



# 1 Introduction

Leaving aside the various technical debates that have arisen in the cryptocurrency landscape [1], very few digital currencies have attempted to solve the problem of being an unsecured exchange instrument. Unlike dollars, pounds or any other national currency, digital currencies do not benefit from the backing of central banks and their mechanisms - relying solely on the faith of their users. The process of price discovery for digital currencies has been left largely untouched and many of the influential figures in the community have avoided the subject like the plague [2] [3].

It is not unreasonable that a large number of potential users are not reached due to the lack of price stability in the digital currency “markets”. A possible cause could be the imbalance between speculators and actual users. In this paper we define users as entities who have no aim to earn a profit from fluctuations in the currency but are rather using it to store wealth, or use it on a daily basis as a form of payment; for such users a highly volatile asset is unsuitable and most likely detrimental to their goals.

“DinarDirham” is a company attempting to address the problem of volatility and price-discovery by using the existing spot gold market as the underlying pricing mechanism for its digital currency.

## 2 Background

Digital currencies (such as “BTC”, “LTC”, etc...) have succeeded at offering systematic solutions to two main problems which could not be fully addressed with traditional methods: anonymity, fraud and counterfeiting of currencies [4]. Later generalizations such as Ethereum (ETH) [5] have built on the original Blockchain concept to extend functionality to offer more advanced functionality such as “smart contracts” and software-embedding into the blockchain.

### 2.1 Economic Considerations

While no existing currency is fully protected from devaluation, high inflation or otherwise, digital currencies are subject to higher volatility, devaluation risk, and loss of than national currencies (see figure 1). While the exact cause-effect is yet to be established and is beyond the scope of this paper, it is reasonable to speculate that they are linked to the fact that digital currencies exhibit many of the properties of float-currencies [6] while lacking the institutions and economic relationships between national currencies.

One possible approach to remove some of the volatility and make digital currencies an interesting alternative for savers would be to link its value with the value of a physical commodity (or perhaps even a basket of commodities) making its volatility roughly as volatile

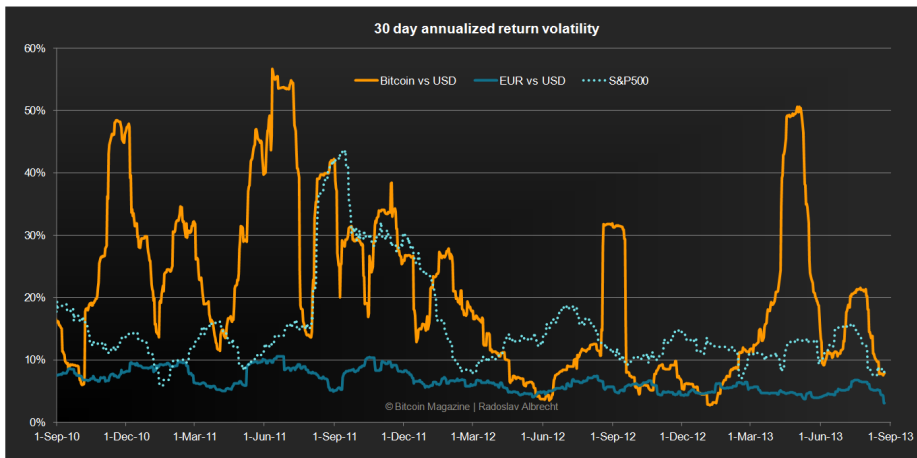


Figure 1: BTCUSD vs EURUSD vs SP500 Volatility [7]

as the price of the commodity. A possible choice would be use gold as an underlying asset similarly and generating a model which would replicate the “gold standard” [8].

A well-known experiment is “E-gold” which had grown to a user base of several million accounts and was used by merchants, metals traders and many other businesses [9]. The “E-gold” working model was to hold the physical gold bullion on behalf of its users - it even published daily reports of all the transactions in its system, serial numbers of gold bars it held in custody and provided users with a fairly transparent environment.

However, “E-gold” was very centralized and benefited from a lack of proper governance - leading to its eventual demise and exposure as a fraud. The experiment itself showed that it is important for the corporations acting as depositaries to be well managed and protected from abuse by their executive body. For example, if the blockchain was used to keep track of the balances and movements of users’ funds, it is likely much of the fraud that took place could have been avoided. Moreover, if the organization was acting within a DAO framework, it would have likely been harder (even impossible), for the executives to appropriate themselves the users’ funds.

