ONTARIO SECURITIES COMMISSION

QuadrigaCX:

A Review by Staff of the Ontario Securities Commission

April 14, 2020

Ontario

Contents

Readers should be aware that the findings and views in this Report are not findings of fact by an OSC hearing panel and have not been tested before the OSC tribunal or a court. This Report represents Staff's views of the evidence reviewed and, should further records and information become available, those views could be affected.**

Executive Summary

The downfall of crypto asset trading platform QuadrigaCX (**Quadriga**) resulted from a fraud committed by Quadriga's co-founder and CEO Gerald Cotten (**Cotten**). Clients entrusted their assets to Quadriga, which provided false assurances that those assets would be safeguarded. In reality, Cotten spent, traded and used those assets at will. Operating without any proper system of oversight or internal controls, Cotten was able to misuse client assets for years, unchecked and undetected, ultimately bringing down the entire platform.

The collapse of Quadriga caused massive losses for investors from Canada and around the world. On January 14, 2019, Quadriga announced that Cotten had died in India the previous month. By February 5, the Quadriga platform had ceased operations and filed for creditor protection. Over 76,000 clients were owed a combined $215 million[1] in assets. Approximately 40 per cent of these clients were Ontarians. Ernst & Young, the bankruptcy trustee, was able to recover or identify just $46 million in assets to pay out to clients. The people who trusted Quadriga with their money and crypto assets collectively lost at least $169 million.

Staff of the Ontario Securities Commission (**OSC**) undertook a review of Quadriga's business operations to determine how the platform was run, what caused its collapse, and where the money went. Over a period of approximately ten months, a multi-disciplinary team of Enforcement Branch Staff analyzed trading and blockchain data, interviewed key witnesses and collaborated with numerous regulatory bodies in Canada and abroad.

It has been widely speculated that the bulk of investor losses resulted from crypto assets becoming lost or inaccessible as a result of Cotten's death. In our assessment, this was not the case. The evidence demonstrates that most of the $169 million asset shortfall resulted from Cotten's fraudulent conduct, which took several forms.

The bulk of the asset shortfall—approximately $115 million—arose from Cotten's fraudulent trading on the Quadriga platform. Cotten opened Quadriga accounts under aliases and credited himself with fictitious currency and crypto asset balances which he traded with unsuspecting Quadriga clients. He sustained real losses when the price of crypto assets changed, thereby creating a shortfall in assets to satisfy client withdrawals. Cotten covered this shortfall with other clients' deposits. In effect, this meant that Quadriga operated like a Ponzi scheme.

Cotten lost an additional $28 million while trading client assets on three external crypto asset trading platforms without authorization from, or disclosure to, clients. He also misappropriated millions in client assets to fund his lifestyle. In its final months, Quadriga

[1] All amounts expressed in Canadian dollars except as otherwise indicated.

had almost no assets left and was operating like a revolving door—new client deposits were immediately re-routed to fund other clients' withdrawals.

What happened at Quadriga was an old-fashioned fraud wrapped in modern technology. There is nothing new about Ponzi schemes, unauthorized trading with client funds and misappropriation of assets. Crypto asset trading platforms, however, are novel and the regulatory framework for these platforms is evolving. Quadriga did not consider its business to involve securities trading and it did not register with any securities regulator. This lack of registration facilitated Cotten's ability to commit a large-scale fraud without detection. So did the absence of internal oversight over Cotten. From 2016 onwards, Cotten was in sole control of a company that had hundreds of thousands of clients and transacted over a billion dollars of fiat currency-denominated assets and over five million crypto asset units. He ran the business as he saw fit, with no proper system of internal oversight or controls or proper books and records.

Similarly, Quadriga clients could not have known what Cotten was doing. Under the Quadriga business model, clients entrusted their money and crypto assets to Quadriga. Quadriga provided no meaningful insight into how those assets were being stored, moved and spent. To the contrary, Quadriga provided false assurances about asset storage. Clients had no means of verifying these claims or obtaining meaningful information about the handling of their assets. This lack of transparency also facilitated Cotten's fraud.

Under normal circumstances, these findings would likely have led to an enforcement action against Cotten and/or Quadriga. However, this is not practical given that Cotten is deceased and Quadriga is bankrupt, with its assets subject to a court-supervised distribution process. Nevertheless, we believe it is in the public interest to share our findings with the public to help investors understand what happened to Quadriga and hopefully prevent this type of situation from recurring.

The misconduct we uncovered in relation to Quadriga is limited to Quadriga and should not be understood as applying to the crypto asset platform industry as a whole. Properly conducted, crypto asset trading is a legitimate and important component of our capital markets. We remain committed to working with this industry to foster innovation. Financial innovation has always been critical to the health of our economy and the competitiveness of our capital markets.

It is equally critical that investors have confidence to access new technologies and platforms that drive this innovation and competition. To that end, the investing public should be aware that using crypto asset trading platforms carries risks and that many crypto asset trading platforms are not registered and have taken the position that they are not required to register with securities regulators. Anyone considering entrusting assets to a crypto asset trading platform should take steps to learn about the platform's operations and approach to risk management prior to using it. This may not be possible with the current level of disclosure offered by some platforms.

Platform operators should be aware that, depending on their business model, they may have to register with the OSC and they should take appropriate steps to comply with Ontario securities laws. For guidance, platform operators should consult CSA Staff Notice 21-327 *Guidance on the Application of Securities Legislation to Entities Facilitating the Trading of Crypto Assets* and joint CSA/IIROC Consultation Paper 21-402 *Proposed Framework for Crypto-Asset Trading Platforms*. Platforms should also consider *Issues, Risks* *and Regulatory Considerations Relating to Crypto Asset Trading Platforms*, a report published by the International Organization of Securities Commissions. Platforms should review their operations to ensure that they have procedures in place to manage risks to clients and that they are accurately disclosing key information about their operations to clients.

1. Purpose of the Report

Given the magnitude of Quadriga's downfall, the harm done to Ontarians, and the novel issues surrounding crypto asset trading platforms, OSC Enforcement Staff announced in February 2019 that it would look into the matter.

OSC Enforcement Staff have the power to investigate and prosecute suspected violations of Ontario securities law. Enforcement investigations can lead to public hearings before the OSC tribunal and public decisions explaining the facts of the case. In this case, however, we concluded it would not be in the public interest to bring an enforcement proceeding before the OSC tribunal against Cotten or Quadriga. Cotten, the sole officer and directing mind of the corporation, is deceased; Quadriga has ceased operations and its assets are subject to a court-supervised bankruptcy proceeding. The accounting firm Ernst & Young was appointed as Trustee and Monitor in the bankruptcy and insolvency proceedings and has been engaged in identifying and recovering assets to be distributed to affected Quadriga clients. In contrast, our review focused on how the Quadriga platform operated, what happened to clients' assets, the causes of the $169 million asset shortfall, and the implication of securities laws.

Protecting investors and fostering confidence in our capital markets are key elements of the OSC's mandate. In this case, our mandate is best fulfilled by sharing Enforcement Staff's findings publicly. Typically, Staff investigations become public through a proceeding and findings are made by an independent decision maker weighing evidence during that public hearing. This situation is unique. While public release of a report of this nature is rarely done, we believe that making this review of the facts widely available may help prevent this type of situation from recurring.

This report outlines events from Quadriga's inception to its eventual collapse. We focus on Quadriga's operations—particularly its handling of client assets—analyze Cotten's trading, and assess statements made to clients in Quadriga's communications, and by Cotten himself, about platform operations. We also discuss how, in our assessment, the Quadriga platform involved trading in securities.

We also outline regulatory considerations for crypto asset investors and crypto asset trading platforms.

2. How We Conducted Our Review

OSC Staff collected documentary, digital and witness evidence from both domestic and international sources, and spent months analyzing this data. We engaged external blockchain experts to assist us in analyzing the movement of assets to and from Quadriga.

As our powers to collect evidence are limited outside Ontario, we relied on our regulatory partners to help us collect evidence in other jurisdictions. We sought assistance from a dozen other regulatory bodies, which enabled us to uncover important information from outside Ontario to assist in our review.

During our review, we interviewed and obtained documentary evidence from witnesses across a number of Canadian and foreign jurisdictions. Interviews were conducted by phone, video conference or in person at the OSC's offices in Toronto. Certain key interviews were conducted in other jurisdictions.

We interviewed key individuals associated with Quadriga and Cotten, including former Quadriga contractors and professional advisors. We also received evidence from Cotten's spouse, Jennifer Robertson (**Robertson**) as well as several affected clients who reached out to the OSC to share their stories. We also attempted to contact Michael Patryn (**Patryn**), one of Quadriga's co-founders; however, Patryn did not respond to our attempts to contact him. The evidence indicated that Patryn ceased to be associated with Quadriga after 2016 and that the majority of client funds were deposited with Quadriga after Patryn's departure.

