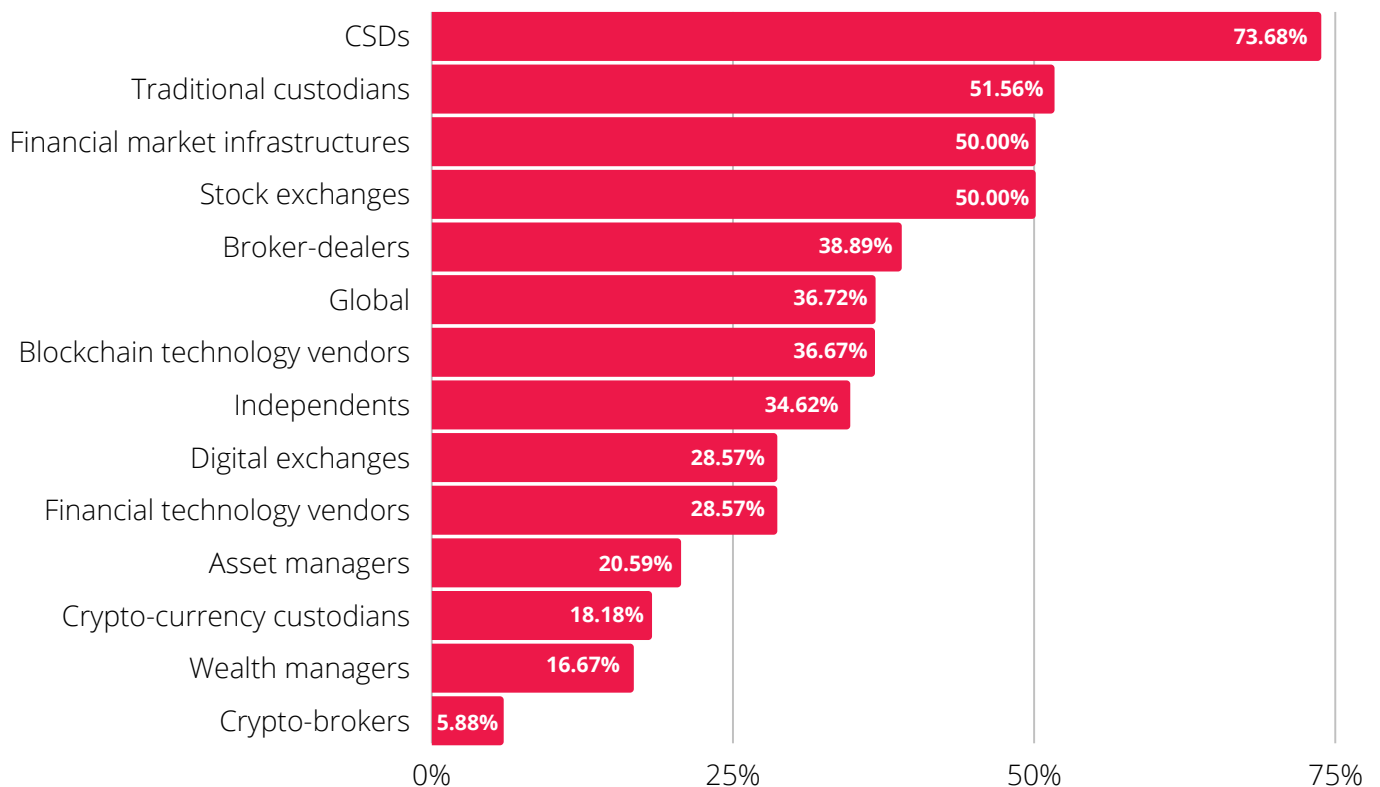
launched a non-custodial service for private banks to redeploy crypto-currency holdings to earn income from authenticating blocks of transactions on the Ethereum blockchain.

SDX itself was founded by the Swiss stock exchange (SIX) as a regulated issuance, trading, settlement and custody platform for digital assets, and especially security tokens. The Stock Exchange of Thailand is following suit. And the Singapore Stock Exchange (SGX) is a major shareholder in ADDX, which focuses on tokenising privately managed assets, including funds.

Several blockchain technology vendors now offer established exchanges end-to-end digital asset platforms capable of supporting tokenised securities. Both the Jamaica Stock Exchange (JSE) and the Eastern Caribbean Securities Exchange Ltd (ECSE) have purchased technology that enables them to offer issuers, brokers and custodians a full set of services for security tokens.

Security tokens are a field where established stock exchanges, as well as traditional broker-dealers and custodian banks, feel both sufficiently comfortable to engage and sufficiently threatened to invest. Even CSDs,

