

Bitcoin Investment Trust (GBTC)

Bitcoin ETF in 2017? A Look at Potential Impact and Probability

INVESTMENT HIGHLIGHTS: After years of work and investor anticipation the rule change necessary to pave the way for the Winklevoss Bitcoin ETF will see a final decision from the SEC by March 11. Overall, we think that the listing of a bitcoin ETF would have a profoundly positive effect on the price of bitcoin not only because of the resulting asset inflow but also because of concurrent shifts in perception and regulatory risk. Overall, however, we think the probability of approval is very low. Taken together, we think the positive effect that a bitcoin ETF would have on the price of bitcoin is vastly underappreciated and that the probability of approval is drastically overestimated within the industry.

- **Timeline-** There are no more opportunities to delay the decision. The SEC has until March 11 to approve or disapprove the ETF.
- **Effect on Price-** We think the listing of a bitcoin ETF would have a profound effect on the price of bitcoin. Conservatively, we estimate that a bitcoin ETF could attract \$300 million in assets in its first week and the resulting effort to source the underlying bitcoin for the Trust would likely drive the price of bitcoin up significantly.
- Byproducts of an Approval- Aside from the additional asset inflow into bitcoin, we think favorable shifts in perception and regulatory risk would be at least as significant for driving price higher.
- **Probability of Approval** In contrast to most of the people that we speak to in the industry, we think the probability that a bitcoin ETF will be approved in 2017 is very low—It's difficult to quantify but we think the probability is sub-25%. To be clear, we don't see any specific reason to disapprove the Winklevoss Bitcoin ETF but, instead, think that the confluence of fear, uncertainty and doubt coupled with basic incentives at the SEC will make it very difficult to get approval.
- Curve-ball- While highly unlikely, the process for this type of rule change indicates that if the SEC has not disapproved the rule change by a deadline (March 11 in this case) then the proposed rule change is automatically approved. See the next page for more information as to why this could slightly improve the probability of approval.
- Conclusion- In short, we think the positive effect that a bitcoin ETF would have on the price of bitcoin is vastly underappreciated but we also think that the probability of approval is drastically overestimated. Overall this is a low probability event with very significant upside. Ultimately, while it appears there is significant pent-up demand from the investment public for such a vehicle, bitcoin itself certainly doesn't need an ETF and will continue on regardless of the SEC's decision.

COMPANY UPDATE

Stock Rating HOLD Unchanged
Price Target NA

Internet/Financial Technology

Spencer Bogart, CFA (415) 262-4877 sbogart@needhamco.com

Stock Price Performance



Market Data

Price (01/09/2017)	\$114.55
52-Week Range	\$152.00 - \$38.99
Shares Outstanding	1.75
Market Cap (MM)	\$199.9
Avg. Daily Volume	10,612.0
Total Debt/Cap.	-

Needham & Company, LLC January 10, 2017

Summary

Timeline: Yesterday, the SEC took the last remaining opportunity to extend the decision time-frame on the proposed rule change that is necessary for the Winklevoss Bitcoin ETF to be approved. The Commission now has until March 11 to disapprove the rule change otherwise, as we interpret the process, the proposed rule change will be automatically approved.

Effect on price: If the rule-change were approved and a bitcoin ETF were listed on the Bats exchange, we think it would have a profound effect on the price of bitcoin. Conservatively, we wouldn't be surprised to see over \$300M of assets flow into such an ETF in the first week. While bitcoin liquidity has improved dramatically in recent years—and average daily trading volume now resembles that of the average security in the S&P midcap 400—it would be hard for the ETF's authorized participants to acquire \$300M worth of bitcoin without significantly pushing price up. Even under normal circumstances this would be difficult to do without significantly affecting price but we think this effect would be amplified by the fact that, in the event of bitcoin ETF approval, typical providers will be simultaneously pulling available liquidity from order books.

