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Crypto assets valuation under IFRS 13 Koinju's Responses and Insights to EFRAG

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Table

Context

The European Financial Reporting Advisory Group (hereinafter referred to as "EFRAG") issued a Discussion Paper ("DP") in July 2020 untitled "Accounting for Crypto-Assets (Liabilities): holder and issuer perspective". The main aim of this DP was to point out the fact that application issues may occur in the accounting valuation and treatment of crypto assets under the current provisions and requirements of accounting standards like IFRS.

Koinju, a French start-up processing crypto and blockchain data for financial analytic and accounting usages, is a registered Benchmark administrator (n° BMR2021000001) under the Art. 34 of the "Benchmark" regulation ((EU) 2016/1011), authorized and regulated by the French Financial Markets Authority. The company provides data that is intended to comply with current regulations and standards but has nonetheless found that points of friction remain between the nature of crypto markets and the application of accounting standards to them. Wishing to contribute to a pragmatic evolution of the current accounting standards, Koinju participated in the survey issued by EFRAG and provided various insights that led to a phone call with Ms. I. Batista and Messrs. V. Papa and S. Saritas on June 3, 2021.

To complete the comprehensiveness of its analysis and proposals and to facilitate the understanding of stakeholders, Koinju has developed this paper.

Frictions between crypto markets nature and some IFRS 13 provisions

The following points tend to expose the main provisions and principles of IFRS 13 whose strict applicability to crypto assets[1] accounting valuation seems to be compromised regarding this non-standard market.

1.Active market determination and Level 1 Inputs definition

Regarding art. 72 and Annex A of IFRS, a precedence is given to observable inputs to determine the fair value. The most observable ones are explicitly "quoted prices".

However, "quoted price" term is not perfectly defined and may not fit with crypto markets specificity. In traditional finance, a quoted price is easily observable as a price expressed in fiat currency. But in crypto markets, crypto assets can be both quoted in fiat currency and crypto currency. Can a crypto asset quoted in another crypto asset reasonably be considered as an observable Level 1 input?

We don't think so, due to several reasons:

-Firstly, crypto-to-crypto transactions involves additional conversion fees: the accounting valuation of crypto asset "1" involves knowing its price in a legal tender expression. This means that the entity must first convert crypto asset "2" to fiat (when possible!), which necessary involves additional transaction costs. As a result, the real price the entity must pay to sell the asset "1" at the measurement date would be higher than the fair value of the asset, due to these multiple transaction costs. Moreover, as some crypto assets cannot be converted in fiat, the crypto-to-crypto trading pairs cannot reasonably be considered as sufficient observable inputs.

-Secondly – and incidentally to the conversion event –, the time used to valuate crypto asset "1" will be longer as you must first convert the quote in fiat. Regarding the crypto market volatility, this means that the value of crypto "2" (and indirectly crypto "1" fair value) can change between the conversion transaction, the sales transaction, and the crypto "1" accounting valuation events.

Regarding these elements, it has led us to conclude that the valuated crypto asset cannot perfectly fit the IFRS' "highest and best use" definition (art. 27 & 28), which is a fundamental requirement of the non-financial asset valuation and the principal market determination.

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[1] "Crypto asset" definition here refers to cryptocurrencies (like Bitcoin, Ethereum) or utility tokens, that can be evaluate as "Intangible Assets" under IAS 38. We think that stablecoins must be assessed as "Cash or cash equivalent" under IAS 7, and security tokens must be considered as "Financial instruments" under IFRS 9. We have no opinion about non-fungible tokens.

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2.Principal market definition

When the active market is finally defined, IFRS suggests this active market is the principal market on which the asset's fair value can be measured. Annex A of IFRS 13 defines the principal market as "the market with the greatest volume and level of activity for the asset or liability". In traditional finance industry, a principal market can be easily defined as most of financial instruments are traded within a specific and geographic place (Euronext, NYSE, etc). But here's the pain: Bitcoin and most other cryptocurrencies (altcoins) are traded on a plurality of exchange platforms (with a different price). So, it seems difficult to determine a principal market. Even if a platform on which the asset is traded has "the greatest volume and level of activity for the asset or liability", the activity of this platform might not represent the fairest value of the crypto asset due to:

-the atomicity of the crypto market in general;

-and the fact that is quite complex to base price on the total circulating supply of a crypto asset (like Bitcoin for instance) as not all the units are traded on exchange platforms – some of them are still transferred only threw their blockchain.

When determining a principal market remains difficult, IFRS 13 invites the entity to choose the "most advantageous market", the one "that maximises the amount that would be received to sell the asset or minimises the amount that would be paid to transfer the liability, after taking into account transaction costs and transport costs" (Annex A – IFRS 13). However, we think the issue would be the same: due to the atomic nature of the crypto market, it seems inappropriate to resume the market and economic value of a crypto asset with the supply and demand that are only expressed on one platform. Moreover, we observed that exchange might have sometimes a quite equivalent trading activity on their platform so it's sometimes difficult in that case to determine the most advantageous market. Finally, if one exchange publishes a higher price than the other observed platforms at the measurement date, shall we consider it as the most advantageous market regarding the existing "wash trading" risks?