Chart 10: Pursuing opportunities in security tokens



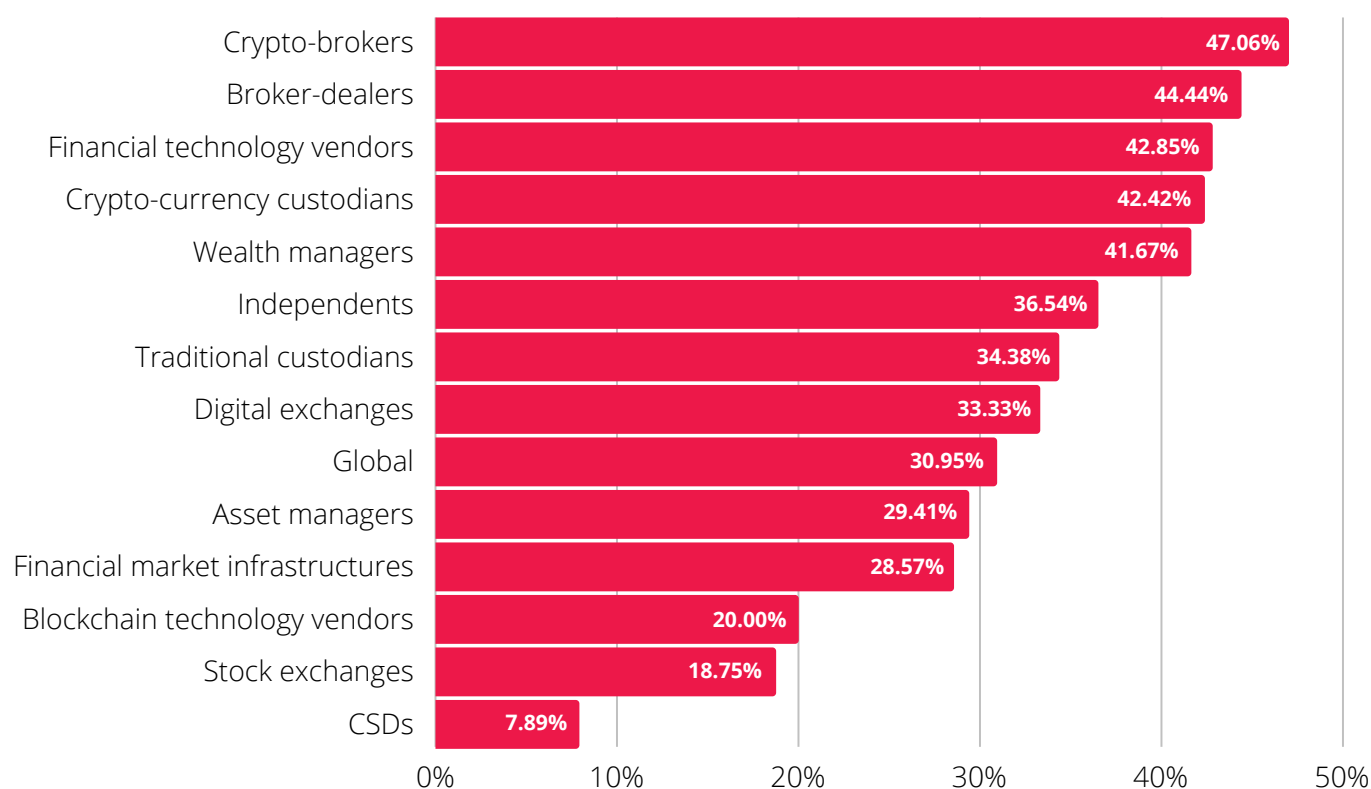
which rely on settlement revenues created by on-exchange trading, are concerned enough for three out of four to be exploring the security token market (see Chart 10).

For CSDs, responding to the potential for tokenisation of securities is a strategic imperative. Each of the three principal roles played by a CSD in the established securities markets – issuance, settlement and custody – is redundant in fully realised security token markets. If a CSD concludes the tokenisation threat is real, it must act or risk oblivion.

Traditional custodian banks face a similar range of threats from tokenisation, though their asset-owning clients are likely to continue to rely on them as intermediaries. The most progressive custodians have already shown a much higher degree of interest in safekeeping crypto-currencies on behalf of buy-side clients than most CSDs (see Chart 11).

Investment by traditional custodians in digital asset safekeeping technologies has actually accelerated during the crypto-currency and DeFi bear market, chiefly through minority shareholdings and partnerships. Pressure from the buy-side to support investments in

Chart 11: Supporting investors in crypto-currencies



tokenised securities and funds is gathering momentum and, if it becomes intense, traditional custodians want to have access to the requisite capabilities from specialists.

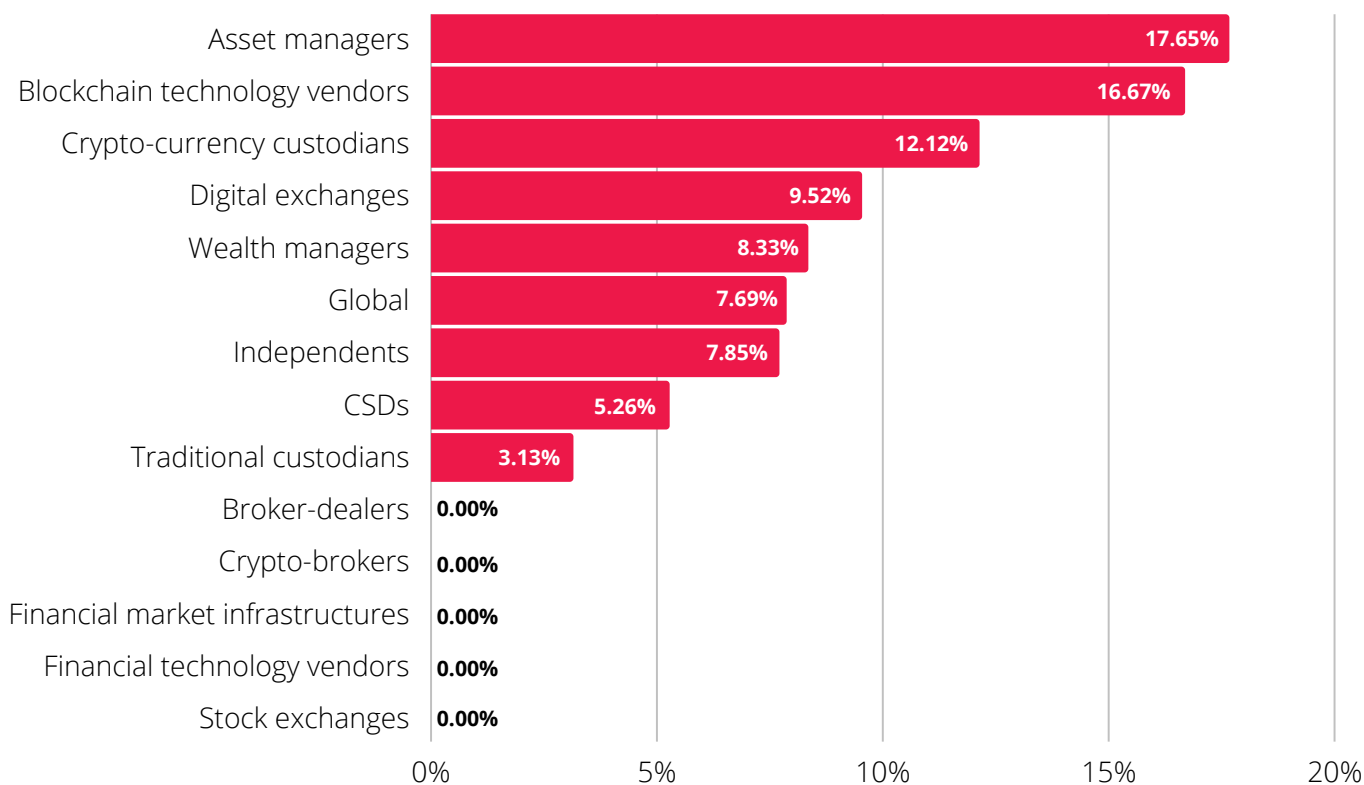
Simultaneously, consolidation of crypto-currency custodians has begun. Investment or acquisition by a traditional custodian bank offers crypto-currency custodians not only a route out of what might be a prolonged bear market but also an entrée to the institutional money that will provide the security token markets with primary market capital and secondary market liquidity. For both reasons, crypto-currency custodians are

