



Bitwise

**Is It Likely That A US Bitcoin ETP, If Approved, Will Become The
Predominant Influence On Prices In The CME Bitcoin Futures
Market?**

By Matthew Hougan, Hong Kim, and Satyajeeet Pal

Bitwise Asset Management

June 11, 2021

Table of Contents

I. Introduction

II. Methodology

III. Estimating The Potential Flows Into A Bitcoin ETP

IV. Evaluating The Potential Impact Of ETP Flows On Prices In The CME Market

V. Estimating The Likely Trading Volume Of A Bitcoin ETP

VI. Evaluating The Potential Impact Of ETP Trading On Prices In The CME Market

VII. Conclusion

Appendix A: Is A GLD-Like Rapid Launch Likely?

Appendix B: Recent Experiences With Internationally Listed Bitcoin ETPs

I. Introduction

One important question that surrounds a potential U.S. bitcoin ETP is whether it is likely that such an ETP, if approved, would become the predominant influence on prices in the CME bitcoin futures market (“CME Market”).¹

This paper takes a replicable, data-driven approach to answering that question, relying on extensive historical data on U.S. ETPs and a widely available, publicly quoted bitcoin trust to make its evaluation.²

The study demonstrates that, even using aggressive assumptions for the product’s success, it is unlikely that a bitcoin ETP would become the predominant influence on prices in the CME Market.

¹ See, for example, Securities and Exchange Commission Release No. 34-87267; File No. SR-NYSEArca_2019-01, October 9, 2019, Order Disapproving a Proposed Rule Change, as Modified by Amendment No. 1, Relating to the Listing and Trading of Shares of the Bitwise Bitcoin ETF Trust Under NYSE Arca Rule 8.201-E. Page 5.

² Although this analysis is focused on the U.S. market, in Appendix B, we also examine data from bitcoin ETPs that recently launched in Canada and Europe to provide additional context to our findings.

II. Methodology

We take four steps to evaluate whether a bitcoin ETP is likely to become the predominant influence on prices in the CME Market. We:

1. Estimate the potential flows into a bitcoin ETP
2. Evaluate the likely impact of those flows on prices in the CME Market
3. Estimate the potential trading volume of a bitcoin ETP
4. Evaluate the likely impact of that trading on prices in the CME Market

In forecasting inflows and trading volume, we err on the side of making aggressive estimates for the success of the ETP in the market. Our goal in doing so is to demonstrate that, even in outlier scenarios where the new ETP is among the most successful ETP launches in history, it is unlikely that a bitcoin ETP will become the predominant influence on prices in the CME Market.

III. Estimating The Potential Flows Into A Bitcoin ETP

We examine extensive and directly pertinent data from other ETPs and a well-known, publicly traded bitcoin trust to estimate the likely first-year flows into a newly approved bitcoin ETP.

Historical Context: First-Year Net Flows Into All U.S.-listed ETPs

The first U.S. ETP launched in 1993, when State Street Global Advisors debuted the SPDR S&P 500 ETF Trust (NYSEArca: SPY). Since then, thousands of ETPs have followed, offering exposure to stocks, bonds, commodities, and other assets.

We examine the first-year net flows into all ETPs currently listed on the market, using data from FactSet.³ We exclude ETPs with negative first-year flows.

Of the more than 2,200 ETPs with positive or flat first-year flows:

- The median ETP attracted \$28 million in flows during its first year on the market.
- The ETP with the highest first-year flows in history—the Invesco QQQ Trust (Nasdaq: QQQ)—attracted \$5.35 billion in flows.

The table below highlights the 10 ETPs with the highest first-year flows in ETP history.

Fund	Ticker	Year-One Flows (\$M)
Invesco QQQ Trust	QQQ	5,351
Communication Services Select Sector SPDR	XLC	5,186
iShares MSCI EAFE ETF	EFA	4,292
JPMorgan BetaBuilders Europe ETF	BBEU	4,187
PIMCO Active Bond ETF	BOND	4,116
JPMorgan BetaBuilders Japan ETF	BBJP	3,755
JPMorgan BetaBuilders Canada ETF	BBCA	3,656
iShares Select Dividend ETF	DVY	3,245
Real Estate Select Sector SPDR Fund	XLRE	3,171
SPDR Gold Shares	GLD	3,010

³ Data was pulled from FactSet on November 30, 2020.

Based on this analysis, we consider \$5.35 billion to be the outer limit of possible first-year flows into a bitcoin ETP. There is no precedent for an ETP attracting more than this in its first year on the market. We find it unlikely that a bitcoin ETP will experience the highest first-year flows in history, particularly given the relative size of the bitcoin market compared to the markets captured by the ETPs above, which target parts or all of the equity, bond, real estate, and gold markets.⁴

Additional Context: First-Year Flows Into First-To-Market Commodity ETPs

To provide a more detailed comparison, we examine first-year flows into first-to-market single-commodity ETPs. Bitcoin is considered a commodity by the Commodity Futures Trading Commission,⁵ and one way to view a potential bitcoin ETP is as a first-to-market single-commodity ETP offering exposure to bitcoin in the same manner that the SPDR Gold Shares (GLD) is a first-to-market single-commodity ETP offering exposure to gold, and the iShares Silver Trust (SLV) is a first-to-market single-commodity ETP offering exposure to silver.

The following table shows the first-year flows into every first-to-market single-commodity ETP currently available in the U.S., again using data from FactSet.⁶ First-year flows range from \$3.01 billion for the SPDR Gold Shares (NYSEArca: GLD) to negative \$1 million for the iPath Bloomberg Lead Subindex Total Return ETN (NYSEArca: LD).⁷

Commodity	Ticker	Year-One Flows (\$M)
Gold	GLD	\$3,010
Silver	SLV	\$1,730
Crude Oil	USO	\$827
Platinum	PPLT	\$708
Palladium	PALL	\$603
Natural Gas	UNG	\$374

⁴ At year-end 2020, the total market capitalization of bitcoin was \$539 billion, according to Blockchain.com. By comparison, the global market capitalization of the equity market was \$95 trillion, and the outstanding value of the global bond market was \$106 trillion in 2019, according to the most recently published SIFMA Capital Markets Fact Book (September 2020) (<https://www.sifma.org/wp-content/uploads/2020/09/US-Fact-Book-2020-SIFMA.pdf>); the professionally managed global real estate market was \$9.6 trillion in 2019, according to MSCI’s Market Size Report on Global Real Estate (<https://www.msci.com/real-estate/market-size-report>); and the total value of above-ground gold was \$10 trillion on December 31, 2020, according to the World Gold Council (<https://www.gold.org/goldhub/data/above-ground-stocks>).