On this basis, determining the principal market can be misrepresentative, and the most advantageous market determination seems to be a risky method.

3.Principal market presumption: the entity "criterion"

Regarding the principles and requirements under art. 17, 19 and 78 of IFRS 13, the market in "which the entity would normally enter into a transaction to sell the asset or to transfer the liability is presumed to be the principal market". To completely fit with the IFRS 13's "highest and best use of an asset" definition (which is a requirement of the determination of the fair value of an asset) and with the principle of art. 78 (b), the principal market is presumed to be as it if "the entity can enter into a transaction for the asset or liability at the price in that market at the measurement date". Finally, a principal market is mainly determined from the entity point of view.

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In crypto market, this would mean that the principal market should be presumed as the one in which the investor has purchased crypto assets among all the exchange platforms (or, at least, the ones with the highest observable volume activity). However:

-Base the principal market presumption upon the "entity criterion" when the entity has purchased crypto on only one platform can misrepresent the economic and fair market value of the crypto asset (see above "2. Principal market definition");
-If the fair value of the entity's asset is based on only one exchange platform, it would be easier for the entity to manipulate the price of the crypto asset, because it is less costly to manipulate the price of an asset on one spot exchange than on several ones (see the following point).

To conclude, we suggest removing this IFRS' presumption in the case of crypto markets.

4.Fair value definition and "exit price" requirement

Determine the principal market is a "geographical" criterion of the fair value determination. But there's another criterion, more "temporal": the fair value of an asset should be the "exit price" observed at the measurement date, which usually means the selling price at a pre-determined closing time of the market (cf. art. 2 – IFRS 13).

On this basis, using a fixed-quoted price at a pre-determined closing time can give a crypto market participant the ability to push a last transaction just before this closing time to significantly manipulate the crypto asset price on a spot exchange (and its fair market value thus) – which would, as a result, unjustifiably increase the valuation of a crypto fund.

Market context: a fund necessarily needs a price at a closing time for valuation. This closing price is, by definition, a predictable event. If we add to the predictability of this event the fact that, on the one hand, the fund has decided to work with a very limited number of operators (or even just one) who offer or propose markets with low liquidity (and / or relatively low compared to the capacity of said fund), and on the other hand, that an unfortunate economic alignment can be observed between the performance fees of the fund managers and the appreciation of the fund's fair valuation, this may generate a flagrant conflict of interest. In this sense, the maximization of the economic incentive for the managers / administrators of this fund would be aligned with the exercise of a reduced-cost intervention in illiquid markets (at the famous key moment of closing) in order to maximize their income.

In practice: a fund manager which has purchased some bitcoins priced $35,000 at the measurement date will have to spend a huge amount of money to increase the price of 50% with several transactions during one minute before the fixing time on a spot exchange. Let's now figure that the same fund manager has purchased some Cardano (estimated almost $1.5 each) and wants to increase the price of this crypto asset during one minute on a spot exchange: you can guess that the cost to increase the value of the part of its portfolio in Cardano to 50% would be much cheaper. Then, the valuation of the fund would be

misrepresented due to an easily manipulated "fair" market value (which incidentally come out from the rule of the use of a single fixed-quoted price).

Koinju's suggestions

In response to the above-mentioned issues, we present a few insights that might fuel the amendment of some current (and inadequate) IFRS 13 provisions.

1.Level 1 = "crypto-to-fiat" inputs / Level 2 = "crypto-to-crypto" inputs

As EFRAG mentioned in the DP, and regarding our previous elements, we assume only crypto-to-fiat trading pairs should be considered as Level 1 inputs and so as sufficient price information to determine the existence of an "active market" (regarding IFRS 13's Annex A definition).

As a result, IFRS 13 should be amended and mention that Level 1 inputs should only be crypto-to-fiat trading pairs. Then, crypto-to-crypto trading pairs could be considered as Level 2 inputs (if the quote is convertible in fiat).

2.Principal market: "crypto exchange" or "trading pair" focal

We assume the crypto asset's fair value calculation would be perfectly representative only if this calculation lies on an aggregation of the transaction data publicly delivered by the most significant exchanges platforms' API – *by the way, this "economic representativeness" is a requirement of the EU 2016/1011 "Benchmark" regulation[2] in the determination of reference rates used by funds and portfolio managers*. Furthermore, regarding the crypto market atomicity and the several risks above mentioned, the aggregation of inputs from several financial data sources (=exchange platforms) would provide a more secure and resilient price against not orderly variations of volumes and volatility (cf. B37 to B44, Annex B – IFRS 13) and market entity manipulation risks.

The challenge here is to define what is a "market". We assume the concept of "market" under IFRS is quite extensive. From our point of view, a "market" can be heard as a specific place, an exchange platform, or as a more subjective and global consideration of the matching between the demand and offer of an asset, expressed in a trading pair. The following analysis focuses on the explanation of two conceptions of a "market" that IFRS can consider:

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[2] Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds and amending Directives 2008/48/EC and 2014/17/EU and Regulation (EU) No 596/2014.