Byproducts of an approval: Aside from the technical constraints in sourcing the liquidity necessary to meet demand for an ETF, we think a concurrent shift in perception and regulatory risk would be at least as significant in driving price higher. In terms of perception, the SEC approving a bitcoin ETF would add legitimacy to bitcoin in the eyes of investors—this alone is no small matter considering that many still associate bitcoin strictly with illicit activities. In addition, we think the approval of a bitcoin ETF would significantly improve perceived regulatory risk: A mainstream investment vehicle such as a bitcoin ETF would significantly increase the percentage of the population financially exposed to bitcoin and would consequently decrease the political appetite for enacting onerous regulation. Taken together, we think the change in perception and regulatory risk would be at least as significant in driving price up as the technical constraints in sourcing the bitcoin necessary to meet demand for an ETF.

Probability of approval: In contrast to most of the people that we speak to in the industry, we think the probability that a bitcoin ETF will be approved in 2017 is very low —It's difficult to quantify but we think the probability is sub-25%. To be clear, we don't see any specific reason to disapprove the Winklevoss Bitcoin ETF but, instead, think that the confluence of fear, uncertainty and doubt coupled with basic incentives at the SEC will make it very difficult to get approval. In terms of incentives, the SEC is tasked with protecting consumers and, in this regard, we don't see much upside to approval for the individuals tasked with making this decision—even if the ETF is a huge success (we think it would be). In contrast, if a bitcoin ETF were approved and something went very wrong it would likely reflect poorly on the SEC. Given bitcoin's nascence, we think it's a difficult task for the SEC to separate the legitimate probability of something going very wrong from the general fear, uncertainty, and doubt that lurks in bitcoin's wake.

Curve-ball: There's a curveball in the process for approving this type of rule change that could change the political dynamic of SEC approval that we discussed above. We've attached a document that shows the process: The green borders indicate the route the SEC has taken thus far and the yellow borders highlight the curveball we're discussing. If we're reading the process correctly (check for yourself), if the SEC doesn't disapprove the rule change by March 11th, it will be automatically approved. We think this is interesting only because, politically, it might be easier for the individuals responsible for making the decision to let the decision go to auto-approval—which essentially only means they lack of a reason to disapprove—than it is to stick a stamp of approval on the rule change. That said, we understand it is extremely rare for a proposed rule change to make it to this stage—typically either the Commission makes a decision prior to the deadline or the original sponsors of the rule change withdraw the request.

Effect on GBTC: Currently, GBTC trades at a substantial premium to its underlying net asset value (NAV) and we would expect this premium to disappear very quickly if a Bitcoin Investment Trust

Needham & Company, LLC January 10, 2017

bitcoin ETF were to be approved. We are maintaining a HOLD rating on GBTC due to the substantial premium at which it trades relative to NAV.

Conclusion: In short, we think the positive effect that a bitcoin ETF would have on the price of bitcoin is vastly underappreciated but we also think that the probability of approval is drastically overestimated. Overall this is a low probability event with very significant upside. Ultimately, while it appears there is significant pent-up demand from the investment public for such a vehicle, bitcoin itself certainly doesn't need an ETF and will continue on regardless of the SEC's decision.

Bitcoin Investment Trust Page 3 of 8

Needham & Company, LLC January 10, 2017

(b)PROPOSED RULE CHANGES; NOTICE; PROCEEDINGS

(1) Each self-regulatory organization shall file with the Commission, in accordance with such rules as the Commission may prescribe, copies of any proposed rule or any proposed change in, addition to, or deletion from the rules of such self-regulatory organization (hereinafter in this subsection collectively referred to as a "proposed rule change") accompanied by a concise general statement of the basis and purpose of such proposed rule change. The Commission shall, as soon as practicable after the date of the filing of any proposed rule change, publish notice thereof together with the terms of substance of the proposed rule change or a description of the subjects and issues involved. The Commission shall give interested persons an opportunity to submit written data, views, and arguments concerning such proposed rule change. No proposed rule change shall take effect unless approved by the Commission or otherwise permitted in accordance with the provisions of this subsection.

(2)APPROVAL PROCESS.—

(A)Approval process established.—

(i)In general.—Except as provided in clause (ii), not later than 45 days after the date of publication of a proposed rule change under paragraph (1), the Commission shall—

 ${f (I)}$ by order, approve or disapprove the proposed rule change; or

(II) institute proceedings under subparagraph (B) to determine whether the proposed rule change should be disapproved.



(ii) Extension of time period.—The Commission may extend the period established under clause (i) by not more than an additional 45 days, if—

(I) the Commission determines that a longer period is appropriate and publishes the reasons for such determination; or

(II) the self-regulatory organization that filed the proposed rule change consents to the longer period.