⁵ The Commodity Futures Trading Commission has argued successfully in federal courts that cryptocurrencies such as bitcoin are commodities. See, e.g., *Commodity Futures Trading Commission v McDonnell and CabbageTech, Corp.*, 18-CV-361 (E.D.N.Y. March 6, 2018) and *Commodity Futures Trading Commission v My Big Coin Pay, Inc.*, 18-cv-10077-RWZ (D. Mass. Sept. 26, 2018).

⁶ Data was pulled from FactSet on November 30, 2020.

⁷ Negative flows occur when a product is seeded with a certain amount of capital, but some of that capital is redeemed over time, and there are no offsetting creations.

Corn	CORN	\$115
Coffee	JO	\$48
Gasoline	UGA	\$28
Sugar	SSG	\$12
Soybeans	SOYB	\$10
Cotton	BAL	\$7
Nickel	JJN	\$2
Copper	CPER	\$2
Wheat	WEAT	\$1
Cocoa	NIB	\$1
Aluminum	JJU	\$1
Carbon Credits	GRN	\$0
Tin	JJT	\$0
Lead	LD	-\$1

These figures provide additional context on the likely upper bound of potential flows into a bitcoin ETP.

Maximum One-Year Flows Into The Grayscale Bitcoin Trust (GBTC)

The Grayscale Bitcoin Trust (OTCQX: GBTC) is a publicly traded grantor trust that holds bitcoin directly with a third-party custodian. Shares of GBTC have been accessible to U.S. investors through traditional brokerage accounts like Charles Schwab, Fidelity, and TD Ameritrade since May 2015.⁸ As of December 31, 2020, GBTC was the only product that allowed investors to gain exposure to bitcoin through a traditional brokerage window. A bitcoin ETP will compete with GBTC for these investors if such an ETP launches.

GBTC is different from an ETP in certain ways, including that the structure does not allow for redemptions, that it has a different regulatory status than an ETP, and that shares of GBTC are materially more likely to trade at significant and variable premiums and/or discounts to the net asset value of the trust. GBTC does, however, permit creations, allowing it to accommodate inflows to reflect investor demand. As such, it can be a useful data set for analyzing investor demand for exposure to bitcoin through a traditional brokerage window and what impact flows from such demand can have on prices in the CME Market.

⁸ OTC Markets Group Inc., press release, May 5, 2015. OTC Markets Group Welcomes Bitcoin Investments Trust to OTCQX (<https://www.prnewswire.com/news-releases/otc-markets-group-welcomes-bitcoin-investment-trust-to-otcqx-300077150.html>)

GBTC attracted a record \$4.7 billion in inflows in 2020, according to Grayscale Investments,⁹ its highest year ever. Its previous record was \$472 million, set in 2019. 2020's record inflows occurred during a sustained bull market for bitcoin, as bitcoin's price rose 306% in 2020.¹⁰

Our Estimate For Future Analysis

For the purposes of this paper, we use \$4.7 billion as our estimate for first-year flows into a new bitcoin ETP.

We consider this level to be aggressive. It assumes that a bitcoin ETP will:

- Be the third-fastest-growing ETP in history, out of more than 2,200 products with positive year-one flows
- Significantly surpass (by more than 50%) the first-year flows into GLD, which experienced the highest first-year flows in first-to-market single-commodity ETP history
- Match the highest annual flow in GBTC's history, achieved during a strong bull market, all while the new ETP is forced to compete for market share with GBTC itself

⁹ Grayscale Investments, Digital Asset Investment Report, Q4 2020.

(<https://grayscale.co/insights/grayscale-q4-2020-digital-asset-investment-report/>)

¹⁰ Bitcoin's price rose from \$7,147 on December 31, 2019 to \$29,026 on December 31, 2020, according to the Coin Metrics bitcoin reference rate.

IV. Evaluating The Potential Impact Of ETP Flows On Prices In The CME Market

The flows into GBTC are publicly available. This means we have a direct test case to evaluate whether \$4.7 billion in positive flows into a bitcoin investment product in a single year is likely to cause that product to become the predominant influence on prices in the CME Market, as we can analyze the experience of GBTC itself in 2020.

We conduct a statistical analysis examining the relationship of flows into GBTC in 2020 and changes in the price of bitcoin, using both daily and weekly flows.

Daily (or weekly) flows were calculated from Bloomberg data by multiplying the change in outstanding shares of the trust by the net asset value per share of that day (or week). Daily (or weekly) percentage price changes of bitcoin were calculated using the 4 p.m. ET bitcoin reference rate from Coin Metrics.¹¹