interested in the security token opportunity already.

Crypto-currency custodians have also taken an interest in the DeFi markets (see Chart 12]. This was rational when the DeFi markets were growing healthily and the security token markets were little more than an appetising long-term prospect. Though the DeFi markets initially fell less steeply than the crypto-currency markets – the market capitalisation stayed above US\$100 billion until May 2022 -they have since fallen to less than a third of their peak market value.

This reflects, among other things, a rising interest rate

Chart 12: Active in Decentralised Finance (DeFi) protocols



environment. DeFi took off in 2021 as a yield-enhancing outlet for the crypto-currency balances of the existing clients of the crypto-currency custodians. These balances would otherwise have been confined to earning revenues from authentication of blocks of transactions. DeFi lending returns were riskier and more volatile, but they did generate additional safekeeping and asset-servicing work for crypto-currency custodians.

Digital exchanges, whose original business lies in the crypto-currency markets, also entered the DeFi markets, where they competed with specialist exchanges such as Uniswap and SushiSwap. Their involvement did encourage specialist as well as established wealth and asset managers - and private equity firms looking for profitable investments - to take an interest in the DeFi markets.

The more sophisticated custodians (and CSDs) are in principle willing to support institutional firms as they participate in the DeFi markets. But, as Chart 12 shows, the majority of the stock exchanges, CSDs, custodians, broker-dealers and market infrastructure providers that constitute the traditional

securities markets eco-system, and conventional technology vendors, are as yet little interested.

This lack of enthusiasm for DeFi among traditional firms was understandable even before the market correction. It is explained partly by self-interest. A large part of the purpose of DeFi is to dispense with intermediary services of their kind altogether in favour of self-executing smart contracts. But another important factor is that the regulatory treatment of DeFi market activities and participants is uncertain.

6.0

Barriers

In fact, uncertain regulatory treatment is the barrier to engagement with digital assets that dwarfs all other obstacles. More than one respondent in four cited regulatory uncertainty as the biggest hurdle to embracing digital assets (see Chart 13). Concern about this issue is common to established firms and FinTechs, albeit for different combinations of reasons.

Established, regulated entities make up more than half the respondents, and more than half of them name regulatory uncertainty as a barrier to engagement with digital assets. But regulatory uncertainty it is a problem for everyone. In fact, the proportion of unregulated respondents that named regulatory uncertainty as a problem is actually higher than among the regulated

Chart 13: Barriers to entry to digital asset markets

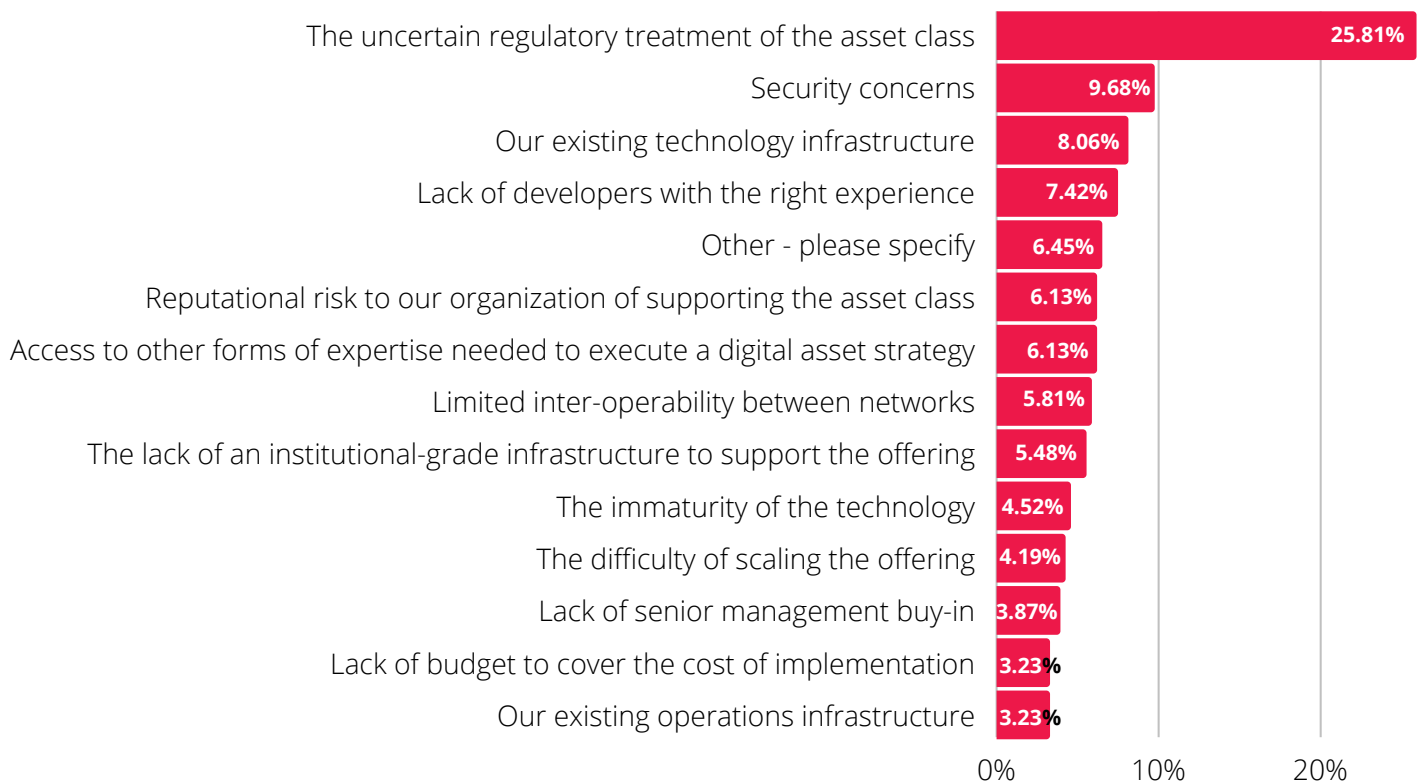
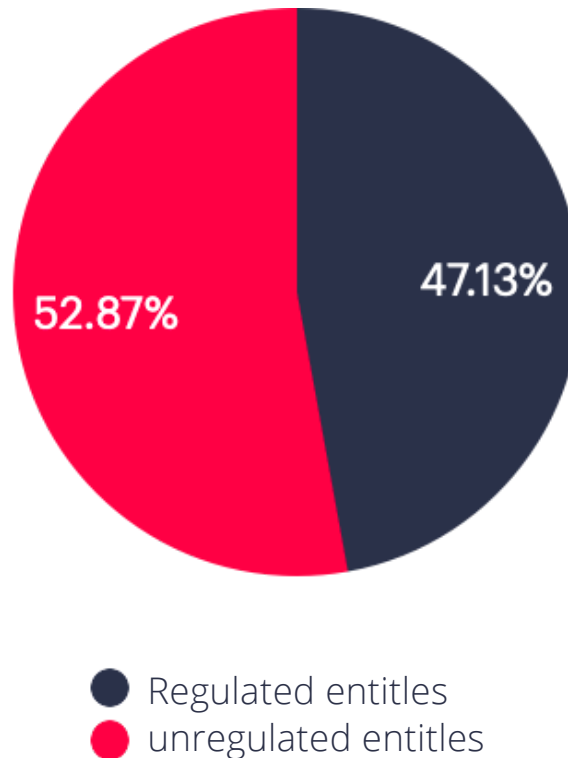


