FRMO Corp.
2018 Shareholder Letter

August 10, 2018

Dear Fellow Shareholders,

As we noted in the 2017 shareholder letter, we continue to expand our investments in the cryptocurrency and hard assets segments. Nevertheless, our cash balance is higher than was the case last year. At year end May 31, 2018, we had over $53.6 million of balance sheet cash. Shareholders' equity attributable to the company reached the level of $119.4 million. Total assets exceed $160 million. Thus, our strategic orientation has not changed; we merely have significantly more capital at our disposal.

In terms of our cryptocurrency exposures, as of several days ago, our investment in the Multi-Strategy Fund was about 17.20% exposed to Bitcoin. Our investment in the Polestar Fund was 8.46% exposed to Bitcoin and about 0.35% exposed to some other coins, including Bitcoin Cash, Bitcoin Gold, Ethereum Classic, Litecoin, and Z-Cash. The Multi-Strategy Fund also has a 0.20% exposure to Bitcoin Cash. The CDK Fund is 20.89% exposed to Bitcoin and 0.23% exposed to Bitcoin Cash. There is a 0.07% exposure to Bitcoin Gold. In revealing these figures, we should caution our readers in two respects. First, it should be self-evident that cryptocurrency prices constantly fluctuate 24 hours a day, 7 days a week; hence, any numbers that we reveal become outdated very rapidly. Second, we should not wish that our readers suppose that we established large positions in cryptocurrency. We actually established rather small positions that became quite large.

In addition to these investments, we have about $112,000 invested in two cryptocurrency mining ventures. There is also an investment in Digital Currency Group, which is a cryptocurrency venture capital firm. Finally, our readers will note about $75,000 of computer equipment on the balance sheet, which is a new category. This item represents directly owned mining equipment of the cryptocurrency variety. From time to time we may increase this investment. FRMO Corp. holds the cryptocurrency that it mines with these machines. As of several days ago, we held: 9.82 Bitcoin, 11.09 Ethereum, 229.79 Ethereum Classic, and 7.14 Z-Cash.

Insofar as Horizon Kinetics Hard Assets LLC is concerned, the market value of that investment, as of several days ago, was roughly $6.8 million. In any case, as anyone can easily calculate, the cryptocurrency investment, should it completely fail, as might ultimately be the case, would not significantly lessen shareholders' equity or total assets, even before allowance is made for any reduction of deferred taxes. Of course, this is not the outcome that we expect, even though it is an outcome that is possible.

A. The Cryptocurrency Argument Simplified

One might well wonder why the world needs cryptocurrency. Most discussions of cryptocurrency begin with a discussion of blockchain. In last year's report, we avoided a discussion of blockchain in order to make the cryptocurrency argument in terms of the need to avoid currency debasement. However, the argument is as persuasive in the blockchain connection.

A blockchain is simply a growing list of records, each sequential segment of records being known as a block. Each block contains something known as a cryptographic hash, which is basically a complex algorithm that maps data to a data structure. A subsequent block must use this hash function and create a new hash to be used in a subsequent block and so on continuously to create a structure known as a Merkle Tree. The blockchain itself is a distributed ledger of transactions in that blockchain's coin or cryptocurrency, which simplistically means that it is duplicated by a multiplicity of independent entities.

If malefactors were to alter data retroactively, they would need to control all subsequent block generation, since that data would no longer map to the cryptographic hash function. Hence, even if one controls 51% of the computational power of the network, one would have only a 51% chance of solving a subsequent block or basically superseding all the other servers from a solution of the next block elliptical function. If a block occurs every 10 minutes, as is the case for Bitcoin, the probability of success for one hour is 0.51^6 or 0.0176 or roughly 1.76 out of 100. All the other members of the system could, in theory, simply ignore a fraudulent transaction, such as the first one committed by our hypothetical malefactors. This is, quite simplistically, why a blockchain is far more secure than any ordinary database.

Ordinary databases have an extraordinary number of possible attack topologies. For instance, cyber criminals are now known to study the habits of perfectly honest people who have access to a given system. Once a target is fully understood, that individual might be invited to re-authenticate a security code on what seems like a completely secure environment but is, in reality, malware. Of course, some not entirely honest person might reveal the security aspects of a given system. This is why a conventional centralized system is not considered to be Byzantine Fault Tolerant whereas a blockchain *is* considered to be Byzantine Fault Tolerant. The term Byzantine Fault Tolerant means that the system in question is interactively consistent even if some of the participants in the system are dishonest.