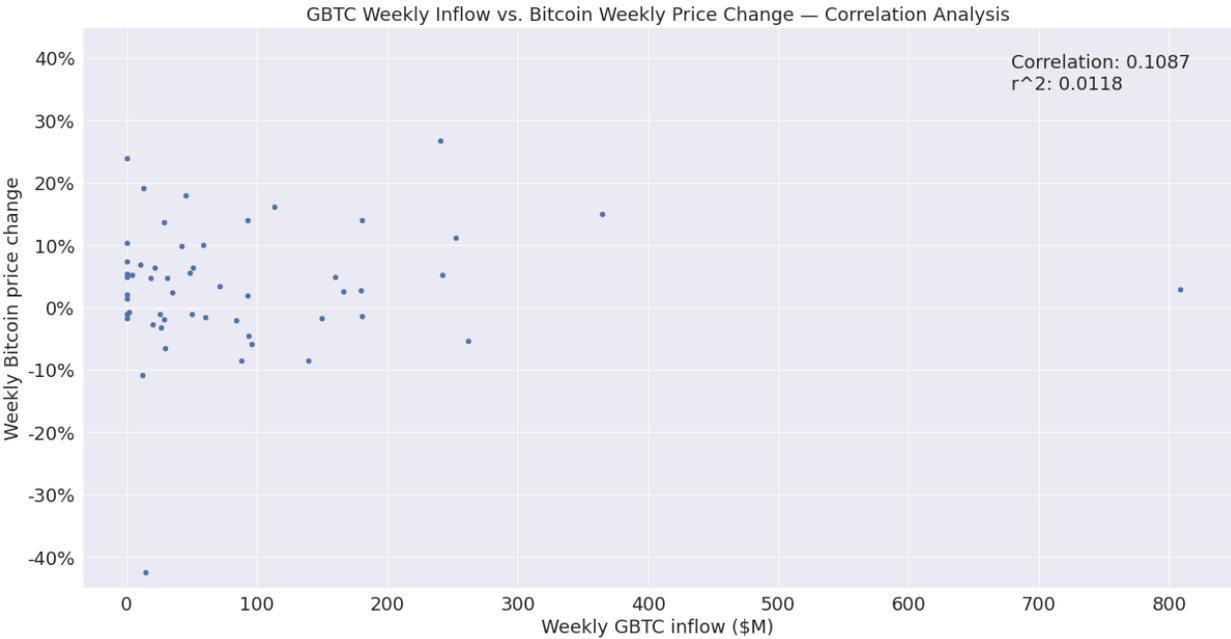
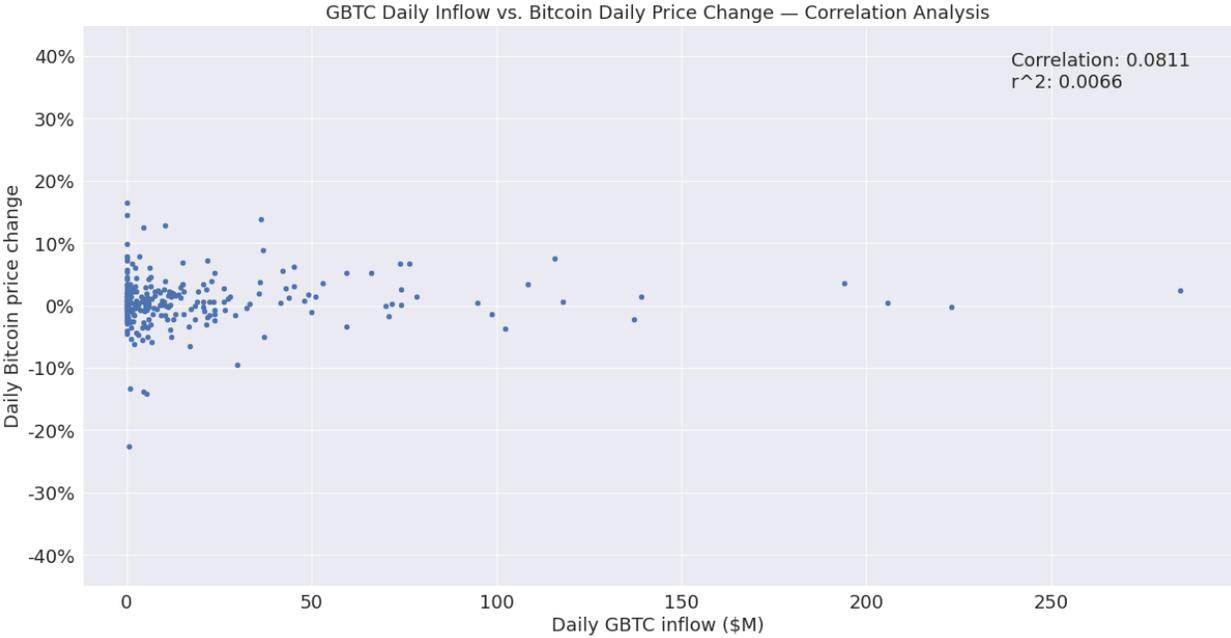
While GBTC allows for daily creations, unlike an ETF, those shares are not immediately available to be sold in the secondary market. After purchasing shares, an investor must hold the shares for 6-months before they are permitted to be traded on the secondary market. This creates a longer holding period for an arbitrageur, as compared to a typical ETF arbitrage trade where an authorized participant may immediately trade newly created shares into the secondary market. For example, to capture arbitrage on GBTC shares trading at a premium, an arbitrageur would need to short sell GBTC shares while buying spot bitcoin, deliver the bitcoin for creation of GBTC shares, and hold those shares for six months until they are released from transfer restriction and can be delivered to the short sellers to close out the trade.

However, while the holding period of the GBTC share premium arbitrage is at minimum 6 months, the buying in the spot bitcoin market occurs, in this case, right before the creation date, which is the date the inflows are recorded. Of course, a single day leading up to the creation might not capture all the buying activity that an arbitrageur can accumulate, which is why we elected to explore the relationship between flows into GBTC and changes in the price of bitcoin on both a weekly and daily basis. In addition, institutional arbitrageurs are not the only cohort that could create shares for GBTC. Accredited investors may also subscribe for GBTC shares either by contributing bitcoin or delivering cash. For cash orders, Genesis Trading Global, Inc., the “authorized participant” of the trust, purchases the bitcoin for the given cash amount by 6 p.m. ET on the day the cash is provided by the subscriber.

The charts below show the results. Each dot represents a daily (or weekly) flow into GBTC and the corresponding daily (or weekly) change in the price of bitcoin. As such, there are 253 dots in

¹¹ <https://coinmetrics.io/reference-rates>

the first chart representing each trading day, and 52 dots in the second chart representing each week in 2020.



The data show there is no meaningful relationship between daily and weekly flows into GBTC and changes in the price of bitcoin, despite the aggregate flows being \$4.7 billion: The correlation for daily results is 0.08, and the correlation for weekly results is 0.11.