(B)Proceedings.—

(i)Notice and hearing.—If the Commission does not approve or disapprove a proposed rule change under subparagraph (A), the Commission shall provide to the self-regulatory organization that filed the proposed rule change—

(I) notice of the grounds for disapproval under consideration; and (II) opportunity for hearing, to be concluded not later than 180 days after the date of publication of notice of the filing of the proposed rule change.

(ii)Order of approval or disapproval.—

(I)In general.-

Except as provided in subclause (II), not later than 180 days after the date of publication under paragraph (1), the Commission shall issue an order approving or disapproving the proposed rule change.



(II)Extension of time period.—The Commission may extend the period for issuance under clause (I) by not more than 60 days, if—

(aa) the Commission determines that a longer period is appropriate and publishes the reasons for such determination;

(bb) the self-regulatory organization that filed the proposed rule change consents to the longer period.



(D)Result of failure to institute or conclude proceedings.—A proposed rule change shall be deemed to have been approved by the Commission, if—

(i) the Commission does not approve or disapprove the proposed rule change or begin proceedings under subparagraph (B) within the period described in subparagraph (A); or



(ii) the Commission does not issue an order approving or disapproving the proposed rule change under subparagraph (B) within the period described in subparagraph (B)(ii).

Bitcoin Investment Trust Page 4 of 8



Valuation (Price Target: NA)

We view shares of the Bitcoin Investment Trust (OTCQX: GBTC) as benefiting from the rise of value in their underlying asset, bitcoin. Based on our projected demand for bitcoin as a "digital gold" and as a payments channel, we estimate a present value of \$848 per Bitcoin. However, given the substantial premium at which GBTC shares trade relative to their net asset value, we are maintaining our HOLD rating on GBTC shares.

Potential Upside Drivers

Mainstream payment adoption: The most obvious longer-term positive catalyst for the price of bitcoin is greater mainstream payment adoption. As shown in our estimates of potential adoption into major payment markets, even a very small slice of the global retail payments pie moving onto Bitcoin rails would be a significant positive catalyst for demand (and price). While we don't think that consumer adoption is about to turn exponential, we do expect to see rapid acceleration in the use cases and geographies where we believe bitcoin is most useful, including cross-border payments and in many emerging market countries.

Scaling solution: While we view the current scaling debate as less of a problem and more of a product (and a strength) of an open-source development process for money, we also believe that major payments volumes that could move into bitcoin are holding back until a solution is implemented and the outlook is clear. If a scaling solution is implemented without major turbulence we think it will be a positive catalyst not just because it would enable greater volumes but also because it would serve as an important historical precedent for bitcoin's ability to tackle tough scaling challenges while simultaneously addressing leadership concerns.

Technical advancements: We think that technologies such as sidechains and the lightning network that are currently being developed could be positive catalysts for demand and price if they prove successful. Sidechains and the lightning network promise to help alleviate some of the biggest concerns with bitcoin today, including privacy, speed and throughput. Similarly, these technologies (and others) could bring other use cases and increased demand to the Bitcoin blockchain (such as smart contracts as being developed by Rootstock).

Monetary crises: Throughout history, monetary, financial, and economic crises tend to occur at fairly regular intervals. These crises could be isolated to one country, one region, or even be global but, regardless, when traditional money and finance doesn't work well, people tend to seek alternatives and for many, the next crisis will be the first time that bitcoin is an available alternative.

Improvements in access: While the on-ramps to bitcoin have improved significantly over recent years, they still typically require a specialized bitcoin provider. If bitcoin and bitcoin services were available through major financial institutions such as banks and FX brokers, we think this could significantly improve access and ultimately be a positive catalyst for price. Similarly if investors were able to gain exposure to bitcoin through an exchange-traded fund (ETF) listed on a major stock exchange such as the NYSE or Nasdaq directly through their regular brokerage account, it could have a significant positive impact on price.

Risks to Target

Hard fork: If there were a significant number of users and transaction processors ("miners") on the network that elected to choose an alternative version of the Bitcoin software the Bitcoin network could fork and potentially result in two different blockchains. This could have a significant adverse effect on the price, perception, and usage of bitcoin.

