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THE BITCOIN ETF: The what, why, how and when

Executive Summary

There have been multiple proposals for a bitcoin exchange-traded fund (ETF) in the US submitted to the SEC over the past three years, but so far none have been approved. The latest submission, from [Bitwise](#), was rejected on the grounds that the ETF did not adequately protect investors from market manipulation.

In this report, we look at the structure of some of the exchange-traded products (ETPs) available in the legacy markets and their counterparts in the crypto market. We also assess the implications of a bitcoin ETF, its benefits and pitfalls, and whether creating a paper derivative of a digital asset would bring any extra utility to Bitcoin at all. The potential benefits to retail investors are tax-compliant crypto investing and eventually 401k inclusion, and for institutional investors it may provide the deep liquidity needed to exit and enter without going over-the-counter (OTC).

The SEC is primarily concerned with the risks to retail investors due to the potential for market manipulation and a lack of market oversight. These concerns have yet to be adequately addressed by an ETF sponsor. This is a difficult issue to solve due to the jurisdictional distribution of crypto exchanges, which inhibits visibility into the trading that occurs there. However, at the end of October, in Canada, the Ontario Securities Commission (OSC) allowed crypto fund manager 3iQ to issue a prospectus for its prospective exchange-traded Bitcoin fund, signaling that Canada's counterpart to the SEC may approve North America's first Bitcoin ETF.

Then there is the philosophical/ideological opposition to an ETF of an asset class that is prized for its disintermediation of middlemen and autonomy from institutions in an open source decentralized community. Opponents of an ETF point out that investors effectively hand over their private keys to the fund manager and don't own the asset, which obviates the most pioneering aspects of bitcoin. There are also governance implications to the current decentralized nature of the bitcoin network if fund managers were to become dominant players in the market.

As cryptocurrencies and blockchain technology enter their 10th year of existence, we are beginning to understand the many ways that the legacy financial system can interact with, synergize with, and be disrupted by the new decentralized system. This report also considers the potential of combining ETFs with blockchain technology by either tokenizing shares or creating a decentralized fund which trades crypto-derivatives, something like a decentralized autonomous organization (DAO).

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Intro: ETF History

The first ETF was created in January 1993 by State Street Global Investors in the US and was based on the S&P 500. The S&P 500 Trust ETF, known by its ticker symbol SPY, became very popular among institutional investors and today is the largest ETF at \$241b AUM and one of the most actively traded. Once it was clear that the investing public had an appetite for such funds, the race to create additional ETFs was on. Barclays offered its first ETF in 1996 and Vanguard entered the business in 2001.

Today there are more index funds and ETFs than there are stocks in the US, covering the full spectrum of stocks, bonds, indexes, commodities as well as strategic ETFs such as inverse (short), leveraged, hedged, momentum and volatility-based. There are now even ETFs which track other ETFs rather than an underlying, stock, bond or index. By 2017, there were at least 105 issuers of ETFs with a cumulative AUM of around \$3.37 trillion.



Source: Vanguard

Institutional Interest

In recent years, retail investors have come to appreciate the advantages of investing in ETFs such as the low management fees and passive strategies. However, it is institutional investors that make up the bulk of ETF investing and that led the way initially. The main reason cited for this is the versatility that an ETF provides, such as the lack of a minimum purchase size and its freely tradeable nature. This allows institutions to adjust strategies and holdings more easily, and with fewer fees than other investment strategies.

ETFs also enable institutions to invest from an asset allocation perspective rather than a security selection perspective, which requires less initial work, is easier to manage, and is generally less risky. The current scope of ETF styles available far surpasses what was previously on offer to investors, which has resulted in certain ETFs, such as the minimum volatility ETFs, becoming very popular in recent years. One such example is the iShares Edge MSCI Min Vol USA ETF, identified by the ticker symbol **USMV**. ETFs also typically have very deep liquidity, which is vital for institutional investors with large holdings that may need to exit positions quickly and with minimal slippage.

Finally, because ETFs trade on exchanges throughout the day as opposed to mutual funds that trade directly with investors at the end of the day, there are far more advanced order types (such as limit, stop, and market orders) and leverage available to investors and traders and they can be traded like any regular stock.

The Mechanics of Funds

Simply put, an ETF is a wrapper around an asset or group of assets to create more shares (or receipts) of that asset and replicate the performance of an index of assets. To fully appreciate the characteristics of an ETF, it's useful to compare them to mutual funds. An ETF is not an asset class in itself but a derivative product of the asset class it represents.

Mutual Funds

Mutual funds are the largest and most popular of the various fund types, with global assets under management (AUM) totalling approximately \$17.71 trillion. Purchases and sales of shares in a mutual fund take place between investors and the fund directly. There are also **minimum buy-ins for the fund**, with most retail class funds being in the range of \$500 - \$3000, and institutional class funds requiring a minimum of \$1 million or more.

The price per share is determined at the end of each day after the net asset value (NAV) has been calculated, which restricts trading until after the market closes. The holdings of the fund are typically published on a quarterly basis. On average, mutual funds incur a greater tax burden than ETFs. This is because any sale of shares in the fund creates a taxable event for all shareholders of the fund. Mutual funds are also usually actively managed, which adds to the expense ratio of the fund i.e. the cost of running the fund. This also means that the asset turnover is generally higher than that of an ETF, which results in more frequent capital gains tax for the investors.

