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Securities and Exchange Commission
100 F St. NW
Washington, DC 20549-9303
Rule-comments@sec.gov

Re: Grayscale Bitcoin Investment Trust (GBTC)

File SR-NYSEArca-2017-06

Dear SEC:

Here are my comments on the proposal to allow the listing of the Grayscale Bitcoin Investment Trust. The SEC should permit the listing of ETPs based on bitcoin and other "cybercurrencies" such as ethereum and ripple.

Summary:

- The Grayscale Bitcoin Investment Trust (GBTC) is an existing product with a proven track record of holding bitcoins.
- Permitting GBTC to function as a normal exchange-traded product (ETP) will better protect investors by reducing deviations from Net Asset Value (NAV).
- The indicative value for this and all ETPs should be disseminated over standard quote feeds.

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[1] All opinions are strictly my own and do not necessarily represent those of Georgetown University, Satoshi Nakamoto, or anyone else for that matter.

- Moving bitcoin trading activity to regulated US exchanges will improve price discovery and reduce the potential for manipulation and money laundering.
- The creation of viable U.S.-regulated cash markets for bitcoin ETPs will facilitate the creation of viable US-regulated derivative markets. This will facilitate the taking for short positions, also leading to better price discovery and permitting better risk management.
- Better KYC and AML at the entry and exit points to the bitcoin network are the keys to controlling illegal uses, not banning bitcoin ETPs.
- Investors can invest in many innovative products that may or may not pan out. The SEC should not engage in merit regulation.
- The small creation unit size is appropriate and should be encouraged for more ETPs.

Background

NYSE-Arca is proposing rule changes that would permit it to list the Grayscale Bitcoin Investment Trust (GBTC). GBTC is an existing investment trust that holds only bitcoins. It provides a convenient way for investors to speculate on price changes in bitcoin, as well as a safer way to hold bitcoin exposure. Currently, this product trades on the OTCQX market, but it is not currently permitted to do ETP-like creations on demand. Consequently, GBTC, like many closed-end funds, often trades at a market price significantly different from its Net Asset Value (NAV). The following chart from Grayscale's website shows that the deviations have sometimes been substantial:

Grayscale®
A Digital Currency Group Company

Invest in the first publicly quoted bitcoin investment vehicle

The Bitcoin Investment Trust provides a secure structure to gain exposure to the price performance of bitcoin. Eligible shares are quoted on the OTCQX®, the top marketplace operated by OTC Markets under the Alternative Reporting Standards. Investors can buy and sell shares through most traditional brokerage accounts at prices dictated by the market.

— Market/Share   — Bitcoin Holdings/Share

Market Price per share*
At close as of 09/8/2017

$719.02 DAY CHANGE -8.98%

Bitcoin Holdings per Share**
At close as of 09/8/2017

$409.83 DAY CHANGE -3.18%

Returns‡	1 DAY	1 MONTH	3 MONTHS	YTD	12 MONTHS	SINCE INCEPTION
Market	-8.98%	35.92%	48.25%	491.06%	646.65%	-%

Source: https://grayscale.co/bitcoin-investment-trust/#market-performance

The proposed rule changes would also permit GBTC to function like a normal exchange-traded product (ETP) that allows creations as well as redemptions on demand. This would allow normal arbitrage forces to almost eliminate the deviations between the NAV and the market price. Rejection of the proposed rule change will harm investors by allowing for such large deviations between the NAV and the market price.

More background on "Bitcoin 1.0"

What I call "Bitcoin 1.0" was first created in 2009 by someone or some group using the pseudonym "Satoshi Nakamoto," whose true identity to this date is still controversial. Bitcoin 1.0 provides a means for electronically making a payment – the transfer of spending power – from one person to another without the need for a single trusted intermediary such as a bank in between.

To oversimplify the process, bitcoins work as follows: transactions to transfer bitcoins from one bitcoin address to another are announced via the internet to a decentralized number of competing computers (known as miners). The miners first verify that the sender has not already transferred the bitcoins at the first address to someone else. They then race to find the solution to a computationally intensive math problem, the so called "proof of work." Whoever wins the race by solving the problem first announces the solution to the network and collects the transaction fees and newly issued bitcoins associated with solving that block. All of the other miners can quickly verify the solution to the problem.