We can conclude with a certain degree of certainty that the approach of tying digital currencies to precious metals has good historical and economic background, particularly with most investors considering precious metals a safe-haven resistant to credit events and severe devaluations [10]. This topic has received wide coverage in scholarly literature, and there is experimental evidence that when equity and currency markets experience periods of high volatility and uncertainty investors actively take long positions in precious metals and bond markets [11].

## 2.2 “Smart contracts”

Smart contracts themselves are not a new idea - Adobe Sign has been offering a similar service (formerly EchoSign) since 2005. Adobe’s approach assumes a structure where Adobe acts as an agent guaranteeing the identity of the counter-parties and providing a set-up in which an agreement signed by the counter-parties is legally-binding [12]. Enforcing the contracts’ clauses remains the responsibility of the courts and no independent system keeps a general ledger of these documents. In this sense, EchoSign is simply a service providing a digital alternative to pen and paper agreements.

Ethereum’s “smart contracts” are more flexible as they embody some part an enforcing mechanism [13]. They function beyond simply binding parties to respect a drafted agreement, they also automatically enforce the clauses when there is non-respect from either participant. Of course, these contracts cannot mitigate all the counter-party risks and would be complex to enforce, for example, in the context of credit relationships where we do not have a simple delivery versus payment model.

## 2.3 Governance considerations

As of the time of writing, we cannot claim that there exists a pure peer-to-peer system, completely free of a middle layer, permitting to convert digital currencies into other assets. Moreover, if we have a unit of digital currency whose price is associated with a commodity, there is some organization which acts as the depositary, holding the precious metal or commodity on our behalf until there is a request for physical settlement. There are practical advantages to this model which optimizes costs associated with storage and removing physical transfers of assets.

Unfortunately the current legal framework is sometimes ill-suited when working with multiple jurisdictions and clients with different backgrounds. It is therefore not unreasonable to consider a DAO (Decentralized Autonomous Organization) structure when providing custody services to cryptocurrency users. DAO offers a certain level of protection from white-collar fraud and abuse of executive powers [14] [15].

However, use of a DAO comes with certain trade-offs which. A DAO has no legally recognized status in any state or country as corporations are constituted under the either a federal or state law - a DAO fails to fill this requirement. Also, in the context of the law a DAO is a general partnership which, unlike a corporation, implies unlimited legal liability for participants.

### 3 The “DinarDirham” Model

The company “DinarDirham” proposes a system (a term which encompassing both technology, methodology and business processes) which attempts to address some of the problems described in the previous section.

#### 3.1 Price-discovery Problem

What makes “DinarDirham” unique is its hybrid business model which is integrated into existing certified and trusted solutions. The company will be offering three (3) distinct products:

- DinarCoin (primary and secondary markets)
- Gold Smart Contracts (primary and secondary markets)
- Physical Gold (primary market only)

The primary market is defined as the market where the dealers offer bid and ask quotes for the instrument, whereas the secondary market is open to all participants.

#### 3.2 DinarCoin

The DinarCoin is a synthetic representation of assuming a long position in the XAU (spot gold contract) with the counter-party being an liquidity provider (LP). The model assumes that the liquidity provider forms the primary market through the MetaTrader 4 trading environment.

Transactions that take place on the secondary market essentially are transfers of rights of ownership of the gold held in escrow by the LP. This mechanism is similar to bond markets where a primary auction is held by the issuer (generally large lots) and then the security appears on the secondary market [16] [17]. A great example of such a symbiotic relationship is the Tradeweb [18] and NYSE Arca Bonds [19] example. Tradeweb operates a request-for-quotes market where a fixed number of dealing desks submit their bid and ask offers (no client to client trades exist in their system), whereas NYSE Arca operates a central limit order book with no fixed LP or dealing desks.

Some users may elect a minting process instead of purchasing a “DinarCoin”. This creates a reverse process, where the user deposits funds (directly or through an agent) to the LP. The LP then places a sell order and once the order is executed a corresponding position is opened and an XAU contract is associated with the minted coin.

Hence the price-discovery process of “DinarCoin” (with the exception of dealer market manipulation, discounting, and other specific effects) is completely analogous to the XAU contract.

### **3.3 Gold Smart Contracts**

Gold smart contracts (GSC) are an auxiliary component of the ecosystem acting as the “document” linking the ownership of specific a physical gold bullion with its owner. GSCs have been designed as a form of over-the-counter instrument independent of “DinarCoin”. GSCs do have both a primary and a secondary market.