B. Why can't we simply have a blockchain without a cryptocurrency?

This question is frequently asked and necessitates another level of discussion, which we wished to avoid in the 2017 shareholder letter, because this is a report on FRMO Corp. and not a cryptocurrency treatise. Nevertheless, the question merits a response.

If money is created in the banking system in the conventional manner, and then exfiltrated onto a blockchain, the blockchain is only as good as the data that has been received. There can be no validation process outside of the blockchain. The blockchain will simply eternally memorialize money data that might not be legitimate. A fraudulent transaction in a bank would then become a fraudulent transaction in the blockchain.

Why not create money such as U.S. dollars in the blockchain? The answer is that there is no agreed protocol within the context of the blockchain for money creation. There must be an agreed protocol by which to calculate money units outstanding with precision in order for the blockchain to be tested for self-consistency. If there is such a protocol, the central bank has essentially surrendered control of monetary policy to an algorithm and, thus, no longer controls the money supply even if the dollar is the base of the blockchain. The only solution to the problem is for the blockchain to adopt a cryptocurrency with a precise issuance policy. That cryptocurrency need not necessarily be Bitcoin. However, in order for the central bank to retain authority, the fiat currency will exist separately from and parallel to the cryptocurrency.

Of course, one need not even accept blockchains; however, the current system is not secure. Indeed, even a so-called private blockchain might not be secure by merely using cryptographic digital signatures. It is theoretically possible that electronic issues such as incorrect voltages can propagate through the encryption process and it may not be known whether or not the system actually functions properly.

This is probably more than the reader wishes to know about blockchains and cryptocurrency. The point is merely to assert that cryptocurrency solves a real world problem in financial security. The reader has no doubt seen accounts of various large firms undertaking efforts in cryptocurrency. In the next year, there will be many more such announcements. This should not be considered speculation. Viewed from the perspective of the financial system, it is a matter of survival.

The financial system cannot greatly increase the number of people involved in cyber security, since only a handful of dishonest cyber security professionals can compromise the whole system. In other words, the probability of maintaining secrecy declines with every increase in personnel.

On the other hand, there is no practical limit to the number of cyber criminals that might exist. Some are even encouraged and funded by governments. Therefore, there is a kind of Malthusian problem in cyber security. The number of cyber security professionals is increasing arithmetically, while the number of cyber criminals is increasing geometrically. This is the foundation for our belief in the ultimate success of the cryptocurrency movement.

C. Horizon Kinetics LLC and the Revenue Share

As might have been predicted, there are now zero fee index funds. Conventional investing will need to live with this reality. We, of course, have focused our efforts on exploring new types of investment opportunity rather than raising money for further ventures in the ever contracting opportunity set of conventional investments.

Last year we created a number of standalone cryptocurrency funds that have experienced substantial appreciation in calendar 2017, and have declined in value thus far in 2018. In any event, the market values of the various cryptocurrencies are much higher in August 2018 than was the case in August 2017.

In the fall of 2017, Horizon Kinetics created a company to mine cryptocurrency. In this version, the LLC mines cryptocurrency, sells the mined cryptocurrency, and distributes the profits to its members as a dividend in fiat money form. Horizon Kinetics is in the process of creating a new cryptocurrency mining LLC that will have two share classes. One class will sell the cryptocurrency and pay the profits to members as dividends. The other will hold the cryptocurrency for further appreciation potential.

Horizon Kinetics, with its own capital, is planning to invest in one or two hosting companies. These are the firms that provide the facilities so that miners of cryptocurrency can operate. Any savings that Horizon realizes in hosting will be passed on to the cryptocurrency mining funds of which both Horizon Kinetics and FRMO are members.

Horizon Kinetics is also exploring becoming a cryptocurrency node. The nodes are the elements of the network that broadcast messages across the network, and they are a necessary part of the block confirmation process. A larger number of nodes increases the security of the network. At the time of this writing, the Bitcoin network has 9,472 nodes of which 2,382 are in the United States. This number itself is questionable, since not every node has an open port that can be probed. Running a full node is the only way to know with certainty that none of the Bitcoin rules have been violated.