Chart 14: Proportion of respondents naming regulatory uncertainty as a barrier to adoption of digital assets



equivalents (see Chart 14).

Although a view persists that any form of regulation of digital assets defeats their purpose, it is held by a minority only. There is an emerging consensus that regulation will enable the crypto-currency markets, let alone the incipient token markets, to recover and resume their growth trajectory more quickly. The chief reason for believing this is that regulated firms and institutional investors are more comfortable in regulated environments.

On this view, the long-term

future of crypto-currencies depends on institutional engagement, which in turn depends on regulated status. Simultaneously, token service providers believe that the unregulated status of crypto-currencies casts a blight on the growth prospects of their own market, especially among the institutional issuers and investors on which its future depends.

In fact, it is striking how all respondents accept regulation as part of the price of being in the business. Innovative, unregulated businesses might still view unregulated activities

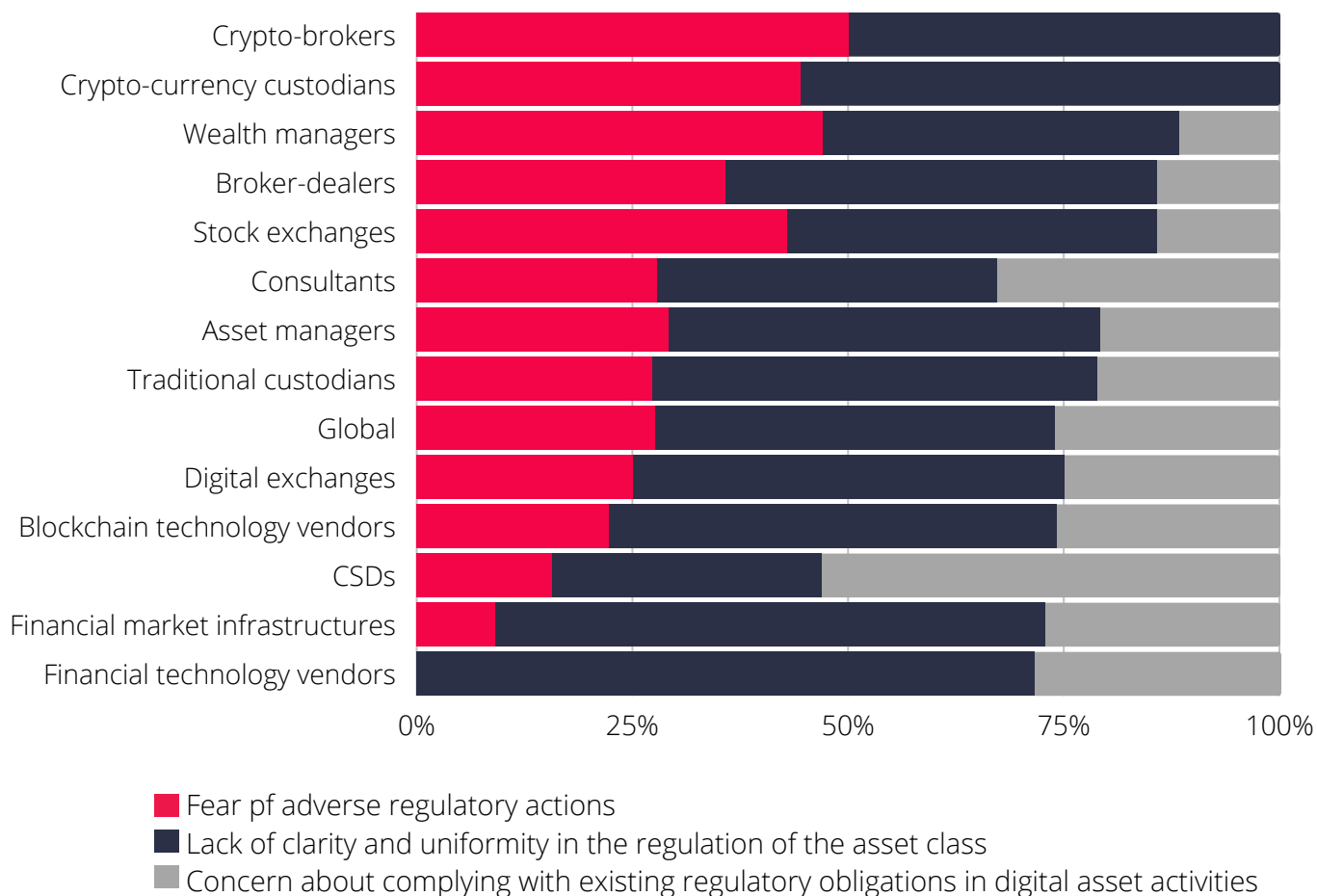
as superior to the established alternative, but even they recognise that lack of regulation makes it difficult to attract the weight of money – and especially institutional money – that would drive the growth of their market.