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1-*The "exchange platform" focal*: classically, a "market" is considered in a geographical conception as a delimited-spot place. In crypto industry, a market can easily be heard as an "exchange platform" (like Bitstamp, Binance, Kraken, Bitfinex, among others).

2-*The "crypto-to-fiat trading pair" focal*: as said before, another way to define a market would be the use of the trading pair conception, which expresses the offer and demand of a crypto asset against a legal tender[3] within the crypto market atomicity. In this hypothesis, the "BTC-USD" market could be considered as the principal market if it has the highest volumetry at the measurement date. In this case, the price should be calculated with a median (see "4. Determine the crypto asset fair market value with an adjusted price"), which would be based on the set of quoted prices observed on a pool of the most significant exchanges platforms providing transaction data for that trading pair during one day at the measurement date.
What are the pros and cons of this method?
-On the one hand, this method would take the nature of crypto assets market into consideration, reach a more exhaustive measurement of the asset's fair value among a pool of selected platforms (see "3. Presume the principal market within a pool of selected exchanges") that would fit with BMR "representativeness" requirement, and it would be less easy to manipulate the price of a crypto asset.
-On the other hand: 1) this method would involves that an exchange platform on which a quoted price of the crypto in the required trading pair is not published then should not be taken into account in the principal market determination, even though the volumetry observed on this platform for the same crypto asset is the highest at the measurement date; 2) we assume this approach can fit with centralized exchanges analysis, but what about tokens only listed on DEXs (decentralized exchanges) and illiquid assets on CEXs (centralized exchanges)?; 3) finally, this method can reasonably be used by an entity who wishes to sell an asset through an OTC because the entity does not sell the asset on an particular exchange that belongs to the pool of selected platforms. But the median-weighted price that has been calculated within this pool may be not the fair price by which the entity can pretend to sell the asset in an exchange of the said pool at the measurement date.

To conclude, we suggest that IFRS "principal market" definition (and the "most advantageous market" one?) should be amended and clarified for crypto assets.

3. Presume the principal market within a pool of selected exchanges

Regarding the manipulation risks and crypto market atomicity considerations above-mentioned, we suggest that the presumption of the principal market should not be based on the entity point of view, but on a pool of exchange platforms. This should bind the entity (or any external calculation agent) to establish a selection procedure of those exchange platforms. This procedure must be based on accurate and robust criteria, such as data availability and integrity, technical criteria, and legal requirements. For instance, among these criteria, the inputs made readily available through the exchange platform's API should be observable and

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[3] If we consider that only crypto-to-fiat trading pairs should be considered as Level 1 input – what we suggested in point 1 above.

"verifiable" (*cf.* art. 11 of the EU 2016/1011 "Benchmark" regulation) at least *ex post*[4]. As we previously suggested that only crypto-to-fiat trading pairs should be considered as observable and Level 1 inputs, only an exchange platform providing crypto-to-fiat transaction data can be considered as a principal market among the pool and be used to determine the fair market value of a crypto asset.

4.Determine the crypto asset fair market value with an adjusted price

Fair value and Level 1 inputs definitions impose the use of a non-adjusted (quoted) price. But regarding the exit price manipulation risk above-mentioned, we recommend to aggregate Level 1 inputs (quoted prices) to determine the crypto asset fair value at the measurement date. More precisely, we suggest allowing the use of a daily median price instead of using a fixed price at a predetermined closing time. Indeed, contrary to a simple "average" (whose IFRS 13 discourages the use), a median can exclude extreme values from the calculation and provide a resilient price against significant volume or level of activity increasing or decreasing (*cf.* B37, Annex B – IFRS 13). Then, the fair value would still be determined at a measurement date (on a daily observation period), and it would be economically discouraging for an operator to try manipulating the crypto asset price at the said date. Indeed, it would involve for the entity to maintain a certain price all day long in the market, not only with one transaction just before the pre-determined closing time.

If so, Level 1 inputs definition should be amended for crypto assets by allowing adjusted weighted-median prices (only if the median price calculation is based on Level 1 inputs), whose calculation is justified by a robust and transparent methodology. However, the "adjusted price" price definition should be clarified and take into account the chosen "market" conception:
-If the principal market definition is based on the "exchange platform focal": the median-weighted price calculation should be based on the set of quoted prices observed on a specific spot exchange during one day at the measurement date. But the main con of this method is that the fair value may not fairly represent the economic and market value of the crypto asset when it's traded on several exchanges (*cf.* atomic nature of the crypto market).
-If the principal market definition is based on the "crypto-to-fiat trading pair": as explained before, the median calculation should be based on the set of quoted prices observed on a pool of the most significant exchanges platforms providing transaction data for that trading pair during one day at the measurement date. We explained above the pros and cons of this method.

However, as a median can be considered as an average (regarding a very extensive definition of the latter), we are convinced that IFRS 13 average definition should be clarified.

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[4] Which means after the market price delivering.

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