

FRMO Corporation Annual Meeting of Shareholders  
Tuesday, August 30, 2016

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**Thérèse Byars** – Corporate Secretary

Welcome to the 2016 FRMO Annual Meeting of Shareholders. My name is Thérèse Byars, and I'm the corporate secretary of FRMO Corp. (the "Company"). Joining me are Murray Stahl, Chairman and Chief Executive Officer, and Steven Bregman, President and Chief Financial Officer.

Before we begin, we want to be sure that you know where the two emergency exits are located. There is the door you came in through and there is one in the corner here at the front of the room. The stairs are on either side of the elevators. We also ask that you silence all mobile devices and be advised that all audio and video recordings are prohibited.

The FRMO annual and quarterly reports can be found on our website at [www.frmocorp.com](http://www.frmocorp.com). If you would like a hard copy of the 2016 annual report or the proxy statement, we have a few copies here. And you may request one at the end of the meeting. A summary transcript of today's meeting will be posted on our website in the coming weeks.

Now I'd like to present the seven directors, all of whom are candidates for re-election. They are Murray Stahl, Steven Bregman, Peter Doyle, Lawrence J. Goldstein, Lester J. Tanner, Allan Kornfeld, and Jay P. Hirschson. Also present today is FRMO's general counsel, Jay Kesslen and, from our auditors, Baker Tilly Virchow Krause, we have John Basile.

We now proceed to the report on the tabulation of the proxies for the two proposals. The proxy committee, appointed by the FRMO Board of Directors, is here this afternoon to represent those shareholders who gave their proxies to the committee. Notice of this meeting and proxy voting materials were sent to shareholders of record as of July 12, 2016 on or about July 25, 2016. The inspectors of election report that proxies were received from FRMO shareholders holding approximately 38.8 million shares of common stock, or 88.4% of the total common stock entitled to vote. Therefore, this meeting is properly organized with a quorum present, and we can proceed.

There are two items of business for this meeting. The first is the election of the seven directors, who were nominated in accordance with the company's governing documents. The second item of business is the proposal to ratify the appointment of Baker Tilly Virchow Krause LLP as the independent registered public accounting firm of the Company for the fiscal year ending May 31, 2017. The board recommends a vote For on both items.

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Before I report the preliminary vote count for the two proposals, I would like to offer a ballot to any shareholder present who wishes to vote in person at this meeting. If you have already submitted your proxy, you do not need to submit a ballot, unless you wish to change your vote. Does anyone need a ballot who hasn't voted already? I see no hands, so the voting polls are now closed.

Based on the preliminary report of the inspectors of election, all seven director nominees have been elected to the board, with all nominees receiving at least 99.5% of the votes cast and 88% of the shares outstanding. The proposal to ratify the appointment of Baker Tilly Virchow Krause LLP as the independent registered public accounting firm of the Company for the fiscal year ending May 31, 2017 has been approved, with approximately 99% of the votes cast and 88.4% of the shares outstanding. This completes our formal business.

The next item on the agenda is the Chairman's report to the shareholders. Mr. Stahl will review key points related to the 2016 financial results. When he has finished his remarks, he and Mr. Bregman will answer questions. At that time, if you have a question, please raise your hand. When you're recognized, I will bring the microphone to you. Please clearly give your name, and to whom your question is directed. Please speak clearly so everyone can hear the question. Please limit your questions and comments to matters that are of general interest to shareholders. We can continue for a brief time after this meeting is adjourned and before the board meets in executive session.

And now, I will turn the meeting over to the Chairman of the board, Mr. Murray Stahl.

**Murray Stahl** – Chairman & Chief Executive Officer

Thank you, Thérèse, and thanks to everybody for coming today. I presume you've seen or read the shareholder letter, so we won't reprise the information in it. Instead, we'll cover the same topics from an entirely different perspective, with a view to giving you more of what our intent is and, to the extent that we can, something about our plans for the future.

First, let me share a fact that has, in and of itself, nothing to do with FRMO, but that you might find intriguing. There is an institution called the Swiss National Bank, which is the central bank of Switzerland. It filed a Form 13F with the Securities and Exchange Commission (SEC), which you can see on the SEC's website. As far as I can tell, that form discloses that the Swiss National Bank has bought about CHF150 billion (about USD150 billion) of equities. You'll see the U.S. companies on the Form 13F.

What in the world do the Swiss National Bank equity purchases have to do with FRMO? First, a minor point about the securities list. You can imagine the size and prestige of the companies. Well, they didn't buy any FRMO. [LAUGHTER] It might be a great thing if they did. Perhaps you might mention it to them if you work in Switzerland.

But the bank's practice of purchasing equities has more profound implications. In the academic literature regarding investment performance, the idea of indexation, not as an investment vehicle but as a benchmark, is that while it's possible, in principle, to manipulate a stock, it should not be

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possible to manipulate the whole index. Think how much money there is, all the flows in and out of the various securities; it's not seriously possible, except for an entity that has the ability to print its own money.

I mentioned the Swiss National Bank only because it has an SEC filing and you can view that if you care to. But I could have said the Bank of Japan, which is becoming the largest shareholder in every major company in the Nikkei 225. I even could have mentioned the Bank of the Czech Republic, the Bank of Israel, or the People's Bank of China which, as far as I can tell, doesn't want the Shanghai Stock Index to go below 3,000.

This observation requires everybody's attention because, for the market to function, there has to be genuine price discovery. Without it, the market does not function properly. If the market is not functioning, then what do the prices really mean? As an investor, you need to contend with a number of things, not the least of which is the question of to what degree the central banks will continue this practice? And how will we know when they cease, if at all? If they do cease, what will be the consequences?

In the FRMO shareholder letter, we discussed how we work to move away from the indexes in various ways. You might think of headings in that letter as divisions or business lines, but a better way to look at them is that they are doors that we can open or close when the opportunity set behind a particular door is rich. If it fails to be rich, we'll close the door and do something else for a while.

When we studied businesses, it always astonished us when we would see an industry that would become so competitive that margins decline, and more competition would arise. For example, if the way an insurance company could sell its products resulted in profit declines—sometimes precipitously—we have been amazed that businesses just kept producing until the marginal profit was negative.

When Steve and I conceived of the idea of FRMO while we were sitting in a Burger King back in 1994, we wanted to design a company as a series of doors through which we could look for rich opportunity sets, and that's where we would place our capital. As you've observed over the years, we're finding more and more of those opportunities. Some of them are very far removed from asset management, which is where we started. There are still opportunities in asset management, some of which we'll discuss today. In any event, that's the basic idea behind FRMO.

There are opportunities in the world of asset management, but they're not to be found in the holdings of leading indices; they're in other areas. They might be, for example, in alternative asset classes, which is one of the reasons why we have spent so much time studying exchanges. What is an exchange? An exchange is a business that we call a croupier. It has the right to charge a fee for a service or services.

Right now, there's a problem with the equity exchange market structure. If you read the annual reports of many exchanges, you'll see that participants are actually paid for volume. And there's

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an issue of access not being equal to all market participants. Some traders can co-locate their computers in the exchange itself and others cannot. Those who can co-locate have an informational advantage vis-à-vis those who cannot.

There are other problems, including the issue of regulation and governance. I believe there are roughly 40 alternative trading systems—the so-called dark pools. How are the regulators supposed to police the various segments of the exchange when many of the transactions are indeed invisible? The world needs answers to that.

There are changes happening in the various exchanges that lead us to believe that the era of the dark pools is behind us. We think there will be much more consolidation among exchanges. We don't think it will ever move back to there being a monopolistic set of exchanges, but there are opportunities for these entities. By the way, there are not just opportunities in the equity market structure, but also in entirely new asset classes that didn't exist before, and not just entirely new asset classes, but also types of equities that really are out of favor and have no venue in which to trade.