It takes time for established money and securities regulations to catch up with market developments, but the poll detected rising levels of frustration. One respondent complained of “a turf war between the SEC and CFTC on regulating digital assets,” and

another was disappointed by “response times from regulators.” A third demanded “a sound legal basis for digital payments.”

These problems are multiplied by the global nature of the industry because different jurisdictions are pursuing different regulatory strategies. Crypto-currencies are rarely banned but they are not regulated either, which creates uncertainty. Similarly, while tokens do tend to be regulated, issuers must choose whether their token embraces regulation or avoids it. This too creates uncertainty.

Chart 15: Most important regulatory concerns



As a result, crypto-currency issuers eschew promotional activities and fear the bluntest form of certainty: that their market will be closed down. Token issuers, on the other hand, are making fine legal judgements about whether to design a token which is regulated or not. The costs of making a mistake, in terms of adverse regulatory rulings and financial penalties, are seen as real (see Chart 15).

But the reasoning varies between the unregulated and the regulated respondents. As Chart 15 shows, the entities most densely involved in the unregulated crypto-currency markets – namely, crypto-brokers, crypto-currency custodians and wealth managers – live in fear of getting fined for crossing a regulatory barrier, even inadvertently.

Their anxiety about the lack of regulatory clarity, which includes fretting about differences in the treatment of digital assets between jurisdictions, is merely the obverse of this fear of making an expensive error. Regulated entities congregate at the other end of the scale, where they are effectively waiting to be told what to do while worrying about breaching existing compliance

obligations.

Established firms, their autonomy long circumscribed by layers of regulation, dislike uncertainty because it complicates the task of building new digital asset compliance obligations into existing processes and systems. They are also – most obviously in the case of CSDs – anxious not to inadvertently breach existing compliance obligations.

An obvious case in point is filtering issuers and investors through Know Your Client (KYC), Anti-Money Laundering (AML), Countering the Financing of Terrorism (CFT) and sanctions screening checks. These have since 2018 applied to firms active in the cryptocurrency markets as well, most obviously in the form of the (in most jurisdictions, yet to be applied) Travel Rule. But national laws and regulations are an even more severe constraint on CSDs: they can prevent a CSD responding to digital assets at all. “We are permitted to hold only those assets which are approved by the regulator” says one CSD.

Technology vendors place the highest value on regulatory clarity for much the same reasons as their regulated clients: unstable compliance

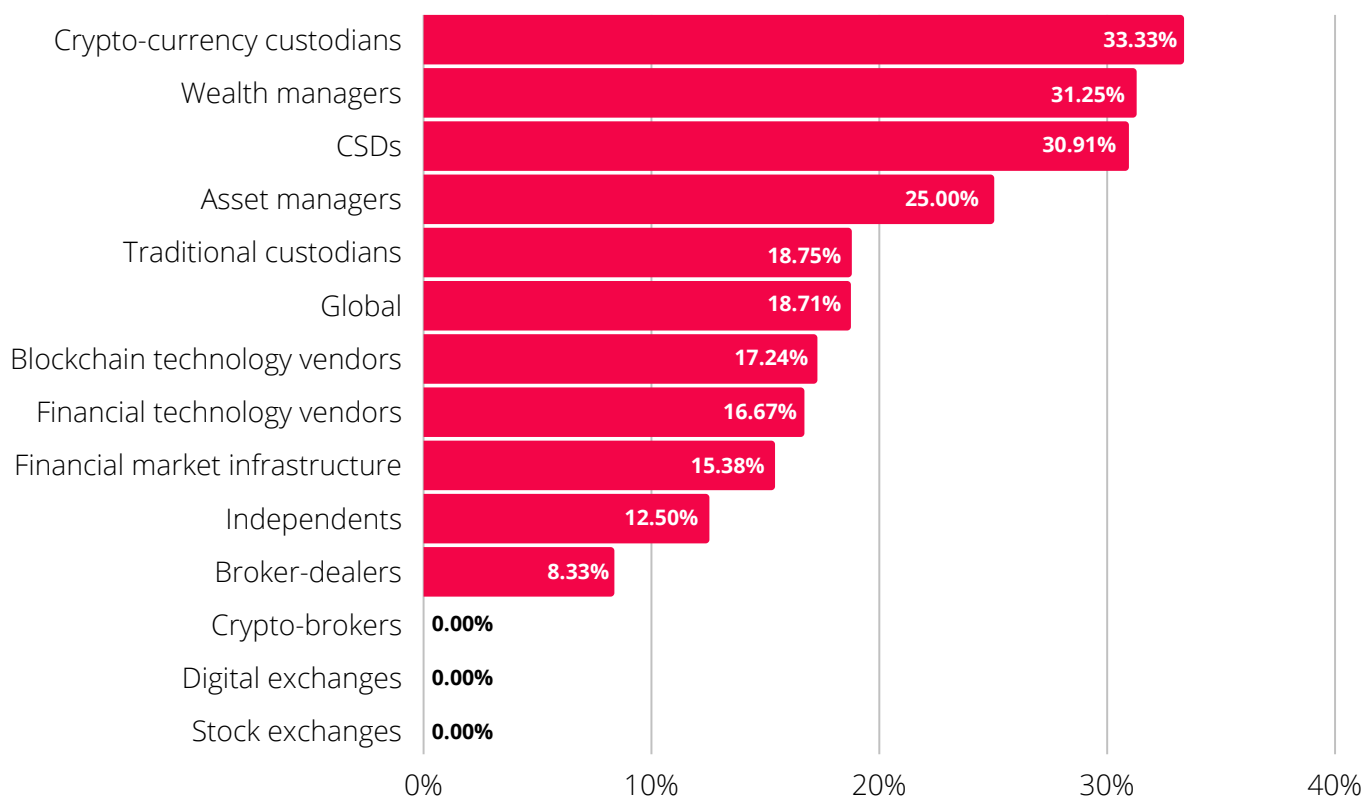
obligations are hard to build into the systems they sell to clients and require continuous investment to keep the systems up to date. Unsurprisingly, some vendors have chosen to limit this cost by refusing to support digital assets at all until clarity is achieved.