The experience of outlier days and weeks with large flows adds to this conviction. For instance, the largest one-day flow occurred on December 22, 2020, when \$285 million flowed into the fund; bitcoin's price moved 2.3% that day, within the normal daily range for a bitcoin price move.

Similarly, the largest one-week flow occurred for the week ending December 27, 2020, when GBTC attracted approximately \$809 million in inflows; bitcoin's price settled up just 2.9% that week, again within the normal range for a weekly price move.

Based on this direct data-driven comparison, we conclude it is unlikely that \$4.7 billion in flows into a bitcoin ETP in a single year will cause it to become the predominant influence on prices in the CME Market.

V. Estimating The Likely Trading Volume Of A Bitcoin ETP

Now that we have considered the potential impact that flows into a bitcoin ETP could have on the underlying market, the next step is to evaluate the potential impact that the secondary trading of shares of the ETP could have on the underlying market.

To make this evaluation, we need to estimate the amount of trading activity there will be in a bitcoin ETP. We use two comparisons:

Comparison to GBTC

Shares of the GBTC are publicly quoted on the OTCQX Best Market and are widely available to U.S. investors through traditional brokerage accounts. As such, although GBTC operates under a different regulatory structure than an ETP and has historically traded at significant and variable premiums and discounts to its net asset value, the historical turnover of GBTC provides one estimate of the future turnover of a bitcoin ETP.

GBTC's average daily trading volume in 2020 was \$103 million. On a monthly basis, that figure ranged from \$37 million in April 2020 to \$368 million December 2020, as reported in the table below.

Examining ADV in isolation offers only a partial picture, however. As might be expected, trading activity in GBTC is strongly linked with the product's assets under management (AUM), which is in turn linked to bitcoin's price.

The table below shows the "ADV/AUM Ratio" for GBTC for each month in 2020, using the month-end AUM as the denominator. Although the absolute size of the ADV ranges widely across 2020, the ADV/AUM Ratio stays fairly consistent, running from 1.10% (April and September) to 2.21% (February). The average ADV/AUM ratio for the year was 1.54%.

Month	ADV (M)	AUM (M)	ADV/AUM RATIO
Jan 2020	\$43	\$3,191	1.36%
Feb 2020	\$66	\$2,997	2.21%
Mar 2020	\$44	\$2,249	1.96%
Apr 2020	\$37	\$3,313	1.10%
May 2020	\$68	\$4,034	1.68%
Jun 2020	\$52	\$3,870	1.33%
Jul 2020	\$65	\$5,264	1.23%

Aug 2020	\$89	\$6,018	1.47%
Sep 2020	\$57	\$5,167	1.10%
Oct 2020	\$95	\$7,728	1.23%
Nov 2020	\$259	\$13,060	1.98%
Dec 2020	\$368	\$20,445	1.80%
Average	\$103	\$6,445	1.54%

Applying this average ADV/AUM ratio to our \$4.7 billion estimate of first-year flows into a bitcoin ETP, we estimate its daily trading volume to be approximately \$72 million at the end of its first year.

Comparison to GLD

A second comparison that may be useful is to examine the case of other first-to-market commodity ETPs. GLD is the largest such ETP, and therefore may provide a useful comparison.

Using the same methodology as we did with GBTC, we examine the ADV/AUM Ratio of GLD for every month in 2020. The average ratio is 3.04%.

Month	ADV (M)	AUM (M)	ADV/AUM RATIO
Jan 2020	\$1,206	\$46,053	2.62%
Feb 2020	\$2,010	\$47,348	4.25%
Mar 2020	\$2,903	\$48,916	5.93%
Apr 2020	\$1,828	\$57,343	3.19%
May 2020	\$1,819	\$62,557	2.91%
Jun 2020	\$1,606	\$67,484	2.38%
Jul 2020	\$2,215	\$78,789	2.81%
Aug 2020	\$3,312	\$79,163	4.18%
Sep 2020	\$1,272	\$76,941	1.65%
Oct 2020	\$1,376	\$75,889	1.81%
Nov 2020	\$1,855	\$73,285	2.53%
Dec 2020	\$1,369	\$71,558	1.91%
Average	\$1,901	\$65,022	3.04%

Applying GLD's ADV/AUM ratio to our \$4.7 billion estimate of first-year inflows into a bitcoin ETP, we estimate its daily trading volume to be approximately \$143 million at the end of its first year.

Our Estimate For Future Analysis

For the purposes of this paper, we use the higher figure—\$143 million—as our estimate for a new bitcoin ETP's average daily trading volume after a year on the market.

We consider this to be an aggressive estimate. It assumes that a bitcoin ETP will:

- Be the third-fastest-growing ETP in history, out of more than 2,200 products with positive year-one flows
- Have an ADV/AUM ratio two times higher than that of GBTC, which competes in the same market

VI. Evaluating The Potential Impact Of ETP Trading On Prices In The CME Market

Our goal in analyzing the potential impact of trading in a bitcoin ETP is to determine if it is likely that such trading will cause the ETP to be the predominant influence on prices in the CME Market.

We believe it is unlikely that trading in the ETP will become the predominant influence on prices in the CME Market if such trading activity is substantially smaller than the trading activity on the CME bitcoin futures market, which we have demonstrated is the leading source of price discovery in the bitcoin market.¹²

The CME bitcoin futures market had an average daily trading volume of \$392 million in 2020. This volume was consistently high: The lowest month, April 2020, had an average daily trading volume of \$176 million, and the highest month, December 2020, had an average daily trading volume of \$935 million. The table below shows the ADV of the CME bitcoin futures market each month in 2020.

Month	CME ADV (M)
Jan 2020	\$408
Feb 2020	\$401
Mar 2020	\$202
Apr 2020	\$176
May 2020	\$305
Jun 2020	\$223
Jul 2020	\$252
Aug 2020	\$455
Sep 2020	\$397
Oct 2020	\$329
Nov 2020	\$665
Dec 2020	\$935

Given that the average daily trading volume of the CME bitcoin futures market in 2020 was 174% higher, at \$392 million, than our aggressive estimate of a new bitcoin ETP's likely trading volume of \$143 million, we find it unlikely that trading in a new bitcoin ETP will cause it to become the predominant influence on prices in the CME Market.