Based on the evidence we reviewed, Quadriga did not maintain proper accounting records from 2016 onward. There may have been company records accessible only to Cotten and we did not access or review encrypted devices owned by Cotten. By court order, Ernst & Young was authorized to hand these devices over to the RCMP. However, none of the witnesses, including key Quadriga personnel, reported being aware of Quadriga books or records beyond those which we reviewed. Similarly, based on the evidence we reviewed and witness testimony, Quadriga did not have any proper system of internal controls and supervision over any aspect of its operations.

Quadriga did not maintain proper financial records and relied on third-party payment processors to process deposits and withdrawals to and from the platform. We gathered and analyzed records from these and other entities to reconstruct Quadriga's affairs. We obtained a significant volume of records from third parties such as banks and payment processors to build a deep understanding of Quadriga's handling of fiat currencies (currencies backed by a national government like the Canadian dollar).

We compelled platform data and thousands of Quadriga-related emails from Ernst & Young pursuant to a summons. The platform data we analyzed relates to over 368,000 client accounts and over 6 million individual transactions, including deposits, withdrawals, and trades. This transaction data includes detailed information such as date and time, asset type, price and the client accounts involved. Our analysis, the results of which are discussed later in this report, included calculating a running asset balance for each account, determining the daily cumulative effect of Cotten's trading with fake assets, and reviewing the overall trading to understand how clients interacted with the platform and trends over time.

In order to determine how Cotten managed client assets entrusted to Quadriga, we analyzed blockchain transaction data and obtained records from several other crypto asset trading platforms. Tracing assets moving through these platforms carries inherent challenges. For instance, despite the transparency virtues associated with blockchain transactions being posted to a public ledger, the wallet addresses of senders and recipients in these transactions are generally anonymous. (In contrast, bank accounts are connected to identifiable individuals and corporations, making it is easier to see who has sent and received funds.) In addition, we sought records from three other crypto asset trading platforms but experienced jurisdictional hurdles that resulted in us not obtaining this evidence. Despite these challenges, we confirmed that Cotten moved Quadriga client assets to other crypto asset trading platforms where he then traded with these assets.

Through our review, we gained insight into Quadriga's operations, analyzed Cotten's covert trading with clients on the platform, and calculated that this trading caused the bulk of the $169 million asset shortfall.

3. Findings

Part 1 – Quadriga's Launch and Platform Operations

Establishment of Quadriga

> *"I chose Quadriga over all of the other bigger exchanges is [sic] because there is no choice for Canadian dollars…. Quadriga is the biggest in Canada. I mean, what can possibly go wrong in Canada?"*
>
> A Quadriga investor interviewed by Enforcement Staff

Quadriga launched in December 2013. According to Cotten, its 25-year-old founder and CEO, it met a need in Canada's burgeoning crypto space: Canadians wanted to buy Bitcoin, but there was no easy way to do it. In late 2013, just before Quadriga launched, Bitcoin was experiencing its first bull run, reaching values well over $1,000 from under $100 at the start of the year. Quadriga presented itself as a platform for Canadians to access Bitcoin and other crypto assets. Initially, Quadriga clients could fund their accounts solely with Canadian dollars or Bitcoin, then trade their assets for the assets of other Quadriga clients. The platform allowed customers to make deposits and withdrawals in Canadian dollars, making it easier for Canadian customers to invest in Bitcoin.[i]

Quadriga derived its revenue from fees charged to buyers and sellers on the trading platform. Fees ranged from 0.2 to 0.5 per cent of the value of each trade and were deducted from clients' trade proceeds. In most cases, clients were also charged fees for funding or withdrawing from their accounts.

The first year of Quadriga's operations saw steady growth of its client base, despite a drop in Bitcoin prices to well below those of late 2013. By the end of 2014, assets in Quadriga client accounts totaled approximately 3,600 Bitcoin, CAD 2 million[2] and USD 400,000.

Quadriga's Principals

Cotten, then a recent business school graduate, incorporated Quadriga in British Columbia in 2013 and named himself as its sole director. Quadriga's corporate documentation described Cotten as "an early entrant into this field" who had been "involved in the so-called alternative payment space for 11 years." In late 2014, Cotten moved from British Columbia back to Ontario, and in mid-2016, he and Robertson, his future spouse, moved to Nova Scotia. Cotten ran the business from wherever he happened to be, whether he was at home or travelling.

Cotten co-founded Quadriga with Patryn, who was involved with Quadriga from its inception in 2013 until 2016. Patryn had been convicted in 2005 in the United States of conspiracy to transfer identification documents in relation to an online money-laundering service under his prior name, Omar Dhanani.

[2] All numbers represented in millions throughout this report are rounded to the nearest million.

Following Patryn's departure from Quadriga in 2016, Cotten ran Quadriga by himself and retained complete control over the company's fiat and crypto assets. He presided over a team of contractors, all of whom worked remotely on tasks that included maintaining the technical aspects of the platform, verifying account IDs and responding to customer inquiries. Responsibilities were siloed—Cotten was the only person controlling Quadriga's operations. As one Quadriga contractor put it: *"Gerry was the gatekeeper. Everything had to go through him."*

Quadriga's Clients

Over 95 per cent of Quadriga clients with an identified residency were Canadian. At first, Quadriga's active client base grew relatively slowly but between 2016 and 2017 it increased by almost 2,000 per cent. The vast majority of clients deposited either Canadian dollars or Bitcoin to trade on the platform, and the majority of trades were between these two assets.

Quadriga clients had varying levels of crypto asset experience and knowledge. The most active clients transacted hundreds of millions of dollars in assets and completed thousands of trades. Some clients were sophisticated crypto asset traders employing complex arbitrage trading strategies using automated bots that could analyze market activity and trade faster than a human. Others had simply heard about profits their friends had made from rising crypto asset prices and did not want to miss out on the opportunity. Some Quadriga clients were so unfamiliar with the crypto asset market that they depended on Quadriga to answer basic questions about crypto assets and crypto asset trading. Some clients transferred crypto assets to the platform as a means of exchanging different fiat currencies.

Through speaking with Quadriga clients and analyzing their platform activity, we observed that some clients approached Quadriga from a perspective of trust and believed there were safeguards in place similar to those applicable to regulated financial institutions. For example, a Quadriga client who was unable to withdraw approximately $40,000 from the platform in December 2018 explained that while he was using Quadriga, he thought it was monitored, protected and guaranteed by the government. He did not consider that if something went wrong with the platform, he could lose all his money. Some clients felt that Quadriga was trustworthy in part because it was a Canadian company. One individual whose attempts to withdraw approximately $200,000 from his account on the platform failed said, "It never came across my mind that something like this would ever happen in Canada" while another explained, "It is a Canadian company, and I am Canadian, so I [felt] comfortable". Clients may also have believed that the use of blockchain technology makes platforms more transparent and therefore safer.

Client behaviour on the platform also spoke to their trust in Quadriga. While some clients withdrew their assets from the platform shortly after making a trade, approximately 68 per cent of active clients kept assets on the platform for over 30 days, and 53 per cent kept assets on the platform for at least 90 days. This suggests that many clients believed their platform assets were safe and available for them to withdraw when they were ready.

Platform Operations

Becoming a Quadriga client involved setting up an account on the Quadriga website and using one of several options to fund the account with either fiat or crypto assets. A client who wanted to fund or withdraw from an account using fiat currency would be required to submit a copy of a piece of identification to Quadriga for verification. Once the account was set up, the client could begin trading fiat currency and crypto assets with other clients through the Quadriga website. The platform interface did not provide clients with the names of the counterparties to their trades.

Quadriga started as a platform for trading fiat and Bitcoin, the dominant crypto asset at the time. By the end, crypto assets such as Ether (Ethereum), Ethereum Classic, Litecoin and several Bitcoin forks (Bitcoin Cash, Gold and SV) were added, but Bitcoin remained the platform's dominant asset. Over the life of the platform, more than 82 per cent of the crypto/fiat volumes traded on Quadriga's platform were in Bitcoin and Ether. All crypto-to-crypto trading pairs involved Bitcoin because the platform did not offer crypto-to-crypto trades not involving Bitcoin.

As with many other crypto asset trading platforms, trades within the Quadriga platform were not recorded on the blockchain. A crypto asset funding from, or a withdrawal to, a client's own wallet would be recorded on the blockchain, but client-to-client trades on the Quadriga platform were only recorded in Quadriga's internal records—which only certain Quadriga personnel could fully view.

Custody of Assets

The assets reflected in clients' Quadriga account balances were held by Quadriga, not its clients. When a client funded an account by transferring assets to Quadriga, the client no longer had control over them. The client was left with only a claim against Quadriga for the value of the transferred assets. The client could then trade this claim with the claims of other clients. In that sense, Quadriga clients were not actually buying and selling crypto assets from one another—they were buying and selling entitlements to receive crypto assets or fiat currency from Quadriga.