ETFs

In comparison, ETFs hold around \$4 trillion in assets globally. ETFs have no minimum buy-ins and can be bought into for as little as the price of one share, plus trading fees. Shares in the ETF are traded on exchanges and can be bought and sold at any time during the day.

Any deviations in the true NAV and the share price introduces an opportunity for arbitrage, which quickly settles price discrepancies. Holdings of the ETF are published daily. ETFs are the opposite of actively managed funds in that they (typically) follow a passive investment strategy which is executed and rebalanced algorithmically.

This results in lower overheads as there are fewer trading fees and less work involved to manage the fund. ETFs are also often much larger in size than mutual funds, which means the already smaller fees are distributed over a larger investment pool. The result is an expense ratio that is significantly lower than the expense ratios for mutual funds. ETFs are also more tax-efficient due to the way the fund is structured.

Difference between Exchange-traded funds Vs. Mutual Funds

	Exchange-Traded Funds	Mutual Funds
Bought and sold	On an exchange throughout the day	Through the mutual fund companies
Sales charges	None, though ordinary brokerage commissions apply	May have sales loads, purchase and/or redemption fees
Minimum Investments	None, an investor can buy one share	May have high minimum investments
Expense ratios	Traditionally low	Dependent on management styles
Liquidity	Intraday	End of the day
Trading flexibility	<ul style="list-style-type: none"> • Ability to trade intraday • Special trading orders are possible: • Market—ETF shares are bought or sold at the market's current price at the time of execution • Stop—Sets a specific price at which an ETF is to be purchased or sold • Limit—Sets the maximum and minimum price, respectively, at which you are willing to buy or sell shares of an ETF • Short selling—Borrowing ETF shares to sell now in the hopes of buying them back more inexpensively later and profit from the difference • Margin trading—Taking out a loan to buy ETF shares, or using ETF shares as collateral in an effort to leverage your existing portfolio beyond your initial investment 	<ul style="list-style-type: none"> • Trades only executed once per day • Special trading not possible • Trading frequency restricted
Consequences of purchases and sales Security prices Tax implications	Purchases and sales of shares on the secondary market generally <ul style="list-style-type: none"> • do not affect security prices • do not impact tax efficiency • do not trigger capital gains or losses on the underlying securities 	Purchases and redemptions of a large number of shares can <ul style="list-style-type: none"> • impact the underlying security prices as the fund buys or sell shares • impact the fund's NAV and returns • trigger capital gains or losses on the underlying securities • affect the fund's tax efficiency
Transparency	Fund holdings published daily	Fund holdings typically published quarterly
Portfolio investments	Assets are typically fully invested as there is no need to hold cash aside for redemptions	Mutual funds typically hold at least 5% of their assets in cash in order to handle day-to-day redemptions

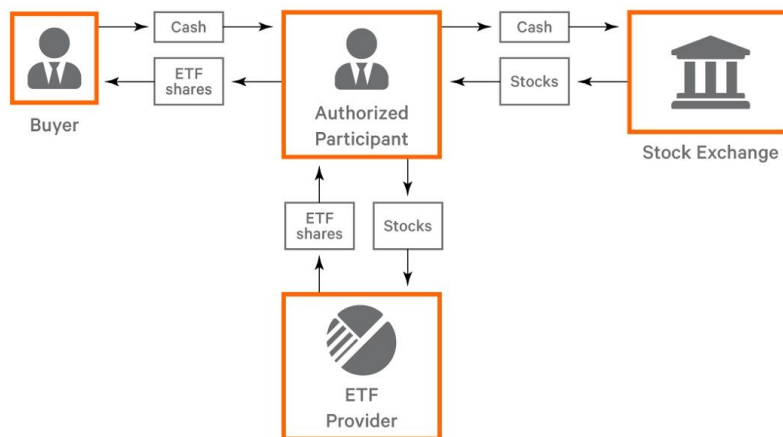
Authorised Participant

The uniqueness of ETFs stems from the mechanism used to add and remove securities from the fund's portfolio. When a fund manager wants to establish a fund, they approach a market maker (an institutional entity or large investor) that can provide a large portion of liquidity by obtaining the underlying assets required to create the fund. In a synthetic ETF, which tracks an index using options and swaps, the market maker provides cash instead of assets.

These market makers are referred to as Authorised Participants, or APs. Typically they are a large bank or financial institution that has access to bulk amounts of the desired asset, such as JP Morgan, Bank of America, etc. The AP swaps a large amount of the assets the fund wishes to hold for shares in the fund. There is no compensation from the fund manager for providing this service, rather the AP makes a profit from reselling the ETF shares on a secondary exchange.

Why ETFs are tax efficient

When there is a shortage of ETF shares, the AP can create more by swapping additional amounts of the underlying security for more shares in the ETF. Conversely, an AP can reduce the number of ETF shares by redeeming a block of shares for a block of the underlying securities.



These processes help to keep supply and demand for the ETF shares in equilibrium. The reason ETFs are typically more tax-efficient than mutual funds is that the creation and destruction of ETF shares do not create a taxable event for shareholders. This is because securities are traded for ETF shares, which is considered an in-species trade and is thus not taxable. An in-species trade describes the transfer of an asset in its current form rather than in the equivalent cash amount. Instead, standard capital gain taxes are realised by investors on the sale of their ETF shares (at least in the case of US investors).

