Whitepaper

Mission: Innovate the real estate space using blockchain Technology.

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Refracto

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Preamble / Introduction

Real estate is the oldest form of investments in the world. It is also widely considered one of the most stable types of investments.

Interest in the real estate market has been steadily increasing since 2011. Additionally, surveys show this market is recovering very quickly after the Coronavirus Pandemic, both in the number of businesses, profitability and overall confidence in the market (PwC and Urban Land Institute).

Real estate is very interesting for investors because there is little correlation to the tech sector or cryptocurrencies, making it a great area to diversify your portfolio (Investment Property Forum).

The Problem

Historically, real estate investors can expect an average APY of 7% (Jordà et al.). There are, however, many details hidden behind this figure. For most people, real estate investments are inaccessible, are very risky and require much more effort than other types of investments.

Below, we detail some of the biggest problems faced by those choosing to invest in real estate.

High starting costs

Real estate investments have a notoriously high entry cost. In some countries in Europe, the house price can be up to 145 times the local annual income ("Income to House Price Ratio in Europe | European House Price Income Ratio"). This is much larger than the investing budget of the vast majority of people. Trends suggest that real estate will become less accessible over time in the vast majority of european countries (Deloitte).

In order to finance this purchase, most people would have to take out a loan. However, there are multiple problems with this approach:

- Risk of default - due to changes in income, the person may not be able to pay back the loan
- Lower return on investment - an average yearly interest of 5% means that a property that would normally break even in 10 years, does so in only 30+ years
- External Obsolescence - due to factors outside the owner's control, the property price (or prices in the entire neighbourhood). Neighbours can often lower the value of a property by 10-24% (Colwell et al. 625-626).
- Risk of market downturn - as seen in the 2008 mortgage crisis, the entire real estate market can drop.

Impossibility of Diversification

For most people, taking out multiple loans in order to purchase multiple properties is either not possible, or at the very least extremely risky.

Thus, since one cannot diversify between multiple properties, a person investing in real estate has many risks, many of which are outside his/her control. These are, among others:

- Location risk - Possibility of real estate price drops at or around the property location
- Risk of unforeseen problems with property

Lack of Real Estate Knowledge

Investing in real estate requires a very specific skill set, which most people starting out just do not have.

Precisely, it requires:

- Real estate specific knowledge
- Deep understanding of the local economy / market
- knowledge of legal requirements and a business plan.

Without the necessary knowledge, there is a very large risk of overestimating the value of property, paying significantly more than market value and thus losing money. On the other hand, without a good plan in place, even great value purchases can fail to bring the expected profit. Lack of awareness of the legal requirements can lead to fines and other types of penalties, making the investment not worthwhile

Lack of Knowledge of Legal Requirements

Investing in real estate requires knowledge of the legal requirements. These legal requirements add to transaction costs, raising the de facto cost of acquisition. In Europe, these range between 3 and 21%, with an average of 10-12% per round trip (buying and selling) [Druica et al. 419]. Ignorance of these can lead to large fines or even more serious consequences.
Due to differing legal requirements, it is very difficult for an individual to purchase real estate in another country.

Large Management effort

People purchasing real estate are often surprised by how much effort managing a property entails. Besides the above mentioned knowledge that must first be learned in order to effectively invest in real estate, there are many more activities needed to monetize the investment. Real estate is rarely a passive investment.
Different activities necessary requiring time and/or money investment when renting out a property:

- Finding and vetting tenants
- Registering the rent contract
- Payment collection
- Maintenance and repairs
- Updating and improving property

Standard professional property management fees are between 8-10% (Harmon and Griswold 77). The high time costs make managing the property yourself not worth it (McElroy 56).

Existing Solutions

Currently there are a few solutions to making real estate investing more accessible. Below we analysed some of these options.

Timeshares

Timeshares used to be very popular in the 70's through 90's. Timeshares, however, cannot be viewed as investments with the goal of generating income, but rather as a way to save costs when vacationing (Fontinelle and Witkowski).

Real Estate Investment Trusts (REIT)

The US stock market's response to the problem presented above are Real Estate Investment Trusts (REIT). These are funds generating profits in one of 3 ways: renting out properties, selling properties or financing real estate loans. They are required to return at least 90% of these profits as dividends every year.

