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ScienceDirect

Procedia Computer Science 242 (2024) 65–72

Procedia Computer Science

www.elsevier.com/locate/procedia

11th International Conference on Information Technology and Quantitative Management (ITQM 2024)

Creation Of A Platform For Issuing Digital Financial Assets: Income, Costs And Risks

Egor Pastukhov, Sergei Grishunin*

HSE University, Moscow, Russia
HSE University, Moscow, Russia

Abstract

Today, one of the main technological challenges of the financial market is digitalization. Allied Research estimates that global investment in financial technology will amount to $150 billion in 2023, and the market is expected to grow to nearly $700 billion by 2030. The transfer of existing traditional financial objects is one of the key factors in optimizing processes. In parallel, DFAs are considered by financial market players as one of the key facts of its development. Therefore, the development and implementation of components for working with them are one of the most pressing tasks. Based on the goals of the scientific work, the following hypotheses were formed:

1. In Russia, a legal and technological infrastructure has been created that allows the full use of DFA as a financial instrument.
2. The digital assets segment in Russia is at the stage of rapid development and there is potential to increase demand for digital assets in the medium term.
3. It is possible to create your own information system operator to issue digital financial assets with profit in the medium term.

To achieve this goal, it is necessary to solve the following tasks: Platform, its economic efficiency; Drivers of income, expenses and risks; Risk-based Monte Carlo model.

As a result, we assume that in the case of the predicted growth of the DFA market, creation of a platform to ensure work will be profitable even in a conservative version of the market share, but the remaining risks of ensuring demand by the market and regulatory restrictions may put such forecast at risk.

Keywords: digital financial assets; CBDC; digital assets; digital finance

* Egor Pastukhov. e-mail: yegorpast@me.com and Sergei Grishunin. e-mail: sgrishunin@hse.ru

1877-0509
10.1016/j.procs.2024.08.231

1. Economic essence and market of digital assets

There are many factors that indicate that the digital assets segment is rapidly developing in Russian practice. New systems and services are emerging, which attracts more and more funds and capital to this industry. Such trends allow us to conclude that digital assets play an important role and their importance in the modern financial system will increase. Additional confirmation of this conclusion will be an assessment of supply and demand for DFA in the Russian Federation. Over the past two years, about $33 million [1] have been issued in the form of DFAs (Figure 1), which are of course small, but for the most part represent test transactions on certain platforms for selected investors.

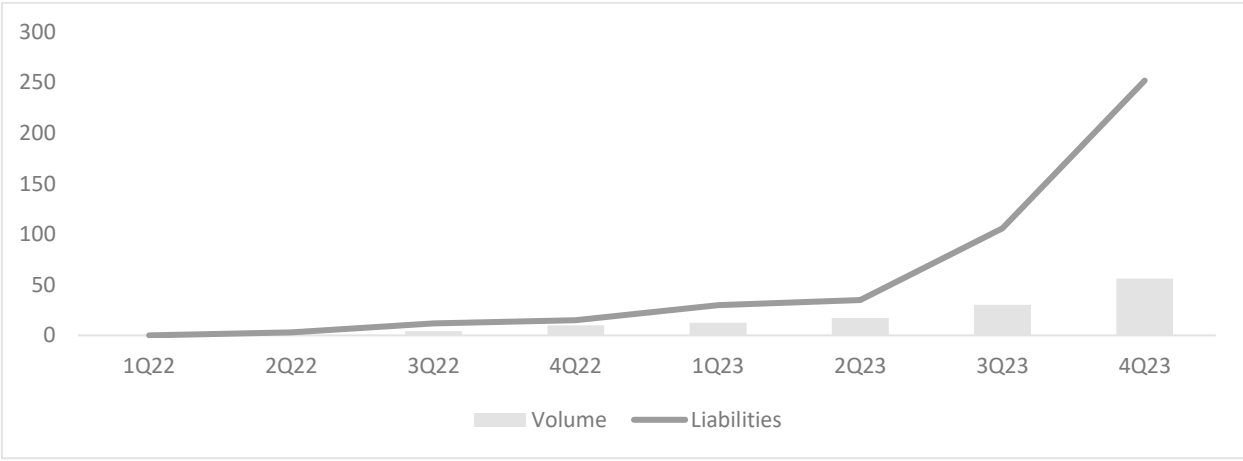

Figure 1. Number of DFA issues as a cumulative total and amount of liabilities.