The newly issued bitcoins and the transaction fees for solving a block serve as an incentive for participants to engage in this "mining" activity. The design of the Bitcoin 1.0 protocol is such that there is a theoretical limit of 21 million bitcoins that will ever be issued, unless the protocol changes. However, in order for the protocol to change it would have to be accepted by a majority of the computing power associated with mining. Changes have occurred in the past and most likely will continue to occur in the future. If a change is not accepted by all of the miners, a "fork" may occur and result in two different version of bitcoin floating around. This has happened with ethereum as well as bitcoin.

The record of all of these publicly verified transactions is known as a blockchain. There is no single (and thus vulnerable) computer server that determines The Definitive Blockchain. Instead, there are many copies floating around that all of the miners agree upon.

This is all made cryptographically secure through public key cryptography. Bitcoin addresses are like the old secret numbered Swiss bank accounts. While each bitcoin is associated with a public address (the public key), it also has a secret number (the private key) that is known only to the holder. Anyone who gets their hands on the private key to an address, such as a hacker, can transfer the associated bitcoins to a new address.

Bitcoin 1.0 is just the beginning of what can be done with blockchain technology. Blockchain technology allows the secure transfer of a digital token of value without making a copy. It provides automatic redundancy and backup. It provides the potential for significant process improvements and cost savings in many areas, including the clearance and settlement of securities. It provides the potential for many new and exciting applications.

While I have many reservations about the long-term investment prospects of "Bitcoin 1.0" given the current price level, I do believe that it is in the public interest for the SEC to approve the proposed rule changes to allow GBTC to trade on our regulated exchanges as a normal ETP.

Grayscale Bitcoin Investment Trust has a proven track record.

GBTC has been in existence for several years and has a proven track record. It does what it promises to do, hold bitcoins safely. It will continue to exist, and investors will continue to trade it even if the rule change is disallowed. Such a rejection would harm investors by depriving them of the opportunity to trade this seasoned product on our high quality regulated U.S. exchanges.

Investors will be better protected with a real bitcoin ETP by reducing deviations from NAV.

Investors can already get exposure to Bitcoin 1.0 merely by holding it in a software program known as a bitcoin "wallet." However, many investors may not have adequate cybersecurity to prevent a hacking of

their wallets. GBTC provides professional-grade custody of the bitcoins that will be a safer way for investors to hold bitcoins than holding it in their own wallets.

ETP prices generally track very closely to the NAV of the underlying portfolio. As seen above, the prices of GBTC sometimes deviate dramatically from its NAV.   By permitting GBTC to become a standard exchange-traded ETP, these deviations will be dramatically reduced. This will protect investors by reducing losses from purchasing at prices greater than NAV or selling at prices below NAV.

The indicative value for this and all ETPs should be disseminated over standard quote feeds.

The Trust promises that it will calculate its IIV every 15 seconds and disseminate it widely: "The IIV will be widely disseminated on a per Share basis every 15 seconds during the NYSE Arca Core Trading Session by one or more major market data vendors. In addition, the IIV will be available through on-line information services."[2]

This is better than many other ETP sponsors do. One of the problems in the ETP space is the kludgy and nonstandard manner in which the intraday indicative values (IIVs) are disseminated.[3] While in theory the IIVs are disseminated every few seconds for most ETPs, in practice it is very hard for most investors to find them. [4] Even worse, some large ETP sponsors wash their hands of any responsibility for IIVs.[5]

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[2] https://www.sec.gov/rules/sro/nysearca/2017/34-80729.pdf, page 42.

[3] These are sometimes called "Indicative Optimized Portfolio Values" or IOPVs.