For instance, if Client A purchased Bitcoin from Client B in exchange for Canadian dollars, Bitcoin was not delivered to Client A's wallet and the Canadian dollars were not transferred to Client B. Instead, their Quadriga accounts would be adjusted to reflect their entitlements to claim these assets from Quadriga. In order to get custody of these assets, a client would have to submit a withdrawal request, and the claim would be settled if and when Quadriga delivered the assets to the client. Clients depended on Quadriga to fulfill withdrawal requests and deliver their assets. If Quadriga could not honour a withdrawal request, the client was out of luck: the client had no way of withdrawing assets independently of Quadriga.

In our assessment, this custody model—whereby Quadriga retained custody, control and possession of its clients' crypto assets and only delivered assets to clients following a withdrawal request—meant that clients' entitlements to the crypto assets held by Quadriga constituted securities or derivatives. In making this assessment we have relied on CSA Staff Notice 21-327 *Guidance on the Application of Securities Legislation to Entities Facilitating the Trading of Crypto Assets* (the **Staff Notice**), which was published by the Canadian Securities Administrators (**CSA**) in January 2020. Quadriga did not consider its business to involve securities and it did not register with any securities regulator.

Because client assets were in Quadriga's hands, clients depended on Quadriga to safeguard their assets. In this respect Quadriga billed itself as reliable, claiming on its website that "all funds in the [Quadriga] system are highly liquid, and can be withdrawn at anytime." In reality, Quadriga's custody model and practices were flawed, and placed client assets at significant risk of loss, theft and misuse.

Custody of Crypto Assets

Quadriga did not store a client's crypto assets specifically for that client. If a client funded an account with a crypto asset, it became part of a general asset pool. In other words, even if a client's account showed that the client held one Bitcoin, it did not mean that Quadriga was storing that Bitcoin for that client alone, or that Quadriga even held a Bitcoin to back that account entry.

Quadriga's website promised clients that security was its "number one priority" and assured them that it employed "Cold Storage for the majority of the Bitcoins within our system." Similar statements were made directly to clients on Reddit, where clients were told that Quadriga used "the tried and tested method of storing 99% coins in cold storage". In 2018, Cotten claimed in an email that "clients' cryptocurrency is held in secure and offline multi-signature wallets."[ii] Based on our review, these claims were untrue and misleading. The majority of crypto assets were not held in cold storage. Rather, Quadriga was primarily using a mix of hot wallets and other crypto asset trading platforms to store client assets. Many of these assets were not being stored at all because Cotten was steadily depleting client assets, as discussed in more detail later in this report.

From Quadriga's inception, Cotten had a significant role in handling crypto assets entrusted to Quadriga. In 2016 he became the only person in control of these assets. The evidence shows that Cotten regularly moved clients' crypto assets off the Quadriga platform and into accounts he had opened on other crypto asset trading platforms. At one point, Cotten told a Quadriga contractor that a certain wallet address was a Quadriga cold storage address, when it was really a deposit address for Cotten's account at another crypto asset trading platform. We found no indication that Quadriga disclosed this practice of moving assets to external platforms to its clients, so clients were unknowingly subjected to any risks associated with those other platforms. This meant that clients were relying not only on Quadriga's security and storage practices, but also on the security and storage practices of every other platform on which Cotten stored their assets.

Cotten also traded with client assets on those external platforms, which exposed Quadriga to an additional—and undisclosed—trading risk. We were able to obtain records of Cotten's trading from three of these external platforms, and we determined that he lost $28 million in client assets trading on these platforms. The evidence indicates that he likely traded on other external platforms as well, but we were not able to obtain sufficient information to quantify Cotten's trading activity on these other platforms. In our assessment, Cotten's undisclosed and unauthorized trading with client funds was fraudulent.

Quadriga and Cotten left clients in the dark about Quadriga's custody and storage practices and clients had no ability to confirm independently whether Quadriga had the assets to support client claims, or to monitor how Quadriga was handling clients' crypto assets. As noted previously, trades within the Quadriga platform were not recorded on the blockchain and the platform itself provided clients with limited information. While transfers of crypto assets from Quadriga to other platforms were recorded on the blockchain, these transactions were recorded under wallet addresses rather than the names of individuals or corporations. These anonymized transactions would not have provided clients with meaningful information about the movement of their assets.

Custody of Fiat Assets

Managing fiat assets was a challenge for Quadriga, especially as the company grew. In the early days Quadriga held client fiat assets in bank accounts, but over time banks began refusing to hold Quadriga-related funds. Cotten became frustrated with the Canadian banking industry. In September 2017, he complained on Reddit that Canadian banks were "incredibly anti-bitcoin" and he expressed an interest in "other options that involve getting the banking system out of it altogether". By 2017, Quadriga relied almost exclusively on third party payment processors to hold its clients' fiat assets.

Quadriga also depended on payment processors to transfer fiat currency to and from clients. A patchwork of individuals and companies, some Canadian, some overseas, processed different types of transactions including wire transfers and credit card payments. A total of approximately $800 million flowed in and out of the three largest payment processors alone, earning them millions of dollars in transaction fees.

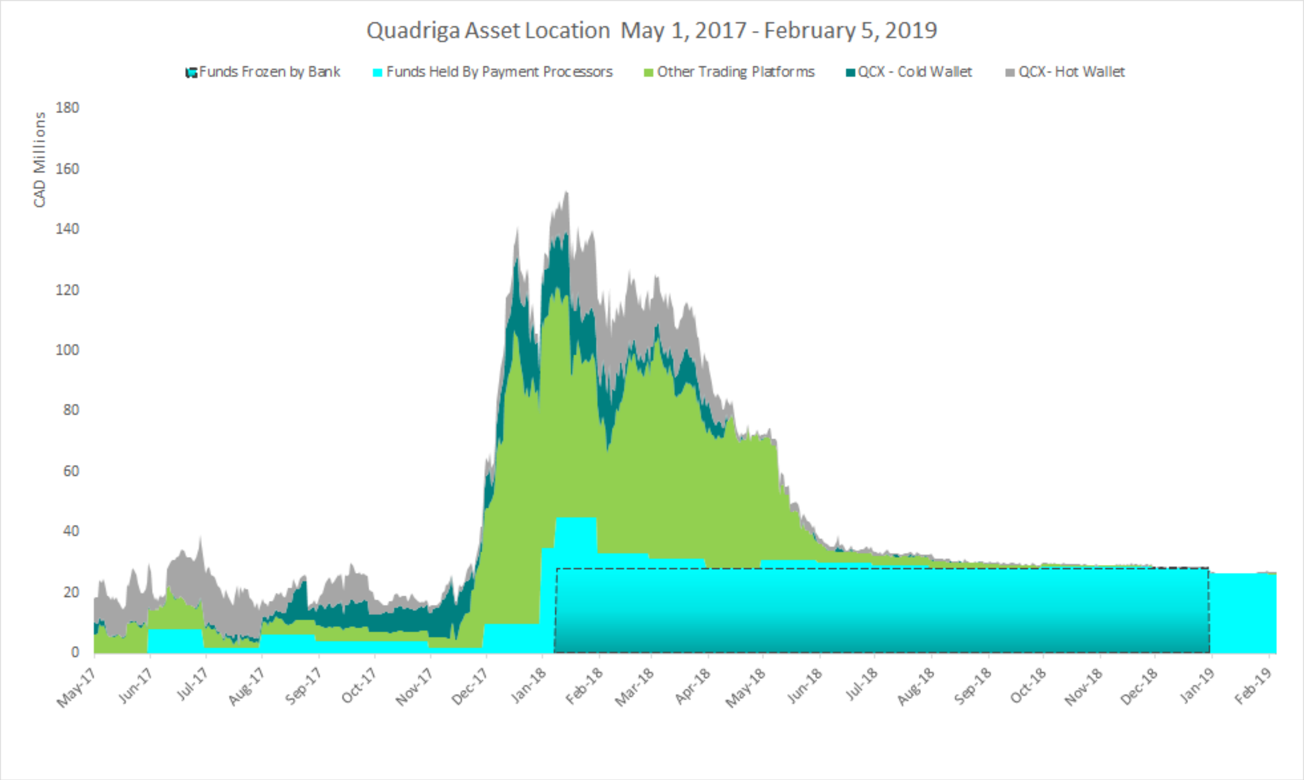
Quadriga did millions of dollars of business in cash. One of Quadriga's major clients was a Canadian Bitcoin ATM company. The president of the company would personally deliver suitcases of cash to Cotten to fund his Quadriga account, sometimes using private jets to meet quickly. Ultimately, Quadriga received over $20 million in cash from this ATM company, which Cotten knew, with this origin, would not be accepted by any banks in Canada. He used cash to fund client withdrawal requests by mailing envelopes of cash across the country. The platform data indicates that $14 million of client withdrawals were fulfilled by cash delivery.

This is a photograph that we obtained from a Quadriga contractor, which shows piles of Canadian currency received from the ATM company on the kitchen counter of Cotten's house in Kelowna, BC.

Clients were not provided with meaningful information about Quadriga's practices regarding the custody and handling of fiat assets. They learned some information about how their own cash amounts were transferred to and from Quadriga, as they followed the steps to fund their own accounts and knew the methods by which their own withdrawals were paid. However, beyond this, they did not have visibility into how the company was handling fiat assets.