It is important to separate the two concepts. In a broad sense, these are abstract references to a collection of material resources owned. Typically, digital assets include virtual machines, servers, applications, and the like. At its core, it is a collection of IT assets that support an organization's business processes and support operations. In a narrow sense, it is an asset that is represented and circulated only in digital form or is a digital (electronic) representation of another asset. It is important to understand that such a large block of assets is divided into several types. From the point of view of a means of payment, there are 2 concepts [2] (Russian and international classification):

- Central bank digital currency / CBDC
- Digital currency / Coin

For business purposes, 2 other divisions are used:

- Security Token, Stable Coin
- Utility token, NFT

According to the legislation of the Russian Federation, it is prohibited to use DFA and DCP in explicit form for calculations. But in this study, we will only focus on digital financial assets. There are 2 more important concepts – token and cryptocurrency. The main difference is that a token is a unit of accounting and measurement in the software interface, and a cryptocurrency is simply a type of digital currency, the accounting of internal units of account of which is provided by a decentralized payment system operating in a fully automatic mode.

Regulatory framework for DFA [3]. The first article of the Civil Code 141 appeared, regulating digital rights in No. 34-FZ of March 18, 2019. Further, DFAs began to be regulated by No. 259-FZ of July 31, 2020, and represent rights to monetary claims, the ability to exercise rights under equity securities and participation in capital. On the other hand, DFA are regulated by No. 259-FZ of August 2, 2019, and represent the rights to receive business services and products, intellectual rights. Hybrid digital rights are also highlighted – this is a combination of DRM and DFA in one comprehensive product [4]. It is possible to highlight several key advantages of DFA:

1. Increasing the speed of obtaining financing. The minimum number of participants in relation to the classical financial market, where the national settlement depot, accounting for securities, the national clearing center (carries out settlements), the exchange (compares orders and registers transactions), the Central Bank, stock exchange or

NSD (registers the decision to issue bonds) and brokers (open accounts). Yes, some roles are combined in the person of one agent, but in general the number is significantly greater.

2. Reducing costs for the issuer. In the case of issuing DFA, the issuer is not required, as in the case of securities, to carry out preparatory and accompanying products set out in No. 39-FZ on information disclosure and due diligence procedures, etc. All he needs to do is go through identification and publish a document on his website - a decision to issue a digital financial document. Thus, the period for issuing a digital asset is significantly reduced.
3. Transparent system for setting up the creation and control of rights to assets. Issuers are often deprived of the opportunity to issue individual products structured to suit their needs, since intermediaries offer only a standard list of products.
4. Expanding the circle of investors. Retail investors, especially unskilled ones, often don't have access to the products that interest them most. They can soon be released by organizing banks or investment funds. Their minimum entry level is very high, and widely available investment products do not have high returns.
5. Possibility of making programmed transactions. The ability to automatically carry out transactions in accordance with the algorithm determined by the smart contract, which reduces costs and the role of intermediaries.

In general, as a rule, you can make the following table with the term and requirements in relation to DFAs and traditional bonds in terms of issue (Table 1):

Table 1. DFA vs corporate bonds comparison.

	Corporate bonds	DFA
Preparatory stage:		
Preparation and signing of the mandate agreement	✓	✓
Approval of the release program	✓	×
Gaining access to the market infrastructure / registering a wallet	✓	✓
Obtaining a credit rating:		
Selecting a rating agency and preparing a rating presentation and other documents	✓	×
Company analysis by a rating agency, credit committee, issuer rating assignment	✓	×
Preparation of issue documents:		
Preparation of documentation for permission to enter the site	✓	×
Registration of release program (release decisions) and placement	✓	✓
Total	8 weeks	4 weeks

As can be seen, on average, the issue of DFA instead of traditional funding in the form of corporate bonds takes two times less, since it does not require approval of the issuance process, obtaining a credit rating and other procedures that are currently enshrined in the legislation of various countries, required to attract debt financing and usually available only to large companies [5,6].