In the shareholder letter, we talk about the Canadian Securities Exchange, which we sometimes refer to as the CNSX. If you read the letter, you'll see that its volume growth is vigorous. Natural resources are clearly very important to that Canadian exchange. Yet, since many of these companies are actually very small, they don't qualify for index inclusion. How are they supposed to get capital? The natural resources business is inherently capital intensive. Bank capital, which is debt capital, has to be repaid, and that places heavy burdens upon business plans, especially if they can't be executed within the time constraints set by the debt instrumentality.

Obviously, in these situations, there's a need for equity. Historically, there was always a place for equity. Now, ironically, in a place like Canada, as dependent as the economy is on natural resources, you'll see all these small, emerging natural resources companies having difficulty getting listings and even greater difficulty attracting equity capital. The CNSX offers a venue for these companies and, as far as we can tell, its growth is fairly robust. One day, the natural resources industry will come back and, with it, opportunities. We hope to complete a few more exchange transactions before year-end, providing exposure to asset classes not commonly available.

For exchanges, because only a certain amount of revenue is needed to cover their fixed costs, once those are covered, the margin expansion possibilities are enormous. But it requires patience, which brings us back to the way FRMO was structured. It was structured to be patient capital with which we are able to take the long view. It was to be permanent capital, so that we didn't need to worry how the investments were marked to market month-to-month. That's the story of exchanges from our perspective.

You'll see the same patient approach in our almost insignificant exposure to what's called cryptocurrencies or digital currencies. What is a crypto-currency? Crypto comes from the idea of coding. These digital currencies are expected to be quicker and subject to less fraud. Bitcoin is an example,

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as is ethereum. Another is known as monero. It is my understanding that monero is favored by the criminal element because it's apparently harder to trace than bitcoin.

At the 2015 FRMO annual meeting, bitcoin wasn't even on my mind. It was just on my to-do list of something to look at. For various reasons, I just didn't have the time to study it. Therefore, I first wrote about bitcoin in November of 2015. We don't look at this investment as a new modality in which to transact. As a matter of fact, when you look at the bitcoin transaction volume since I first wrote about it, it's almost a reverse of the exchanges. For us, bitcoin is the idea of a non-fiat currency, which is currency that a government declares to be legal tender, but that is not backed by a physical commodity. The yen, the euro, the Swiss franc, the U.S. dollar, the Canadian dollar, and others, are established as legal tender under each nation's laws.

Governments have always abused the privilege of controlling legal tender because, as you know, if they wish to—and they frequently wish to—they print up more of it. And the more they print, the less your currency is worth. That's a big problem. Historically, seashells were used as currency, as were leaves of tobacco, and copper, at some point. Even today, the penny is made from a copper alloy. Throughout history, governments could always make more of their fiat currencies.

Another problem is counterfeiting the currency. When they used leaves of tobacco, they established a certain grade. But who monitors that? Who decides if it makes the grade? Even when the government had a coin of a certain weight, they would sweat the coins, meaning they would scrape off a little bit. And they didn't have weighing instruments that were sufficiently sensitive to register when they scraped off just a little bit of weight. If they scraped off just a little bit of silver or gold from every coin, after a while they would have a lot of gold dust, which was worth a lot of money. Governments would do that. Some would assert that governments, in their own way, by printing up more money, are doing exactly that.

Most crypto-currencies are like the fiat currencies in that they keep increasing. The amount of ethereum outstanding, for example, keeps increasing. Bitcoin is different in that it's limited to 21 million bitcoins, a pre-established number that will be reached in the year 2140. Right now, there are over 15.8 million.

If you just think about it—we don't know this is going to happen—but let's say that bitcoins were established by popular demand as a legitimate store of value, not as a currency in the legal tender sense but as a store of value in the sense that gold or silver or diamonds are stores of value. A diamond is not necessarily inherently valuable, but it's sufficiently rare that people use it as a store of value. Accordingly, bitcoin, in theory, could be a store of value. My colleague Peter says that our kids one day will look at us and say, "You walked around with lumps of gold in your pocket? That's just ridiculous." They live in a digital world. And one day, you know, there will be a digital gold, and that digital gold could be bitcoin.

That view might be right or wrong. But just think: if the market value of all the bitcoins in the world, which today is \$9 billion, were worth all the gold in the world—just the gold—it would be worth \$9 trillion. That's a thousand-fold increase in value. If it were worth all the M3 in the world,

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meaning that it was actually a substitute currency, well, I won't even do the calculation for you. I'll just leave it to your imagination.

Think of an amount of money that would be equivalent to what you might spend on a vacation you shouldn't have taken. We've all had them—the plane was too crowded, the food was not good, the weather was not good, the hotel was unsatisfactory, the service was terrible. We spent X thousands of dollars, and we would have been better off just staying home. Imagine if every single person took that sum of money—an amount tangential to their wealth—and bought some bitcoins. Can you imagine what would happen?

There is a chart on a website called Blockchain.info which gives you a listing of how many bitcoin wallets there are. I looked at it before I left the office. It's more than 8.5 million, and there are only 15.8 million bitcoins. When I first wrote about bitcoin in November of 2015, there were fewer than 7 million wallets. Anyway, I'm giving you an idea for what the potential is.

Of course, you could lose all your money, and you should be mindful of that. But even a small amount of money raised in an alternative asset has enormous possibilities. Do not be deceived. If we put a little bit of money into something and think about the returns in the pedestrian sense—the return could be negative 100%, to be sure. But it could also be something extraordinary on the other side. And that's why we do these things.

At the same time, you will observe that we have more cash on our balance sheet than ever, and it opens up other possibilities to us. Let's turn to what we sometimes call dysfunctional indexes. Over the years, we've been selling options on dysfunctional indexes. In the early years, we were able to keep a running tally of how much money we made in the shorts, because we didn't have to cover. Eventually, they moved, not to zero, but ever closer to zero. It's very much like Zeno's paradox: a number that approaches zero but never gets to zero. We had a running tally of how much money we were making from that strategy, and we liked to refer to it.

Then, in January of this year, the options expired, and we had to realize a gain and pay taxes on it. It wasn't so much that the taxes needed to be paid, although we'd rather not have owed the taxes. It was that we wanted to continue keeping a running tally, but now we can't do it. We were able to engage in these strategies because we have the balance sheet to do it. And we can operate that business on a much larger scale than ever before because we have the collateral to do it. The options basically drink collateral, but we have plenty of collateral.

We look at these transactions in a way that is very different from the way modern portfolio theorists look at it. I'll give you two examples. These are not examples of trades we're doing, but are generalities. When you look at these dysfunctional indexes and the options on them, we look at them as securities with a probabilistic value of zero, meaning that we hold them and eventually they expire and are worth nothing. We're prepared to hold them. But that's not the way the world looks at these securities. The world views it stochastically, not probabilistically. There is a not insignificant possibility of a negative mark-to-market event while you're holding it. Theoretically, it has a lot of value because of its negative beta. And because of its negative beta, it actually has a

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lot of value because, if you have it in your portfolio, that's considered to be the stochastic nature of it. It's considered to be a hedge against a dire market event. Therefore, it has value, even though it's likely—not just likely, we think it's just about certain—to eventually be worth zero. That's why, by the way, they are called path-dependent securities.

I'll give you an example of something we don't traffic in, just to show you the difference between the world's view and ours. You will find exchange-traded funds that hold the bonds of Germany, France, Italy, Japan, and so on. The yield right now on a diversified portfolio of these bonds might be something like 0.3, or 30 basis points—let's say less than a third of a percent. The fee that's typically charged on a fund of that nature is 35 basis points. In the best-case scenario, you collect 30 basis points, and you pay 35 basis points. Obviously you can't make a rate of return. If you've examined any of those funds—I'm deliberately not mentioning the names of the funds, but you can guess what they are. I sometimes write about this topic in our research, but I don't think this is appropriate in this forum. I'm not looking to criticize the central banks or the managers; I'm just trying to show you that we're doing something different. And maybe it's our error. Maybe we just don't understand the modern world. We're not claiming that we have the monopoly on the wisdom of the universe. In a return sense, how can you possibly make a return? In success mode, all you can have in a bond fund is that all the bonds mature at their maturity dates and you collect the interest, and the principal might need to be repatriated.