The following chart identifies where Quadriga and Cotten held fiat and crypto assets between May 2017 and February 2019.[3]

Chart 1 – Location of known assets controlled by Quadriga and Cotten



Non-Segregation of Assets

Our review confirmed that, from at least 2015, Quadriga did not maintain boundaries between its own assets and those of its clients. Instead of segregating client assets from its own operating funds, Quadriga pooled all funds together and used client assets for its own purposes. For instance, Quadriga and Cotten used client funds to pay operating expenses including contractor fees, IT infrastructure fees and payment processor fees. Client assets were also used by Cotten to cover the trading losses he generated on the platform and to engage in speculative trading on other platforms.

Similarly, there was a lack of segregation between Quadriga/client assets and Cotten's assets. As discussed in more detail later in this report, Cotten used funds derived from Quadriga to fund his lifestyle without any apparent justification.

Clients were not told that their assets were paying for platform operations or being channelled to Cotten to spend, trade and use as he wished.

[3] While the evidence shows that many cash deposits and withdrawals were handled by Quadriga directly rather than being routed through payment processors, we were unable to determine with precision when such cash deposits were received and withdrawals paid out. Therefore, these cash amounts are excluded from *Chart 1 – Location of assets controlled by Quadriga and Cotten*.

Books and Records

In our review, we found that Quadriga did not maintain adequate books and records regarding its operations. The trading platform itself tracked some information—including funding of client accounts, trades, withdrawals and balances. In this sense, the platform tracked Quadriga's liabilities to its clients. However, the evidence we reviewed indicated that, from 2016 onwards, Quadriga had no accounting ledger or other accounting records relating to its financial situation or the assets that it controlled. We found no evidence that Quadriga adequately tracked the company's actual cash balances or its crypto asset stores.

Quadriga's failure to keep proper books and records obscured its deteriorating financial situation and facilitated Cotten's ability to covertly spend and trade client assets—as discussed below.

Cotten Trades using Alias Accounts with Fake Money and Crypto Assets

From Quadriga's inception in December 2013, Cotten traded with Quadriga clients using numerous alias accounts, which he credited with fake assets. Over 97 per cent of this trading was through an account under the name "Chris Markay". Other Cotten alias accounts included "Sceptre Gerry", "Aretwo Deetwo" and "Seethree Peaohhh". Cotten credited these accounts with fake crypto assets and fake fiat currency through manual adjustments to Quadriga's internal ledger. These adjustments were variously described in the platform records as "administrative adjustment", "in-person payment" and "bank wire". Regardless of their labels, these credits were not backed by actual fiat currency or crypto assets belonging to Cotten or Quadriga. For that reason, we refer to these credits as "fake" assets.

In other words, with a few keystrokes, Cotten could make any amount of fake money or crypto assets appear in his alias accounts, and he regularly did so. For example, in 2017 and early 2018, he credited the Chris Markay account with single deposits of $100 million and $50 million – fake funds that he then used to trade with clients on the Quadriga platform.

In essence, Cotten was trading with an unlimited credit facility: he could trade as much as he wanted, without any of his own or Quadriga's assets backing his trades. Quadriga clients were his unknowing creditors. They bore the risks, and eventually the impact, of Cotten's trading losses. Cotten accumulated significant trading losses—over $115 million over the life of the platform—yet we saw no indication that Cotten brought any funds that were not client funds onto the platform to cover his losses. Instead, he used other clients' platform assets to pay out clients with whom he had traded. This created a shortfall between the total amount owed to clients and the pool of underlying assets held by Quadriga. Cotten was not authorized to use client assets to cover his own trading losses nor was this practice disclosed to clients. In effect, he was operating Quadriga like a Ponzi scheme, in that a portion of client withdrawals were being funded with other clients' deposits. In our assessment, Cotten perpetrated a fraud on his clients through this conduct.

How did Cotten's fake asset trading cause a $115 million loss to Quadriga clients?

Broadly speaking, Cotten engaged in two types of transactions. In one type, Cotten used fake Canadian dollars to purchase real crypto assets. In the second type, Cotten sold fake crypto assets in exchange for real Canadian dollars. (See Appendices for further detail.)

When Cotten used fake Canadian dollars to purchase real crypto assets such as Bitcoin, if the price of the crypto asset went up, the Chris Markay account would profit, but if it went down, the account would suffer a loss. (In substance, this was akin to taking a margined long position on the crypto asset.) This is because the client who sold Cotten real Bitcoin in exchange for fake dollars was entitled to withdraw real Canadian dollars, even though none were involved in the transaction. If Bitcoin prices rose, Cotten could sell that Bitcoin for more than his purchase price, leaving him with enough real Canadian dollars to cover the client's withdrawal, plus a profit. On the other hand, if Bitcoin prices fell, Cotten would sustain a loss and he would not be able to cover the client's withdrawal just by selling the Bitcoin he had purchased from the client. He would then take additional assets from Quadriga's asset pool (i.e. client assets) to cover the client's withdrawal. The platform would be short by whatever amount he took from Quadriga's asset pool over and above the amount he could get from selling the Bitcoin. Over time, as discussed later in this report, he did this over and over until Quadriga's asset pool was almost fully drained.

In the second type of transaction, Cotten sold fake crypto assets in exchange for real Canadian dollars. This type of transaction carried the opposite risk: if the price of the crypto asset went down, the Chris Markay account would profit, but if it went up, the account would suffer a loss. (In substance, this was akin to taking a naked short position on the crypto asset.) For example, when Cotten traded a fake Bitcoin for real Canadian dollars, the client who bought the Bitcoin from him was entitled to withdraw a real Bitcoin, even though none was involved in the transaction. If Bitcoin prices fell, Cotten could use the Canadian dollars to buy a Bitcoin to satisfy that client's withdrawal, and still have some funds left over. On the other hand, if Bitcoin prices rose, Cotten would sustain a loss. He would not be able to cover the client's withdrawal just by using the same funds to buy a Bitcoin for the client to withdraw. He would then take additional funds from Quadriga's asset pool (i.e. client assets) to cover the client's withdrawal. The platform would be short by whatever amount he took from Quadriga's asset pool over and above amount of money involved in the original transaction.

Whether Cotten was seeking to profit, generate volume, bolster liquidity on the platform, or had some other purpose, his trading had a catastrophic effect on Quadriga's finances, and ultimately brought down the entire platform, as discussed in more detail later in this report.

Impact of Cotten's Trading on Quadriga's Trading Volume

Quadriga touted its high trading volume on its website, stating: "When it comes to Volume, QuadrigaCX is the fastest growing Bitcoin Exchange in Canada … Our rapidly increasing volume makes it easy to buy or sell Bitcoins at the best rate." Its terms of service promised that Quadriga would "strive to ensure that [its] marketplace [was] both fair and free". Cotten himself boasted that Quadriga was "a true market, with real orders and trades, not an artificial market designed to look appealing". He contrasted this with another exchange, which he claimed "fake their volume in a very blatant and obvious way". In 2018, Cotten claimed that neither Quadriga nor any Quadriga affiliate was a counterparty to any trade on the platform.

Our review revealed that these claims were false and misleading. Cotten's trading volume in his alias accounts was significant. Through the Chris Markay account alone, Cotten completed over 250,000 trades between 2015 and 2018. While Quadriga boasted of its dominance in the Canadian crypto trading space, in reality Cotten was party to at least 87 per cent of all trades in Bitcoin settled in Canadian dollars on the platform in its first full year (calculated by value), and 35 per cent over the platform's lifespan. Cotten sometimes also traded with himself through his various alias accounts.

