Needham

February 10, 2017

Bitcoin Investment Trust (GBTC)

Digging Deeper on Bitcoin ETF Filings and Potential Effect

INVESTMENT HIGHLIGHTS: Given elevated interest in the bitcoin ETFs that are going through the regulatory approval process we're revisting the subject with a deeper dive to take a look at the factors that may affect approval, differences between the three filings, market indicators of approval odds, and the effect of approval/disapproval on price. Overall, we maintain our estimates that the likelihood of approval is less than 25% but that, if it were approved, such an ETF would be extremely successful. That said, there are some market indicators that seem to suggest higher odds than our own estimates. Ultimately, while we don't see any specific reason to disapprove the Winklevoss Bitcoin ETF, we think the SEC is likely to disapprove out of an abundance of caution around bitcoin itself (as opposed to something specific to the filing).

- **Factors that May Affect Approval:** There are factors that are specific to each filing and factors that revolve around broader concerns about bitcoin itself. We think the latter group of factors is the bigger hurdle to ETF approval. From requests for public comments we can deduce some of the factors that the SEC is likely considering such as the suitability of a digital asset such as bitcoin for an ETF, whether the state of the bitcoin market is sufficiently developed, fair and transparent for an ETF, and whether the specifically proposed measures in the Winklevoss filing are appropriate.
- **Parsing the Three Filings:** While there are some interesting differences between the various filings, we don't see any differentiations that drastically increase the probability of one filing over another. In the pages that follow we parse some of the differences between the filings including the bitcoin reference price used, use of insurance, custodian employed, proposed listing exchange, creation/redemption (in-kind or cash) and annual management fees.
- **No Changes to Our Estimates:** Overall, there's no substantial change to our prior estimates, we still see a "sub-25%" chance of approval for the Winklevoss Bitcoin ETF but think that, if it were approved, such an ETF would likely attract $300M+ in its first week alone.
- **Market Sees Higher Probability of Approval:** Contracts traded on BitMEX and the rapidly declining premium on GBTC seem to suggest at least some subset of market participants sees a higher probability of approval than we do.
- **Effect of Approval/Disapproval on Price:** We think approval of a Bitcoin ETF would create a perfect storm for the price of bitcoin in that it would open the doors to institutional capital, drive a favorable shift in public perception, marginally decrease regulatory risk, and kindle a news cycle that would prominently feature bitcoin in financial and popular media. We think there's also a degree of downside risk to disapproval but we think this downside risk is relatively limited in comparison to the upside of approval.

COMPANY UPDATE

Stock Rating	**HOLD** Unchanged
Price Target	**NA**

Internet/Financial Technology

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Stock Price Performance

Bitcoin Investment Trust 02/10/17

Market Data

Price (02/09/2017)	$104.00
52-Week Range	$152.00 - $41.51
Shares Outstanding	1.75
Market Cap (MM)	$181.5
Avg. Daily Volume	18,292.0
Total Debt/Cap.	-

Given elevated interest in the bitcoin ETFs that are going through the regulatory approval process, we are parsing the various puts and takes of the three filings, trying to offer some insight into what factors the SEC may be considering, and elaborating on market estimations for approval and the subsequent effect on price upon approval.

In considering the likelihood of approval there are two main groups of factors to consider: Those that are specific to each filing and those that revolve around broader concerns about bitcoin itself and whether it is a suitable asset for a broadly investable vehicle such as an ETF. While there are some interesting differences between the various filings, our sense is that the latter group (questions about bitcoin itself) is the bigger hurdle to SEC approval of a bitcoin ETF—anything specific to one of the filings could presumably be adapted to appease concerns with the Commission.

In a previously published report, we noted that we think the probability for approval is "sub-25%" but that, if approved, such an ETF would likely attract at least $300M in its first week of trading. Overall our sense was that the Bitcoin industry was drastically overestimating the probability for approval and underestimating the effect an approval would have on price. Today, we think the odds of approval and the effect on price are better appreciated within the industry.

Factors that May Affect Approval

The Winklevoss ETF has been in registration the longest and from the SEC's requests for public comments (which would trade on BATS as ticker "COIN") we can glean some insight into the issues that might be top-of-mind in evaluating the various filings and the suitability of a digital asset such as bitcoin for an ETF.