At the moment, there is no tangible economic benefit from running a node; however, apart from security considerations, which is a benefit in itself, one pathway to Bitcoin scalability is to have lightweight nodes and full nodes. Lightweight nodes have much faster transaction times and, one day perhaps, may have economic value. Lastly, cryptocurrency is new to everyone and, therefore, it is a learning experience for everyone, and a successful endeavor in this sphere requires constant learning.

D. Investment Funds

We have not harvested any profits from any investments in our funds; however, when gains are realized in the funds, FRMO must pay taxes on those profits. This does happen from time to time.

As one can see from the data tables in Note 5 of our May 31, 2018 financial statements, the Horizon Multi-Strategy Fund appreciated by about 51% in the period from May 31, 2017 to May 31, 2018. Polestar appreciated by 27.25% in the same time period. CDK Partners appreciated by 64.94%. These figures embrace any declines in cryptocurrency experienced in 2018.

The investment funds, viewed in their entirety, are the most important of FRMO's assets. As noted previously, the cryptocurrency exposure is large in the context of the funds, but it is manageable in the context of the corporation. There is an enormous tax penalty to be paid in the event of a sale. In success mode, there is obviously a limit as to how large the cryptocurrency positions in the funds can become before they become cryptocurrency funds. A more reasonable measure, in the event that it becomes necessary, in success mode, to reduce the cryptocurrency exposure is a distribution from the funds in kind. Each fund participant could then direct the action to be taken subsequent to distribution based upon tax and other considerations at the time. That contingency, however, does not arise at the moment, although it would be a most desirable problem to have to solve.

E. Exchanges

Our two primary exchange investments are the Minneapolis Grain Exchange (MGEX) and the Bermuda Stock Exchange. It is our belief that exchange licenses are extremely valuable, because it is necessary to begin to re-imagine modern trading in a blockchain environment. There are many different approaches possible to trading in a blockchain environment.

However, there is a limit to how many trading environments can be permitted to exist, simply because there is a limit to the regulatory resources that can be devoted to supervision. Hence, in principle, demand for such licenses should comfortably exceed supply. Moreover, improvements in technology make it possible to trade on a variety of exchanges that normally did not benefit from significant activity.

For example, in April 2018, the MGEX recorded its best April trading month in the history of the exchange, with 272,068 contracts traded. May 2018 was the exchange's best May ever, with 180,836 contracts traded. Readers should bear in mind that wheat trading is a seasonal business. In June 2018, the MGEX did not break the June record only because June 2017 was so extraordinarily good. However, June 2018 was still the 7th overall best month in the exchange's history.

The Bermuda Stock Exchange remains the listing vehicle of choice for insurance linked securities. It is also growing as a listing venue for international debt. In 2017, international debt listings grew to 180 different securities, which represents an increase of 55% from 116 international debt listings in the prior year.

Exchange investments remain an area of focus, provided interesting opportunities can be identified.

F. Digital Currency Group

Digital Currency Group is more than a venture capital firm in the digital currency realm. It operates Genesis and CoinDesk. It also owns Grayscale, which is a cryptocurrency fund management firm. In last year's shareholder letter, we noted that Grayscale had $475 million in assets under management (AUM) in the Bitcoin Investment Trust and another $46 million in the Ethereum Investment Trust. Grayscale now has $1.3 billion in AUM. The letter also noted that the total market value of all cryptocurrencies in existence was roughly $143 billion. As of this writing, including the large 2018 declines thus far, all cryptocurrencies in existence are worth about $254 billion.

Last year, we could not have appended a list of large publicly traded firms involved to some degree in cryptocurrency. This year, we could append such a list if we wished; however, we will refrain from doing so because, at the rate that firms are announcing cryptocurrency ventures, such a list would soon be out of date.

G. Short Sale

The unrealized profit on short sale assets is, as of May 31, 2018, about $5.628 million. This is a 17.25% increase over last year. However, it is worthy of note that we did realize some gains of these various assets in order to modestly change the complexion of the short sale portfolio, of which the preceding figure does not take account.