Exchange-traded Notes (ETNs)

Another exchange-traded product worth understanding is the Exchange Traded Note, or ETN. ETNs are similar to ETFs in that they are both tradeable on a secondary exchange throughout the day and incur capital gains tax on disposal of the asset. However, the two products differ in a number of fundamental ways.

ETNs are promissory notes (akin to corporate bonds) that are considered senior, unsecured debt obligations that track a single company, index, or commodity, and are typically issued by banks. In layman's terms, this means that the debt takes priority over other more 'junior' debt owed by the issuer and is not collateralised by an asset. The tracking of the asset is achieved synthetically and thus the note has no claim to the underlying asset, though an issuer may choose to hold the asset to reduce the risk of default.

ETN shares represent a credit instrument which is issued by a bank and the supply of shares is determined solely by the issuing financial institution, thus there are no APs involved in the creation of notes. Typically ETNs have a repurchase feature, which allows APs to redeem notes (of a specified minimum amount) on a daily or weekly basis at a predetermined price. ETNs are essentially open ended, zero-coupon bonds.

When the ETN matures, the fund manager takes out their fees and gives the investor cash based on the performance of the underlying asset. A major concern around ETNs stems from their debt classification, which creates a situation where the ability to pay back the principal plus any gains is dependent on the financial viability of the issuer, otherwise known as counterparty risk. Whereas an ETF share represents a stake in a pool of underlying assets, an ETN is simply unsecured debt. Thus, if the financial institution that issued the shares became insolvent, investors in the ETN may receive nothing. This is the primary reason why ETFs are typically preferred over ETNs.

Gold ETFs: Setting the Standard

One of the most interesting flavours of ETFs, in terms of the effect on the market, have been the gold-backed ETFs.

Before this novel form of gold investing was developed, the commodity was not easily tradable and price discovery was unreliable. However, this changed following the launch of the first gold-backed ETF on March 28, 2003, by ETF Securities. The ETF was listed on the Australian Stock Exchange (ASX), and by the end of 2003 had secured only \$191,000 worth of AUM. Since then, however, the gold-backed ETF market has exploded, with the cumulative AUM now at roughly \$132 billion across 143 different ETFs.



The sheer size of the gold ETFs now poses a problem for the ETF sponsor because controlling such large quantities can impact the market. The current price of gold is more than three times the price in 2004, and while it can be inferred that there was an effect on price, it is difficult to discern how much as the global financial crisis that started late 2007 coincided with gold's rally to all-time highs in 2011.



An ETF listing enabled gold to become as easily tradable and liquid as stocks and bonds. As a result, the years following the listing also saw huge increases in price volatility. The blue area graph below depicts the volatility over the previous 10 weeks, and shows a clear increase in the years following the first gold ETF. A secondary effect of the increased ease of gaining exposure to gold is that demand for indirect exposure through gold mining equities decreased significantly.

With all the benefits of liquidity, price, and legitimacy that ETFs brought to the gold market, it's no surprise that bitcoin, which is frequently referred to as digital gold, is being put forward as a new underlying asset for ETFs. An ETF based on a digital asset would be the first of its kind, and so it is no surprise that the road to a bitcoin ETF is paved with uncertainty.

The Hurdles to a Bitcoin ETF

Bitcoin ETFs have become a popular topic of speculation within the blockchain community over the past few years. It is believed that a Bitcoin ETF would be a major step towards mainstream institutional and retail adoption, and thus would have a significant effect on the asset's price.

Hurdle 1: Price Manipulation

Though there have been multiple applications (the most notable from VanEck/SolidX and Bitwise) for a Bitcoin ETF filed with the US Securities and Exchange Commission (SEC), none so far have been approved. Regulators declined applications on concerns over the potential for market manipulation to occur, fragmentation of prices and data, lack of industry oversight or standards and the short history and continuously evolving nature of the asset - among other reasons.

Another cause for concern is the potential for market manipulation by early adopters and large holders - approximately 50% of the circulating supply of Bitcoin is held by < 1000 wallets.

There have, however, been bitcoin exchange-traded products established in other markets outside the US, notably a Bitcoin ETN from [XBTProvider](#). The UK financial watchdog, the FCA, is consulting on whether to ban cryptocurrency derivatives and ETNs from being sold to retail investors - seeking to reduce the harm to retail consumers caused by the sale of products "referencing unregulated transferable crypto assets." The FCA estimates that a ban on the sale, marketing and distribution of these products to retail consumers could reduce consumer losses by between [£75m and £234.3m](#).

Hurdle 2: Data-sharing with Regulators

The SEC states that its primary goals are ensuring the protection of investors, promoting fairness in the securities markets, and sharing information that helps investors make informed decisions. SEC chairman Jay Clayton has stated, "There is a need for surveillance sharing between an ETF provider and major bitcoin exchanges and bitcoin derivative markets to prevent manipulation."

However, there is little chance of this occurring as a) the majority of large exchanges are domiciled in jurisdictions with relaxed financial laws, b) there is little incentive to cooperate with a foreign regulatory agency, and c) the exchange would be turning fees away by excluding parties that attempt to manipulate the price.