The world looks at it another way. The world would say a typical fund like that, year-to-date, has a return of 12%. That return is viewed in relation to the standard deviation of that fund, which is 6%. They have something called the Sharpe ratio which, crudely expressed, is return divided by standard deviation. Twelve divided by 6 is 2 and, without further explanation, a 2 Sharpe ratio is considered to be exceptionally good. Someone else might look at it and say, "Aha. This is a fund that generates a 2 Sharpe ratio. This is a fund you have to buy."

Do you see the difference in perspective? It's night and day. They can't be reconciled. There's no reconciliation of it. We basically—and maybe we're wrong—we basically rejected that view of the world, and we're going with another. What makes us think that ours is the right one? And it may be the wrong one—it's quite possible. Our view is that the extremes to which governments have gone in monetary and fiscal policy—and we're not monetary and fiscal policy experts—but the interest rates, basically, in some countries, are negative. In many places in the world, they're approaching zero. Based on the law of supply and demand, why would anyone buy a bond that yields nothing?

The only reason for doing so is the notion that the central bank is going to buy it first, push the price up, and leverage it 10-to-1. Even a 1% move in a bond—you might not think that's a lot of money, but you're allowed to borrow 10x the value on a government bond—for those who leverage fully, is a 10% rate of return; a 2% return on the underlying bond is a 20% rate of return; and so on. Clearly, they've gotten it because, year-to-date, a 12% rate of return is really a 120% rate of return.

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How can pedestrian, ordinary, garden-variety securities possibly compete with that in the short run? In the long run, the central banks can make the rates of return negative. Eventually, logically, you should de-monetize the whole system.

Anyway, that's our reckoning in the matter. We've stayed away, and we continue to stay away. What are we focusing on? We're focusing on different asset classes and using our balance sheet in creative ways. If we have fewer opportunities to make money in one modality, we'll just use a different part of our balance sheet to make money in a different modality, and we'll look for ways to minimize the taxes, to the extent we can.

That's the story of FRMO, and that's the story of how we're looking at the world in relation to the way that exists right now. There are many opportunities, one of which is just going away from the indexes. We describe the interesting securities that have been rejected by indexes as "off-index." You can't invest very much money in these off-index securities (i.e., they're not scalable), but the return prospects are quite alluring. We've always done that in our careers, so it's not a departure. We've always been patient. Hopefully, we'll get the right result. Steve, would you like to add anything to that?

**Steven Bregman** – President & Chief Financial Officer

Sure. As practitioners of value investing, in the conventional sense, for decades—and many of you fit the same population—it's always been a bit of work, because there were other value investors around competing with you, and hedge funds or mutual funds that specialize in that type of investing. They're all looking for the one that hasn't been examined closely. You're in competition with each other and you've rarely got a chance to buy a decent business or a decent company without particular balance sheet damage or risk.

The two-sided aspect of the indexation mode of investing—the indexation vortex—is that it's made value investing so easy. Basically, anything that's been kicked out or rejected is being passed over. No one is looking at it. If it's not liquid enough—and it's not market cap so much as it is liquidity—it's just not being looked at. It isn't an efficient market at all.

There are many ways to look for opportunities. One is simply to look for securities that aren't in indexes. We liken this to a rainforest with the various levels of canopy, and littering the forest floor are all these value investments.

I'll give you an example of one—it's just one—and it took me about 10 minutes on the train this morning to basically total up the numbers. Here's a company about which the only thing wrong I could say in terms of business risk is that the pricing for its largest business line is down, let's say, 67% since last year at this time. However, the profits so far this year are higher than last year, and last year the profits were higher than the year before. But even if we just say that profits have been stable, here's a company that trades at less than 5x earnings and at about one-half of book value, and has about an 8% dividend yield.



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This company happens to be called Stolt-Nielsen. I can't tell you if the CEO is third-generation or a different generation, but his last name is Stolt-Nielsen. It's a shipping company, but not your typical shipping company. People think of oil tankers and container ship tankers. Stolt-Nielsen has specialized tankers that transport all around the world everything from ammonia to motor oils and all sorts of special liquid natural gas and so forth. It's really industrial-based transportation. It doesn't have a debt problem; it has plenty of interest coverage; its dividend is not the result of some excessive payout ratio. If I had to guess, it's something like 40%. The company grows over time. There's nothing wrong with it. Where could you get a company that is expanding for that type of valuation? It has a building program. I think the net profit margin is on the order of 7% to 8%.

I don't mention this company because it's special; I mention it because, in its way, it's not special. There are many, many companies like this. Some might not have such a high dividend yield, which is in great demand. Some might have exactly the same characteristics, but choose to reinvest the income. But that's an example of what's available simply because, in the so-called "efficient market" in this world, it doesn't have the trading liquidity ETFs require. ETFs operate on a larger or, as Murray likes to say, an industrial scale.

It's good pickings out there, which is not to say that you can buy a whole bunch of these and raise outside money. But you can actually earn money on them. So that's one example to further the point.

**Murray Stahl** – Chairman & Chief Executive Officer

You see, the issue is that there's an illiquidity discount. It reminds me of when I started with Banker's Trust in 1978, they had something called "special assets." What it entailed was that every now and then someone would inherit a company, an actual company, and it'd be publicly traded in what was then called the pink sheets. It had a low valuation but a fairly substantial monetary value.

You could legitimately call it a cheap asset. The market capitalization was equivalent to the cash on the balance sheet. However, you could also look at it as saying that the valuation might be low, but the market value in a given client's account was of a disproportionate size. Therefore, the client was not properly diversified. You could make an equally sound argument for selling that company on risk metrics as you could for buying a company that was so uniquely inexpensive.

It seems that we've established the same sort of situation right now that, in the example I gave you, you could look at an investment the way we look at it, which is in terms of absolute value. You could look at it like the investment example I gave of the international government bond funds. It yields nothing and, therefore, in principle, if you look at it our way, you can make nothing. Or, you can look at it in a stochastic sense, and use the well-known metric of the Sharpe ratio and say, "Well, it happens to have a 2 Sharpe ratio, which is uniquely good in the way the world looks at risk-adjusted return statistics and, therefore, a 2 Sharpe ratio security logically should be

included in the portfolio. Why would you not include a 2 Sharpe ratio in the portfolio?" That's the dichotomy.

At the moment, the stochastic investors have the upper hand, because they have the bulk of the money. Happily for them, they have the central banks behind them. Life is good for them and we're properly envious, but things have a way of turning. In the meantime, we're engaging in other activities that we think are uniquely interesting. We'll meet again at some point, and we'll compare notes to see who did better and who did worse. That's always been our way and we're not going to change it.

With that, I should give you the opportunity to ask us some questions if you would like.

**Questioner 1:**

If blockchain technology continues to advance, won't the price of bitcoin be negatively affected? Why convert your U.S. dollars to bitcoin if you can more easily just transfer dollars themselves, legally?

**Murray Stahl** – Chairman & Chief Executive Officer

That's a really good question, because it deals again with this idea that there are two ways of looking at a problem. We now have a sense of bitcoin as a substitute currency. We call it non-fiat currency, but it's also a unique technology. Just so everybody's on the same page, the idea of a blockchain is that it's the history of all the transactions that have occurred in that so-called currency. Every transaction is viewable by every participant in the system, by every node. The *identity* of the various transactors is not known, but you know every transaction that happened.

