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| 3 | Not all investable assets such as shares, bonds, real estate and commodities (to name a few) bear the same risks and returns (Markowitz, 1959; Shipway, 2009; Bodie et al., 2014). The concept of asset classes allows for grouping those investable assets that have similar risks and returns (Markowitz, 1959; Shipway, 2009; Bodie et al., 2014). Investing in multiple asset classes, also referred to as diversification, assists in managing risk in portfolio management, wealth preservation and hedging, making it of integral importance to investors |  |
| 5 | The following represents an amalgamated list of criteria with which to evaluate an asset class:   * Investability including opportunities for passive investment and the availability of price and composition data. * Politico-economic features and the inability to replicate the asset class, using Other assets. * Close correlation of returns within the asset class and limited correlation with assets   outside of the asset class.   * Risk-reward profile including providing returns in excess of the risk-free rate | Classificando o que seria uma classe de ativo |
| 5-6 | **Investability** encompasses the provision of opportunities to invest in the asset class, including the provision of sufficient liquidity in the market (Burniske and White, 2017). There must also be opportunities for passive investment in the asset class (Oberhofer, 2001). Passive investment entails investing so as to track market movements of the asset, without directly investing in the underlying asset itself (Malkiel, 2003). This is also known as an indexing strategy. Passive investment entails investing so as to track market movements of the asset, without directly investing in the underlying asset itself (Malkiel, 2003). This is also known as an indexing strategy (Malkiel, 2003).  **Politico-economic features:** This allows for opportunities for diversification to be highlighted (Smith, 2017). If the assets in the asset class are not homogenous, then it will be more efficient to stratify the asset class into other groups, as opposed to having opposite interactions within the asset class itself (Smith, 2017). The politico-economic features can be further broken down into three categories:   * basis of value; Basis of value refers to how the asset class derives its value from tangible assets and/or underlying properties * governance; The governance category looks at how control of the asset class is maintained * use cases (Burniske and Tatar, 2017; Burniske and White, 2017): then address how the assets within the asset class can be applied in the world.   These three categories encompass the economic, social and technological factors which support the growth of the market for the asset class  **Correlation of returns.** Correlation is a standard measure of how assets move together (Philips et al., 2012; Burniske and White, 2017). Returns of the assets in the class must be highly correlated with each other (Oberhofer, 2001). Additionally, there should be a low or negative correlation with other asset classes (Oberhofer, 2001; Mongars and MarchalDombrat, 2006; Burniske and White, 2017)  Correlation coefficients also indicate the ways in which the assets can be used for portfolio diversification purposes, as first explored by Markowitz (1959). Table I depicts the impact on risk of the correlation values  **Risk-reward profile**. The risk-reward profile deals with risk taking the shape of volatility and reward in absolute values for investing in the asset class (Burniske and Tatar, 2017; Burniske and White, 2017). This can be effectively measured using the Sharpe ratio which shows returns per unit of risk accepted (Sharpe, 1966). | Especificando o que cada um dos itens seria |
| 7-13 | **Investability**  The Bitcoin can be traded on multiple exchanges throughout the world and examples of exchanges include Bitstamp, Coinbase, Kraken (Buy Bitcoin Worldwide, 2017) and South African exchanges Luno and Ice3X (van Vuuren, 2017). As a result, there are opportunities to invest. Most exchanges support Bitcoin trading (Hileman and Rauchs, 2017; Schroeder, 2017). These exchanges, as with traditional corporate and asset exchanges (Oliver Wyman, 2016), fulfil a vital role in providing liquidity to the market  Bitcoins can also be obtained through mining, allowing another opportunity for investment (Franco, 2015; Antonopoulos, 2017). Mining refers to the process where computing power is devoted to performing cryptographic hash functions with the ultimate purpose of adding blocks of transaction to the blockchain (Franco, 2015; Antonopoulos, 2017). Adding blocks to the blockchain is a critical process and for miners are currently awarded 12.5 Bitcoins and any transaction fees on that block for successfully solving a hash function (Franco, 2015; Antonopoulos, 2017; Ammous, 2018). This principle of using computing power to add blocks to the blockchain is also known as proof-of-work  Exchanges fulfil another role in that they provide data regarding the price of the Bitcoin (Chuen, 2015). It is interesting to note that the Bitcoin does not trade at the same price across exchanges, showing that there is no purchasing power parity (Brandvold et al., 2015; Chuen, 2015). Further consideration of this is, however, outside the scope of this paper.  **Politico-economic features:**  Bitcoin is not backed by any tangible assets like gold or any other precious minerals (Chuen, 2015; Franco, 2015; Hong et al., 2017). It is said that, as a result, there is no intrinsic value (Chuen, 2015; Franco, 2015; Hong et al., 2017). Rather, the basis of value stems from the potential utility and use cases of the digital and consensus-based Bitcoin (Burniske and Tatar, 2017; Burniske and White, 2017; Hileman and Rauchs, 2017; Ammous, 2018). Indeed, speculation on future potential further provides a basis (as opposed to store) of value (Burniske and Tatar, 2017). The Bitcoin is also unique in that it is not governed by any central authority but is, on the other hand, subject to control by the computer nodes in the network (Nakamoto, 2008; Chuen, 2015; Franco, 2015; Emery, 2016). This is why the Bitcoin is sometimes referred to as being decentralised (Nakamoto, 2008; Chuen, 2015; Franco, 2015; Emery, 2016). The Bitcoin is also heavily influenced by the open-source nature of the underlying software of the protocols (Burniske and Tatar, 2017). This grants control to the developers of the cryptocurrency, the miners and the companies who interface with the Bitcoin (influencing the adoption) (Burniske and Tatar, 2017).  It has been noted that the most common use case for the Bitcoin has been as an investment (Hileman and Rauchs, 2017). This has, however, begun to change with Bitcoin now finding a balance between trading and transacting (Burniske and White, 2017). This indicates that when people use Bitcoin instead of traditional currencies, they are more likely to use it to transmit value for goods and services, as opposed to using it speculatively  **Correlation of returns**  It is noted that assets within an asset class must be closely correlated (Oberhofer, 2001). A correlation between Bitcoin and Ethereum (as the second-largest cryptocurrency by market capitalisation) is performed. This may indicate that they may form part of the same asset class, but a further discussion of this is outside the scope of this research.  Overall, the data per Table III indicate that the Bitcoin does not bear a strong or even moderate correlation to any other asset class, other than Ethereum. Most of the correlation coefficients are close to zero. This provides evidence of the fact that significant portfolio diversification can be achieved through investing in Bitcoin.  **Risk-reward profile**.  The Bitcoin has experienced significant price volatility, with this volatility being the highest among other asset classes (Burniske and White, 2017; CoinGecko, 2017c). This volatility appears to invalidate the Bitcoin from being a stable store of value, but this is not necessarily a requirement for an asset class as Greer (1997) notes that there are different “Superclasses” of assets.  The Sharpe ratio provides a risk-adjusted measure of return (Sharpe, 1966; Burniske and White, 2017). Using the Sharpe ratio, assets can be compared and the greater the Sharpe ratio, the greater the compensation to investors for the accepted risk (Sharpe, 1966; Burniske and White, 2017). | Aplicando os conceitos definidos na etapa anterior ao bitcoin |
| 16 | The analysis reveals that the Bitcoin presents unique attributes. The Bitcoin has numerous opportunities for investment and sufficient market capitalisation (CoinMarketCap, 2018), meeting the requirements of investability (Section 3.1). From direct investment (Crypto20, 2017; Grayscale, 2017; The Token Fund, 2017) and mining (Chuen, 2015) to passive investment (Cheng, 2017) and the plethora of exchanges available (Buy Bitcoin Worldwide, 2017; van Vuuren, 2017), the Bitcoin is sufficiently represented in the financial markets.  The politico-economic profile is dissimilar to other asset classes due to the open-source and decentralised nature of the Bitcoin (Section 3.2). The Bitcoin has unique use cases and can store metadata which cannot be replicated by other asset classes (Bartoletti and Pompianu, 2017; Hileman and Rauchs, 2017). Additionally, there is little or no correlation with other asset classes (in both developed and developing countries), showing that considerable risk reduction is possible through investing in the Bitcoin (Section 3.3). | Conclusão final do autor sobre o seu ponto de vista sobre o assunto |