Blockchain technology vendors do not have that luxury. Although they fully embrace digital assets, and some offer full-service technology platforms, they have to accept that regulatory uncertainty deters risk-averse clients from investing. “Time and legal costs for regulatory approvals” is the

biggest barrier to success named by one blockchain technology vendor.

It will not be cleared quickly, even though it is increasingly obvious that regulators in the United States, the United Kingdom, Singapore and the European Union (EU) - whose Markets in Crypto-Assets Regulation (MiCA) is grinding through the legislative process towards a go-live date of 2024 – will bring crypto-currencies within the regulatory perimeter at some point in the relatively near future. That could unleash more institutional engagement with crypto-currencies, drawing in traditional service providers to

Chart 16: Internal operational and technological constraints



support them. “Crypto is still a retail play” as one custodian bank puts it. But institutional involvement is not a given. Unfortunately, events in the crypto-currency markets have tainted the reputation of digital assets in general, making it hard for entities conscious of their regulated status and fiduciary responsibilities even to enter the market.

Given the history of defalcations in the crypto-currency markets – the majority perpetrated by insiders – and the growing vulnerability of the DeFi markets to financial criminals, it is not surprising that security concerns (essentially, fear that assets will be hacked and stolen) and reputational risk (especially loss of assets belonging to customers) rank relatively high in the list of concerns, especially but not exclusively among traditional institutions (see Chart 13).

These fears are deterring regulated firms from embracing security tokens, even though it is now clear that these are regulated under existing securities laws (in common law jurisdictions such as the United Kingdom and the United States) or entirely new laws (in civil law jurisdictions such as Switzerland and Liechtenstein, both of which

have passed specific tokens laws).

An established stock exchange armed with a clear regulatory regime nevertheless encounters the difficulty of “aligning clients’ interests to get some critical mass.” Likewise, a blockchain technology vendor says a major barrier to progress in tokenisation is the difficulty of “managing a viable ecosystem of regulated institutions to collaborate on the same timetable.”

As a result, even a degree of regulatory certainty has not encouraged security token markets to take off. Estimates of their size are unreliable, but the most ambitious range no higher than US\$40 billion in total issuance. This amounts to 0.01 per cent of the global market value of equities, bonds and mutual funds outstanding in 2020. Even the crypto-currency markets are 73 times more valuable.

“Very narrow business case if we exclude crypto currencies (which is our case),” notes a custodian bank. An FMI explains that “market acceptance” of security tokens has yet to materialise. A stock exchange agrees that “community buy-in/commitment” is lacking. A crypto-currency custodian sees a “lack of customers’ buy-in as the

digital assets industry has not hit complete mainstream yet.”

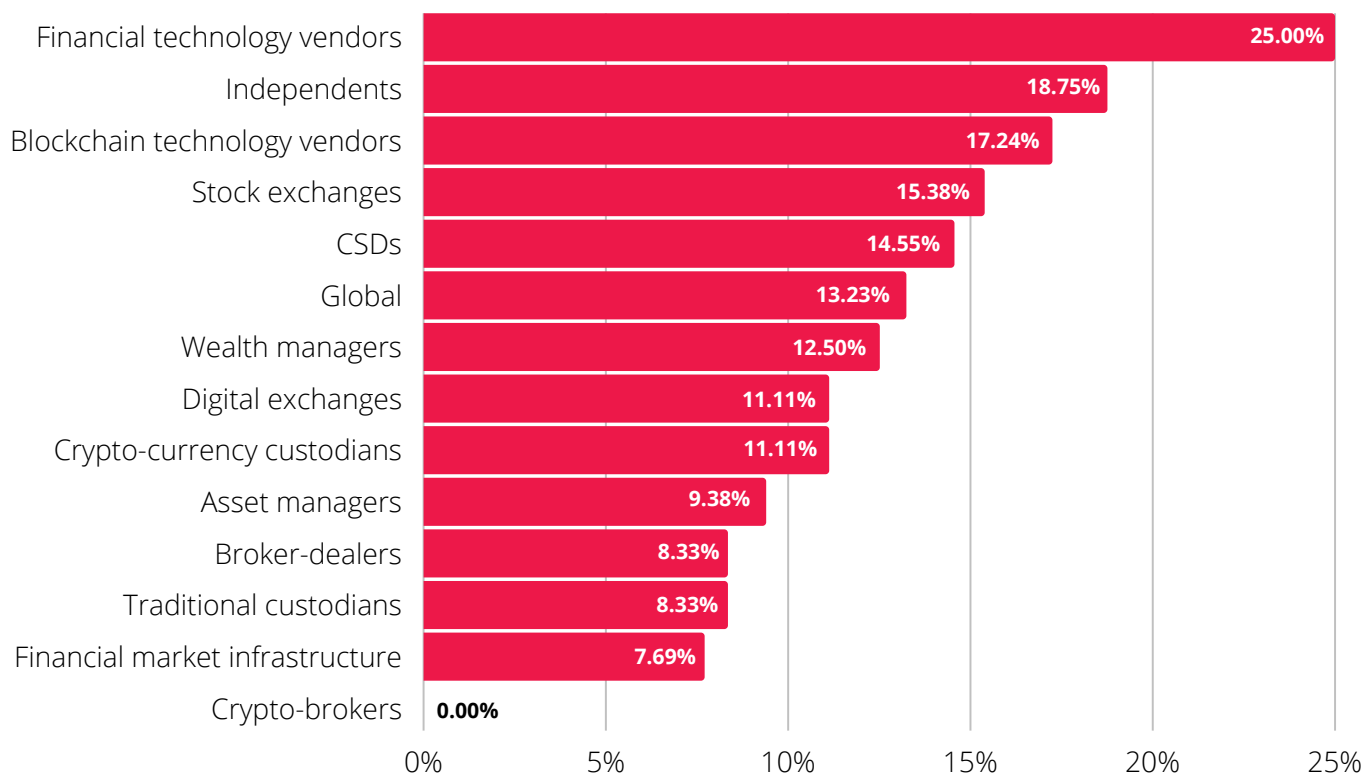
Given that the regulatory status of security tokens is now relatively clear, the barrier some respondents identify is lack of knowledge. The view of a digital exchange that sees “education on security tokens” as essential is endorsed by a consultant who believes that “education/knowledge to understand all implications of adopting digital assets” is the only way to make progress.