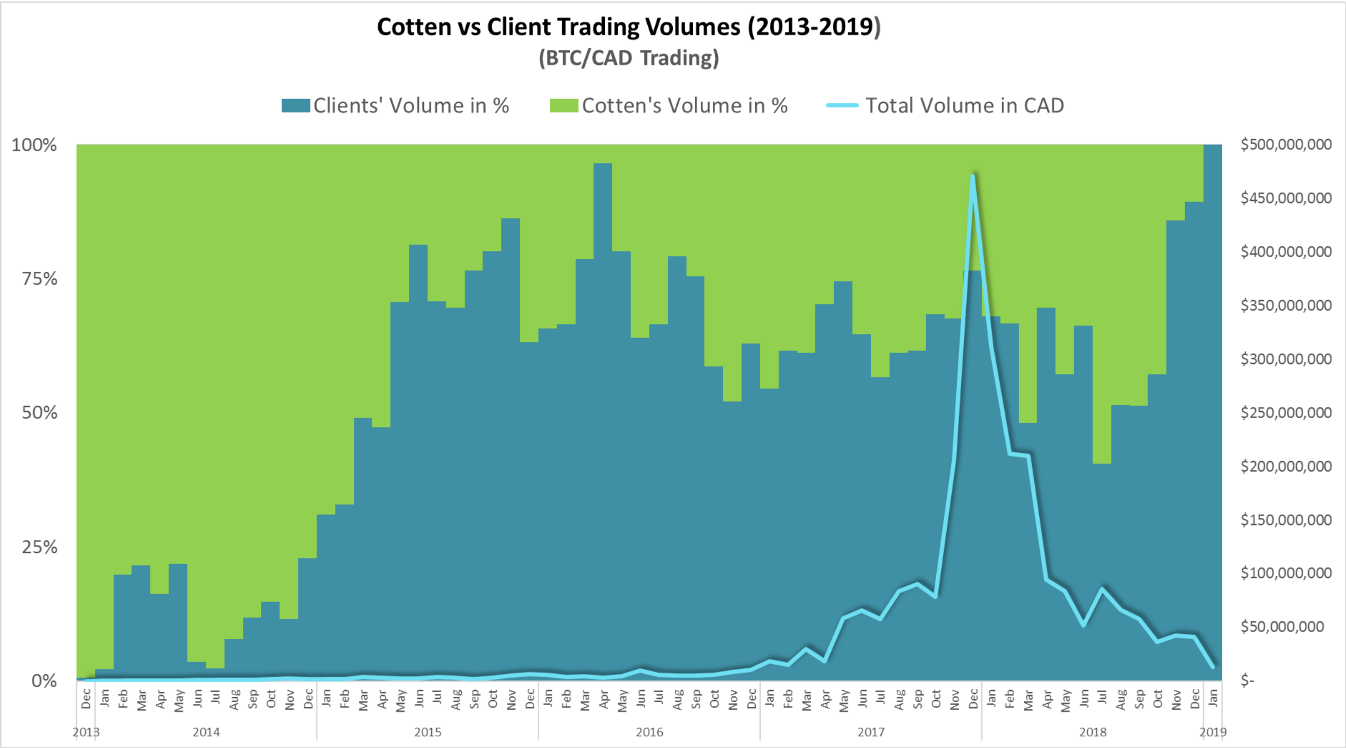
As crypto asset trading became more popular, client activity increased on the platform. Trading volume in Cotten's alias accounts also increased. For example, in 2016, the total trading volume in Bitcoin settled in Canadian dollars on the Quadriga platform was about $72 million, $24 million of which was attributed to Cotten's accounts. In 2017, trading volume in Bitcoin settled in Canadian dollars was about 16 times higher than the prior year, at around $1.2 billion, approximately 30 per cent of which came from Cotten's accounts. In 2018, Cotten's trading accounted for almost 40 per cent of total trading volume.

Quadriga clients were not informed that Cotten was trading on the platform in general, nor were they informed when Cotten was the counterparty to their trades.

Quadriga's reported trading volume was an important indicator of its safety for some clients. For instance, one client stated that the most important factor in his decision to use one trading platform over another was volume: "mostly I will look into first…the trading volume. … The more volume it has, usually it will be safer because it means that there are lots of people trading in it."

The following chart compares the overall proportion of trading (left axis) that Cotten was involved in, to the volume of client-to-client trades during the same month, from 2013 to 2019. For instance, in December 2013 Cotten was involved in nearly all trades on the platform. Total volume on the platform is shown on the line graph and the right axis for the same period.

Chart 2 – Total trading volume and the share of Cotten's trades



Part 2 - Growth of Quadriga (2015-2017)

The serious risks posed by Quadriga's business practices were not disclosed to clients. They joined the platform in large numbers, especially in 2017 as crypto asset prices climbed sharply. As Quadriga's popularity grew, Cotten consolidated his control over the company and moved assets off the platform to fund his lifestyle.

Quadriga Expands as Bitcoin Prices Rise

Quadriga's rise to become the largest crypto asset trading platform in Canada was fueled by rising crypto asset prices. Throughout 2015 and 2016, Bitcoin prices gradually increased and Quadriga experienced steady growth in its active client base and trading volume.

Quadriga Abandons a Public Listing Effort and Cotten becomes Quadriga's Sole Directing Mind

In 2015, Cotten and Patryn took steps to take Quadriga public and list its shares on a stock exchange. At this time, the company operated out of Vancouver under the direction of Cotten and, to a lesser extent, Patryn. In the end, the listing did not happen. Cotten found the volume of work involved to be cumbersome and abandoned the listing process in early 2016. Following the abandoned IPO, Patryn left the company, along with the CFO, legal counsel and accountants.

From this point onwards, Cotten was Quadriga's sole director and officer. He was indisputably Quadriga's guiding mind, controlling and overseeing Quadriga's operations. Cotten went so far as to tell new Quadriga contractors that Patryn was not a real person at all, and that Patryn's existence and the stories about him online had been invented by a competitor of Quadriga to throw the platform into disrepute.

Cotten's Chris Markay Account Trading Ramps up Risk Exposure

Cotten as Chris Markay Buys Bitcoin (December 2015 to November 2016)

In Part 1, we discussed Cotten's fake asset trading in the Chris Markay account. Between December 2015 and February 2016, Cotten was mainly using the account to purchase real Bitcoin from platform clients with fake Canadian dollars. By the end of February 2016, Cotten had credited himself with around $1 million fake dollars and used them to buy approximately 1,700 real Bitcoin from clients. As explained previously, this exposed the Chris Markay account (and ultimately Quadriga clients) to risk of loss if the price of Bitcoin went down.

The price of Bitcoin remained relatively stable between December 2015 and February 2016, averaging between $500 and $600. Consequently, the Chris Markay account did not generate any significant unrealized profit or loss on these positions during this time. However, by the end of February 2016 these long positions remained "open", meaning that Cotten had not sold the 1,700 Bitcoin he had purchased. Selling the Bitcoin for Canadian dollars would have closed his long positions from the original trades with the fake assets. This open position of 1,700 Bitcoin was exposed to the risk of a drop in the value of Bitcoin.[iii]

Pivot to Ether (March 2016 onwards)

In March 2016, Quadriga started accepting a new cryptocurrency, Ether. As he had done with Bitcoin, Cotten began to purchase real Ether from clients using fake Canadian dollars through the Chris Markay account. By the end of November 2016, Cotten held an open position of about 370,000 Ether. (In other words, he had used fake funds to purchase 370,000 Ether.) This amounted to a bet that Ether prices would rise—which was consistent with the view Cotten expressed at the time that Ether was "the future."

Risk of Rising Bitcoin Prices (June to November 2016)

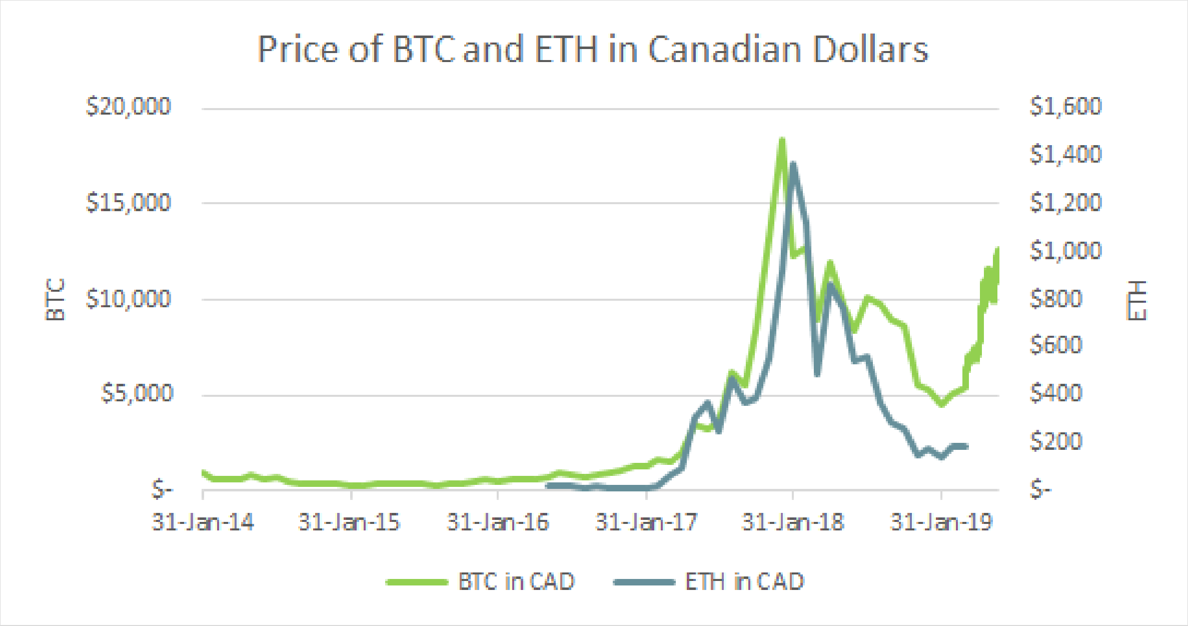
Between March and May 2016, Cotten closed his open Bitcoin position by selling his 1,700 real Bitcoin to other clients in exchange for fiat currency and Ether. From June 2016 onwards, Cotten began opening new Bitcoin positions, but this time in reverse: selling fake Bitcoin to platform clients in exchange for real Canadian dollars. While previously Cotten (and ultimately the platform clients) would lose if Bitcoin prices went down, now he would lose if Bitcoin prices went up. By the end of November 2016 Cotten had sold 3,800 fake Bitcoin, thereby establishing what was in effect a large naked short position in Bitcoin—and a potentially catastrophic risk to clients if Bitcoin prices kept climbing.