No transaction will be validated unless everyone's blockchain ledger, so to speak, is the same. That's what the blockchain refers to. It's considered a more secure way of recording transactions, and it's also considered cheaper. If it develops sufficiently, in principle, it has the ability to displace modern actors in transaction processing like Visa and MasterCard.

The idea is that if you can move money in the form of bitcoin so rapidly, why not keep your money in dollars and move them around as you wish using the blockchain. Then only transact in bitcoin when you have a need to transact in bitcoin. Of course, that's possible, and not only for dollars but, in principle, shares of stock could be recorded in a blockchain, or it could be furniture, real estate, products, just about anything.

But we don't view it as a technology. There might be blockchains that are better than bitcoin's. There's no reason why bitcoin can't reside on the ethereum blockchain. It's possible. To us, bitcoin is not a new technology. We're not interested in the technology in and of itself for the simple reason that we don't know which of the many technologies will triumph. Maybe the one that will dominate hasn't been invented yet. We just don't have the expertise; it's out of our circle of competence.

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For us, the value of bitcoin is that it's a non-fiat currency, which means that the number of units is fixed. In the history of civilization, they were never able to do this, even when they used gold. They could constrain the supply of gold, but they could never fix the supply of gold. They could constrain the supply of silver, but they could never fix the supply of silver. There could be a silver strike and more silver could pour into the system. The same is true of seashells and paper money (obviously) and every area you can think of.

To us, bitcoin's incarnation as a non-fiat currency is a milestone in history. That's why we're interested in it. The fact that you can move dollars around using the blockchain is really not the reason that bitcoin should increase in value. The reason it should go up is that it will retain its purchasing power, because it can't be diluted by new units.

To put it into FRMO terms, it's obvious that if we kept issuing shares we would dilute existing shareholders. It's the same thing with money: if you keep issuing currency in sufficiently large numbers, you will eventually erode the value. That's what happens with fiat currencies. That's why the idea of a non-fiat currency is rather alluring to us. The risk/reward is such that you don't need to have a lot of it. I hope that answers the question.

**Questioner 2:**

Keeping with the bitcoin explanation, can you explain what halving is?

**Murray Stahl** – Chairman & Chief Executive Officer

Bitcoin was established by a person under the pseudonym of Satoshi Nakamoto. No one knows if that's really his name, and no one knows if there is such a person. It might actually be two people, but I'll call him Satoshi. And, by the way, they're looking for this guy. [LAUGHTER] Before we get to the idea of halving, I'll let you know why they're looking for him. Let's say someone creates a currency—let's say it was me—and I declare that there will be one million units, or five million units, or however many there are. If people buy it from me, I now have income that should be taxable.

Although this is really unexplored territory, in a legal sense, it's arguable that even if I never sold any of the bitcoin that I had created, if I just kept it and it had value, it's arguable that the minute I traded it, it had value, in the same way as if I planted a seed and grew corn. I might consume it myself, but it still has value. There actually are legal cases in which people grew crops that were for their own use, and the government authorities concluded that it was actually income and, therefore, subject to tax. So, anyway, they're looking for this guy for tax reasons.

Back to Mr. Nakamoto. He developed a protocol for the rate at which bitcoin will be issued. Halving refers to the rate of compensation that a miner is paid in return for mining a bitcoin. It is cut in half roughly every four years. They're going to cut in half the rate of compensation that a miner gets paid for mining bitcoins.

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What is mining? Mining is a process of proving a block, meaning that you have the right to distribute this block to every node in the system. That's all you're really doing. To provide incentive to people to operate the system, they are given a reward. Until a certain day in July this year, that reward was 25 bitcoins. When a certain predetermined point is reached in accordance with the formula, the reward is cut in half. The system is designed to allow miners to prove a block roughly every 10 minutes.

What does it mean to prove a block? Basically, the miners are solving for a random number that has something like 46 consecutive zeros in it. The only way you can solve it is by brute force. It's not an equation, so the computer has to keep guessing until it finds the correct number. As you can imagine, the computers must be incredibly powerful, because they have to keep trying to guess the number. The miner whose computer finally guesses the number receives the 25 bitcoins except, since the halving event, it's now 12.5 bitcoins. Four years from now, it will be bitcoins, and so on. The formula is set in a diminishing geometric scale so that the last bitcoin will be issued on a certain day in 2040. That's what halving refers to.

Halving can happen in a shorter time than the four years, or a longer time. It depends on how long it takes to prove a block. The theory is a block should be able to be proved in 10 minutes. Recently, they were proving blocks in less than 10 minutes. When that happens, they make the algorithm more complicated by adding a zero to the number. So, instead of, say, 46 zeros consecutively, it might be 47 zeros consecutively, which makes it proportionally harder to solve.

Right now, I think they need 1.6 some-odd billion gigahashes, which is a billion-billion, because "giga" is a billion. A hash is, in effect, an attempt to solve the problem. Basically, halving is the process by which you get to 21 million bitcoin. Right now, I think it's 15.838 million, or 15.839 million. So, I hope that answers the question.

**Questioner 3:**

I think most of us have no idea what bitcoin really is. What if I want to buy a Bitcoin? How is it done?

**Murray Stahl** – Chairman & Chief Executive Officer

Well, at least we have an interest in bitcoin. All wisdom starts with the admission that we don't know what we're talking about, and Steve and I might be part of that.

Before we get to bitcoin, let's review the basic idea of money. Money is nothing other than a store of value. Let's say you created a chair, or cloth, a pair of shoes, a bottle of water, whatever it is. You might be very good at making pure bottles of water, but you need to exchange it for something else that you want. Maybe what you want is a chair, and you want to exchange some water with a carpenter who made a chair. But it's kind of hard to walk around with bottles of water and chairs, so they came up with the idea of money.

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The first books of the Bible refer to money, but there was no central bank and no government. So, they came up with the idea, independently, that you could agree on something that represents value. For example, everyone agreed that one gold shekel or 10 gold shekels or 100 gold shekels would be exchangeable for various items. And the prices fluctuated.

Now fast-forward to the 17<sup>th</sup> century, and the creation of the Bank of England. It took a couple thousand years before you had experts on money—monetary theorists. The experts on money of that time said: “You know, our economy would be more prosperous if we kept more money in our country.” In England, they established laws around the philosophy of mercantilism that were designed to keep the gold in the system.

One of the reasons for the American Revolution is that there were all sorts of impediments to importing money in the form of gold into the Colonies. Benjamin Franklin, for example, wrote papers about that shortage of money. Over the years, different nations established central banks. Among the problems was that having too much money created economic fluctuations that would lead to inflation. There was either too much money relative to the available supply of goods and services, or not enough money, which led to collapsing prices during the Great Depression. When there’s not enough purchasing power, people don’t have enough money to buy the items being produced.

Now we come to the idea of what money can be. We already mentioned paper, gold, and silver. The colony of Virginia used tobacco leaves, some islands in the South Pacific used seashells, Native Americans used shell beads as a form of gift exchange. As an aside, certain American colonies, before independence, mistook the beads (called wampum) as a currency. They used wampum as money until they inflated it by overproduction.

After the United States was independent, it might surprise you to learn that the government didn’t have a monopoly on money. There were bank notes. If you put money in the bank, the bank would issue you a note, which constituted legal tender. There were hundreds of currencies. It was difficult to determine which one was good. What does “good” even mean? Is the bank good, meaning the bank will honor it? That’s one version of good. Another version is: what if it’s counterfeit? Maybe the bank is good, but the paper isn’t. Maybe somebody just printed it up. Big problem.

Over the years, because of the problem of counterfeiting, governments worldwide—it’s the way things evolved—everyone agreed that the government should have a monopoly on money, because at least one could know that the government would not be counterfeiting it, and the government would be good for it. When you look at your dollars, it says, “Federal Reserve Note” on it. So, that’s money.