"Cyber Attacks": There are numerous ways that users or attackers could try to manipulate, diminish or otherwise attack the Bitcoin network including but not limited to "51% attack", "selfish mining", Sybil attack, and Denial of Service (DoS) attacks. While the risk of these attacks and others is real, the Bitcoin network has overall been able to sustain and avert substantial attacks over its 7+ year history, and thousands of upgrades have made it better able to withstand potential attacks.

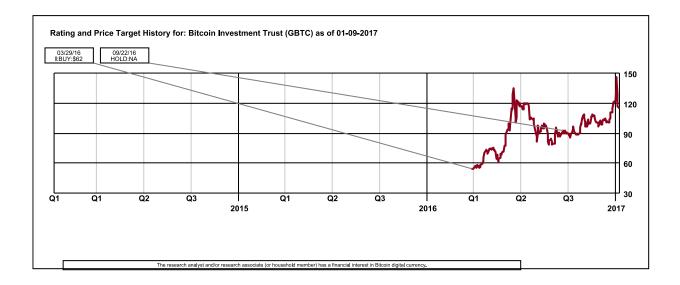
Alternative Blockchains / Alternative Digital Currencies: As bitcoin has gained popularity over recent years there have been hundreds of "alt-coins" created that have attempted to serve a different use case or to improve upon Bitcoin's real or perceived deficiencies. However, blockchains and especially digital currencies tend to have a strong network effect and no other blockchain or digital currency has come close to matching Bitcoin in terms of total market capitalization.

Regulation: While regulatory agencies, particularly in the United States, have taken a relatively cautious approach to bitcoin regulation, governments and regulators certainly have the ability to ban, outlaw or otherwise make it excessively onerous to access bitcoin.

Bitcoin Investment Trust Liquidity: A decrease in liquidity for shares of the Bitcoin Investment Trust, specifically GBTC shares traded on OTCQX, could adversely affect the premium or discount of shares relative to their Net Asset Value (NAV). Currently GBTC shares on OTCQX trade at a substantial premium to their Net Asset Value and because this premium could rise or fall independent of demand for bitcoin, it introduces an additional element of risk to owning GBTC shares.

Bitcoin Investment Trust Page 5 of 8





Bitcoin Investment Trust Page 6 of 8



ANALYST CERTIFICATION

I, Spencer Bogart hereby certify that the views expressed in this research report accurately reflect my personal views about the subject company (ies) and its (their) securities. I, also certify that I, have not been, and will not be receiving direct or indirect compensation in exchange for expressing the specific recommendation(s) in this report.

RATINGS DISTRIBUTIONS FOR NEEDHAM & COMPANY, LLC

	% of companies under coverage with this rating	% for which investment banking services have been provided for in the past 12 months
Strong Buy	7	29
Buy	64	13
Hold	28	1
Underperform	<1	0
Rating Suspended	<1	0
Restricted	< 1	0

Needham & Company, LLC employs a rating system based on the following:

Strong Buy: A security, which at the time the rating is instituted, we expect to outperform the average total return of the broader market as well as the securities in the analyst's coverage universe over the next 12 months.

Buy: A security, which at the time the rating is instituted, we expect to outperform the average total return of the broader market over the next 12 months.

<u>Hold:</u> A security, which at the time the rating is instituted, we expect to perform approximately in line with the average total return of the broader market over the next 12 months.

Underperform: A security, which at the time the rating is instituted, we expect to underperform the average total return of the broader market over the next 12 months.

Rating Suspended: We have suspended the rating and/or price target, if any, for this security, because there is not a sufficient fundamental basis for determining a rating or price target. The previous rating and price target, if any, are no longer in effect and should not be relied upon. This rating also includes the previous designation of "Under Review".

<u>Restricted:</u> Needham & Company, LLC policy and/or applicable law and regulations preclude certain types of communications, including an investment recommendation, during the course of Needham & Company, LLC's engagement in an investment banking transaction and in certain other circumstances.

For disclosure purposes, in accordance with FINRA requirements, please note that our Strong Buy and Buy ratings most closely correspond to a "Buy" recommendation. When combined, 70% of companies under coverage would have a "Buy" rating and 14% have had investment banking services provided within the past 12 months. Hold ratings mostly correspond to a "Hold/Neutral" recommendation; while our Underperform rating closely corresponds to the "Sell" recommendation required by the FINRA.