An asset manager scents a conspiracy. “Banks working in cartel to kill the space” he says. “Banks using criminal methods to discredit/kill the space.”

Certainly, banks could do more to bring issuers and investors to the market. But uneven and evolving regulation, coupled with security and reputational risks (see Chart 13), provide ample excuse to do little or nothing even without a conspiracy.

The cost of changing or adapting internal systems to accommodate digital assets furnishes a further argument (see Chart 16). Crypto-currency custodians struggle to integrate with the internal systems of institutional clients. CSDs and traditional custodians see internal systems as a major constraint on their own ability to accommodate digital assets, let

Chart 17: Internal budgetary and managerial constraints



alone that of their users.

On the buy-side, wealth and asset managers are operating order and execution management systems that are not only multifarious but fundamentally ill-adapted to the nature of digital assets. Existing systems manipulate and exchange data and instructions while digital assets incorporate data and self-execute coded instructions.

The appetite to adapt legacy systems to the demands of digital assets is low. Internal systems constraints are a barrier to progress in digital assets at every established business save stock exchanges (see Chart 16), the most adventurous of which are building entirely new digital asset issuance, trading, settlement and custody exchanges alongside their traditional platforms.

This puts stock exchanges on a par with digital exchanges, which already equip crypto-brokers and other users with the technologies they need to participate in the digital asset markets. A major cryptocurrency exchange such as Coinbase aims to help institutions issue, manage, trade, settle and custody digital assets in much the same way

as a progressive stock exchange.

Predictably, technology vendors and independents believe that budgetary constraints are a major obstacle to engagement by institutions and established firms (see Chart 17). But the detail of their responses indicates that even they believe sceptical senior managements and lack of the internal expertise to execute a digital assets project are more culpable.

An independent consultant explains that “complicated blockchain education for non-code developers” is a major obstacle to progress. This lack of internal expertise is also identified by traditional firms – asset managers, wealth managers, broker-dealers, custodians and CSDs – as a bigger constraint than budgets.

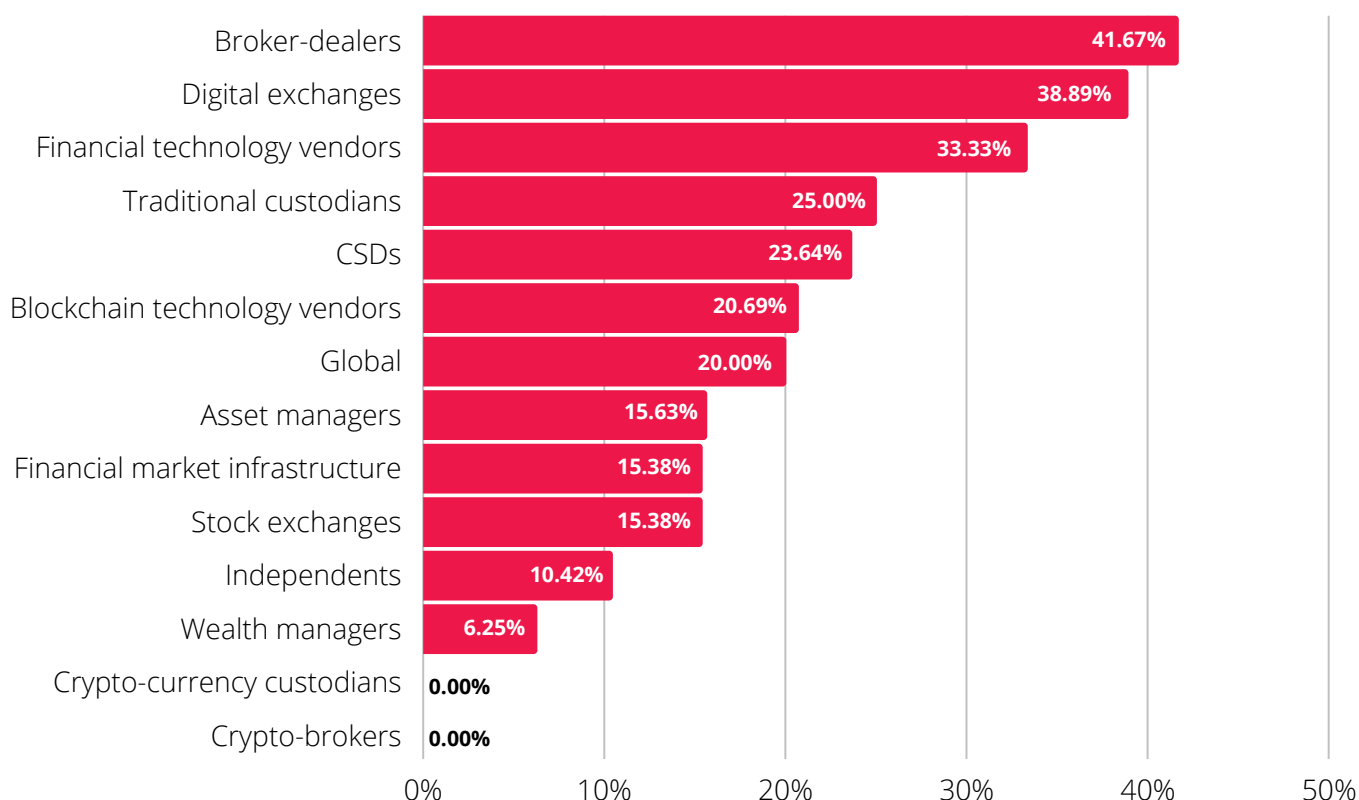
However, traditional firms underplay budgetary constraints and senior management scepticism (see Chart 17) about digital assets. Doubtless, this is partly to defend the cautious approach of their own organisations, but it is a reasonable point of view. Firms trying to sell them technologies and services are bound to ascribe any shortage of success to budgetary and hierarchical factors at target clients.