So far, everybody understands what I’m talking about. That’s good, right? Except it’s not. Why is it not? Because governments routinely abuse the privilege. When they want to do something, whether it’s socially valuable, like building a bridge, or less valuable, like having a war, they just

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print up money to pay for it. If they print up enough of it, the money loses value. That's the basic problem.

What can you do? Some want to go back to the gold standard, but that has its own problems, because what if there's not enough gold? You might have a depression if there's not enough gold around. Can you go back to silver? Same problem. Can you go back to seashells? Well, what if people, with modern-day equipment can collect a lot of seashells? What about tobacco? You can grow it. Even if you took away the privilege of money-creation from the government, there is still the problem of supply. Add to that the problem of counterfeiting: How do you know it's bona fide? How do you know, with modern equipment, that people haven't created a lot of it themselves?

These are problems that bitcoin was designed to solve. The object was to create a monetary standard that's fixed in value. A computer can do that. A bitcoin is just a bit on a computer database. That's all it is. But you can fix the number that will be created. Everyone can agree that there will only ever be 21 million bitcoins. That's it. There will never be any more. Right now, there are 15.8 million. It's just a bit on a computer database that they call a bitcoin.

I referred to this gentleman, Satoshi Nakamoto, before—that's the person that they're looking for but have not yet found. You can tell that he envisaged the day when bitcoin would be very valuable, because he created a sub-unit of bitcoin called a satoshi. A satoshi is one hundred-millionth of a bitcoin. The idea was that one bitcoin eventually would become so valuable that no one would transact in bitcoin but, instead, would transact in one hundred-millionth of a bitcoin, which is a satoshi. So, Mr. Nakamoto envisaged that a satoshi would be the unit of value.

How do you know the dollar equivalent of a bitcoin? Is it equivalent to today's price of \$582, or should it be some other number? In theory, the market determines that exchange rate just as it determines the number of euros a dollar converts into. The market determines that *in theory* but, in reality, central banks intervene in the system for fiat currencies. They might want the euro to be higher or lower, and they use monetary policy to affect the value. Bitcoin was designed in such a way that the central banks aren't involved in it. It's just a bit on a computer that can be traded just as if it were paper money, except it is computer money.

**Questioner 3:**

But you said that the number of bitcoins doubles every four years.

**Murray Stahl** – Chairman & Chief Executive Officer

No, the number of bitcoins doesn't double every four years; the reward to the miners is halved approximately every four years. When bitcoin began back in 2009, the so-called Genesis Block was the first block of bitcoins ever mined. By 2011, more than 5 million bitcoin had been generated, which is about 25% of the projected total of the 21 million maximum.

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Using round numbers for simplicity, let's say that 8 million bitcoins were generated in the first four years. After the halving event, another 4 million bitcoins would be created over the ensuing four years, then 2 million in the next, 1 million in the next, and so on.

**Questioner 3:** Who's issuing them, and who gets paid for them?

**Murray Stahl** – Chairman & Chief Executive Officer

The computer issues the bitcoin, and the people who get paid are those who operate the computers in what's called the nodes. These are the miners. Calling them miners is a tongue in cheek term likening them to those who mine for gold, but these miners are mining in a database. Remember that I referred to the blockchain, which is the record of all the transactions in bitcoin that ever happened? Well, imagine if there was a record of every transaction that ever had been done with each dollar you spent, from the most insignificant transaction—a pack of gum, for example—to the largest so that every transaction with a particular dollar could be traced and verified. That's what the blockchain is. Every single bitcoin transaction is recorded in the blockchain, and anyone who wishes to can look it. A blockchain is also called a distributed ledger. Every transaction in bitcoin is appended to the ledger. And the ledger gets bigger and bigger and bigger.

A block is validated only if it includes all the work of the preceding block. It's called a blockchain because the blocks are all linked together like a chain. And that's how the size of the blockchain increases continuously.

For a block to be accepted by all the miners, a proof of work covering all the data in the block must be completed. The level of difficulty of this proof adjusts so that the rate of block generation by the network is limited to one about every ten minutes. The bitcoin network collects all the transactions made during a set period of time—let's say 10 minutes—into a list that is called a block. The miners confirm these transactions and write them into a distributable ledger—essentially a long list of blocks called the blockchain. All the miners start working to solve for the random number (called a hash) that contains a certain number of zeros—it could be something like 46 zeros. That calculation is done by the computers guessing until one of them finally guesses the number, and this process requires incredibly powerful computers.

**Questioner 4:**

If these miners get paid when more bitcoins are issued, why don't we all want to be miners?

**Murray Stahl** – Chairman & Chief Executive Officer

That's an excellent question. The miners who solve for the random number are rewarded with 12.5 bitcoins. At today's price of \$582 per bitcoin, that would be 18 times \$582, which would be well over \$7,000.

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So, you might say, “Oh, that’s great. I want to be a miner!” Well, the trouble is that to solve for a random number that includes 46 or 47 consecutive zeros requires a lot of computing power. That much computing power uses a lot of electricity and generates a lot of heat. That’s why many of these mining facilities are located in places like Iceland where there is a cheap source of power. There is no heat in the buildings because the computers generate this incredible heat, so they leave the windows open. It’s in Iceland in the winter and it’s still too hot in there, if you can imagine it.

There are mining facilities all over the world, even in a place like Venezuela, believe it or not. Don’t forget that Venezuela is a socialist country. One of the ways the government operates in that kind of socialist country is that it prints up money, just like Argentina under the aegis of Juan Perón. When the central banks of certain countries talk about helicopter money, they refer to money literally being tossed out the window. In Argentina, Eva Perón threw money out the window. They literally printed up money and gave it to people. When they talk about helicopter money, they’re not fooling around. They actually mean printing up more money to put in the hands of people with a view to stimulating the economy—a frightening concept. That kind of practice is not supposed to be possible with bitcoin.

There are miners in Venezuela because the currency of that country is losing so much value. A handful of bitcoins has enormous purchasing power inside the Venezuelan context. Of course, Venezuela has a very warm climate, so it must be rather difficult to mine bitcoin there.

**Questioner 5:**

How do you measure whether the bitcoin market is actually expanding, getting deeper and, in a sense, validating bitcoin?

**Murray Stahl** – Chairman & Chief Executive Officer

That is also an excellent question. I hope I haven’t lost you so far, even though it’s a very complicated subject. By the way, don’t feel bad because, when I first started reading the original Satoshi Nakamoto working papers, after reading two or three pages I had to put it down, because my head was spinning and I had to go for a walk. [LAUGHTER] I had more or less the same questions: What is a miner? How do they get paid? What is the blockchain? How does it work? How does it all relate? I had to read it over and over again before I began to make sense of it.

Anyway, regarding the depth and richness of the market, it’s getting less deep and less rich. Whatever the volume was, let’s say, three-quarters of a year ago—and this is my estimate, which I’m doing from memory, so I could be a little off—but, let’s just say, on a normal day in a 24-hour period about nine months ago, bitcoin would trade an average of 210,000 to 220,000 on average. On a robust day now it might have volume of about 40,000. In the last 24 hours, when I looked at it earlier today, it had traded 38,000. I’ve seen some 24-hour periods recently where it traded 18,000 bitcoins.



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The bitcoin trading volume is gradually, but inexorably, diminishing, and that market is getting less and less deep. I would say to you that we want it to diminish; we really want that. You might ask why wouldn't we want more trading volume, but we don't want it. We want less trading volume because, according to Gresham's Law, that's Sir Thomas Gresham who lived about 500 years ago: "Bad money drives out good."