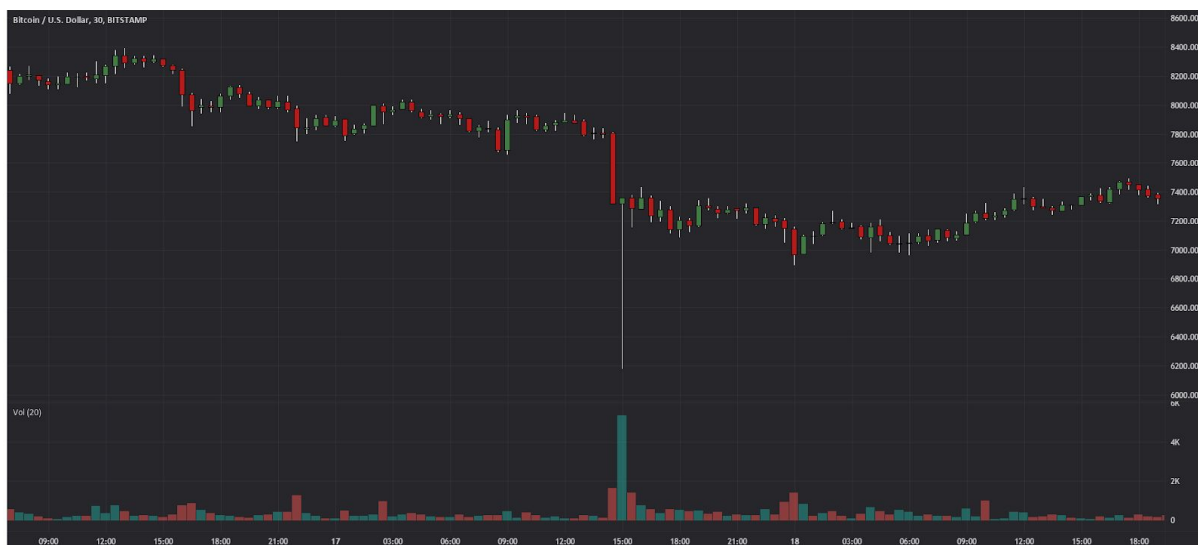
Knowing that there was a surveillance-sharing agreement with the SEC could also cause concern for investors/traders. Coinbase may be the most promising candidate at this time, as it is domiciled in the US, is of considerable size and has been regulatory-compliant from the very beginning. Whether one large exchange would be considered sufficient, however, is unclear.

Another potential candidate may be Bakkt, which recently launched its physically-delivered bitcoin futures exchange for institutions. Though it has yet to amass significant volume, it is the most convenient way for institutions to trade bitcoin at this time. Bakkt is owned by Intercontinental Exchange (ICE), the parent company of the NYSE, so there may be a better chance of cooperation on a surveillance-sharing agreement due to familiarity with SEC requirements. When referring to how this situation might be resolved, Jay Clayton said, “How that [manipulation] issue gets addressed, I don’t have a particular path. But it needs to be addressed.”

Hurdle 3: Indexing

The concerns around manipulation have to do with how the ETF is priced, which directly affects investors. SEC chairman Jay Clayton has stated, “The prices retail investors are seeing are the prices they should rely on. These should be free from manipulation – not free from volatility, but free from manipulation.”

Thus, if a bad actor is able to manipulate the price on an exchange that is used in an index for an ETF, then there can be negative effects for the ETF e.g. leverage positions get liquidated and investors buy or sell at a price that does not accurately reflect the overall market price. Accurate price indexes that are robust and resistant to manipulation are vital to the proper functioning of a Bitcoin ETF and weak indexes on a crypto exchange have caused unnecessary liquidations of leveraged positions in the past.



For example, the price of Bitcoin on Bitstamp crashed on May 16, 2019, because of a large market sell order. The derivatives exchange, Bitmex, had its index price-weighted 50/50 between Bitstamp and Kraken, and as a result, the crash on Bitstamp (shown by the large wick in the chart above) caused a large amount of leveraged positions to be liquidated on Bitmex.

This highlights the need for indexes that are resistant to such localised price movements. The Brave New Coin Bitcoin Liquid Index (BLX) attempts to address these sorts of issues by excluding exchanges that are known to have fake volume, using a minimum of six exchanges with different weightings to derive price, and by filtering out outlier transactions.