¹² Hougan, M., Kim, H., and Pal, S. Bitwise Asset Management. Price Discovery In The Modern Bitcoin Market: Examining Lead-Lag Relationships Between The Bitcoin Spot And Bitcoin Futures Market.

VII. Conclusion

We are fortunate that we have a number of real-world examples we can turn to when evaluating whether it is likely that a bitcoin ETP, if approved, would become the predominant influence on prices in the CME Market.

Drawing on 30 years of data on U.S. ETPs, as well as the direct experience of a publicly traded bitcoin trust that is accessible through the brokerage window, we conclude it is unlikely that a bitcoin ETP would become the predominant influence on prices in the CME Market.

Appendix A: Is A GLD-Like Rapid Launch Likely?

In evaluating whether a bitcoin ETP is likely to become the predominant influence on prices in the CME Market, it is worth considering whether such an ETP is likely to experience extraordinary demand during its initial days after listing. While most ETPs are slow to gather assets, a few have attracted significant initial interest shortly after launch.

The table below highlights the 20 largest first-week flows into U.S. ETPs in history. This represents approximately the top 1% of all U.S.-listed ETPs with non-zero one-week flows (20 out of more than 2,000). These top-1% ETPs gained between \$288 million and \$1.26 billion in flows in their first week on the market.

TWENTY LARGEST ONE-WEEK NET FLOWS IN ETF HISTORY

Fund	Ticker	1-Week Flows	1-Month Flows
SPDR Gold Trust	GLD	\$1,264,656,000	\$1,151,131,999
iShares iBoxx USD Investment Grade Corporate Bond ETF	LQD	\$1,024,821,000	\$1,332,271,000
iShares ESG MSCI USA Leaders ETF	SUSL	\$847,058,170	\$1,129,155,690
Xtrackers MSCI U.S.A. ESG Leaders Equity ETF	USSG	\$843,472,000	\$843,472,000
iShares 7-10 Year Treasury Bond ETF	IEF	\$670,351,334	\$670,351,334
iShares 20+ Year Treasury Bond ETF	TLT	\$667,986,369	\$667,986,369
SPDR S&P North American Natural Resources ETF	NANR	\$662,433,857	\$681,061,393
iShares ESG MSCI EM Leaders ETF	LDEM	\$627,181,210	\$627,181,210
iShares 1-3 Year Treasury Bond ETF	SHY	\$593,208,629	\$609,506,154
iShares Exponential Technologies ETF	XT	\$568,215,100	\$621,564,425
Cabana Target Drawdown 10 ETF	TDSC	\$466,296,350	\$490,758,650
Franklin Liberty U.S. Core Bond ETF	FLCB	\$354,897,000	\$757,657,000
iShares Core S&P 500 ETF	IVV	\$351,825,000	\$518,325,000
SPDR Russell 1000 Low Volatility Focus ETF	ONEV	\$329,518,801	\$329,518,801
SPDR Russell 1000 Yield Focus ETF	ONEY	\$329,428,454	\$329,428,454
Fidelity NASDAQ Composite Index Tracking Stock	ONEQ	\$328,670,868	\$328,670,868
Invesco QQQ Trust	QQQ	\$324,006,804	\$847,143,019
Cabana Target Drawdown 7 ETF	TDSB	\$301,363,200	\$322,769,800
iShares National Muni Bond ETF	MUB	\$288,637,000	\$328,801,000
VanEck Vectors Junior Gold Miners ETF	GDXJ	\$288,356,209	\$652,103,035

Source: FactSet data via ETF.com. Data as of 11/1/20.

Is a bitcoin ETP likely to experience one-week flows similar to GLD, the largest in ETP history, in its first week?

A Bitcoin ETP Is Unlikely To Experience A GLD-Style Rapid Start

It is unlikely that a bitcoin ETP will experience inflows similar to GLD in its first week on the market, for the following three reasons.

1. Bitcoin is a substantially smaller market (approximately 74% smaller) than gold was in 2004.

According to the World Gold Council, the global above-ground gold market was worth roughly \$2.1 trillion when GLD debuted in 2004.¹³ By comparison, the global bitcoin market was worth \$539 billion as of December 31, 2020.¹⁴

It is unlikely that a market that is approximately 25% the size of gold would see similar levels of inflows following the debut of a new ETP.

2. Unlike GLD, U.S. retail investors already have multiple easy ways to directly purchase bitcoin.

When GLD came to market, it offered a stepwise improvement over other mechanisms for purchasing exposure to gold. Gold bullion dealers charged high markup fees, had uneven pricing, and could not be easily accessed through a brokerage setting. Meanwhile, the primary investable alternative—mutual funds that focused on gold mining stocks—was not particularly well-correlated with the price of gold itself. As such, GLD was able to tap into pent-up retail demand for easy access to gold bullion exposure.

By contrast, U.S. investors enjoy a wealth of convenient ways to access bitcoin today. Bitcoin purchases are available in the PayPal app, which is used by more than 200 million Americans.¹⁵ Purchases can also be made through the Cash App, which boasts 24 million users worldwide,¹⁶ or through crypto-specific apps like Coinbase, which has 35 million users worldwide.¹⁷

3. Unlike GLD, a bitcoin ETP will face stiff competition from GBTC, a \$20 billion product with high levels of liquidity that can be easily accessed through a brokerage setting.

Unlike with GLD, U.S. investors already have a large, liquid, publicly traded investment trust that offers exposure to bitcoin.

A new bitcoin ETP will face stiff competition from GBTC, which had \$20 billion in assets as of December 31, 2020, and \$368 million in average daily trade volume in the month of December 2020. While some investors may prefer the new ETP, others will prefer the size, liquidity, and familiarity of GBTC. It is also reasonable to assume, given the size of GBTC, that a good portion of the brokerage-access demand that would otherwise be waiting for an ETP is already being met by GBTC.

¹³ Gold market capitalization as of 2004 is calculated by taking the World Gold Council's estimate of above-ground gold stocks in 2004 multiplied by the price of gold as reported by Macrotrends in November 2004.