Imagine parallel currencies: one is paper money; the other is gold. Let's say that you don't trust the paper money, but you're a participant in the economy so, when you have to buy something, which currency would you use? You would use the paper money and hoard the gold. Our theory about bitcoin—which could be very wrong—is that if the bitcoin is really going to have value, Gresham's law is going to operate, and bitcoin will become exceedingly rare. It will be hard to find a bitcoin to purchase. If it becomes scarce, they'll bid the price up. If it becomes easier to obtain, the price will go down.

An element that we're looking for to test our hypothesis—because that's what it is, just an hypothesis—is that bitcoin should become increasingly rare. That was our original theory. In point of fact, the price has gone up since we first talked about it. At first it went up in a fairly big way. But, we need ever more scarce trading to sustain it, and we're getting it.

**Questioner 6:**

I understand that bitcoin is a concept created by a person, and everyone has agreed that 21 million units will be the maximum number of bitcoins created. But, it's a manmade creation, unlike gold, silver, et cetera, which have fixed limits. So, what is stopping them from changing their minds at some point in the future and increasing that maximum?

**Murray Stahl** – Chairman & Chief Executive Officer

Well, in theory, they could. There's a Bitcoin Foundation, and they could do it. However, it's a little more complicated, and I've already gotten so technical. I don't want to make everybody really crazy. But it's theoretically possible. Basically, you would need a majority of the miners to agree to it. But the miners, in my humble opinion, would never agree to it, and I don't think most of the people who hold bitcoins would ever agree to it either. I don't think there would be any demand for that.

Why? Let's look at it from the miners' point of view and from the holders' point of view. From the miners' point of view, they're making tremendous investments in the computing equipment. The cost of their equipment is not going down—that's a sunk cost. They buy whatever computers they have to buy, and that's what it is. The second cost is for electric power, and that is what it is. Those costs have nothing to do with the price of bitcoin. Whatever it costs for power is a function of fossil fuels and government regulation; that's what they are.

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If they increase the supply of bitcoin, all things being equal—which the rarely are—but, generally speaking, if you increase the supply, you’re going to lower the price. Why would a miner ever vote to lower the price of bitcoin? Who would ever do such a thing? It’s not in their interest.

**Questioner 6:**

But governments expropriated gold in the U.S. Why couldn’t they expropriate bitcoin?

**Murray Stahl** – Chairman & Chief Executive Officer

Well, you’re really asking two questions, so I’ll restate them so everybody follows the questions. First, you’re asking if, in theory, governments could take it over. The answer is that they could. It actually happened, but it didn’t work too well for that government. More on that in a moment.

Second, you ask why couldn’t the people who hold bitcoin get together and decide to increase the number of bitcoins to be created. But that’s not in the interest of the people who hold it, so they’re not going to do it. Much more likely is that a government could decide to expropriate the currency and decide that there will be 21 *billion* bitcoins created, not a mere 21 million.

Well, not very long ago, they did that in Iceland. I went to there in February, by the way. As an aside, and to give you a chance to absorb everything I’m saying, I’ll tell you a little about that trip. While in Iceland, I took a tour of the Iceland parliament. Everyone there speaks English, which is fortunate, since I don’t speak any Icelandic. Anyway, I’ll share a little Icelandic humor with you, and then we’ll get back to the thrust of your question.

While on a tour of the Iceland parliament building, which is a nice building, the guide told us that it used to be the jail. The jail in Iceland is actually a pretty nice place, but that’s a separate discussion. Here’s the Icelandic humor. They said, “We turned the jail into the parliament building, but the criminals never left.” [LAUGHTER]

Now back to bitcoin. They didn’t like the idea of bitcoin in Iceland, so they made it illegal. No citizen of Iceland was allowed to buy bitcoin, even though, as I mentioned before, that country is a significant bitcoin mining center. After the 2008 financial crisis, Iceland initiated some Draconian currency controls, because they wanted to prevent the citizens from converting their Icelandic krona into more stable foreign currencies.

But guess what happened. An individual, whose Icelandic name was clearly a nom de plume (or, perhaps, a nom de guerre), introduced a new crypto-currency using the litecoin algorithm, which is nearly identical to bitcoin’s. Both are open source, meaning that anyone can download them and change whatever they want to change. You can create other currencies using these codes, and people have done so. That’s why we have so many. They change the computer code in certain ways; they play with it. That’s probably the origin of monero and many others.

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Anyway, in Iceland, this unidentified person (or persons) downloaded the code and created an Icelandic crypto-currency called auroracoin, named for the aurora borealis. They used the Icelandic National Database to access information on all 330,000 people who live in Iceland and to set up an auroracoin account for everyone in that country. A certain amount of auroracoin was created and half of it was distributed via an “air drop” as a way of stimulating use of it by the general population, which sounds a lot like helicopter money. At any rate, each Icelandic citizen had an equal chance to claim their share of auroracoin. But Iceland lacked the necessary exchange for converting the coins, so it didn’t really catch on. A small percentage ended up on foreign crypto currency exchanges and were traded for bitcoin. Recently, a group of individuals created an auroracoin foundation, with the object of reviving the currency, but it hasn’t really gained the momentum it needs yet.

The point is, you can’t stop bitcoin. What could you do? You would have to shut down the internet. You would have to close down every node in the world. The government could declare bitcoin illegal, and threaten to fine or jail every citizen who dares to transact in bitcoin, but someone could put a computer in Nicaragua, Costa Rica, basically anywhere. Who knows where a node is? You could put it in the U.S. Will they look at every node? I don’t think it’s possible.

They couldn’t even do it in Iceland with a population of 330,000. While I was there, the parliament was debating this question. One of the two parties said that they just didn’t like the idea of the government not having control of the currency because, ultimately, that control gives the government its power. After much debate, they agreed that the only way to stop crypto-currencies in Iceland would be to make it a police state. They’d basically have to search everyone’s computer constantly. You could never have a free society with that kind of regulation. Basically, they abandoned the whole confiscation project. That’s what happened in Iceland. So, I don’t believe it’s possible to accomplish it here.

**Questioner 7:**

Thank you again for your hospitality, and thank you to the board and your teams for all the hard work you guys are doing. I’ve been an FRMO shareholder for 15 years. In some sense, FRMO’s investment in Horizon Kinetics means that FRMO is affected by the asset management company’s need to raise assets. To what degree does the kind of marketing you described earlier work? Are you going after another vertical within the institutional market to try to gain assets, either for the hedge funds or just the asset management company? Are there other approaches you’re considering?

**Murray Stahl** – Chairman & Chief Executive Officer

I’m glad you asked that question. There are many things we’re going to do. Just so you know, you might recall that seven or eight years ago, we brought in professional management. The idea was that Steve and I would just do investment work, and we’d spend more time with our families. It sounds like a great idea, except that it turns out, in practice, it’s our mea culpa. If the idea is to

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raise money, Steve and I are the best people to explain what we're doing, so we have to be out there. For the last few years, with some rare exceptions, we just weren't out there enough.

Prior to 2008, we would have six, seven, or eight months of underperformance. Usually, we'd underperform when central banks stimulated the economy. The leading companies in the index would outperform, because they would be the beneficiaries, not that we didn't get a little benefit. But our stocks wouldn't really rise in value to the extent the market would. Then the economy would be deemed properly stimulated and the government would cease its activity. Then we would return to our normal posture.

But that's not the way it worked during the last seven or eight years, because it has been ceaseless stimulus. We've written about this topic. It's not as if the leading companies are growing their revenues. It's not even that for four quarters in a row, their earnings have gone down, even as their stocks go up.

We have a real problem, but it is not the asset gathering; it's a moral problem. Do we buy those companies, even though the earnings are going down? We write about these companies. I won't mention the names now, but I've written enough reports that I could show you examples of leading companies whose earnings are going down, but their stock prices are going up. Do we buy those just with a view to outperforming? Would we be fulfilling our fiduciary obligation? Even before we get to a fiduciary obligation, there's an issue of ethics and morality. Our reputation means something to us. To us, it is more important than the assets under management. So, should we be doing that stuff? It wasn't difficult for us to decide that we would not do that. In the long run, our reputation is worth more than a few billion dollars of assets under management.