Hurdle 4: Custodianship

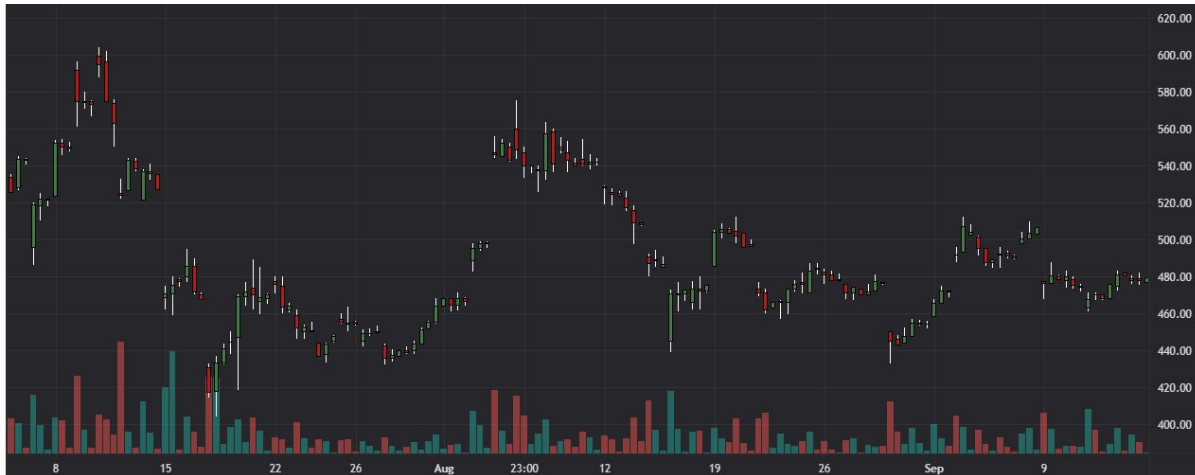
How an ETF stores Bitcoin is another important consideration for regulators and the provider of the ETF. With the unrecoverable nature of any Bitcoin that is misplaced or stolen, it is extremely important that it is managed and stored in a highly secure manner.

Typically, assets held by an ETF are managed by a third party custodian, but until recently this infrastructure has not been available for Bitcoin or other digital assets. Fortunately, these services have **now been built out** and there are a few different options for institutional-grade custodianship, such as BitGo, Fidelity Digital Assets, Bakkt, and Gemini.

Hurdle 5: Opening Hours

Another logistical problem with allowing a Bitcoin ETF is that cryptocurrency markets operate 24/7, whilst stock exchanges typically operate between 9:30 am and 4pm (local time) Monday to Friday. This allows the funds to settle their Net Asset Value (NAV) at the end of each trading day. However, the fact that crypto markets operate 24/7 opens up the potential for bad actors to attempt to manipulate the price, and thus NAV of the ETF, around the opening and closing hours of the exchange.

It would also make leverage positions in the ETF extremely risky, and likely impractical, because of price movements that could occur outside of the exchange opening hours. For example, if a trader/investor took a leveraged long position on Friday, and the price of Bitcoin crashed over the weekend, the trader's position when the ETF market opened on Monday would be significantly underwater. Depending on the leverage amount, this could also result in traders/investors losing more than just their collateral.



An ETF trading during standard exchange hours would only be available to trade 19.3% of the time that bitcoin trades on cryptocurrency exchanges. The chart above of a bitcoin ETN shows how this difference in trading hours creates ‘gaps’ in the chart.

What is a Bitcoin ETN?

Although there are plenty of challenges in establishing an ETF, a bitcoin tracking exchange-traded product is not unprecedented. XBT Provider, owned by Coinshares, provides crypto (inc. bitcoin) ETNs on the Swedish Nasdaq.

Bitcoin Tracker One was first launched on 18 May 2015, and on 15 Aug 2018, became [available for purchase to US investors](#) through a stockbroker. The Key Information Document for Bitcoin Tracker One states that Coinshares purchases “bitcoin for all money we receive through the sale of certificates which ensures that we are always 100% hedged”. The document also highlights the credit risk investors are exposed to, “The retail investor may face losing all his investment due to the unlikely event of the Issuer defaulting”. Amun AG also has several crypto ETNs listed on the SIX Swiss Exchange.

Although ETNs are not as desirable as ETFs due to their counterparty risk, they do outperform traditional institutional bitcoin funds in one key area: pricing accuracy. The Grayscale Bitcoin Investment Trust is the most popular bitcoin fund for institutions in the US, but has consistently traded at a [significant premium](#) to the market price of bitcoin, approximately 25% at the time of writing. Bitcoin ETNs, on the other hand, track the underlying asset much more tightly.

The pros and cons of a Bitcoin ETF

The benefits

Liquidity

Bitcoin ETFs are a hot topic in the crypto community because proponents believe they will bring a host of benefits to the ecosystem. One of the most anticipated changes is the improved liquidity that a Bitcoin ETF would bring. At present, the majority of Bitcoin trading is conducted against the Tether USD stablecoin (USDT). Whilst each USDT is supposed to represent one underlying dollar, investors, especially financial institutions, may be wary of using such a vehicle due to concerns around the company that holds the USD.

A Bitcoin ETF would allow investors to gain exposure to the Bitcoin market using fiat in the same way that other ETFs are bought into. This enables investors that were previously put off by USDT to enter the market. Additionally, ETFs are much better understood in the investment world than the alternative - buying bitcoin on a crypto exchange.

Safe-key Storage

One key benefit to this is that buyers of an ETF share do not need to worry about storing their Bitcoin safely, as custody is handled by the ETF. This takes away one of the major obstacles that traditional retail and institutional investors have, and allows the ETF to be traded like any other commodity-backed ETF.

As such, it is expected that these developments would result in a large inflow of capital from the traditional investment world. An investor would simply need a brokerage account to be able to purchase shares in the ETF and having a more traditional on-ramp would likely broaden who this type of investment appeals to. For example, hedge funds could now speculate with ease on the movements of the bitcoin market, whilst pension funds could invest as a hedge against uncertainty in the equity market.