A less tractable barrier is the unresolved difficulty of scaling and accelerating blockchain technologies. Speed and capacity shortcomings have become obstacles to institutional engagement with digital assets. “Current, major blockchains suffering from lack of performance, functionality and ease of adoption ruining the reputation of the industry,” writes one blockchain technology vendor.

The standard institutional solution is permissioned blockchains that circumvent the speed and scale problems and obviate the need for every member of a network to see

everything. But even closed networks do not always persuade regulators that it is wise to trade security for efficiency. Closed networks increase the risk of data breaches and manipulation of outcomes by insiders. “Regulatory understanding that permissioned blockchain can be used in traditional regulated markets to digitise inter-firm workflows and for joint data management (while the securities remain the same, but with better qualities for the investors)” is what one blockchain technology vendor wants. But the regulatory concern is understandable, even if it is misplaced.

Chart 18: External operational and technological constraints



Permissioned blockchains using bespoke technologies and processes also make it harder to scale a market than open platforms such as Ethereum. Independent networks managing activities of limited scope risk creating digital asset silos between blockchain networks, and between blockchain networks and traditional markets. Inter-operability between networks is lacking.

The proliferation of competing but incompatible blockchain protocols makes this problem of limited inter-operability worse. Which matters, because the growth of digital asset markets depends on liquidity, and liquidity cannot increase if investors cannot move assets and liabilities seamlessly between traditional, crypto-currency, DeFi and security token markets.

It is difficult to scale a market when the business of potential participants is excluded through technological incompatibility. At the same time, market-wide infrastructure providers, which could lower the cost of adaptation to digital asset opportunities by providing industry-standard platforms, struggle to emerge amid a cacophony of competing claims.

his explains why only crypto-currency brokers and custodians do not consider the operational and technological capabilities of counterparties to be a constraint (see Chart 18). Their client bases possess, by definition, the technology they need to do business. As Chart 18 shows, every other type of firm active in the digital asset markets finds it more or less difficult to interact with others.

Regulation apart, this is the best single explanation of the narrow growth of crypto-currency markets and the slow growth of security token markets. The value of digital assets to issuers, investors and intermediaries will increase with scale. But network effects – the main driver of scale in any digitised market, from Amazon, through Facebook, to Uber – are lacking.

Unfortunately, network effects in digital asset markets are structurally constrained by a combination of legacy processes and systems, limited budgets, shortages of knowledge and expertise, regulatory uncertainty, reputational challenges and technical silos. As a buy-side respondent to the poll put it: “The overall infrastructure is not yet in place for anything other than experimentation.”

7.0

Conclusion

The purpose of the poll was to assess progress in the adoption of digital assets by established financial institutions and technology vendors as well as FinTechs. It aimed to identify priorities, live projects and obstacles to progress. The results portray a complicated transition from the present to the future, but one with clear momentum, which can be accelerated by addressing two major issues.

Across all types of respondents, interest in the opportunities and threats represented by digital assets is shallow as often as it is deep, but it is certainly broad. There is also growing overlap between established firms and challengers, and between regulated and unregulated organisations, in their levels and types of engagement with security and other tokens as well as cryptocurrencies.

Yet the degree of convergence is limited. The choice of digital asset priorities, and the services being developed to exploit or

support them, tend to follow specialisms. For example, respondents engaged in cryptocurrency broking, trading and custody tend to focus on cryptocurrency services, while established securities industry firms tend to concentrate on servicing security tokens.

Convergence of the cryptocurrency, token, DeFi and traditional money and securities markets is not helped by the recent deflation of values, not just in the crypto-currency and DeFi markets but in the traditional money and securities markets as well. Indeed, there is a view that the crypto-currency and DeFi boom of 2018-21 will prove to be an evanescent credit and hunt-for-yield driven bubble comparable with the most notorious speculations in financial history.

However, this is contradicted by growing evidence in this survey and elsewhere of rising interest in the potential of blockchain technology and tokenisation to transform the operational and commercial models of

established financial markets as various as bonds, securities financing, mutual funds and privately managed assets. A convergence of the digital and traditional financial asset markets is still in prospect.

However, it is obstructed by two factors. The first is an unhelpful bifurcation of regulation between cryptocurrencies (which are unregulated where they are not banned) and other types of digital assets (most are regulated as securities), which limits the degree to which participants can move between markets. This is likely to be corrected soon.

The second factor is the lack of technical inter-operability between the networks on which different types of digital asset are issued, traded, settled and safekept, and between digital asset networks and the traditional money and securities markets. This is a function of incompatible protocols, absence of standards and fundamental issues such as the lack of fiat currency in fully digital form. Though a wide variety of technical solutions are available and being developed, correcting this may be impossible without collaboration between market participants.

Convergence between digital assets and traditional asset markets, market infrastructures and market participants is the best guarantor of growth and increased liquidity in digital assets. It will give rise to network effects, in which issuers and investors will attract further issuers and investors, because it will be easy to move assets and liabilities between fully digitised financial markets



Future of
Finance

www.futureoffinance.biz