[4] The summary sheets issued for some ETPs are materially misleading.   They clearly list the ticker and extensions for the IIVs and other data related to the ETPs, with the false implication that such data are readily available to investors. However, it is very difficult for investors to actually access these data. The IIVs are apparently not disseminated over the same data feeds as normal quotes and trades in NMS stocks. Only a few brokerage web sites even provide the ability to get them. Even those brokerage web sites that do make the data available use a variety of different ways to denote extensions such as .IV, part of the ongoing mess with symbology in the U.S. equity markets. For example, The NYSE and NASDAQ use slightly different suffixes on the root symbols to indicate various types of securities. See https://www.nasdaqtrader.com/Trader.aspx?id=CQSSymbolConvention and http://www.nyxdata.com/doc/241207.   To make matters worse, various data vendors use different delimiters to separate the root symbol from the suffix. They may use a ".", "-", space, or "/" as a delimiter. For example, to get the IIV for the SPDR Trust, Yahoo requires ^SPY-IV. Interactive Brokers merely requires SPY.IV.

[5] For example, Blackrock's iBonds prospectus states, "The Fund is not involved in, or responsible for, the calculation or dissemination of the [IIV] and makes no representation or warranty as to its accuracy." (https://www.ishares.com/us/library/stream-document?stream=reg&product=ISHIBDH&shareClass=NA&documentId=1278791~1278786~988803~1200014~1135507&iframeUrlOverride=%2Fus%2Fliterature%2Fprospectus%2Fp-ishares-ibonds-dec-2018-term-corporate-etf-10-31.pdf) I have not been able to find the IIVs for any of their iBonds ETPs up on brokerage firm or internet web sites. This makes it very hard to determine whether current market prices are closely related to the underlying value of the portfolio.

Wide dissemination of IIVs is even more important for GBTC, given its history of high volatility of the underlying and the history of large deviations from NAV. In order to protect investors from trading at prices significantly different from NAV, they need to be able to determine approximately what the NAV is by having easy access to the IIV.

This problem affects not only GBTC, but many ETPs. The SEC should work with the industry to make sure that IIV data for all ETPs are disseminated widely in a standardized format over the industry standard data feeds and are available on every brokerage web site.

Trading of Bitcoin on U.S. regulated exchanges will lead to better price discovery.

Currently, the dollar price of Bitcoin 1.0 is extremely volatile.   As the market is quite thin, it takes a relatively small amount of trading to result in a large movement in the Bitcoin 1.0 price.   Much of the trading occurs on poorly regulated exchanges outside the United States. It is likely that initiating trading on a high-quality regulated U.S. exchange like NYSE-Arca will bring in increased liquidity that will help to reduce volatility.   With more trading volume and liquidity that occurs in the U.S., it will be that much harder for foreign manipulations to affect the price. Furthermore, participants in the U.S. market would be subject to U.S. regulatory jurisdiction which should also reduce shenanigans in the market.

The introduction of bitcoin ETPs will facilitate the development of derivatives and short selling, leading to better price discovery.

The high and volatile dollar price of Bitcoin has all of the trappings of a speculative bubble. One of the possible reasons for overvaluation is the lack of appropriate tools for short selling. Short selling and related derivatives give investors the ability to trade on negative views with respect to price, as well as to hedge exposures.

The introduction of bitcoin ETPs will facilitate the ability to short sell bitcoin, and thus bring more information about its intrinsic value into the market. This will result in a more fair and orderly market. U.S.-traded bitcoin ETPs will also facilitate the development of U.S.-traded derivatives such as options and futures, which will bring additional hedging tools into the market and permit even more information to be incorporated in bitcoin prices.

While blockchain technology is very promising, Bitcoin 1.0 still lacks a "killer app."

I am a big proponent of distributed ledger technology, also known as blockchain technology. It is a great technological advance that permits many new applications that will result in innovative applications as well cost savings in operations. However, I am a bit skeptic about the long-term prospects for Bitcoin 1.0. I think it will be bypassed by many subsequent blockchain applications such as ethereum and ripple that

have much better long-term prospects. Indeed, while there are several putative use cases for Bitcoin 1.0, I am not persuaded by them. Bitcoin 1.0 still lacks the "killer app" that will lead to widespread adoption by the general public. Putative use cases for Bitcoin 1.0 include:

- Store of value. Since Bitcoin 1.0 is not dependent on any particular government, it may provide a way to store spending power if a government collapses and its currency becomes worthless. News reports indicate that some Venezuelans are turning to bitcoin as their currency collapses.[6] In this respect it competes with other currencies as well as gold. However, if civilization completely collapses, it is unlikely that there will be electricity and internet connectivity in order to make bitcoin transactions.