While this sounds like the ideal solution on paper, REITs suffer from the following drawbacks:

- High minimum investment amount (O'Connell and Mansa)
- Low ROI - average of 8,34% over the last 10 years (Nareit)
- Investors cannot choose which properties to invest in

Fractional Real Estate Platforms

There are several platforms crowdfunding the purchase of real estate properties with the purpose of renting them out or selling at a profit. Some of these even use the latest cryptocurrency technologies, thus allowing the investors to actually own and freely trade these investments.

While investors appreciate these properties being physically owned by the company in charge of the platform (and indirectly by them), there are some drawbacks to this.

Since the business model depends on real estate prices rising (or atleast staying the same), such investments are at great risk during real estate market downturns. If these properties drop in value, these can lead to a large negative ROI for the investors (sometimes up to -50%).

Real Estate Crowdfunding Platforms

One of the newer solutions to this problem are Real Estate Crowdfunding Platforms. Starting with 2014 more and more such platforms have been launched, and the amount financed has grown as well [Statista GmbH]. These allow people to invest in real estate loans starting with small amounts (50$).

These offer much better cash-on-cash returns than the above options, with an average of more than 10% annualised return. Since the investors are financing loans, not buying real estate, this option grealy minimises the risk of real estate price drops [Mucedola].

However these platforms suffer from the following drawbacks:

- Fundraising campaigns are not transparent
- Investors do not actually own these shares themselves
- Secondary market trades can only happen on the platform

Market

In 2022, the EU commercial real estate market was valued at 7.1 trillion $ [European Public Real Estate Association] whereas the US commercial real estate market is valued at 20.7 trillion $ [DeLullo].

Within the listed real estate sector in the EU, there are currently 173 REITs with a combined market cap of USD 227 billion, against 253 Non-REITs with a combined market cap of USD 295 billion. Meanwhile in the USA, listed real estate is a 4.7 trillion $ industry [Nareit].

According to the numbers above, listed real estate has a market share in the total commercial real estate space that is three times larger in the U.S. than its European counterpart (22.7% vs 7.4%).

This suggests that European real estate investing still has plenty of room to grow. Also, it seems that Europeans are more open to other types of real estate investment than their American counterparts.

This suggests that there is much demand in Europe for better, more accessible real estate investments.

The Real estate Crowdfunding platform market is 21 billion $ in the US and 6.5 billion EUR in Europe [Politecnico di Milano et al.]. Both RECF sectors have a market share of approx. 0.1% of the overall commercial real estate market.

The Global Real estate crowdfunding market is expected to have a CAGR (compound annualized growth rate) of between 24.67% [“Real Estate Crowdfunding Market Growth and Forecast 2020-2030”] and 45.6% until 2030 [Polaris Market Research].

Solution / Product

Our solution combines multiple above concepts into one highly efficient solution:

- Real Estate Crowdfunding - real estate loans as safe investments with good cash-on-cash ROI
- Fractional Real Estate Ownership - real estate purchases as long term investments with great potential ROI
- Using Blockchain Technology - allowing investors to actually own their investments

Next we will explain the process in detail

Real Estate Crowdfunding

With Real Estate Crowdfunding, micro investors offer short term loans (12 months) to real estate developers. This approach allows the general public to invest in real estate in a safe, easy way. Real estate developers benefit by gaining an additional source of financing.

Normally, real estate developers go to the banks for loans, however there multiple reasons for which they would prefer real estate crowdfunding:

- Much faster fundraising period - 1 month as opposed to up to more than 3 months
- More flexibility when using the funds - real estate developers may use these funds for marketing and branding the properties for sale
- Banks have a very rigid process (O'Connell and Mansa)

Step 1 - Opportunity Evaluation

A real estate developer needs a loan for a short period (12 months) in order to finalize a project. He decides that real estate crowdfunding is the best way to finance it.

First he sends all the required information required regarding his company (to be checked by Refracto), including financial statements.

He then creates a proposal with the following information:

- Size of loan and repayment plan
- Proof of ownership of the location
- Authorisations for constructing the project
- Loan-to-Value
- Project description
- Risk analysis
- Price analysis of location
- Competitor Analysis
- Sponsor / Responsible persons
- SWOT Analysis
- Business Plan

- Cash Flow

Meanwhile, a third party real estate evaluator is sent to estimate the value of the property to be constructed, to be checked against the project proposal.