2. Risks, limitations and challenges

It can be said that, in general, the prospects for the development of DFAs largely depend on the presence of market demand for a new type of asset. Based on the current situation in the financing market, the capabilities and limitations of the new instrument, it can be estimated that in the medium term, potential demand will vary from type. Raising this threshold will likely be hampered by the lack of interoperability between platforms and the absence of a secondary market for DFAs [7]. The Table 2 examines and presents the estimated demand for each category of investors:

Table 2. Potential demand for DFA.

Type	Prerequisites	Potential demand

Banks	It is expected that the structure of DFA holders will be like the current structure of financing providers. With the high involvement of platform operators in the financing process (so far only the 5 largest banks have such demand), a conservative flow of funds from bonds and loans is possible for up to a year	Up to 5% of investments in bonds and loans for up to a year
Financial institutions	About a quarter of the market is occupied by insurance companies, non-state pension funds and other institutional investors, however, under the current legal framework they are limited to investing in DFAs, so their contribution to demand is not assessed. However, if there is access to the market, a conservative flow of funds from investments into corporate bonds is possible	Up to 5% of investments in corporate bonds
Retail investors	It is expected that retail investors will be able to invest in DFAs, but with a bias towards short-term instruments. According to surveys, there may be a flow of funds from their brokerage accounts	Up to 5% of funds in brokerage accounts

Historically, it is believed that the cost of issuing a traditional exchange-traded bond range from 11 to 23 million rubles and consists of:

- Underwriter and placement commissions are 75-90%
- Exchange commissions is 1-3%
- Depository commissions is 1-3%
- The cost of obtaining a rating is 2-20%
- Marketing and disclosure are 20%

Despite the average commission of the operator of the DFA platform of 5-7%, the cost of raising debt financing in total will be significantly lower and it can be assumed that due to the high costs for issuing exchange-traded bonds, especially up to 1 billion rubles, the offer of a new instrument will be in demand by market participants with limited access to the financing market.

With further development of the market, the total supply volume may reach 5 trillion rubles (Table 3). It is important to note that most likely, the proposal to attract this type of financing will come from SMEs [7].

Table 3. Potential supply for DFA.

Type	Prerequisites	Potential
SME	The DFA market provides entities with access to new investors, which was previously unavailable compared to traditional forms of financing, due to the simplicity and speed of placement of the issue. However, the implementation of such volume will depend on the level of infrastructure development and requirements	According to experts, more than 80% of the total supply can come from companies from the SME sector.
Big business	For companies with access to the debt financing market, DFAs can be a convenient alternative to traditional short-term financing due to the high speed of placement and lower issuance costs, but only if there are competitive funding costs	In the long term, up to 5% in the financing structure or about 20% of the potential market

As the market develops further, it can be assumed that DFAs will grow primarily due to simple and existing types of instruments, but in the future, there may be new complex products on strategy, securitization and trading in the securities market [8].

On average, the implementation and development of your own DFA platform takes about 1 calendar year. In this case, the roadmap with the main steps looks like this (Table 4).

Table 4. Roadmap for DFA platform production.

Step	Q1	Q2	Q3	Q4
Business processes (business requirements, rules and roles development)				
Coordination of the platform with the Central Bank				
Architecture creation of the transaction registry				
Settlements and reporting with the Central Bank				
Development of the interface for clients and launch				

Based on the data provided in the table, we will then build a model for calculating the PNL of the DFA platform considering possible risks for 3 different scenarios and try to evaluate the effectiveness of implementing such an opportunity on the market.

3. Building a DFA platform for the medium-term period

Basic prerequisites for the DFA market. We divided all DFA market options into 3 blocks with subblocks for each of them and separately calculated the market and market share:

1. Rights of monetary claim:
    a. Digital bonds
    b. Digital securitization
    c. Digital factoring
2. Rights to participate in the capital of a non-public joint-stock company
3. Derivatives

Our model will consider all mentioned subblocks for calculation in different shares. Table 5 shows general forecast data for each type of DFA, million rubles for the base scenario. Data for 2023 is based on fact for 9 months and 4Q23 forecast [1].

Table 5. General pre-requisites for model.