The GSC primary market aggregates offers from various bullion providers and clients take positions directly with the provider. The GSC is valid until a client calls for physical settlement - in which event the contract is considered as terminated.

In the secondary market GSCs are freely traded between different counter-parties, which is practical for contract holders looking to convert their GSCs to cash without going through physical settlement.

### **3.4 Physical gold**

A primary market with a unique dealer willing to assume a short position. The format is either a certificate or a physical coin. Conversion mechanisms to move the value from the coin/certificate to GSCs or “DinarCoins” is planned.

## **4 Model Overview**

The “DinarDirham” model addresses several key concerns which remain important to the crypto-currency community. The model offers more price-stability than existing cryptocurrencies - making its value as volatile as the gold market, which is probably more acceptable to users than the volatility roller-coaster we have witnessed with BTC, LTC and other digital currencies.

We could argue that the model addresses the issue of using wealth stored in commodities in a more efficient way and simplifying the process of converting physical assets into cash and vice-versa.

Unlike the existing Bitcoin ecosystem, it complements the current financial landscape rather than attempting to build its own. The presence of LPs willing to take positions

helps strengthen the stability of the overall system. The emphasis seems to be on digitizing processes and making them more resistant to fraud - while remaining compatible with existing practices.

Overall, the model is a good step forward with realistic goals and compatible with existing practices and conventions. One could argue that using the gold-standard approach as the underlying asset for a digital currency is backward thinking (since almost all national are using the float standard) - but this argument is flawed in nature. National currencies have complex mechanisms such as bond auctions and buy backs, which cannot be used when working in the digital currencies paradigm.

## 5 “DinarDirham” and the Market

One of the key problems with digital currencies is the lack of an economic framework which would allow them to be part of ongoing market conventions. One could argue that this is due to users of cryptocurrencies rejecting conventional beliefs and attempting to create a market from scratch.

However, these users forget the fundamental theories of economics which operate using supply and demand for products. While some elements of this theory do not work as expected, it is generally correct to believe that it is the main driver behind economic activity. Even currencies (especially those using the floating mechanism) are subject to its effects - with the price of currencies going up and down depending on the market’s needs. For example, demand for US dollars remains relatively stable as it is considered by the market participants as an excellent instrument to store value - skyrocketing when other markets feel unsafe storing value in other currencies (this was seen during the “Brexit” vote [20]).

The keywords in the previous paragraph are “storing value” - if the goal of “DinarDirham” is to create an instrument which would be perceived (and act) as a value storage mechanism then the choice of tying its value to an XAU contract is likely to be a good decision as tying itself to the US dollar or government bonds is an unlikely option.

We can argue that this hybrid-model will make “DinarDirham” attractive to users at least because what they are buying is relatively clear and the mechanism of converting their assets into cash is intuitive - whenever users will use this tool instead of opening a brokerage account and buying XAU contracts is a different question and outside the scope of this document. With most cryptocurrencies both processes are weakly developed and make an assumption about effective markets (which they are still light years away from having because they still live in an era fuelled by the community’s will and interest to support a currency rather than the currency being used in actual trade activities).

## 6 Conclusion

This paper has helped us identify the potential role of “DinarDirham” in the current economy: a viable digital asset to store value with simple and robust liquidity conversion mechanisms. The creators of “DinarDirham” have gone a route which gives them an advantage over Ethereum’s Could-platform solutions and BTC’s currency positioning.

“DinarDirham” has secured strategic partnerships to perform its mission. The presence of solid LPs, Saba Capital, International Business Future (IBF) and soon other financial institutions permitted them to develop a model with both primary and secondary markets.

Perhaps this last point is of utmost importance - “DinarDirham” does not seek a schism from existing economic systems and principles but rather capitalizes on its inefficiencies by giving users alternative ways to gain exposure to well-known instruments. Moreover the model could be easily generalized beyond commodities to other asset classes - a particularly interesting application could be access to corporate and government bonds. This would require the model to process such cases as maturity and credit events. This would definitely raise the interest and possible applications of “DinarDirham” as they would offer an alternative to bank deposits (which are themselves a very unattractive instrument, but by far the most accessible) with simple digital tokens representing fixed-income instruments with periodic payments.

This is where “DinarDirham” sets itself apart from other digital currencies: it addresses the real needs of simple users who seek to store value in assets which are less volatile and less inflation sensitive than what is offered to them in the retail banking segment (for example term-deposits are inflation sensitive since they have fixed yields which are often substantially lower than the inflation rate [21]).

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