¹⁴ Bitcoin market capitalization as of December 31, 2020 was \$539 billion according to Blockchain.com.

¹⁵ <https://ventureburn.com/2020/11/2020s-biggest-crypto-news-paypal-announces-its-all-in-on-crypto/>

¹⁶ Monthly active users of Cash App from Square's Q4 2019 shareholder letter (https://s21.q4cdn.com/114365585/files/doc_financials/2019/q4/2019-Q4-Shareholder-Letter-Square.pdf).

¹⁷ Verified user count from Coinbase's About Us page (<https://www.coinbase.com/about>) as of November 19, 2020.

Conclusion

While there is interest in a bitcoin ETP, it is unlikely to match the level of demand experienced by GLD after its launch in 2004. The bitcoin market is approximately one-quarter the size of the gold market at that time, and any new ETP will compete indirectly with other convenient access options such as Paypal and Coinbase, and directly with an established, \$20 billion, publicly traded bitcoin trust.

For these reasons, we believe it is unlikely that a bitcoin ETP will experience the kind of first-week inflows that GLD enjoyed.¹⁸

¹⁸ Anecdotal evidence from historical flows into GBTC suggests that even very large flows into a bitcoin investment trust are not correlated with large price changes: GBTC had \$808 million in inflows in the week ending December 27, 2020, and the weekly return of bitcoin was well within the normal distribution of bitcoin's returns (+2.8%). Therefore, even in the unlikely case that such a large inflow occurs, the evidence in the data does not suggest it would cause the ETP to become the predominant influence on prices in the CME Market.

Appendix B: Recent Experiences With Internationally Listed Bitcoin ETPs

Bitcoin exchange-traded products have been approved in certain overseas jurisdictions, including Brazil, Canada, Broader Europe, Sweden, and Switzerland. The exact structure of each ETP varies by jurisdiction, as does the regulatory process and the local ETP marketplace.

In the following section, we analyze the experience and reception of bitcoin ETPs in the two largest markets—Broader Europe and Canada—to consider if they may be helpful in determining whether it is likely that a bitcoin ETP, if approved in the U.S., is likely to become the predominant influence on prices.¹⁹

ETC Group Physical Bitcoin ETP (BTCE): The First Bitcoin ETP In Broader Europe

The ETC Group Physical Bitcoin ETP (BTCE) launched on June 8, 2020 on the Xetra exchange in Germany. The fund was the first bitcoin ETP widely available for sale throughout Europe, and is currently eligible for sale in 20 countries in the region.^{20 21}

The fund is issued by ETC Group, and is marketed and distributed by HANetf. The fund custodies bitcoin with BitGo Trust Company.²² As a European ETP, BTCE's create/redeem procedure differs somewhat from the traditional create/redeem procedure for U.S. ETFs. Nonetheless, the pass-through impact on the underlying market remains similar.

BTCE utilizes authorized participants to create new shares, which are debt securities tied to the value of underlying bitcoin assets, which are held as collateral against the debt obligation. Authorized participants may subscribe for shares on a principal basis or for their institutional and/or retail customers. According to the registration statement for BTCE, authorized participants may create shares by delivering bitcoin to the fund pursuant to a subscription order, which shares may immediately be sold into the secondary market to capture any secondary market premium to net asset value. Authorized participants must acquire bitcoin before delivery thereof in settlement of the share subscription. The fund does not permit primary market cash

¹⁹ This analysis was conducted at a later date than the other portions of the paper, and therefore has been extended to include data through March 31, 2021.

²⁰ The fund is listed in Germany and is registered for sale in 20 different countries: Austria, Croatia, Cyprus, Denmark, Estonia, Finland, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Norway, Poland, Malta, Slovakia, Slovenia, Spain, Switzerland, and the United Kingdom.

(<https://www.hanetf.com/product/8/fund/btcetc-bitcoin-exchange-traded-crypto-btce>)

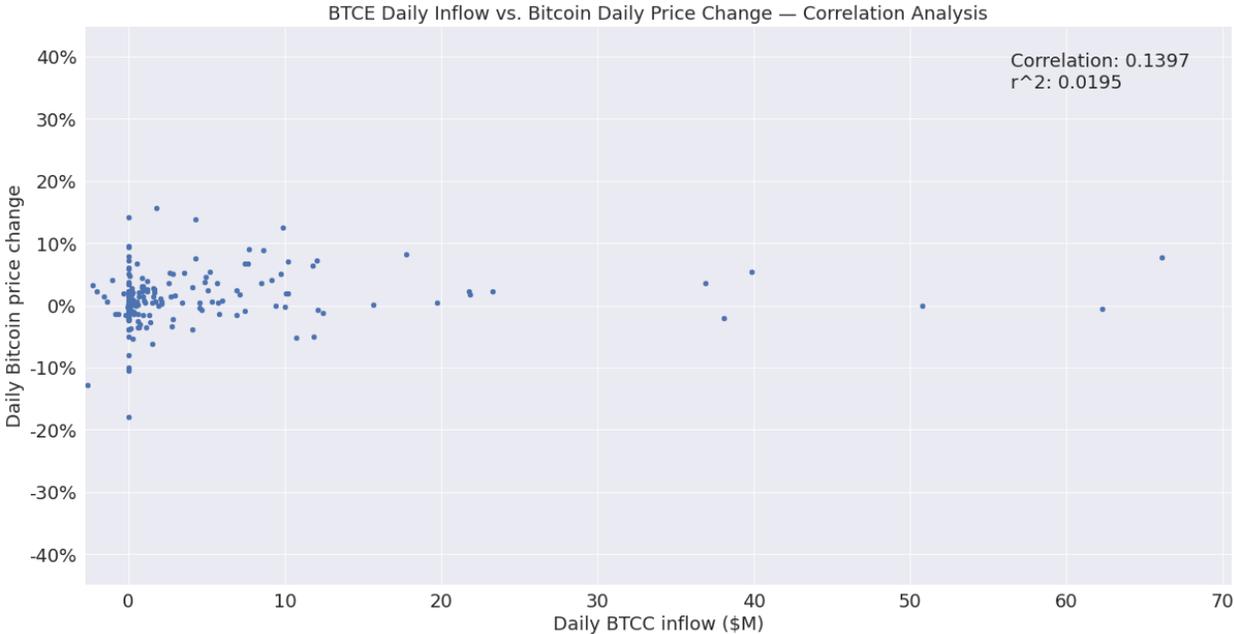
²¹ BTCE is generally considered the first widely available bitcoin ETP in Europe. However, there were other products with distribution restrictions that launched before it. For instance, the Bitcoin Tracker One is a bitcoin-tracking certificate that listed on NASDAQ/OMX in Stockholm in 2015. Additionally, the 21Shares Bitcoin ETP debuted on the Six Swiss Exchange in 2019. While noteworthy and important, these products did not have the immediate, broad availability of BTCE, and experienced slower growth, making them less relevant for this comparison.