- International remittance medium. As the costs associated with Bitcoin 1.0 transactions are very low (but not zero), it could provide a low cost way to transfer remittances from one country to another. However, the problem with remittances is not the cost of moving electrons across an ocean, which is virtually negligible. The problem is the "last mile" problem of securely getting the spending power into transmittable form on one side and transforming it into local spending power securely on the other. There are, however, many fintech innovations competing in this area, and it is far from clear that Bitcoin 1.0-based applications will dominate here.

- Micropayments.   The high level of divisibility of bitcoins and the seemingly low transactions costs have led some to speculate that it could make micropayments viable. Alas, bitcoin transactions are not free and miners now expect fees for verifying transactions. This will only get worse as the difficulty of mining bitcoins increases. Furthermore, consumers are not champing at the bit to make even small payments for web sites and music that they think they are now getting for free.

- Normal spending. As Bitcoin 1.0 is much like cash, the argument is that merchants will love to accept it because the fees associated with bitcoin transactions are lower than the fees merchants pay on credit and debit card transactions.   Furthermore, the "just like cash" nature of bitcoin ensures a finality of transactions. This means that there can be no chargebacks such as merchants endure for disputed transactions. These savings are offset by the cost and expense of accepting yet another form of payment and the exchange risk of accepting an unstable payment medium like bitcoin.

  Alas, bitcoin faces serious entrenched competition from existing currencies and payment systems. Overcoming the network advantages of the incumbent currencies and payment systems is a very high hurdle that bitcoin faces. Consumers are not rushing to use a "just like cash" payment mechanism without any of the consumer or legal protections built into current payment systems. Indeed, consumers are mostly moving away from cash for all but the smallest transactions.

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[6] https://www.theatlantic.com/magazine/archive/2017/09/big-in-venezuela/534177/

Furthermore, Bitcoin 1.0 transactions are just not fast enough for normal point-of-sale use. It takes about 10 minutes for a transaction to be verified and included in a block. This compares with the near instant authorization of a debit or credit card. Merchants who let a customer walk out the door with the merchandise before the block is verified are risking that the miners will reject the transaction. Furthermore, the highly volatile nature of bitcoin prices means that the merchant or the merchant's bitcoin processor is sitting on exchange risk before the bitcoins are transferred into the merchant's local currency.

- Immutability. The notion that bitcoin is governed by an "immutable" mathematical protocol leads some to believe that it can't be changed and that the maximum number of bitcoins can never go above BTC 21 million. This is not true. Bitcoin is whatever the majority of the miners agree to verify. As most of the mining is now done by large "pools" of miners that work together and share their proceeds, it is conceivable that group of miners could indeed decide to increase the number of bitcoins to be created in order to encourage future mining or make up for "lost" bitcoins that are out of circulation.[7] The protocol has changed and will continue to change.

- Fixed money supply. Some Bitcoin 1.0 proponents appear to believe that it would create a fixed money supply. However, if Bitcoin 1.0 survives (and it is likely to survive longer than the average U.S public company exchange listing, which is only 8.5 years), it is inevitable that a normal fractional reserve banking system will develop around it. Such development of fractional reserve banking in the bitcoin realm will mean that the normal money multiplier will occur. Thus the BTC-M1 money supply will eventually expand to a number far greater than BTC 21 million.[8] Indeed, the recent "fork" that resulted in Bitcoin 1.0 holders getting "Bitcoin Cash" shows that there can be increases in the supply of bitcoin-related coins.[9]

- Libertarian nirvana. Some proponents drool at the prospect of a monetary and financial system totally beyond the reach of any governments. Users can freely trade anything they want, without regulatory nuisances or taxes. However, there are good reasons why every country regulates its monetary and financial systems in order to provide economic growth and stability as well as consumer protection. The experience of the 19th and early 20th centuries with "hard money" gold

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[7] Indeed, if a banking system develops in which it is possible to borrow bitcoins, one could easily envision a scenario in which a large mining pool develops a huge short position in bitcoin, and then takes steps to reduce bitcoin's value. One can also envision scenarios in which state actors attempt to manipulate bitcoin for various reasons.