Suitability of a Digital Asset

At the highest level, from requests for public comment we know that the SEC is considering whether a digital asset which, unlike a commodity does not have a physical form and unlike a security or derivative is not registered with any regulatory body, is a suitable underlying asset for an ETF. Furthermore, the SEC appears to also be evaluating the risk that ownership of bitcoin could, theoretically, be changed by a coordination of a majority of the network's hashing rate.

> In our view, the fact that bitcoin doesn't fit perfectly as a commodity or a security/derivative is more of an administrative issue than it is a fundamental reason to disapprove an ETF. In addition, we think the risk of a change in ownership from a coordination of a majority of the network's hashrate is a known risk that is reflected in the market price of bitcoin.

State of the Bitcoin Market

The other major group of concerns that the SEC has published revolve around market dynamics. For example: Are the markets on which bitcoin is traded stable, fair, resilient and efficient? Does the structure of these markets and corresponding liquidity and transparency enable market manipulation? Could there be prolonged dislocations between the ETFs Net Asset Value (NAV) / Intraday Indicative Value (IIV) and the share price of the ETF? Can an Authorized Participant maintain a tight market?

Published comments from the SEC suggest the Commission is also evaluating the risk of loss from theft and computer hacking.

> Our take: While liquidity is always a reasonable concern, there are ETFs for assets that are far less-liquid than bitcoin and these investment vehicles function well, so we don't see any reason to disapprove on these grounds.
>
> In regards to market manipulation, we agree that this is as much of a risk with bitcoin as it is with any asset: Even the deepest and most liquid market in the world (e.g., Gold and LIBOR) have recently been the target of sophisticated manipulation from the most highly regulated entities. In short, market manipulation is illegal and bad actors should be prosecuted accordingly but this manipulation is largely independent of the actual underlying asset.

Specific to the Winklevoss filing, the SEC also requested public comment as to whether the Spot price on the Gemini exchange accurately represents the price of bitcoin and whether the roles of affiliated parties in the fund's structure present a conflict of interest.

> Our take: While the Gemini Exchange is not the most liquid exchange in the world, it does have reasonable liquidity and there's nothing preventing spot price from accurately representing the price of bitcoin and, indeed, arbitrage encourages this. Also, the Gemini exchange is the only exchange that currently conducts a closing auction to help consolidate volume within a particular time period to arrive at a fair price for bitcoin in an orderly manner. Furthermore, the Gemini exchange has the highest level of regulatory approval in the US in the form of its Trust Charter—which should be a reassuring factor for regulators.
>
> Lastly, while there's some degree of conflict of interest inherent in the proposed structure, our sense is that it represents a prudent tradeoff in favor of security—our understanding is that the proposed structure reduces the risk of bitcoin in transit by minimizing the number of third parties involved.

Overall, we reiterate our prior comments that we do not see any specific reason to disapprove the ETF but believe the SEC is likely to do so primarily out of an abundance of caution and in the name of investor protection.

For example, as pulled from the SEC's website:

> "The mission of the U.S. Securities and Exchange Commission is to protect investors, maintain fair, orderly, and efficient markets, and facilitate capital formation."

We think the fact that "investor protection" is mentioned first and "facilitating capital formation" is last is a telling indicator of priorities at the Commission. As with any discrete asset class there are unique risks—and the same is true of bitcoin. Overall, so long as bitcoin's unique risks are fairly disclosed, we don't see anything in the proposed ETF filings that fundamentally exposes investors to excess risk beyond that of the asset itself and the typical risks associated with third-party services.

That said, our risk profile—and that of our institutional investor clients—likely differs significantly from the Commission's. Overall, we are very impressed with the lengths to which the Commission has gone to appropriately assess the merits of a bitcoin ETF with all its associated intricacies.

Parsing the Three Bitcoin ETF Filings

While there are some differences between the various filings, we don't see any differentiations that significantly increase the probability of one filing over another. Again, we think the primary concerns with the SEC will be more bitcoin-related than filing-specific (the latter of which are easier to address).