Assets kept On-shore

A secondary benefit of permitting a Bitcoin ETF is that it would help to keep assets 'onshore.' Because cryptocurrency exchanges are frequently subjected to stringent requirements which may be hard to comply with, many engage in what has been referred to "regulatory arbitrage" - the act of moving to a jurisdiction where the regulatory requirements are light. As a result, investors that wish to purchase cryptocurrency have to send money off-shore to be able to purchase from these exchanges. Typically they are based in small island nations with relaxed financial laws, such as the Cayman Islands, Gibraltar, Malta, or Seychelles.

By allowing a Bitcoin ETF to be established, investors that want to purchase Bitcoin can buy a share in the Bitcoin ETF, rather than sending money off-shore. This is beneficial because it allows for better visibility and taxation of investor assets, and improved security of investor assets as the

custodians of the ETF would have custody insurance. It would also clarify the tax process for investors who want to hold crypto in a tax-compliant manner.

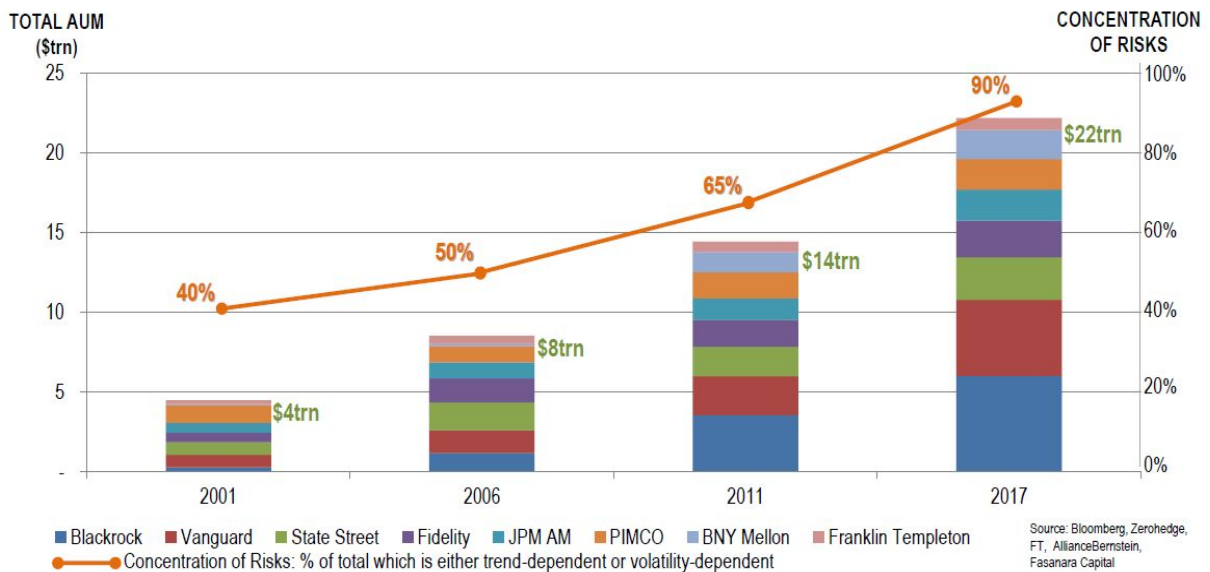
The Downsides

Although sentiment towards a bitcoin ETF is mostly positive, it is not uniformly so. Andreas Antonopoulos, for example, the author of *Mastering Bitcoin* and a longtime bitcoin advocate, has been particularly vocal about his opposition to an ETF, although he still sees it as inevitable.

The common arguments against it stem from the fact that the bitcoin is held by a fund and not the investors. This violates the underlying principle of bitcoin being ‘peer-to-peer’ money, which many view as the breakthrough of the technology. The common phrase among bitcoiners, “not your keys, not your bitcoin”, emphasises this point.

Systemic Risks in the Fund Management Industry

Out of about \$4 trillion in total ETF assets, 80% is controlled by three firms. Blackrock is by far the largest issuer at \$1.554 trillion AUM, with Vanguard Group coming in at \$1.008 trillion AUM followed by State Street Corporation at \$640 billion AUM.



Over the past year, 50.5% of new capital inflows have gone to only 20 funds, which represents less than 1% of all ETFs publicly available in the US. At present, there are around 5,024 ETFs trading globally, with 1,756 based in the U.S. ETF sponsors typically do their own marketing for the ETFs they provide, but occasionally outside help is contracted. Brokerage firms may also advertise ETFs to their clients because of the fees they earn from executing trades.

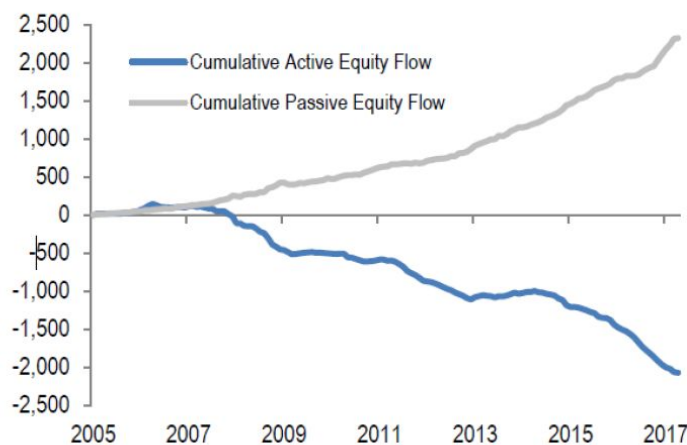
Introducing the risks of passive investing ETFs

Holding a large amount of bitcoin in an ETF is good for increasing availability to investors wanting exposure but ultimately does not contribute to the network effects of bitcoin nor the overall health of the network as the ETF will effectively duplicate the digital asset with 'paper BTC' - as opposed to creating natural demand for 'real BTC' which is produced every block by miners and validators who add to the network's hashrate and security.