Getting back to asset gathering, with the occasional odd exception, we weren't going out and explaining our position. It's only recently that we've started doing it again. To that end, not many weeks ago, I was a speaker at a conference. I'll tell you an anecdote about it. My colleagues had arranged for me to speak at this conference, and it was the first time I had done that in quite a long time. I was something like the next-to-last speaker, in a very nice place, on a beautiful day. The conference had nearly ended and, as is normal, some people wanted to go home early, and others wanted to enjoy the nice weather and whatever. So, my colleagues were apologizing to me, because there were not many people left in the room. I was standing at the back of a room, not unlike this one, waiting for the prior speaker to finish. They were apologizing to me, and I was saying, "Don't worry about it."

Anyway, as the prior speaker's presentation came to an end, people started walking in. As they were walking in, many of them came up to me, shook my hand, and said hello. When my colleagues asked me who they are, I said, "I don't know who they are." Well, I did know some of them. And by the time I went to the podium, there was actually a fairly dense audience. I attracted a crowd. So, it's our mea culpa that we haven't been out there. We just didn't do it enough. Maybe we had a nice vision of how our life was going to be, but now we see that we have to get out there. It's just part of it.

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We have some interesting items to talk about, especially with regard to the funds. People call them hedge funds, but they're not really hedge funds. I talked a little about this in the shareholder letter, so maybe I should go into it in more detail. We don't want to be hedge funds. The basic idea of a hedge fund goes back to the Alfred Winslow Jones model. The model doesn't work in the way you think it's going to work.

The idea is very simple. You have a certain allocation of securities long; let's make believe it's \$1 million long. You buy whatever you buy. Then you sell short \$1 million worth of securities. In theory, you're market-neutral with \$1 million long and \$1 million short—easy to understand. Since this approach had such great performance in the past, why doesn't it have great performance now? There are thousands of hedge funds, and one is worse than another. It's gotten to the point that it's almost a dirty word—you can't even mention the words "hedge fund."

There's a structural problem with hedge funds. I'll make up a number to illustrate the point. When rates were, say, 10%, if I sold short \$1 million worth of stocks I received interest on the proceeds of that short sale. If I earned 10% on \$1 million, that would be \$100,000. I might get 75% of that, or \$75,000. Let's say the market went down 10% and I'm a rotten stock picker, so my shorts went down 9%, and my \$1 million in longs went down 11%, the difference between 9% and 11% is 2%, so I'm already at negative 2%. But I made \$75,000 on the \$1 million of capital and interest. So, negative 2% plus 7.5% is 5.5%. The market went down 10%, and we would have a fund that's up 5.5%. Geniuses! And the fund would raise more money. Wouldn't you know it, the fund would charge the outrageous fee of 1 and 20. All was great with the world.

However, if you make the interest rates zero or negative, structurally, that hedge fund strategy can't work, because the securities lenders have to make something. They're not making money on the float, so they charge you to borrow anything. That's a huge problem.

By the way, the following doesn't apply to us but, to the extent that hedge funds use leverage—because to make these things work, they need big exposures—brokerages put all kinds of restrictions on them, which reduces their flexibility to trade. That includes restrictions against margining the shares of smaller or less liquid companies. If you're long something and short something, whether you're long or short, the brokers don't want you to have a security with limited liquidity, because what if the long doesn't go up but the short does go up? Since the short has infinite liability, the brokers want you to be able to close that position within any given trading day.

That situation has created a class of securities that we call "off-index." It's not merely that these less liquid securities can't be included in an index; it's that they're not marginable. From our point of view, we believe that it's a good thing that there are certain securities that are not marginable due to their lack of liquidity. As a result, they trade at preposterously low valuations.

The hedge fund has new life, not as a hedge fund but as a partnership that will buy securities with extraordinary valuation characteristics and very good fundamentals. This kind of partnership just has to meet the right buyers, so we have to get out there and find them. We have to get out there

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and explain it comprehensibly, and Steve and I, and our colleague Peter, we're the three people who have to do it but, for the last few years, we weren't doing it enough. So, there's actually a unique opportunity.

Until now, apart from bitcoin, in my remarks I've been more on the tapering of expectations, but now I'm being a little more, let's say, exuberant. The opportunities are extraordinary. In the past, let's just say we found a group of garden-variety securities that you could buy a lot of. We found them; we're geniuses; and we're buying these things. You know what would happen? We would write in the shareholder letters that we bought securities A, B, and C and how wonderful they are. Then very, very quickly, we would be emulated, and the opportunity would disappear.

With our new approach, they won't emulate us, because our approach is different from the traditional idea of asset management, which is to raise as much money as possible. But there are two ways of raising assets. You can raise assets by getting people to put a lot of money in your funds, or maybe you raise less money, but the value of the assets under management increases greatly.

As a test, we tried it in the month of February. I referred to this a bit in the shareholder letter, but I'll go into more detail here. There was an opportunity in distressed bonds. These bonds were in danger of bankruptcy, and a number of them did go bankrupt. We wanted that to happen. We basically set up an account for any client who was interested—it wasn't even a fund—which we describe as a philosophy. We can do whatever we like; we're just setting up an account. Here's this portfolio of bonds that we're going to buy, and a good portion of them will go bankrupt. We knew they were going to go bankrupt, and they did actually. Hedge funds can't hold securities that are on the verge of bankruptcy; they won't do it. And even if they want to do it, these securities are not marginable, in other words you get what's called a haircut on what you can borrow, and the haircut becomes 100%. The brokers won't lend you any money against them. No one will have it in their portfolio, because it impedes their ability to operate on a hedged basis. In principle, that gives you a margin of safety.

For these distressed bond accounts, we decided to charge a fee of 0 and 20; in other words, 0% management fee, 20% performance fee. It didn't take very long before the portfolio went up a lot, and we got the performance fee.

The management fee is another problem. If you want to be more opportunistic—and there are some securities you can't immediately buy—you're going to have to hold a high cash balance. People understandably resist the idea of paying fees on cash balances. But apparently they were happy to pay a 20% performance fee—20% of profits which, actually, if you're very profitable, is much higher fee than a management fee. At least from the investors' perspective, the manager is paid for results.

So, we tried it and it was very successful. Now we're engaging in similar strategies. We're buying securities that are really quite interesting. We just have to find and talk with the people who, like us, will find them interesting. And that job has to be done by Steve, Peter, and me. And we're going to do it.

**Questioner 8:** What behavioral biases exist in your investing, and to what degree can you control them?

**Murray Stahl** – Chairman & Chief Executive Officer

As a generalization, it's extraordinarily difficult to recognize if you even have a bias, because it's hard for human beings to look at themselves objectively. While we try to do that, we don't always succeed.

Our bias has always been to move away from the crowd, which can be good, but it can also be bad. It's good because we like to think we're providing a unique service, but it can be bad in the sense that the amount of money you can raise is limited. Occasionally, there might be real opportunities in liquid securities, and you have to overcome the presumption that a liquid, pedestrian, ordinary security doesn't necessarily offer an investment opportunity, because sometimes it really does. We have to fight against that bias, and it's not so easy. It's simple enough to get the information about a security, but when you're accustomed to doing something in a certain way, you can get set in your ways, and it's not so easy to do it a different way.

One of our favorite investments is a prepackaged bankruptcy. Why is it one of our favorite investments, as opposed to pedestrian securities? Because, before the company goes bankrupt, the holders of the bonds and the company agree that they're going to file for bankruptcy and how it's all going to work out. Therefore, the judicial process is a formality.