Year	2022	2023	2024	2025	2026	2027
Type	Fact	Fa. + Fo.	Forecast	Forecast	Forecast	Forecast
Inflation	15.0%	7.5%	5.0%	5.0%	4.5%	4.0%
Rights of monetary claim	2 225	39 544	120 409	248 977	336 373	457 619
Rights to participate in the capital of a non-public JSC	0	0	1 500	2 500	4 000	5 000
Derivatives	0	1 000	5 000	20 000	50 000	100 000
Total DFA market forecast	2 225	40 544	126 909	271 477	390 373	562 619

Data in Table 5 is used for calculation in scenarios below and it assumes a gradual growth of the digital financial assets market based on historical data and researches [9]. Figure 2 with data comparing the base, conservative and optimistic scenarios of the DFA market, in million rubles. It can be noted that the scenarios differ quite significantly from each other, and this difference increases over the years, for example, between the conservative scenario and the optimistic one the difference by 2027 will reach about 50%, and most likely, over a longer term it will also increase.

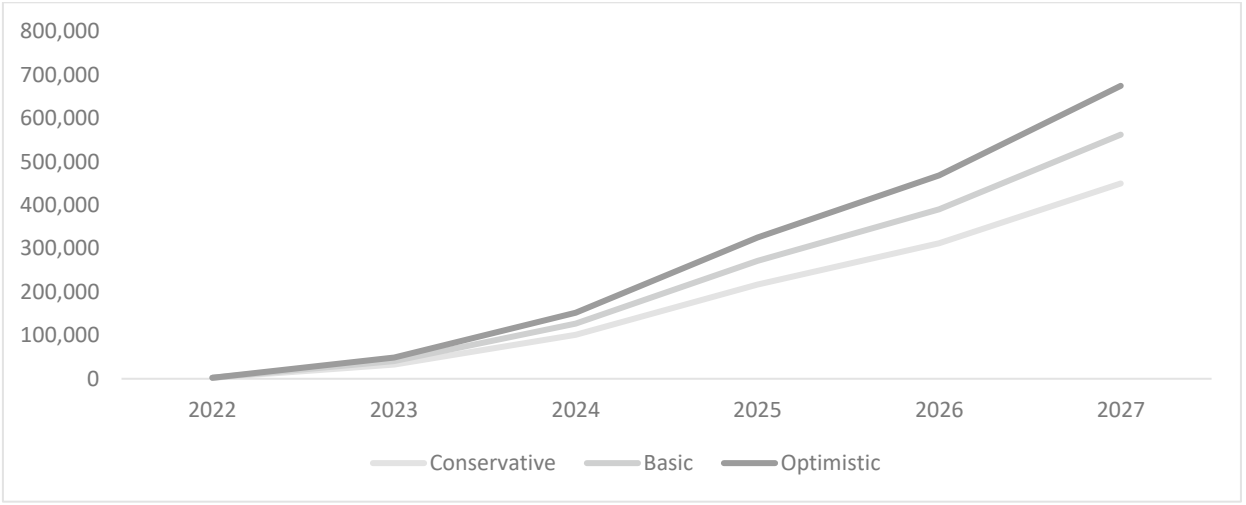

Figure 2. Growth scenarios of the DFA market.

We also made 3 scenarios for each block Table 6 represents an example of a share in a short version for the platform's market share:

Table 6. Market share in different scenarios.

Market Share, %	2023	2024	2025	2026	2027
Conservative	–	1.6	4.0	5.6	8.0
Basic	–	2.0	5.0	7.0	10.0
Optimistic	–	2.4	6.0	8.4	12.0

For each indicator: the volume of the DFA market (% of the market for traditional instruments), the market share of the site, the size of the commission for issuing DFA, the factor of purchasing OIS from a third-party provider or its own development, and separately for each instrument.

Now we estimate income and expenses based on various calculation assumptions and various combinations of market share and market size scenarios for DFAs and issue fees
For each scenario, the main income driver is calculated - the commission for issuing DFAs and ranges from 0.4 to 2.4% depending on the instrument. Also, the commission for a client's request ranges from 0.04% to 0.06% of the value of the asset. Payroll, which includes calculations for employees developing, maintaining and writing the platform, is about % of the total costs in any scenario and does not change significantly depending on the scenario. The second block is infrastructure maintenance, which includes servers and nodes, back services, and equipment from scratch; as an additional factor in the model, the possibility of purchasing a third-party platform without in-house development was considered.