Furthermore, investors have no need to educate themselves on the workings of bitcoin as all custody and management is handled by the ETF manager - and runs the danger of becoming yet another passive investment strategy.

In the legacy markets, there is **growing concern** that passive investing through ETFs has created bubbles and distortions in equities, all but eliminating price discovery and falsely suppressing volatility. The threat has even been **likened to collateralized debt obligations (CDOs)**, the derivatives that precipitated the GFC, as the institutions which create, underwrite, and custody products in the fund industry are all counterparties to each other for many of the derivatives they have on their books. In other words, the fund management industry is highly interdependent and has grown 'too big to fail.'

CUMULATIVE FLOWS INTO PASSIVE AND ACTIVE EQUITY ETFs AND MUTUAL FUND (\$BN)



Source: J.P. Morgan Quantitative and Derivatives Strategy, EPFR Global

Between 2006 and 2018, \$2tr of funds left actively managed funds over which period \$2tr went into passive funds. This could be viewed as a cross-migration of funds. In 2018, the eight largest asset managers in the US have amassed \$22t in assets under management, up from \$8t in 2006.

In 2014, the Financial Stability Board (FSB), the international body which monitors the

global financial system, recommended that fund and asset managers be designated as "global systemically important financial institutions" due to the size of the sector and warned of a "liquidity mismatch" between fund investments and redemption. ETFs have created an illusion of liquidity for assets in the legacy market as the number of funds has far outgrown the number of stocks underlying them and the ability to sell (or redeem) them during a mass sell off.

Bitcoin’s relative autonomy from the wider financial system makes it a safe haven from shocks emanating from that system, such as another 2008 ‘Black Swan’ event. While bitcoin has its own native risks, they are largely independent of the financial system.

Governance by Fund Managers

Whilst these concerns around a bitcoin ETF are mainly philosophical, there are practical concerns that should also be considered. For instance, controlling a large amount of bitcoin centralizes the decision-making to the fund manager, reintroduces middlemen and could distort the ethos of the ‘open-source, decentralized’ community.

If a bitcoin ETF grew to the same size and popularity as the traditional markets, fund managers could indirectly become the largest holders of bitcoin just as they are the largest shareholders in 88% of companies in the S&P 500 and have an outsized effect on steering corporate governance and even government regulations through industry lobbying, a feedback loop known as ‘corporate capture’.

The feedback of corporate capture

A finely balanced status quo



SOURCE: BRAVENEWCOIN.COM

This would have implications for the governance of the Bitcoin network as currently the direction of the project is steered by a form of decentralized stakeholder governance through [Bitcoin Improvement Proposals](#) (voluntary developers), miners, validators, nodes and the actions of coin-holders themselves.

For example, in the event of a soft-fork or hard-fork, such as the Bitcoin/Bitcoin Cash segwit hard fork, the stakeholder community voted with their compute power and spending power allegiance to either the new or old chain. As it transpired, the majority stayed with the original Bitcoin chain.



However, if a large fund manager held a significant stake of BTC (through an AP or other custodian) it could sway the outcome of this process, by, for example, choosing to sell the old currency (BTC) for the new ‘upgraded’ currency BCH.

In traditional fund management, financial institutions and pension funds are known as ‘active investors’ as they hold a significant enough stake to vote on changes and even affect the board of the company to make changes. However, investors in an ETF effectively forfeit any shareholder voting rights to the fund manager and have no representation at company AGMs - shareholder decisions and votes are left to fund managers.

Stakeholders in Bitcoin’s Governance					
Miners	Validators	Core developers	Token holders & app builders	Exchanges	Chipmaker companies

The actions of a fund manager are unlikely to represent all investors, i.e. whether or not to support a fork or if the forked coin should be added to the portfolio or be liquidated. The possibility of manipulation and front-running should also not be taken lightly.

Because of the disclosure requirements of ETFs, if a situation arose where the ETF needed to sell or purchase a large amount of their bitcoin, there may be an opportunity to front-run the sale or purchase. This could negatively affect the price that the ETFs market maker sells or buys at, which would in turn negatively affect investors. The size of the sales or purchases by the AP could also move the spot market price if they were not executed carefully.

Obviating Blockchain Innovation

There are also questions around how useful a bitcoin ETF would actually be. Holding shares in an ETF incurs management fees (typically 2% and many ETFs seek to reduce fees through self-indexing which introduces its own risk), which eats into the profits of investors. This compounds over time and can represent a sizeable loss in profits over a few years.

Single asset funds are also of questionable utility. Although gold benefited greatly from being included in ETFs as it is a cumbersome physical asset that did not have much liquidity (typically it was divided into an ounce which locked out small investors), bitcoin, in comparison, is already digital and has very good liquidity, both in the OTC market and on exchanges, and is divisible to 8 decimal places. There is irony in making a paper version of a digital asset.