After all this information is provided, the risk of the project is analysed. If the project is considered a safe investment, an interest rate will be calculated and the real estate developer will get the final offer.

Once the real estate developer has accepted the offer, it will be posted on the platform and the crowdfunding campaign starts.

Step 2 - Crowdfunding Campaign

The Project Proposal with full documentation is posted on the platform to be evaluated by all investors. The Loan is split up in many parts, represented by the project token, such that each token is accessible in price (not more than 100€).

The Crowdfunding Campaign will last 1 month, but may be extended to 2 months if the minimum threshold has not been reached and the developer wishes so.

Investors will purchase project tokens using stablecoins. After each sale, a legal contract (in PDF form) is automatically generated, using information from the investor KYC process.

In case the minimum investment threshold is not reached by the end of the crowdfunding period, the investors will receive their original investments back, and the project will be cancelled.

The crowdfunding campaign is successfully finished if:
- The minimum investment threshold is reached and the allocated time is finished OR
- The maximum investment threshold is reached

Once the crowdfunding campaign is successfully finished, the following happens:
- The project tokens are distributed to the investors wallets proportional with their investment
- The Developer gains access to the loaned sum (in the form of stablecoins in his/her crypto wallet)

Step 3 - Project Execution

The real estate developer will use the funds to cover costs relating to the construction and selling of the properties.

He must pay back the loan in the form of stablecoins in the appropriate crypto wallet, respecting the payment plan of the project. These funds can then be claimed by the investors.

For any delays paying back the loan, the developer must pay additional penalisations. In case of non-payment, legal action will be taken against the developer.

Before the project finalisation, investors can freely sell their project tokens on the secondary market. The Buyer can then claim the funds associated with their investment.

Step 4 - Project Exit

Once the entire sum has been paid back, the developer has fulfilled his duties.
Anyone holding the project tokens can turn their project tokens back into stablecoins, receiving back their invested principal, as well the agreed upon interest.

Software Architecture

For implementing our solution, we have chosen the Elrond Network blockchain, mostly due to its high performance, high scalability, high throughput, low fees, as well as for the true ownership for NFTs and tokens (NFTs and tokens lie in the account's storage instead of smart contract's storage).

The investment share is represented through MetaESDT ownership. Each token nonce will represent a project, thus being able to only use one token name.

The crowdfunding process happens at the smart contract level, through our intuitive UI. On investing, users will receive their share of the MetaESDT token nonce relative to their investment amount.
During the crowdfunding process, the funds are locked in the smart contract. Funds can be withdrawn in two ways:

- If the crowdfunding fails (by not reaching the funded amount before the deadline): users will have to exchange their MetaESDT token nonce to get their investment fund back - seamless operation through our UI
- If the crowdfunding succeeds: funds will be delivered to the credited party

Once the loan period ends and the loan is returned, users will be able to exchange their tokens from the pool of money filled by the credited part.

The MetaESDT token can be transferred freely and traded on any secondary marketplace, although we'll provide our own secondary marketplace so that users can trade without fear of scams or duplicate tokens.

Team

We are a team of software engineers passionate about crypto and stable investments.

DeFi offers many new possibilities. By leveraging the power of NFTs, we can upgrade the way the real estate market works.

Roadmap

2022.Q1

- [x] ~~Product Concept~~

2022.Q2

- [x] ~~Competitor analysis~~
- [x] ~~Market Research~~
- [x] ~~Private equity presentation~~

2022.Q3

- [x] ~~Landing Page~~
- [x] ~~Customer interview form~~
- [x] ~~Company established~~
- [ ] UI/UX
- [ ] Legal solution
- [ ] Validate platform through customer interviews
- [ ] Low Fidelity Platform MVP

2022.Q4

- [ ] Launchpad - Seed Funding
- [ ] High Fidelity Platform MVP
- [ ] Smart Contracts Prototype
- [ ] Discord Community - 50 member
- [ ] Twitter - 1000 Followers

2023.Q1

- [ ] Partnership (Letter of intent) with real estate developer
- [ ] Smart Contracts Audit

Conclusion

To conclude, we can see that there is a need in the crypto market for more stable investments. There is currently no blockchain-based real estate crowdfunding platform based on lending. Refracto will be the first such product.

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