²² More information is available from the fund page:

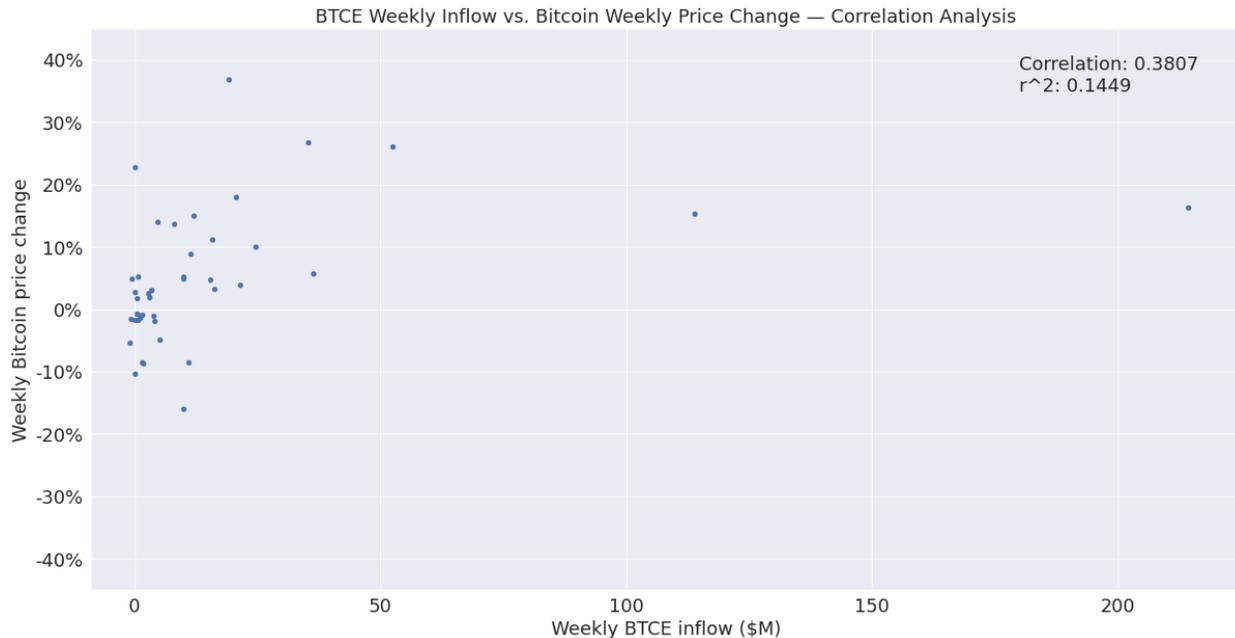
<https://www.hanetf.com/product/8/fund/btcetc-bitcoin-exchange-traded-crypto-btce>

subscriptions, although authorized participants may receive cash from institutional or retail customers to facilitate or settle trades where the authorized participant acquires bitcoin for primary market creation activity.

From inception through March 31, 2021, BTCE had net inflows of \$689 million.²³ As we did with GBTC, we are able to plot these inflows on a daily and weekly basis against changes in the price of bitcoin:



²³ Data pulled from Bloomberg.



The data shows there is no meaningful relationship between flows into BTCE and changes in the price of bitcoin over the time period studied. The correlations are lower than 0.5 (0.14 for the daily correlation and 0.38 for the weekly correlation), and as indicated by the R-squareds, the explanatory strength of these relationships are weak.

An examination of the outlier days/weeks of high inflows support this view: The two highest inflow days, for instance, occurred on February 17 and 18, when BTCE saw \$66 million and \$62 million in net flows, respectively. Bitcoin's price rose 7.7% on the 17th and fell 0.5% on February 18. Both returns were within the normal distribution of returns for this time period.

Canada: Purpose Bitcoin ETF (BTCC)