Blockchain Technology and ETFs

A key consideration when pondering whether blockchain can be used to improve ETFs is that their defining attribute is that they are more tax-efficient and have less associated fees than mutual funds.

Therefore, any changes made by introducing blockchain need to preserve and ideally enhance these properties. When considering how blockchain could be used to innovate in the ETF market, three scenarios come to mind: the ETF shares (or a portion of them) could be tokenized, the underlying shares in the ETF could be tokenized, and an exclusively crypto ETF could be formed on-chain.

Tokenization of Shares

The tokenization of shares is a tricky option, mainly because it would require legacy financial systems to interact with a blockchain in some way. Tokenizing the shares of the ETF could increase liquidity if the tokens were able to be traded on existing cryptocurrency exchanges, and it would make the transfer of shares and settlement of trades more efficient.

The downside to this is that ensuring regulatory compliance may be difficult. Implementing a framework for the transfer of tokens, such as the Verified Token Framework, may be a way to ensure that tokenized ETF shares are only traded among KYC/AML verified participants. However, this still requires traditional securities exchanges to cater for token trading. The back end processes for trading securities are well defined among these exchanges, and so making the shift to accommodating token trading would likely be a large, costly job with little upside for the exchange. For this reason, a securities exchange would be unlikely to support this change.

Another option would be to tokenize the underlying shares held by the ETF. This makes little sense to do in isolation, however, and so this scenario is most likely to occur if the entire share registry was tokenized. There are some great benefits to this, such as improved efficiency and transparency in the transfer of shares and settlement of trades, cost savings as a result, and improved liquidity by allowing fractions of a token/share to be traded. Stock trades can frequently take up to three days to settle, which could be cut down to a few hours if the shares were on a blockchain.

Tokenizing the shares would not be an ETF specific solution however, rather an ETF would benefit as a result of this action. Whilst the upside to tokenizing shares is substantial, it's unlikely this will happen anytime soon due to the cost and complexity involved. With that being said, the [ASX is in the process of developing](#) a blockchain-based settlement platform to replace their existing 'Clearing House Electronic Subregister System', or CHES.

On-chain Crypto ETF

Another option is to create an ETF comprised of crypto-assets on-chain. The main advantage of this is that there is no mixing of legacy financial and blockchain systems, so there are no interoperability challenges to overcome. An on-chain token ETF could be structured in a very similar way to a traditional ETF, but with some benefits that are unique to blockchain.

'Shares' in the ETF could be replaced with tokens that algorithmically represent a stake in the fund's pool, and instead of having a fund manager, the funds could be held by a DAO, or decentralised autonomous organisation. The mechanism for creating and destroying shares could be similar to that of a normal ETF, with APIs being able to deposit tokens into the DAO and receiving tokens that represent a stake in the fund, and conversely being able to redeem these tokens for a portion of the fund's assets. This system is already in existence with the Maker DAO project, a decentralized fund that takes ETH as collateral for USD loans in the DAI stablecoin.

The main benefits to this novel type of ETF would be the complete visibility as to what assets are being held and the reduced expense ratio, as there would be no company required to maintain the fund. The downsides, however, are that traditional securities would not be compatible and that the fund's allocation of assets would need to be determined at the time the code was written. The DAO could be structured so that the ETF shareholders are able to vote on the allocation of the fund's assets, but this removes the passive investing aspect that makes ETFs desirable.

At present, the potential for blockchain to improve upon the existing ETF structure is limited, largely due to the difficulties in reconciling legacy financial products with emerging blockchain technology. The most achievable way of mixing the two is by bringing the ETF structure into the blockchain world, possibly in the form of a DAO. There would need to be some serious structural changes made to securities and their exchanges before blockchain could be introduced into the traditional ETF ecosystem.

Conclusion

A bitcoin ETF is inevitable, though the timeframe is unknown. The SEC's key concerns are around market manipulation and these concerns have yet to be adequately addressed by any of the bitcoin ETF sponsors. This issue is largely structural in nature as a large amount of trading volume is, and is likely to remain, offshore in jurisdictions with loose financial laws, beyond the gaze and authority of the SEC. The situation may be resolved if US institutional bitcoin trading platforms, such as BAKKT and CME bitcoin futures, are able to obtain a level of volume that satisfies the SEC's surveillance requirements.

The focus of this report has largely been on the US market due to the maturity of their financial industry and capital availability, but it is not an impossibility that a bitcoin ETF is established in another jurisdiction like bitcoin ETNs were. On a broader note, blockchain and ETFs may interact in other ways that do not require the SEC's blessing, such as having share registers move onto a blockchain or ETFs that would require tokens being created on-chain. The future relationship of blockchain and ETFs looks bright, but proponents of a bitcoin ETF should not hold their breath.

Author Bio

Bryce Galbraith



Bryce Galbraith is an analyst at **Techemy Advisory** and has been involved in the blockchain-industry since mid-2016. He is an experienced entrepreneur with a keen interest in the startup investment ecosystem. He holds a BCom and BSc from the University of Auckland. In 2017 he co-founded a blockchain orientated startup which focused on fund management, brokerage, and high-frequency arbitrage trading.

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