As was the case in the prior year, the vast majority of our short sale investments are path dependent exchange traded funds (ETFs). At the present time, we are making no use of options as a short sale mechanism. Although our options experience was very good, it is difficult to defer taxes using options. Moreover, options use much more margin than ETF short sale positions. In our case, this was not an important issue since our cash balances provide much excess margin.

Margin availability at the FRMO level, excluding any fund investments or cash balances, exceeds $96 million. Of course, the funds do hold large cash balances. Moreover, Horizon Kinetics itself holds considerable cash and liquid assets. Our liquidity position is the highest in the history of FRMO.

H. Horizon Kinetics Hard Assets LLC

As of several days ago, the market value of our investment in Horizon Kinetics Hard Assets LLC (HKHA) exceeded $7 million. Generally, it is our practice to increase our investment modestly every month. A normal monthly allocation recently has been in the range of $150,000 to $200,000. Thus far it has been a very successful investment. It has been the only one of our partnerships to which we have increased allocations, with the modest exception of the Cryptocurrency Mining LLC investments.

In the past 20 years, intangible wealth of great value in the form of intellectual capital has been created. This has taken the form of search engines, social media, generalized software, and even biotechnology. In the case of FRMO, one might consider the cryptocurrency mining investments a form of intellectual capital. However, in success mode, the cryptocurrency assets should have permanent value, albeit indeterminate at this point in time. In failure mode, one should assume that these are worthless.

The rise of intellectual capital has been so spectacular that tangible assets have been ignored. However, it seems not to be recognized that intellectual capital has a finite life. Even relatively recent inventions, such as conventional television, are being displaced by the internet. The personal computer is being displaced by the smart phone or tablet. In fact, the compact disc is being displaced by cloud computing. Indeed, floppy discs and diskettes are even becoming unknown, even though these are relatively recent innovations.

Tangible wealth in the form of resources is quasi-permanent in the sense that these are not renewable. However, some resources, like water, are renewable. Of course, land is the ultimate permanent resource. We have provided various figures in this report so that the reader can calculate the balance between tangible and intangible assets in our corporate portfolio. One should be able to see that, at the moment, the tangible assets, exclusive of cash, comfortably exceed the value of the intangible assets. It is possible that one day cryptocurrency will be thought of as a hard asset in the sense of cash. However, we have not yet reached that point.

Tangible assets can and do benefit from changes in technology. New innovations in resource extraction have exerted a positive impact upon our HKHA investments. The progress continues and we have recently increased our exposure to this area.

I. Winland Holdings Corporation[1]

Winland Holdings Corporation (Winland) is no longer an SEC filing company; however, as of year-end 2017, it had $2.248 million of shareholders' equity. This was an 11.18% increase from the prior year. Total assets were $2.807 million, of which $1.596 million, or almost 56.9%, was in cash. Clearly, the return on the non-cash assets was robust.

Of course, the challenge at Winland is no different than the challenge at FRMO. It is not easy to find robust return possibilities. Recently, Winland has been investing in bankruptcy claims. These are generally bankruptcy claims that rank high in the credit hierarchy, but are not sufficiently large to attract the interest of bankruptcy workout funds. Indeed, sometimes bankruptcy workout funds actually will feel compelled to purchase these claims from holders merely to simplify an existing bankruptcy. History records that the returns from this type of investment are uncorrelated to major financial trends. The returns can also be quite high. However, it is not easy to obtain the claims. Simply finding the owners and establishing a dialogue is a time consuming process. We hope to be able to increase our exposure to this type of asset.

J. Concluding Remarks

In fiscal 2018, FRMO managed to increase shareholders' equity attributable to the company by 15.59% after tax, while maintaining the highest cash balances in our corporate history. There is no need to expend cash unless the return potential relative to the risk involved is very favorable. At the present time, valuations of most equities and entire companies are more or less at the highest in history. Ultimately, the circumstances of markets are such that opportunities arise.

We hope that this shareholder letter contains sufficient information so that shareholders can understand, with some degree of precision, the magnitude of our primary exposures. We are very grateful for the support of our shareholders over the years and we will endeavor to be worthy of this support.

Murray Stahl
Chairman and CEO

Steven Bregman
President and CFO

[1] On February 5, 2018, Winland Electronics Inc. announced a name change to Winland Holdings Corporation.