Crypto Boom of 2017

As 2017 progressed, the crypto asset market as a whole saw surging prices and trading volume. A flood of new client requests hit the platform and account verification requests piled up as the small team of Quadriga contractors struggled to keep up with demand. Cotten hired additional contractors to deal with the ever-growing backlog of new account requests.

The following chart identifies the price movements of Bitcoin (on the left axis) compared to the price movements of Ether (on the right axis) between 2014 and early 2019 represented by month end prices.

Chart 3 – Bitcoin and Ether prices in Canadian dollars (month end figures)



Throughout 2017, Cotten's trading on the Quadriga platform was dominated by: (i) purchases of Ether with fake Canadian dollars and fake Bitcoin that Cotten had credited to his Chris Markay account; and (ii) sales of fake Bitcoin that Cotten had credited to his Chris Markay account in exchange for real Canadian dollars.

By the end of December 2017, Bitcoin and Ether were valued at $18,000 and $900 respectively (compared to $1,300 and $11 in December 2016). As of December 2017:

- Cotten had purchased 825,000 Ether with fake assets, including $85 million fake Canadian dollars[4]; and
- 20,000 of the fake Bitcoin Cotten had sold in exchange for real assets remained owing to clients.

Technical Glitch Results in Ether Loss (2017)

Quadriga experienced a setback in June 2017 when a coding error cut off access to approximately $10 million in Ether (based on current Ether values) held in a Cotten-controlled wallet. It remains inaccessible today.

[4] Cotten did not own 825,000 Ether at this time because he had been steadily moving large amounts of Ether off the Quadriga platform and onto external platforms. By this time, he had converted most of this Ether into Bitcoin, American dollars and Canadian dollars to fund withdrawals.

Cotten claimed to be unconcerned about the loss, telling a Quadriga contractor: "A few months ago, monthly revenue was $200k in one month… last month we did a million. Current trajectory, we see $5 [million] soon and the trapped ETH contract is a small side project." Yet it was around this same time that Cotten credited the Chris Markay trading account with the largest single fake amount ever—a fake $100 million.

Cotten Struggles to Keep up with Withdrawals (2017)

As described previously, Cotten purchased significant Ether positions with fake Canadian dollars through the Chris Markay account. As a result, Cotten had to find real Canadian dollars to satisfy Canadian dollar withdrawal requests. Cotten addressed this Canadian dollar shortage in two main ways. First, he moved crypto assets off the platform, (i.e. out of Quadriga-controlled wallets) and into accounts on other platforms under his own name, then traded the assets for cash or other types of crypto assets, often at a loss. He thereby drained the Quadriga platform of assets and worsened the asset shortage. In addition, as crypto asset prices rose during the second half of 2017, Quadriga received hundreds of millions in Canadian dollar deposits from new clients. Cotten used these deposits to fund Canadian dollar withdrawals. While Cotten kept the platform afloat with these measures, it was a short-term fix. He was stripping the platform of the assets that were backing clients' account balances and digging Quadriga into an ever-growing financial hole.

Cotten Diverts Funds for Personal Use

Cotten made things worse by syphoning assets off the platform to finance his lifestyle. Between May 2016 and January 2018, he transferred approximately $24 million of client funds to himself and Robertson. This was despite the fact that Cotten's salary was set at $65,000 per year according to his January 2015 employment agreement. Cotten bought a Tesla, a Lexus, a luxury yacht, a plane, a share in a private jet and multiple properties. Cotten and Robertson travelled frequently, and by mid-2018 Cotten boasted to another Quadriga contractor that "in total, I'm up to 56 countries… 37 with Jen". This lavish lifestyle was funded with Quadriga client assets that, in our assessment, Cotten fraudulently misappropriated.

In the months prior to his death, Cotten transferred approximately $10 million in client funds that he had previously appropriated back to Quadriga, which was then distributed to clients.

Part 3 - Downfall of Quadriga (2018)

As crypto asset prices fell, many Quadriga clients wanted to cash out. Cotten struggled to keep up with increasing withdrawal requests, and operated Quadriga like a revolving door.

The Crypto Market Bottoms out and Cotten faces a Cash Crunch

As 2017 was a year of highs for crypto asset prices, 2018 was a year of lows. Bitcoin prices peaked around mid-December 2017, then began to plummet. A few weeks later Ether prices followed suit. The crypto price drop gutted the value of Cotten's Ether holdings—Ether he had purchased with fake dollars and fake Bitcoin. Although Cotten's short Bitcoin positions were profiting from falling Bitcoin prices, his Ether positions were much larger; overall, Cotten's holdings were suffering heavy losses. Demand for crypto was slowing and Quadriga clients were cashing out. Through his Chris Markay account, Cotten stepped in, using fake Canadian dollars, to act as counterparty to clients looking to sell their crypto assets for Canadian dollars. However, he had to find real Canadian dollars to pay for the clients' subsequent withdrawals. This proved difficult because, for months, Cotten had been misappropriating client assets both to fund withdrawals and to pay personal expenses. As a result, Cotten was running dangerously short of Canadian dollars, American dollars and crypto assets.

Payment Processor Troubles

Around the same time, in January 2018, the Canadian Imperial Bank of Commerce (**CIBC**) froze accounts connected to Billerfy, one of Quadriga's main payment processors. This rendered $26 million in Quadriga clients' funds inaccessible. Litigation related to the frozen funds continued throughout 2018 and the frozen funds remained unavailable to Quadriga during that time. These funds were eventually released to the payment processor and later transferred to Ernst & Young after Cotten's death.

Quadriga may also have lost access to funds held with an offshore payment processor. Records in respect of this payment processor showed an account balance of $12 million as of April 2018 (composed of a Canadian dollar account with a balance of CAD 9 million and an American dollar account with a balance of USD 2.5 million). Quadriga contractors recall that at some point this payment processor stopped communicating with Quadriga. After Cotten's death, the payment processor reported to Ernst & Young that it held a near-zero balance for Quadriga. Ernst & Young reported on June 19, 2019 that the payment processor did not provide any documentation to support this assertion. We did not see records establishing what became of the $12 million or that the money had been returned to Quadriga. We sought information from this company through multiple channels, but it provided us with no documents.

Around the same time as the CIBC account freeze, Quadriga began struggling to fulfill withdrawal requests. Cotten publicly blamed the withdrawal problems on the asset freeze, but this was a small part of a much larger asset shortfall caused mainly by Cotten's fraudulent trading.

Quadriga Plunges into Financial Crisis

By early 2018, clients were flooding Reddit with complaints about delays in receiving funds. The media began publishing stories about clients whose funds were missing or whose transactions took weeks or months to process. Cotten dismissed concerns, generally blaming the CIBC account freeze, or the clients themselves, rather than Quadriga's own processes or problems. At the time, a Quadriga representative told the media that none of its customers had ever lost money due to a funding or withdrawal issue.

In reality, Quadriga's financial situation was dire and assets held on the platform were dwindling. By March 2018, Cotten was operating Quadriga like a revolving door. Canadian dollars, American dollars and crypto assets deposited by clients to fund their accounts were immediately re-routed to fund withdrawals by other clients. However, with the flood of withdrawal requests, the outflow of real assets—especially Canadian dollars—from the platform greatly outweighed the inflow of real assets. In an effort to keep up with the demand for withdrawals, Cotten was also selling off the platform’s remaining crypto assets, cashing them in at the prevailing low market prices. He also transferred back to Quadriga some of the $24 million he had previously transferred to himself and Robertson for personal use. Between August and December 2018, Cotten transferred approximately $10 million from his personal bank account to a payment processor, which distributed it to clients.

The following chart shows the discrepancy between Quadriga’s assets and liabilities, with crypto assets valued at their Canadian dollar equivalent, from May 2017 to early 2019. It should be noted that while the difference between the assets and liabilities amounts drops during 2018, this is mainly due to the decrease in crypto asset prices. We estimate that, regardless of crypto asset prices, Quadriga was unlikely to return to a solvent financial position.

Chart 4 – The divergence in available assets and clients’ claims on Quadriga

In October 2018, Robertson and Cotten got married in a small, private ceremony in Scotland. They made plans to honeymoon in India, where they were funding the construction of an orphanage. In early December, while already in India, Cotten made two transfers totaling $500,000 from his personal account to fund client withdrawals. Shortly thereafter, he and Robertson checked into the ultra-luxury Oberoi hotel in Jaipur, India.

Cotten's Death Exposes Quadriga’s Dire Financial Situation

Cotten died in India on December 9, 2018 while on his honeymoon. New directors were appointed, who decided to suspend activities on Quadriga’s platform. The Quadriga website reported that it was offline.