In the table below we compare the three bitcoin ETF filings:

	COIN	XBTC	GBTC
Bitcoin reference price	Gemini Exchange Auction Price	TradeBlock XBX Index	Selected USD-Denominated Bitcoin Exchange (1)
Insurance	No	Yes (up to $10M)	No
Custodian	Gemini Trust Company, LLC	SolidX Management LLC	Xapo Inc.
Proposed Exchange	Bats BZX	NYSE Arca	NYSE Arca
Creation/Redemptions	In-Kind	In-Kind & Cash	In-Kind & Cash
Annual Management Fee	Not yet disclosed	Not yet disclosed	2%

Source: Needham & Company, Public Filings with the SEC sourced from www.sec.gov
(1) USD-denominated bitcoin exchange selected according to TTM volume, regulatory compliance, and price variance. Historically, the exchanges used have included Bitstamp and Bitfinex.

Other Potential Indicators for Likelihood of Approval

BitMEX Contract

BitMEX, an off-shore crypto-derivatives exchange, has launched a contract that enables speculation as to whether an ETF will be approved. From the BitMEX guidelines on the contract:

Binary Payout Guidelines

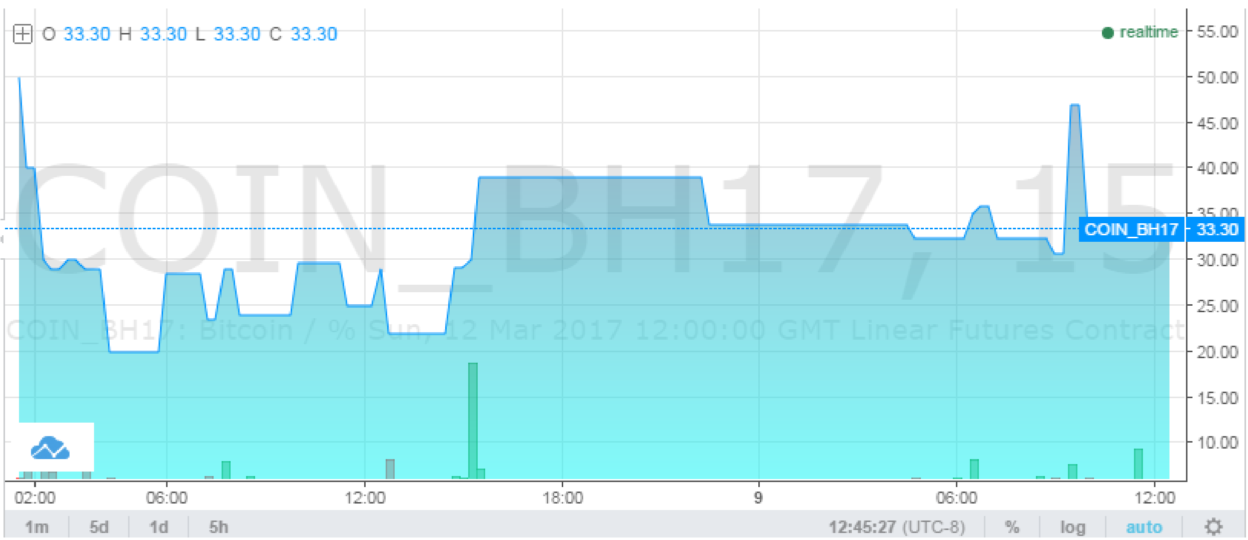
The COIN contract is a prediction future on the proposed rule change to BZX Rule 14.11(e)(4), Commodity-Based Trust Shares, to list and trade Winklevoss Bitcoin Shares (COIN ETF) issued by the Winklevoss Bitcoin Trust. The SEC file number is File No. SR-BatsBZX-2016-30.

COIN will settle at 0 if the SEC does not approve the proposed rule change.

COIN will settle at 100 if the SEC approves the proposed rule change. (Note: this includes the scenario in which the SEC does not disapprove the rule change by March 11, as this implies an automatic approval)

Source: BitMEX.

The contract currently trades at 33.3 indicating that this (thinly-traded) market is pricing a ~33% chance for approval, which is slightly higher than our estimate of "sub-25%". As shown in the graph below, the contract started at 50 and subsequently traded as low as 20 and as high as 47.