[8] For those unfamiliar with fractional reserve banking, the process works like this. Suppose the government creates $100 in new currency and spends it by buying something from Alice. Alice then deposits the money in a bank which then keeps $10 in reserve and lends out $90 to Bob. When the money supply as measured by "M1" (cash plus demand deposits in banks) is totaled up, it counts both Alice's bank account of $100 and Bob's $90, for a total of $190. The expansion continues when Bob buys something from Charlie and Charlie deposits money in a bank which then lends part of it out. The process goes on and on.

[9] https://cointelegraph.com/news/suddenly-bitcoin-gpu-hard-fork-could-give-bitcoiners-more-free-money

standards demonstrated that such hard money systems are too brittle and exacerbates periodic financial crises. The high degree of leverage in unregulated financial systems also contributes to economic instability and depressions.

- Underground uses. The near anonymity of Bitcoin 1.0 makes it very hard to trace who is behind a particular Bitcoin 1.0 transaction. Bitcoin addresses are not account numbers in the usual sense of an account at a financial institution. A single bitcoin user may have bitcoins attached to numerous different addresses. One can in theory trace bitcoin transfers from one address to another. However, unless one has other information about who is associated with a particular bitcoin address, it is extremely difficult to determine who is behind a particular transaction. So called "mixers" or "tumblers" can further scramble the trail of Bitcoin 1.0 payments. For this reason, Bitcoin 1.0 has become the coin of the realm in the dark web of illicit transactions such as human trafficking, drug dealing, and ransomware. It is no surprise that the recent WannaCry ransomware attack demanded payment in Bitcoin 1.0.[10]

  However, even here Bitcoin 1.0 faces competition from newer cryptocurrencies. Other cryptocurrencies like monero offer even more anonymity.[11]

  It is this facilitation of illicit transactions that has rightfully given policymakers pause around bitcoin. It would not be in the public interest for a regulator to promote a product whose only use is to break the law. However, the U.S. dollar is also used for illicit transactions, and such use is not grounds for banning all dollar-related financial products. **Approval of listing GBTC will not cause there to be any more or less ransomware attacks.** As explained below, I believe that there are better ways of containing odious uses of bitcoin than to ban bitcoin-related financial products.

Recent forks show that bitcoin has and will continue to evolve.

While I am indeed skeptical that we will all be using Bitcoin 1.0 in our daily lives any time soon, if ever, it is encouraging that bitcoin can and does change. The recent "hard fork" that created "Bitcoin Cash" and "Bitcoin Classic" is evidence of this. There is no reason to believe that future changes cannot be made to improve upon Bitcoin 1.0 to make it more competitive with other payment systems or newer cryptocurrencies. Possible changes could speed up the time needed to verify a block as well as reduce electricity needed to process a block. This would reduce the considerable environmental impact of bitcoin mining. Thus, even though I am more than a bit skeptic about the long-term prospects for Bitcoin 1.0, there is a chance it just might evolve into something useful or even valuable. Investments in Bitcoin 1.0 related products such as GBTC are thus real options on the possibility, however remote, that Bitcoin

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[10] https://qz.com/1045270/wannacry-update-the-hackers-behind-ransomware-attack-finally-cashed-out-about-140000-in-bitcoin/

[11] https://www.wired.com/2017/01/monero-drug-dealers-cryptocurrency-choice-fire/

1.0 evolves into something that actually is valuable. Investors should be permitted to bring their own information and risk bearing into the market through our highly regulated and transparent exchanges.

The key to controlling illegal uses is better KYC and AML at the entry and exit points to the bitcoin network, not banning bitcoin ETPs.

I have previously expressed opposition to SEC approval of bitcoin-based products on the grounds that it would legitimize the use of a payment mechanism whose most prominent application is to break the law.[12] I do not see how any country that believes in the rule of law can tolerate a payment system whose primary use is to facilitate illegal activities. Nevertheless, cryptocurrencies are here and they are not going away any time soon. Bitcoin will continue to exist as long as there is at least one internet-connected PC willing to mine it. Banning bitcoin ETPs will not reduce the number of ransomware attacks. The question is how to control illegal uses of cybercurrencies.