Our rating system attempts to incorporate industry, company and/or overall market risk and volatility. Consequently, at any given point in time, our investment rating on a security and its implied price appreciation may not correspond to the stated 12-month price target. For valuation methods used to determine our price targets and risks related to our price targets, please contact your Needham & Company, LLC salesperson for a copy of the most recent research report.

Price charts and rating histories for companies under coverage and discussed in this report are available at http://www.needhamco.com/. You may also request this information by writing to: Needham & Company, LLC, Attn: Compliance/Research, 445 Park Ave., 3rd Floor, New York, NY 10022

By issuing this research report, each Needham & Company, LLC analyst and associate whose name appears within this report hereby certifies that (i) the recommendations and opinions expressed in the research report accurately reflect the research analyst's and associate's personal views about any and all of the subject securities or issuers discussed herein and (ii) no part of the research analyst's or associate's compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed by the research analyst or associate in the research report.

Disclosures

The research analyst and/or research associate (or household member) has a financial interest in Bitcoin digital currency.

The research analyst and research associate have received compensation based upon various factors, including quality of research, investor client feedback, and the Firm's overall revenues, which includes investment banking revenues for the following: Bitcoin Investment Trust

Equity Options Disclosure

Any Equity Options or Technical Strategy Opinions ("Opinions") contained within this report was prepared by the Equity Options Sales and Trading Desk of Needham & Company, LLC ("Needham" or the "Firm") for distribution to Needham's clients. This Opinion consists of market information and general market commentary only. It is not intended to be an analysis of any security or to provide any information sufficient upon which to base an investment decision.

THIS EQUITY OPTIONS OR TECHNICAL STRATEGY OPINION IS NOT A PRODUCT OF NEEDHAM'S RESEARCH DEPARTMENT AND IS NOT A RESEARCH REPORT. Unless otherwise specifically stated, the information and commentary expressed herein are solely those of the author and may differ from the information, views and analysis expressed by Needham's Research Department or other departments of the Firm or its affiliates.

Needham and its affiliates may have positions (long or short), effect transactions or make a market in the securities or financial instruments referenced in this Opinion. Needham or its affiliates may engage in securities transactions that are not consistent with the information and commentary expressed in this Opinion. Needham may have provided investment banking or other services to the issuers mentioned herein and may solicit such services in the future.

If this Opinion includes extracts or summary material derived from research reports produced by Needham's Research Department, you are directed to the most recent research report for further details, including analyst certifications and other important disclosures. Copies of such reports may be obtained from your Needham sales representative or at www.needhamco.com

This material is provided for informational purposes only and is not intended as a recommendation or an offer or solicitation for the purchase or sale of any security or financial instrument. Any investment decision by you should be based on your specific investment objectives and financial situation. Please contact your Needham sales representative for specific guidance.

Bitcoin Investment Trust Page 7 of 8



The information contained in this Opinion has been obtained from or is based upon sources believed to be reliable, but neither Needham nor the author makes any representation or warranty as to its accuracy or completeness. The information contained in this Opinion is as of the date specified herein. Needham does not undertake any obligation to monitor or update the information. Past performance is not indicative of future results and no representation or warranty, express or implied, is made with respect to future performance. Needham disclaims all liability for any loss that may arise (whether direct or consequential) from any use of the information contained in this Opinion.

Structured securities, options, futures and other derivatives are complex instruments, may involve a high degree of risk, and may be appropriate investments only for sophisticated investors who are capable of understanding and assuming the risks involved. Because of the importance of tax considerations to many options transactions, any investor considering the purchase or sale of any options contract should consult with his or her tax advisor as to how taxes affect the outcome of contemplated transactions. Needham and its affiliates do not provide tax advice.

OPTIONS ARE NOT SUITABLE FOR ALL INVESTORS. For further information on the risks associated therewith, please consult the Options Clearing Corporation's options risk disclosure document available at the following web address: http://www.optionsclearing.com/about/publications/character-risks.jsp

 $Clients\ should\ call\ the\ Equity\ Options\ Sales\ and\ Trading\ Desk\ (212-705-0369)\ for\ additional\ information.$

Additional Disclosures for Israeli Clients

All information presented in this document is, unless otherwise specified, under copyright of Needham & Company, LLC ("Needham"). No part of this publication may be copied or redistributed to other persons or companies without the prior written consent of Needham. These reports have been prepared by Needham and distributed by Clal Finance Batucha Brokerage, Ltd. ("Clal"), which accepts sole responsibility for its content subject to the terms set forth below.