In total, in 3 scenarios (Table 7) the following cash flows are obtained for all 3 variable variables in the model, million rubles.

Table 7. Cash flows for 3 scenarios.

Year	2022	2023	2024	2025	2026	2027	IRR, %
Conservative	–	-51.3	-94.3	-55.4	6.0	120.5	
Income	–	0	8.6	47.3	102.3	220.7	-15
Expenses	–	-51.3	-102.9	-102.7	-96.3	-100.2	

Basic	–	-51.3	-86.0	-10.3	103.5	330.8	
Income	–	0	16.9	92.4	199.9	431.0	42
Expenses	–	-51.3	-102.9	-102.7	-96.3	-100.2	
Optimistic	–	-51.3	-73.0	63.5	271.3	707.3	
Income	–	0	29.9	166.2	367.7	807.4	105
Expenses	–	-51.3	-102.9	-102.7	-96.3	-100.2	

Building a matrix (basic / conservative / optimistic) for market volume and market share, taking the size of the commission as a constant in the basic case, we will get the following IRR in % and without purchasing the system (Table 8):

Table 8. Matrix of IRR.

Size / Share	Conservative	Basic	Optimistic
Conservative	4	22	38
Basic	22	42	59
Optimistic	38	59	78

Overall, under the basic scenario of DFA market development, project will be break-even profitable in the conservative option of the market share parameter development, which generally indicates that there is good potential for creating a digital financial assets operating model now, since we observe growing demand in the market, and we can consider that the market is in the stage of active growth and filling with new players. But, of course, in general, all dependent indicators show from -15% to 105% IRR as a measurement of project performance indicators and there are some risks that can occur despite of the market movement.

Conclusion

Thus, summing up the results of the scientific research, we can state the following results: that the segment of digital financial assets in modern practice in Russia and abroad is at the stage of rapid development, due to the adoption of regulatory rules for the functioning of this market. This is an expected stage of evolutionary development, opening prospects for rapid scaling and geographic expansion. The emergence of digital financial assets has revealed several problems and threats associated with the use of modern technologies in finance. However, thanks to the active participation of government authorities and management, their leveling is ensured, sometimes at a preventive level, which makes it possible to create comfortable living conditions for all participants in the digital financial assets market. Testing the hypotheses outlined in the introduction showed the following: Russia's participation in the leading group of countries in the development of digital assets, the increase in the share of non-cash transactions, analysis of the potential market and interest indicate a stage of rapid growth in the development of this segment. Supply and demand for the digital ruble will likely not be met by market interest due to the availability of value-added alternatives. Ultimately, the success of a central bank digital currency launch will depend on its adoption by users, which will be driven by the adoption of digital assets as a value-added payment method that improves on existing alternatives (vs. bank cards and cash). If such benefits are found to be lower than the risks or are not proven, then efforts to implement a digital currency may not achieve their goals. However, if the initiative goes beyond the pilot stage, most likely, the Central Bank will use all available tools to achieve success, namely, to become widespread, partially displacing other instruments of payment and storage of values, government transfers subject to the influence of the government or the Central Bank will be used. At the same time, the supply and demand for digital financial assets will be largely insignificant and will be provided mainly through short-term lending in the SME segment and will not be in demand among companies that do not require debt financing. It is worth noting that at the current stage of development of DFAs, it really makes sense to issue short-term obligations by reducing costs relative to traditional instruments. It is expected that the development of the DFA market will further reduce the cost of financing by allowing retail investors into the market and connecting the final investor and beneficiary, which will ultimately affect the company's balance sheet.

In this sense, key areas for future research could be the risks and impact of digital assets on both commercial banks

and households, as well as modeling the demand for such assets depending on the likely scenarios that the Central Bank can offer and calculating the reduction in the cost of short-term financing for companies.

Acknowledgements

Affiliation with HSE University is required
The research was funded by the Russian Science Foundation (project No. 23-18-00756)

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