I now believe that the key to reducing illegal uses of Bitcoin 1.0 is not to ban bitcoin-based products such as ETPs. Instead, the bitcoin world needs to be brought into the disinfecting sunlight of the legitimate financial system. Appropriate Anti-Money-Laundering (AML) and Know-Your-Customer (KYC) rules need to be applied to all points of entry and exit from cryptocurrency networks.

Cryptocurrencies are not worth much unless they can be used to purchase regular goods and services or converted into other more widely accepted currencies. While tracing purely illicit transactions, such as using ransomware proceeds used to buy drugs, will always be difficult, the use of cryptocurrencies to buy legitimate goods and services or national currencies can be monitored.

The exchanges and money transmitters that permit the purchase and sale of bitcoins are a logical place to start. U.S. regulatory policy should encourage their formation within U.S. jurisdiction so that U.S. law enforcement can more easily track down illicit activities. With appropriate judge-approved search warrants, law enforcement officials should be able to find out the real people behind suspicious bitcoin transactions on exchanges. As bitcoin can act "just like cash," large bitcoin transactions should be reported by merchants just as large cash transactions are reported by banks.

The U.S. should work with other jurisdictions including the European Union, China, and Japan to encourage them to have similar AML and KYC rules for all entry and exit points to cryptocurrencies.

The riskiness of Bitcoin 1.0 should not be an impediment to approval.

The recent spike in the Bitcoin 1.0 price has all of the hallmarks of a speculative bubble. This would obviously impose losses on any speculator who buys at the peak of the bubble. It also presents risky but

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[12] http://thehill.com/blogs/pundits-blog/finance/322695-approving-bitcoin-etfs-will-lead-investors-to-slaughter

potentially lucrative opportunities for those who can short at the right time.   Indeed, I am quite skeptical about the current market price. Unfortunately, our existing financial pricing methodologies (e.g. discounting and duplication) provide little useful insight into how to price bitcoins.

This riskiness, however, is not grounds for disapproval. The long-standing tradition in U.S. securities regulation is to let investors decide for themselves whether an investment is too risky.   The core philosophy of U.S. financial regulation is disclosure-based regulation, not merit-based regulation. As long as the risks are properly communicated to investors, there is no reason they should not be allowed to decide for themselves whether to engage in risky investments. (Note that I use the word "communicate" here.   Hundreds of pages of turgid legal fine print may appear to fulfill the letter of the law, but they certainly do not communicate.)

We routinely let investors decide for themselves and use our markets to invest in risky and controversial new technologies. It is well known that investments in new technologies are very risky and have high failure rates. The fact that most new enterprises do not survive very long is no reason to ban investors from investing in new enterprises.   Indeed, such risk-taking is a vital element in our economic growth. The new enterprises that do survive provide the technological innovation and economic growth we all depend on. It is not and should not be up to government regulators to impose merit regulation and decide which investments are "good enough" for investors.

We also routinely let investors invest in extremely risky products with much higher volatility than GBTC, such as biotech lottery-ticket stocks, or options with high degrees of embedded leverage. Again, it is not the role of the regulator to decide whether an investment's prospects are good enough to allow investors to participate.

The small creation unit size is appropriate and should be encouraged for more ETPs.

One of the major problems with ETPs is the high rate of settlement failures compared with regular corporate stocks. Settlement failures impose costs on the failing to receive buyers who are deprived of potential stock lending revenue. They also increase costs and risks in the settlement system.   ETP settlement failures should not be a problem in theory since ETPs are, in theory, easy to create. The high rate of settlement failures indicates unnecessary frictions in the create/redeem process for ETPs. One of the frictions is the very large size of creation units for some ETPs. While a large creation unit may make sense for an ETP with hundreds of constituents, it makes no sense for many ETPs.   As this ETP is quite simple and only holds bitcoins, it makes sense that it has a very small size creation unit. More ETPs should be encourages to have creation unit sizes as small as possible.

Respectfully submitted,

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