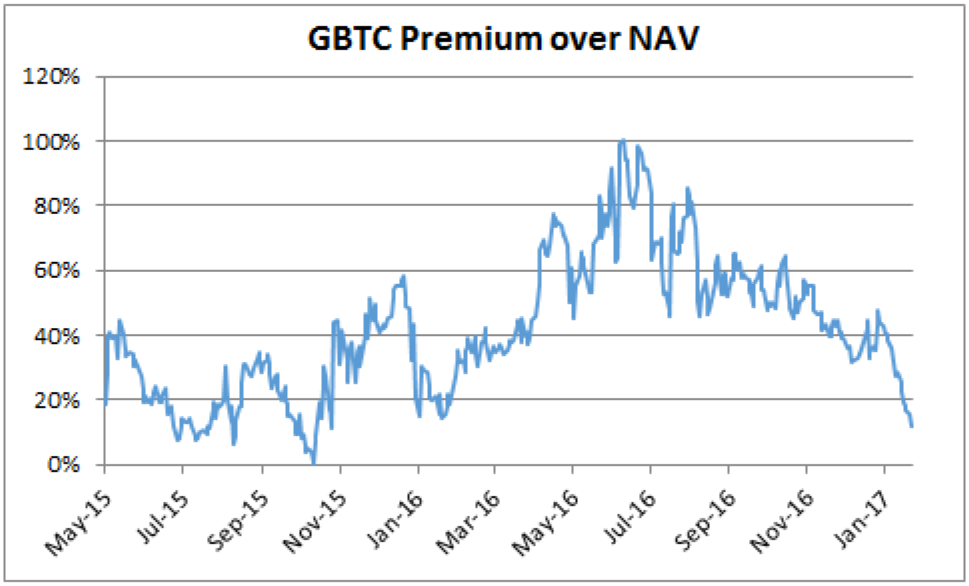


Source: BitMEX.

GBTC Premium

As we've covered in the past, the Bitcoin Investment Trust typically trades at a substantial premium to its Net Asset Value (NAV). There are a few reasons why this occurs. For one, some investors prefer or require that their investments are registered securities—which means that holding bitcoin directly is a nonstarter for at least some subset of investors. In addition, some investors are willing to pay the premium to avoid the risk of handling bitcoin themselves and to avoid the complexity/hassle of establishing accounts at various bitcoin exchanges. Last, but probably least impactful, some investors likely don't realize that by paying a premium for GBTC they're overpaying for the associated amount of bitcoin.

That said, if a bitcoin ETF were approved and listed, the premium on GBTC would likely disappear in very short order. As such, speculators would likely put downward pressure on the GBTC premium if they think approval of an ETF is likely (and if they can find a borrow to short the stock). Indeed, this seems to be the case recently as the premium on GBTC has fallen to its lowest level in more than a year.



Source: Grayscale.

However, speculation on ETF approval and the subsequent collapse of the GBTC premium mightn't be the only factor driving the premium down. In addition, investors that bought into the Bitcoin Investment Trust at NAV through the private placement and have held their position for more than a year, might simply be deciding to sell their shares and take whatever premium still remains to avoid the risk that the premium disappears entirely in the case of ETF approval.

New Amended S-1 Filed for COIN on 2/8

Instead of waiting for a public approval or disapproval of a proposed rule change from the SEC, sometimes the sponsoring party withdraws the request for a rule change in response either to perceived low probability of approval or, perhaps, because the Commission itself has suggested to the sponsor that approval is unlikely.

However, given that the Winklevoss Bitcoin Trust filed a new amended S-1 on February 8, we think it's relatively unlikely they or the Bats exchange have received indication that approval is unlikely (otherwise why go through the cost and effort of filing drafting and filing a new amended S-1).

The changes to the S-1 were relatively minor. Among the most significant changes in the new filing were:

- A change in the amount of bitcoin represented per-share of the ETF from 0.1 bitcoin to 0.01 bitcoin (likely to reflect the recent run-up in price).

- Additional commentary about the risks of a “hard-fork” of the network and how the ETF would react to such an event (the ETF would support the network with the greatest cumulative computing power in the 48 hours following the fork)
- Added specific authorized participants (Convergex, KCG, Virtu)
- Mentions recent cautionary statement from the PBOC and the subsequent effect on trading volumes

No Material Change to Our Approval Estimates

Despite the fact that certain (thinly traded) markets seem to be indicating a higher probability of approval and the fact that the final verdict still appears undecided, we maintain our estimate that the likelihood of approval is sub-25%.

A Perfect Storm: Impact on Price if a Bitcoin ETF is Approved

In our prior report, we noted that approval of an ETF would “have a profound effect” on the price of Bitcoin.