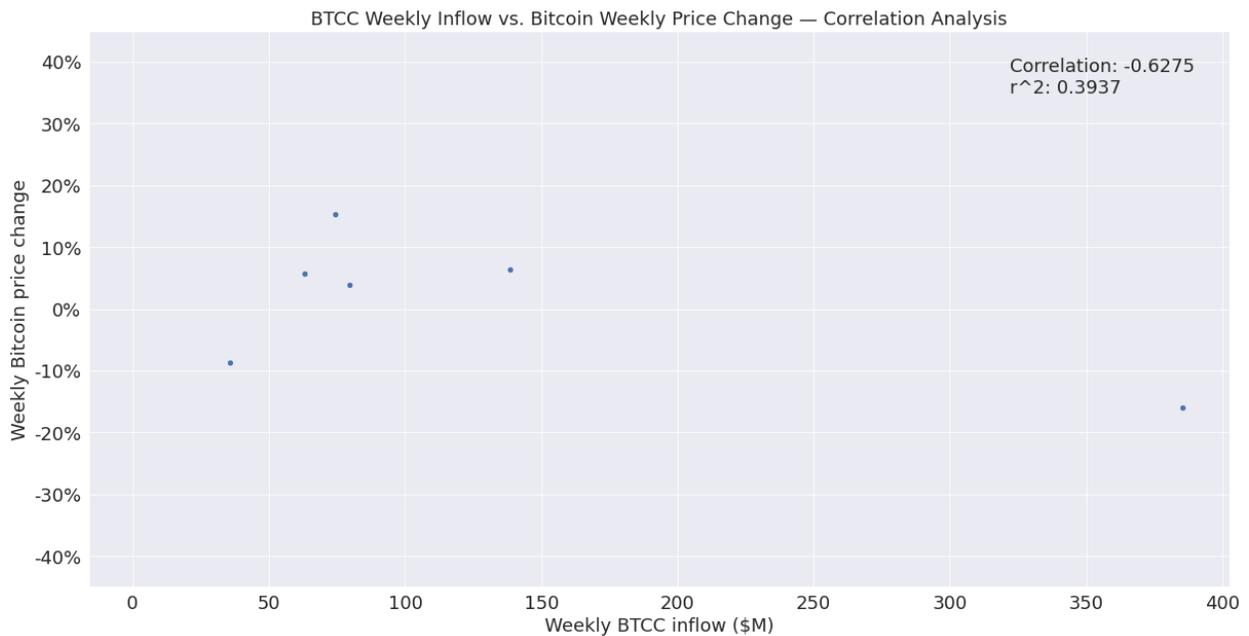
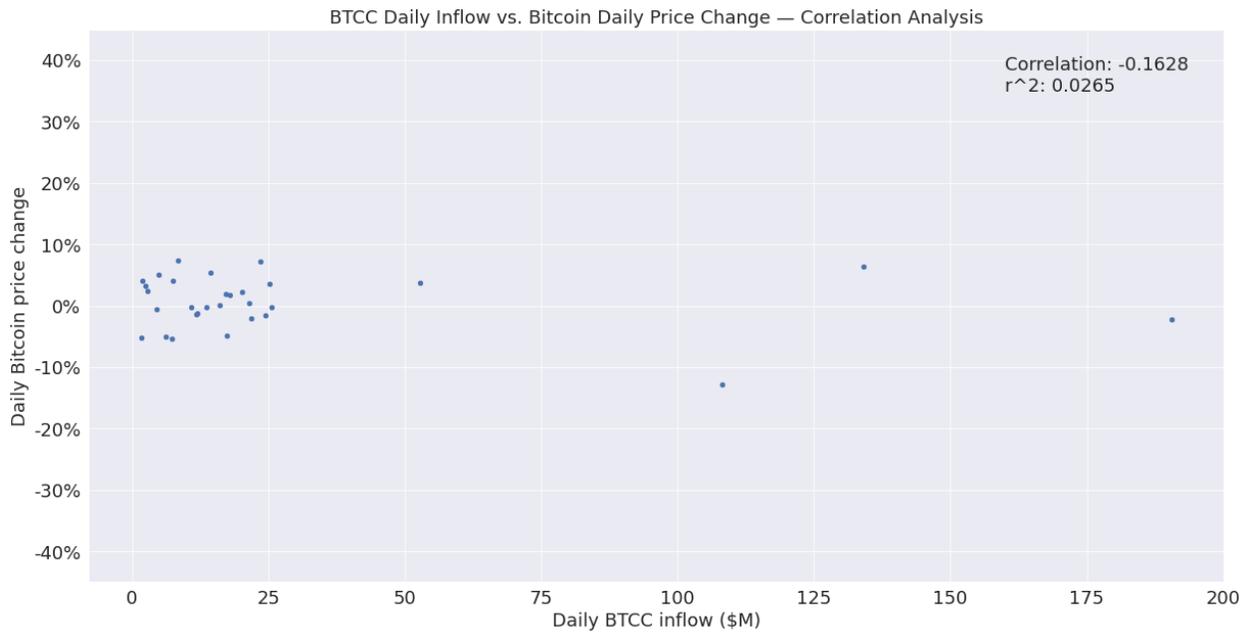
The Purpose Bitcoin ETF (BTCC) launched on the TSX Venture Exchange in Canada on February 18, 2021. It was the first bitcoin ETP launched in Canada.

The fund is managed by Purpose Investments. It custodies bitcoin with Gemini.²⁴ BTCC utilizes authorized participants to create new shares, which are securities representing beneficial interests in underlying bitcoin held by the fund. Authorized participants may subscribe for shares on a principal basis or for their customers. According to the registration statement for BTCC, authorized participants may create shares by placing a creation order, with delivery of cash and issuance of shares on the second business day after order acceptance. Subsequent to receipt of cash, the fund will issue shares to the authorized participant and acquire bitcoin on a best

²⁴ More information available from fund page: <https://www.purposeinvest.com/funds/purpose-bitcoin-etf>

execution basis from its authorized trading venues. The fund does not permit in-kind subscriptions.

From inception through March 31, 2021, BTCE had net inflows of \$826 million.²⁵ As we did with GBTC and BTCE, we are able to plot BTCC's inflows on a daily and weekly basis against changes in the price of bitcoin:



²⁵ Data pulled from Bloomberg.

These are very short sample periods, covering just 30 trading days and six weekly periods. Nonetheless, the charts show no meaningful relationship between daily or weekly flows into BTCC and daily or weekly changes in the price of bitcoin. The correlations are -0.16 for daily flows and -0.63 for weekly flows.

Of note, BTCC experienced three days of very high flows shortly after its launch: The fund took in \$134 million on February 19, \$191 million on February 22, and \$108 million February 23. The returns of bitcoin on those days may be instructive for considering the potential impact of large inflow days should those materialize shortly after the launch of a bitcoin ETP in the U.S.: Bitcoin rose 6.34% on February 19, fell 2.18% on February 22, and fell 12.88% on February 23. For the three-day period, during which the fund brought in \$433 million, bitcoin's price fell 9.38%. This suggests that even high inflows did not cause BTCC to be the predominant influence on the prices in the CME Market on these days.

Conclusion

The experience of bitcoin ETPs in overseas jurisdictions provides additional context for considering whether a U.S. bitcoin ETP, if approved, is likely to become the predominant influence on prices in the CME Market. The data shows, at least in an anecdotal fashion, that even substantial inflows into newly launched ETPs have not correlated with changes in the price of bitcoin in a statistically significant fashion.