Cotten’s death, and the ensuing efforts to locate assets, exposed the extent of Quadriga’s problems. It was widely believed that the bulk of the asset shortfall was due to lost or inaccessible private keys; however, this was not the case. As described previously, Quadriga was already in crisis before Cotten’s death, and most likely would have collapsed even if

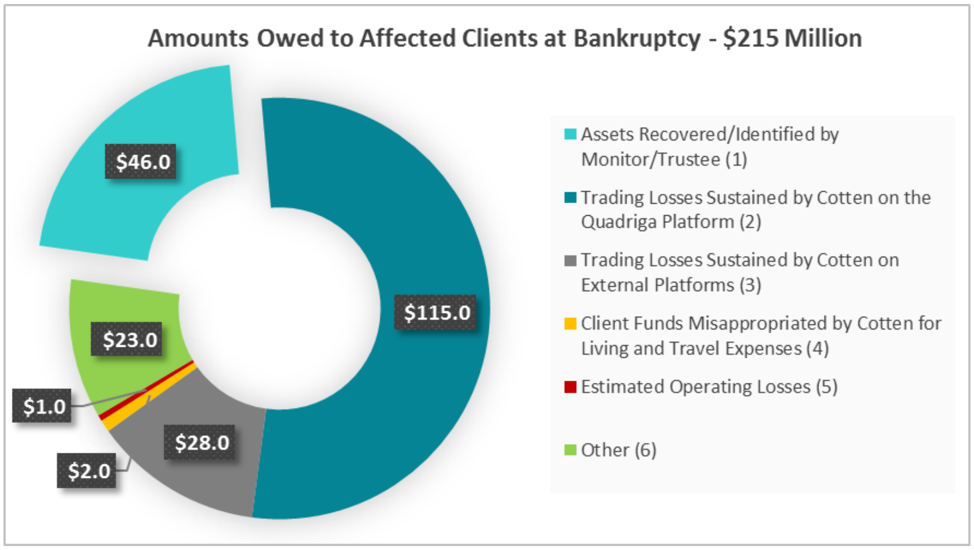
Cotten had lived. By the time of his death, the platform owed approximately $215 million to clients but had almost no assets to cover these liabilities.[5] By November 2016, Cotten had injected so many fake assets into the platform that its eventual insolvency was all but assured. However, until it was ultimately shut down by the new directors, Quadriga never stopped accepting new clients and new deposits, even while teetering on the brink of collapse.

[5] At the time of his death, Cotten had no access to most of the funds that were later recovered by the Trustee Ernst & Young. The majority of the recovered assets consisted of funds that were still frozen by CIBC at the time of Cotten's death.

Where did the Funds go? A Detailed Breakdown[6]

When Quadriga filed for creditor protection on February 5, 2019, it owed its clients assets worth collectively $215 million. The Monitor only recovered or identified $46 million of assets, leaving a $169 million shortfall.

Chart 5 – Breakdown of the $215M owed to affected clients at bankruptcy



1 – Assets recovered or identified by the monitor/trustee - $46 million

As of June 2019, Ernst & Young had recovered or identified $34 million of Quadriga's assets, consisting primarily of the funds that CIBC froze in January 2018 and released after Cotten's death ($25 million), bank drafts that a contractor of Quadriga had in his custody but had been unable to deposit for some time ($6 million), and funds in the possession of payment processors ($600,000). In addition, Ernst & Young recovered assets from Robertson that it expects to be worth $12 million, for a total of $46 million. We did not identify any other assets beyond those identified by Ernst & Young.

2 – Trading losses sustained by Cotten on the Quadriga platform - $115 million

As described previously, Cotten created and traded fake assets with clients of the platform under aliases. Cotten sustained trading losses of approximately $115 million and used Quadriga clients' assets to cover those losses.

3 – Trading losses sustained by Cotten on external platforms - $28 million

As described previously, Cotten sustained losses of approximately $28 million trading client assets on three external trading platforms.

[6] All figures approximate and/or estimates.

4 – Client funds misappropriated by Cotten for living and travel expenses - $2 million

Between May 2016 and January 2018, Cotten transferred approximately $24 million of client funds to his and Robertson's personal accounts, and to real estate lawyers to buy personal properties. From that amount, Cotten returned $10 million to Quadriga in 2018 when he was unable to fulfill withdrawal requests. Robertson returned assets expected to be worth $12 million to the Trustee under an October 2019 settlement, leaving $2 million that was used for living and travel expenses. Other transfers could have been made during the period between May 2016 and January 2018 and transfers could have been made prior to May 2016, but we were not able to determine this due to limited documentation.

5 – Estimated operating losses - $1 million

Over the life of the platform, Quadriga generated an estimated $45 million in revenue. Our estimate of operating expenses/losses is based on the following known expenses reflected in the limited documentation available.

Revenues	$45M
Less:	
• Known fees paid to payment processors:	12
• Estimated fees paid to external platforms:	2
• Estimated fees paid to contractors and operating expenses:	10
• Ether coding error (over 67,000 ETH):	10
• Funds collected by payment processor that Quadriga may have lost access to	12
Total	46
Net Estimated Operating Loss	(1M)

6 – Other - $23 million

Due to the absence of accounting ledgers and records, and limited records available from third-party sources, we were unable to identify all expenses or losses incurred by Quadriga. However, additional expenses or losses that are likely significant include the following:

1. *Trading losses sustained on external platforms*: Cotten may have incurred trading losses in addition to the losses identified in note 3 when trading on external platforms; we are aware that Cotten likely transacted on at least two other external platforms; however, the information to quantify any additional losses is either incomplete or was not provided to us.

2. *Other fees paid to external platforms*: Cotten likely traded on other external platforms, and he may have incurred fees not included in note 5.

3. *Other fees paid to third party payment processors*: Given the limited available records, we were only able to quantify fees relating to two third party payment processors; however, we are aware that hundreds of millions of dollars moved through other payment processors. This likely would have caused Quadriga to incur

additional fees, possibly in the range of millions of dollars (assuming a conservative fee rate of 1%).

4. *Other operating expenses not considered in note 5*: As of 2016, Quadriga was not properly recording expenses. Given the nature of the business, it is likely that other operating expenses were incurred that we could not identify.

5. *Additional client assets transferred by Cotten for personal use*: As discussed in note 4, Cotten may have misappropriated additional client assets; however, we could not determine whether or not this occurred.

4. Regulatory Takeaways

The facts we uncovered about Quadriga are limited to Quadriga and should not be taken as an indication that similar misconduct has taken place at other crypto asset trading platforms. However, crypto asset trading platforms involve unique risks and our review showed that members of the investing public may not fully understand these risks. We believe it is important to underscore those risks and outline the evolving regulatory guidance in relation to this area of the market.

The risks of investing in crypto asset trading platforms are discussed in Consultation Paper 21-402 *Proposed Framework for Crypto-Asset Trading Platforms* (the **Consultation Paper**), a joint consultation paper produced by the CSA and Investment Industry Regulatory Organization of Canada (**IIROC**) issued on March 14, 2019. These risks are also discussed in *Issues, Risks and Regulatory Considerations Relating to Crypto Asset Trading Platforms*, a report published by the International Organization of Securities Commissions.

Crypto asset trading platforms are an emerging area of the markets operating in an evolving regulatory landscape. As with any novel business with a developing regulatory framework, bad actors can take advantage of these circumstances to defraud investors. While even the most robust regulatory regime cannot detect every instance of fraud, regulatory oversight plays an important role in fraud detection and prevention and in protecting investors.

We are highlighting key takeaways both for investors who are using or contemplating using crypto asset trading platforms as well as for crypto asset trading platforms that are making efforts to operate responsibly and to comply with Ontario securities law.

Key takeaways for investors

In Canada many crypto asset trading platforms are not registered – Many crypto asset trading platforms are not registered and have taken the position that they are not required to register with securities regulators. This is an important message to communicate to users and potential users of these platforms, as they may have false impressions about the extent of crypto asset trading platform regulation.

Using a crypto asset trading platform carries risks – Trading on crypto asset trading platforms carries unique risks. Many platforms maintain custody and control of their clients' crypto assets and clients merely have claims against the platform for those assets. These claims are vulnerable to the solvency, proficiency and integrity of the platform operators. Clients may be exposed to risks associated with the potential unsafe, improper or unauthorized use of their assets. In addition, crypto asset trading platforms may not operate transparently. Clients may have limited or no information about how the platform is storing and handling their assets, whether and how platform principals are trading with their clients on the platform, whether the platform has sufficient assets to support all its clients' claims or the authenticity of reported volumes on the platform.

Platform clients should conduct due diligence and be alert for signs of fraud – Anyone considering entrusting their assets to a crypto asset trading platform should take steps to learn about the platform's operations and approach to risk management, prior to using it. This may not be possible with the current level of disclosure offered by some platforms. Clients should also be alert for signs of fraud.