Likely the single biggest driver of that price effect would be the fact that there would be a large sum of capital flowing into the ETF which would require sourcing an associated amount of bitcoin—this is very difficult to do in large quantities without pushing price up drastically (especially in a bull market). We previously estimated that $300M+ would likely flow into a bitcoin ETF in its first week.

To help put this in perspective, if we look back over the past 6 months, there’s typically $15-30M of bitcoin traded daily against the USD on major exchanges. Over the past 1-2 months, volumes have been more elevated and closer to the $30-60M level. Regardless, at either of these levels it would be difficult to source $300M of Bitcoin over a few days without drastically increasing price.

To be clear, this effect is only from pent-up, latent demand, particularly among institutional money managers for whom the figurative gates to bitcoin would finally be opened. However, exacerbating the effect on price would be a concurrent positive shift in public perception (away from illicit associations), a marginal decline in regulatory risk, and a news cycle that would have bitcoin prominently featured within financial and popular media. In short, it would be a “perfect storm” for the price of bitcoin.

Negative Price Effect from Disapproval?

Only a few weeks ago we would have said that downside was highly limited in the event of ETF disapproval. That was because there wasn’t any substantial run-up in price that appeared attributable to speculation around approval: GBTC’s premium remained high and the drivers of price appeared unrelated to the ETF.

Today, we think downside risk is greater than it was only a few weeks ago: There’s been a significant run-up in price, the premium on GBTC has fallen substantially, the ETF has seen a significant increase in media attention, and some segments of the market appear to be speculating in favor of approval.

That said, while we think there's some degree of downside risk to disapproval, we think the vast majority of owners will continue holding bitcoin regardless of the SEC's decision and would likely welcome the opportunity to buy at a lower price—thus providing price support.

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

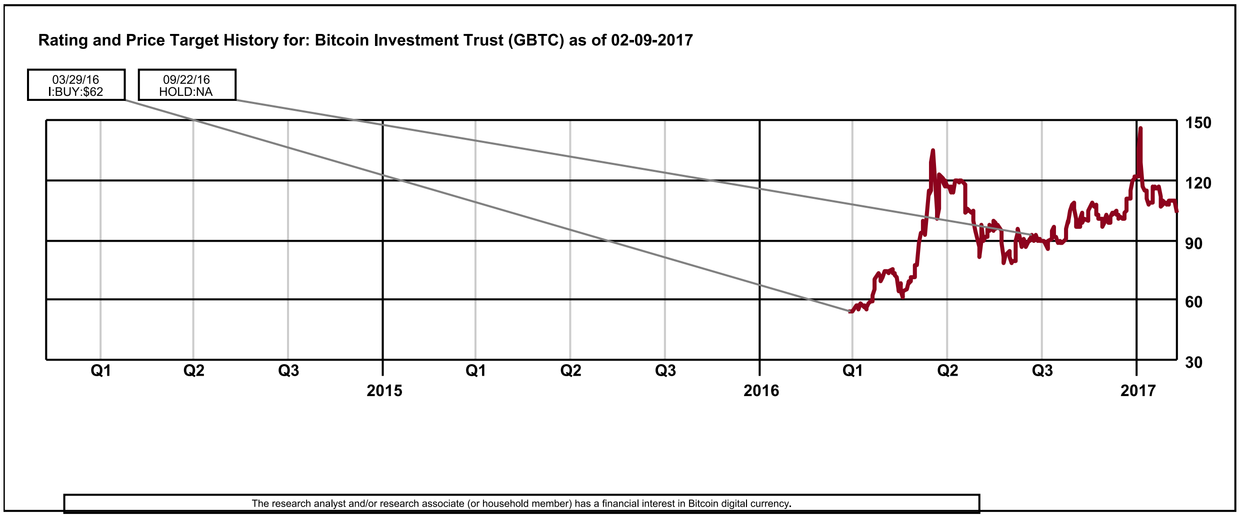
Hard fork: If there were a significant number of users and transaction processors ("miners") on the network that elected to choose an alternative version of the Bitcoin software the Bitcoin network could fork and potentially result in two different blockchains. This could have a significant adverse effect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


Rating and Price Target History for: Bitcoin Investment Trust (GBTC) as of 02-09-2017
03/29/16
I:BUY:$62
09/22/16
HOLD:NA
150
120
90
60
30
Q1
Q2
Q3
2015
Q1
Q2
Q3
2016
Q1
Q2
Q3
2017
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Rating Suspended	< 1	0
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