Neither Clal or its affiliates (and any director, officer or employee thereof) nor Needham is liable for any incomplete or improper transmission of these reports or for any delay in transmission. Any unauthorized use, disclosure, copying, distribution, or taking of any action in reliance on these reports is strictly prohibited. The views and expressions in the reports are expressions of opinion and are given in good faith, but are subject to change without notice. These reports may not be reproduced in whole or in part or passed to third parties without permission. Clal or its affiliates (and any director, officer or employee thereof) and Needham do not guarantee their accuracy or completeness, and neither Clal or its affiliates (and any director, officer or employee thereof) nor Needham shall be liable in respect of any errors or omissions or for any losses or consequential losses arising from such errors or omissions.

Neither the information contained in these reports nor any opinion expressed constitutes an offer, or an invitation to make an offer, to buy or sell any securities or any options, futures or other derivatives related to such securities ("related investments"). Clal or its affiliates (and any director, officer or employee thereof) and Needham may trade for their own accounts as odd-lot dealer, market maker, block positioner, specialist and/or arbitrageur in any securities of the issuer or in related investments, and may be on the opposite side of public orders. Clal or its affiliates (and any director, officer or employee thereof) and/or Needham may have a long or short position in any securities of the issuer or in related investments. Clal or its affiliates (and any director, officer or employee thereof) and/or Needham may from time to time perform investment banking or other services for, or solicit investment banking or other business from, any entity mentioned in these reports.

These reports are prepared in general for the Israeli clients of Clal who are qualified institutional customers as defined by reference to the First Schedule to the Securities Law, 1968, of the State of Israel. They do not have regard to the specific investment objectives, financial situation and the particular needs of any specific person who may receive any of these reports. Investors should seek financial advice regarding the appropriateness of investing in any securities or investment strategies discussed or recommended in these reports and should understand that statements regarding future prospects may not be realized. Investors should note that income from such securities, if any, may fluctuate and that each security's price or value may rise or fall. Accordingly, investors may receive back less than originally invested. Past performance is not necessarily an indication of future performance.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or related investment mentioned in these reports. In addition, investors in securities such as ADRs, whose value are influenced by the currency of the underlying security, effectively assume currency risk. Unless agreed in writing with Clal, this research is intended solely for use internally by the recipient.

Needham is not an authorized broker, dealer or investment adviser outside the United States. The research does not constitute an offer to provide financial services to anyone outside the United States. Any investor in Israel wishing to buy or sell the securities mentioned in this report should do so through Clal.

Neither Needham, the research analyst nor anyone else acting on behalf of Needham is an Israeli investment advisor, investment marketer or portfolio licensed under the Israeli Regulation of Investment Advice, Investment Marketing and Investment Portfolio Management law, 1995. Accordingly, Needham does not maintain the insurance specifically required of a licensee in accordance with such law.

This report is for informational purposes only and does not constitute a solicitation or an offer to buy or sell any securities mentioned herein. Information contained in this report has been obtained from sources believed to be reliable, but Needham & Company, LLC makes no representation as to its accuracy or completeness, except with respect to the Disclosure Section of the report. Any opinions expressed herein reflect our judgment as of the date of the materials and are subject to change without notice. The securities discussed in this report may not be suitable for all investors and are not intended as recommendations of particular securities, financial instruments or strategies to particular clients. Investors must make their own investment decisions based on their financial situations and investment objectives. The value of income from your investment may vary because of changes in interest rates, changes in the financial and operational conditions of the companies and other factors. Investors should be aware that the market price of securities discussed in this report may be volatile. Due to industry, company and overall market risk and volatility, at the securities current price, our investment rating may not correspond to the stated price target. Additional information regarding the securities mentioned in this report is available upon request.

© Copyright 2016, Needham & Company, LLC, Member FINRA, SIPC.

Bitcoin Investment Trust Page 8 of 8