Key takeaways for crypto asset trading platforms

Crypto asset trading platforms may have to register with the Commission and should take appropriate steps to comply with Ontario securities law – For guidance on the issue of whether securities legislation may apply to their business, platform operators should consult the Staff Notice, referenced above, which was published by the CSA in January 2020 (in addition to the Consultation Paper discussed previously, published in March 2019).

A key factor for this analysis is whether the platform makes immediate delivery of a crypto asset to a client. A platform would generally not be subject to securities legislation if the underlying crypto asset being traded is not a security or derivative, and there is immediate delivery of a crypto asset to the client after a transaction. (The Staff Notice provides more detail on the meaning of "immediate delivery" in this context.) In contrast, if a platform retains possession and control of the crypto assets being traded on the platform, securities law may apply. In accordance with the recent guidance in the Staff Notice, in our view, platforms that hold and control clients' platform assets and only deliver a client's assets after the client requests their withdrawal will generally involve securities or derivatives under Ontario securities law.

Platforms should ensure that they have systems and controls in place to manage risks – Having an internal system to manage risks, including those related to business continuity, key personnel and regulatory compliance, is an important step that responsible platform operators can take to preserve the integrity of their businesses, protect client assets and foster investor confidence in their platforms.

Platforms should disclose key information to clients – Providing clients with accurate information about key aspects of their operations—such as asset custody and storage practices, fees, reported volumes, platform security measures, internal controls, and conflicts of interest—will facilitate informed decisions by investors and promote investor confidence in the platform.

5. Conclusion

Whether they were aware of it or not, Quadriga's clients were exposed to risks beyond fluctuations in crypto asset prices when they chose to trade on the Quadriga platform. Quadriga held and controlled their assets and misled them about the way those assets were being handled. Quadriga was not registered with any securities regulator. Cotten took advantage of this situation, treating his clients' assets as corporate or personal funds that he could spend, trade and use at will and ultimately depleting those assets to such an extent that he brought down the entire platform.

What happened with Quadriga was an extreme example, and not necessarily representative of the broader crypto asset trading platform industry. However, these events serve to highlight for investors the risks that can arise in relation to crypto asset trading platforms, particularly those that are not registered. While we caution investors about these risks, we remain committed to working with the industry to foster innovation. Financial innovation is central to our capital markets and investors must have confidence to take advantage of new and exciting opportunities.

The worldwide regulatory response to this emerging sector has been developing and continues to develop. The CSA has recently provided guidance on when securities regulation applies to crypto asset trading platforms, in the form of the Staff Notice. The CSA and IIROC have recently published a discussion of potential risks associated with these platforms, in the form of the Consultation Paper. The OSC encourages platform operators to review the Staff Notice and Consultation Paper and to consult with their legal counsel on the application of securities legislation to their businesses. We also remind platform operators that their activities may currently be subject to securities regulation, and they should contact OSC staff to discuss the appropriate steps to be taken to comply with the applicable requirements. Our findings and insights from this report will help guide regulatory policy and development that will further our statutory mandate.

We encourage all Canadian crypto asset platform clients to review the Staff Notice and the Consultation Paper. We also encourage anyone considering entrusting their money to a crypto asset trading platform to conduct their due diligence before proceeding.

Contact Information
Ontario Securities Commission
20 Queen Street West
22nd Floor
Toronto, ON M5H 3S8

1-877-785-1555 (Toll-free)
416-593-8314 (Local)
inquiries@osc.gov.on.ca

[i] **Account Funding and QuadrigaCX Bucks**

Clients could transfer fiat currency to Quadriga using a number of methods. These methods evolved over time as Quadriga's fiat management systems evolved and included Interac online, in-person funding, bank wires, and cash. Clients could transfer crypto assets to Quadriga using a unique wallet address. We estimate that Quadriga controlled over 200,000 Bitcoin addresses alone, plus other addresses for other crypto assets like Ether.

Quadriga's Terms of Service stated that when a client deposited fiat, the client was purchasing "QuadrigaCX Bucks." A Quadriga Reddit post explained that Quadriga used QuadrigaCX Bucks so that it would not be considered a "depository institution". Most of the clients that we spoke to were not aware of QuadrigaCX Bucks. Their account dashboards listed their fiat assets in CAD or USD.

[ii] **Cold Storage and Multi-signature Wallets**

There are different forms of crypto asset wallets, with a variety of features and use-cases. Crypto asset wallets are secured by a 'private key', which is a sophisticated, computer-generated password required by anyone who wishes to access the assets held within the wallet.

A basic crypto asset wallet generates a single private key to access the assets held in the wallet. In contrast, a multi-signature wallet has more than one private key. To access the assets held in the wallet, multiple private keys will be required. These private keys may be given to different individuals to ensure that no single individual has complete control over the assets in the wallet, or that assets may not be moved without the knowledge of others.

Cold storage is essentially an offline crypto asset wallet. As cold wallets are not connected to the internet, they are considered less susceptible to theft via hacking than other storage methods. Cold storage usually involves a dedicated electronic hardware device, like a USB key, that is not connected to the internet, but can also take the form of paper wallets.

[iii] **Impact of Cotten's Open Positions**

Open positions in Cotten's accounts represented the platform's exposure to risk. Cotten's positions remained open until he closed them with an opposing trade (for instance, selling for real money the 1,700 Bitcoin he had purchased with fake money). As long as his positions remained open, Cotten (and ultimately the clients) remained exposed to the risk of losses resulting from crypto asset price fluctuations.

Cotten consistently increased his risk exposure on the platform by increasing his open positions, thereby increasing the risk to platform clients in the event of significant fluctuations in the price of crypto assets.

Appendix 1 - Simplified Example: Cotten Buys Ether with Fake Canadian Dollars

How does it work?

Client 1 opens a Quadriga account and funds it with 10 Ether.
The current price of Ether is $100.

Cotten's Chris Markay account is funded with $1,000 of **fake** dollars.

Client 1 wants to sell his 10 Ether for $1,000.
He puts in a sell order, which is filled by Chris Markay.

The Chris Markay account now has a balance of 10 Ether.

Client 1's account now has a balance of $1,000.
He doesn't know he traded his Ether for **fake** dollars.
Client 1 has no idea that Quadriga doesn't actually hold $1,000 to support his account balance.

What happens if Client 1 wants to withdraw dollars a few days later?

Client 1 wants to withdraw the $1,000 from his account.
Since the transaction, Ether's price has dropped from $100 to $80.

Cotten does not have any real dollars to send to Client 1.
Now he needs to sell the 10 Ether held by the Chris Markay account for real dollars.

But Ether's value has dropped from $100 to $80, so his 10 Ether are worth only $800.
He will still be $200 short of what he owes Client 1.

Where will the $200 come from?

This is where another Quadriga client, Client 2, comes in.
Client 2 has recently deposited $500 in her account.

Cotten takes $200 from Client 2 to make up the shortfall.

Client 2 doesn't know. Her account balance still shows $500.

The platform is now short $200. Quadriga clients have no idea.

From March 2016 onward, Cotten made tens of thousands of similar trades.

By December 2017, Cotten had purchased 825,000 Ether with fake assets.

The price of Ether steadily increased until January 2018.

In February 2018, crypto prices crashed. Users rushed to sell their crypto assets and cash out.

Cotten was short real dollars. To fund withdrawals, he sold Ether at rock-bottom prices.

It wasn't enough.

Appendix 2 - Simplified Example: Cotten Sells Fake Bitcoin for Canadian Dollars

How does it work?

Client 3 opens a Quadriga account and funds it with $1,000.

Cotten's Chris Markay account is funded with 1 **fake** Bitcoin.
The current price of Bitcoin is $1,000.

Client 3 wants to purchase a Bitcoin.
She puts in a buy order, which is filled by Chris Markay.

The Chris Markay account now has a balance of $1,000.

Client 3's account now has a balance of 1 Bitcoin.
She has no idea that she traded her $1000 for a **fake** Bitcoin.
Client 3 has no idea that Quadriga doesn't actually hold a Bitcoin to support her account balance.

What happens if Client 3 wants to cash out?

Bitcoin's value has gone from $1,000 to $1,200.
Client 3 wants to sell her Bitcoin for a profit and withdraw her money.
If she sells now, she will realize a $200 profit.

Cotten can give Client 3 back her original $1,000, but he will be $200 short.

Where will the $200 come from?

This is where another Quadriga client, Client 4, comes in.
Client 4 has recently deposited $500 in his account.

Cotten takes $200 from Client 4 to make up his shortfall with Client 3.
Client 4 doesn't know.
His account balance still shows $500.

The platform is now short $200. Quadriga clients have no idea.

From June 2016 onward, Cotten made tens of thousands of similar trades.

Meanwhile, the price of Bitcoin steadily increased.

By the end of December 2017, there were 20,000 fake Bitcoin in circulation.

In January 2018, Bitcoin prices were in freefall.

Users rushed to sell their Bitcoin and cash out, realizing their profits.

Cotten was short the real dollars needed to pay those profits.