If you know what you're going to get, you might think that's a really good thing. And it is, except that there's a dark period after the Bankruptcy Court approves a bankruptcy. Even though everybody is in favor of the terms, it takes time to issue the new securities and withdraw the old ones. There might be several weeks during which the securities won't trade at all, so the dark period could last a month or two.

As an example, we have one right now that just came out of a prepackaged bankruptcy, and we're supposed to get three securities, but they gave us two so far. We haven't yet received the third one, even though it's acknowledged that we're entitled to it. In this instance, we are waiting for warrants. For every bond held the owner is entitled to a certain number of warrants, and that number is carried out to something like six decimal places. This distribution is delayed because the lawyers are disputing the fifth or sixth decimal place. In our fund, this probably amounts to a \$25 difference. So, it's either we win and get another \$25, or we don't win and we get \$25 less. I have \$25 in my pocket and I'd be glad to put it in the fund and have it booked in. But they're not going to do it. And that's the bias.

We like to focus on investments like that. Although there are structural reasons why someone would want to invest in a large-capitalization security, they are not necessarily always on our radar screen. We try to have our analysts focus on it and remind us of such things but, at the end of the

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day, we're human beings, and we're flawed. As I said, we don't have a monopoly on wisdom, and it's hard to overcome biases

**Questioner 9:** Over time, whether in this meeting or in a webinar, you have spoken about a few investments that you've made. I'm wondering if you've added to any of those securities. Steve, you've spoken about Silver Wheaton when it was about half the price that it is today. I'm wondering if you could give us an update on your thoughts on that one specifically.

**Steven Bregman** – President & Chief Financial Officer

Silver Wheaton is more expensive than it used to be. You can get into a slippery slope issue. So, let's say something was trading at 8x the earnings and free cash flow that it is expected to have three years from now when production from various contracts it purchased and the mines behind them ramped up production. Then that security went up to trade at 12x, and then even higher than that. For me, on an account management or fund management basis, it reaches a certain point at which I wouldn't buy it for someone new.

On the other hand, I continue to hold it where I hold it. And I could try to be cute about it and sell it, but then the client would lose, let's say, close to 30% of the gain to the government. So, why should I really bother? The ROE remains high, and the production will be what it will be. The price might rise; it might decline. There are reasons why the price might rise.

In that particular case, I don't buy any more, but I don't sell what I have. If I had few enough individual accounts that owned it, I might do something like buy a free collar with it where I can sell some call options or buy some put options. But, if you have too many accounts or too much money involved, it becomes a little unworkable.

**Murray Stahl** – Chairman & Chief Executive Officer

Here's one from me, and it has a story to it; not just a story of the company, but a story in relation to me. The name of the company is Siem Industries. It's usually involved in two industries, shipping and oil service which, as you know, are both basically in a depression. Those industries are characterized by feast-or-famine recessions, which can be brutal. At the moment, they're very brutal, maybe the most brutal in 40 years.

However, the company has remained consistently profitable, despite the severe depression in its industries. In the last 10 years, the company has quadrupled its shareholders' equity. In some years, it makes more money and, in others, it makes less money. You have to say it's done an outstanding job. At the moment, it trades at 40% of book value—which we personally think is ridiculous—and the book value is growing. But that's neither here nor there. Siem Industries is one of those securities that are off-index and not marginable. Perhaps that affects the value; at least, you could argue so. But a lot of the book value is from marketable securities that actually do trade, so you can value them. It's not a subjective exercise; there's a market value, which is arguably depressed. Anyway, that's an aside.



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To show my colleagues the way the world is right now, I undertook to buy 12 shares of this \$50 stock for my personal account. I just wanted to show everybody what would happen. The brokerage firm—the name of which shall go unmentioned, though you can probably guess what it is—refused to let me buy this security. I could not buy \$600 worth. The reason given to me was that the brokerage firm in question has a policy that does not allow anyone to buy shares of a company that does not report financials to the public.

I objected, saying, “First of all, they do report financials to the public, and the financials are audited by PriceWaterhouse, which is one of the big accounting firms. So, you should let me buy this security.” They said, “No, the financials are not reported to the public.” I said, “If I can show you financials, signed by PriceWaterhouse, will you accept that?” And the answer was, “No, we will not.”

Their definition of reporting to the public is that the financials must be available on at least one of the following three databases: SEC, Bloomberg, or OTC Markets (formerly known as the Pink Sheets). Siem Industries is actually a Norwegian company so it’s not required to file with the SEC. The financials are not available on the Bloomberg databases, and it does not trade on the OTC Markets platform. FRMO trades on the OTC Markets platform, and its financials are available on the exchange’s website. We pay a certain amount of money for that, but it is not a lot. Siem, which is a bigger company than FRMO, chooses, for whatever reason, not to pay the few thousand dollars to OTC Markets for that level of reporting. Therefore, from the point of view of this brokerage firm, the financials are not available, because they are not posted on one of three specific sources, and they won’t let anyone buy it.

I would argue that those restrictions affect Siem’s valuation. It doesn’t mean it’s not a good investment. It could be a very good investment. But that’s the way it is. In the world of oil services, I think it’s the cheapest stock there is, with the highest quality. There are many oil services companies that trade above book value; quite a few, actually.

**Questioner 10:** You mentioned Miami International Holdings in the shareholder letter. If I read it correctly, one of the attractions was its technology, but that’s as far as the issue went. You said it had just over 7% of the options market with 3% growth, which seems like a slow growth rate. Does that indicate that the technology is slow to be adopted, or am I reading too much into it?

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**Murray Stahl** – Chairman & Chief Executive Officer

At the moment, that actually is the growth. Those statistics come from the company. I rounded it to the nearest percent, but those are the growth numbers.

Investing in options exchanges is for investors who really want to control portfolio variability, because it's impossible to do it using the current accepted strategies. The way it's being done is to mingle either different securities that are called asset classes, including small-cap versus large-cap, or international versus domestic, or developed markets versus non-developed markets. You'll see it in any of the robo-advisor databases. They'll create a portfolio that's purported to be diversified, except they're all correlated. Even the bonds are correlated to the stocks.

If you want to examine a portfolio from a behavioral stand point, in other words, you want it to act in a certain way, you can't achieve it the way it's being done. The reason is that all securities trade off interest rates, and all the central banks in the world have more or less the same interest rate policy, so it's not executable.

If you wanted to create a floor under a portfolio, you could do it with options. For example, you could buy a certain number of securities, or an index, then you could sell a call option and buy a put option to create what's called a collar.

The index world is not going away, and the only way to control portfolio variability, if that's the objective, is to use options. At the moment, there's no need to use options, because there's no reason to control portfolio variability. Why is there no reason to control portfolio variability? Because, the lower they make interest rates, the more securities will go up in value. But they can only carry that strategy to an extreme and then no more. At that point, we might be at zero interest rates.

We're preparing for the future. It's not like we're looking at history. By the way, historically, in the 1970s, there wasn't even a true options market. It was just an over-the-counter market, and a handful of people transacted in it. Now, it's a big market. It's just that the growth in the options market comes in fits and starts. You get some growth, then the market turns its attention to other matters, and then you get more growth.

We anticipate that if investors really want to control variability, it will have to be done through options, and we want to have some participation in that. One way to accomplish that is through Miami International Holdings and its Miami Options Exchange (or MIAX) which, some years ago, didn't even exist. They had zero market share. It's a brand new exchange, and they started with zero market share. They built it in the face of established options exchanges, and that's an accomplishment of sorts.

Well, it looks like we are out of time. Thank you all for coming. That was a spirited round of questions; you gave us a good workout. I hope we explained, to the best of our ability, what a bitcoin is. I noted, from the questions, that you seem very interested in it, at least as an audience.

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We'll try to write more about it, and maybe we'll even put some information on the website and engage in a little public education. Thank you for your questions and for being shareholders. We look forward to doing this again. Thank you very much.

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