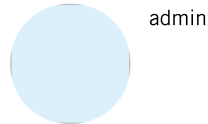




PERSPECTIVES

The Disruption of Money

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The rapid rise of cryptocurrencies has ignited a debate about the fundamental nature of money and the future of traditional banking and financial services. While speculators have been flocking to virtual currencies with intense fervor, professional investors have largely taken a more cautious approach.

Roger Bayston, senior vice president, Franklin Templeton Fixed Income Group; Austin Trombley, vice president and data scientist, Franklin Templeton Fixed Income Group; and Anthony Hardy, research analyst with Franklin Equity Group, recently took part in a panel discussion on the topic of the disruption of money. They discuss how digital currencies work, how blockchain technology has the potential to impact many facets of our lives, and how they feel about the investment case for this rapidly changing space.

Here are some highlights of the podcast:

- The media has been largely focused on the price of digital currencies like bitcoin. But what gets lost is the true innovation they represent.
- Early movers in technology are causing disruption that is impacting other industries. This is happening irrespective of people's opinions about the values of the various cryptocurrencies that have become popular.
- The pace of technological change could be much faster than most of us can process. It's worth paying attention to what's happening within the area of cryptocurrencies and how these technologies disrupt businesses in many industries—and the investment case for them.

Tune in to our latest "[Talking Markets](#)" podcast and hear more. A full transcript follows.



TALKING MARKETS WITH FRANKLIN TEMPLETON INVESTMENTS

Host/Richard Banks: Hello and welcome to Talking Markets with Franklin Templeton Investments: exclusive and unique insights from Franklin Templeton.

I'm your host, Richard Banks.

Ahead on this episode, we focus on the disruption in money and the development of cryptocurrencies. Here to discuss it all are some of our research analysts and portfolio managers who are studying this space. We'll hear from Roger Bayston and Austin Trombley from Franklin Templeton Fixed Income Group, and Anthony Hardy from Franklin Equity Group. Leading the discussion is Franklin Templeton's Kristina Landgraf. We hope you enjoy their conversation.

Kristina: Crypto assets have grown over the past year, and as we talk about technological disruption in this area, how do you think about that as an organization and how does that feed into your investment process? Roger?

Roger: You are right. In the area of money, specifically in the rise of the popularity and the wider distribution of cryptocurrencies over the past 12 months, kind of represents the theme that we have seen across the economy for a number of years now—the disruption that early movers in technology are impacting other parts of industries. We are going to see this, certainly in financial services, and in the concept of money as well. And, it is happening irrespective of people’s opinions on the values of the various cryptocurrencies that have become popular, including bitcoin. Irrespective of that, we know that because there has been so much value created in the space that there will be a lot of business models that will come together, and they will be funded in order to continue to disrupt businesses that have higher margins. Financial services tend to be one of those. Everything related to money and what financial services do—we can expect there can be a lot of disruptive changes as a result of these technological advances.

Kristina: So when you say disrupting money, what exactly does that mean?

Roger: Money is essentially a medium of exchange, and, all around the world, governments have had the responsibility for creating these currencies within their geopolitical boundaries to facilitate medium of exchange. And we would call that fiat money. What we’re learning is there are other things that people place value on for which they may exchange goods and services, and I think that’s the general category of the cryptocurrencies. They are not established by any particular government, but their wide usage and adoption—especially by another generation of potential consumers in the economy that already have less familiarity with cash and coinage and do have familiarity with electronic payments—is just a further step of confidence that those consumers in the economy are going to use [these new currencies] in order to exchange goods and services.

Kristina: Anthony?

Anthony: I think it’s important to note that this whole thing started about a decade ago with a white paper about a peer-to-peer, digital cash payment system, but over the past decade, people have realized that this underlying technology has a ton of applications, not just in financial services and payments, but in other industries such as health care, supply chain and so on. So, I think it is important to note that this is a potential technology that’s not just going to disrupt payments in the financial services, it’s got broad applications.

Kristina: Austin, do you want to jump in here?

Austin: If you look at one of the more margin-rich companies as well, it’s traditional plastic like Visa and MasterCard, and they have taken a really hard-nosed stance towards cryptocurrencies, because I think they know just how disruptive it will be. A lot of merchants are paying to the tune of up to 4% just be able to accept traditional plastic at the point-of-sale systems, and I think if you look at a lot of the other mechanisms that could facilitate that asset exchange, as Roger said, you could do that with a lot of cryptocurrencies exponentially quicker and cheaper.

Kristina: Right, we have this whole new generation here that probably has never written a check and maybe doesn’t even work much with cash. Can you give us some examples of uses and applications of some of these new forms of currency that maybe we aren’t even seeing yet?

Austin: Sure, and I think this harkens back to a lot of the regulatory bodies that are coming out with opinions about this because the cryptocurrencies can manifest themselves and represent many different things. And I think that's why you see the IRS [Internal Revenue Service] says that it's actually considered property, the Treasury Department considers it money, the CFTC [Commodity Futures Trading Commission] considers it a commodity, and the SEC [Securities and Exchange Commission] considers it a security. So, right now, you could call it anything but a zebra, and you'd probably be right.

Kristina: So we have all heard of bitcoin, but there are potentially thousands of these other sorts of cryptocurrencies out there. Can we get back to the basics and kind of explain what a cryptocurrency is and how they differ?

Austin: Sure, so I think when it started, cryptocurrency was more of a protocol for how you try to achieve consensus in a distributed fashion. If you look at what it is today, it still runs off of proof of work, and transactions take a really, really long time. Each block can only have 15 to 20 transactions in it, so it's really, really slow. And it started in the dark net as a form of payment, and if you really think about it, that's actually the perfect breeding ground for bitcoin and blockchain to start because where else do you need to enforce trust with nefarious individuals than on the dark net? And so, it started there.

Kristina: So how should investors think about bitcoin and some of these other cryptocurrencies?

Anthony: I think for the cryptocurrencies that will survive—and there are over a thousand at this point—probably some or most will fail. But I think, looking out a decade, the ones that will survive will have a particular use case where there is value added by applying this technology. And just kind of taking a step back just to think what are the main problems that this technology solves, and why this space is even interesting. This was formed during the middle of the [global financial] crisis and the two big issues were disenchantment with banks, [where] you see these payment providers taking big rents, and there had to be a trust intermediary in transactions. And then, disenchantment with governments. I mean, think about areas outside of the United States that have high inflation rates, if you are a consumer there, in an oppressive regime, you want a way to have more control over your assets and not be at the whim of governments, so that's kind of how it all started. And if you look at how bitcoin was built, it originally helped solve those problems.

Now moving forward—Austin touched on some of these things—disenchantment with big technology companies, you know, the internet has become centralized, VCs have a lot of control over innovation. But at a high level, I think it's important to focus on those underlying drivers because much of the conversation that you hear is just about price, where is it going, and these underlying drivers are lost very often.

Roger: To add a comment that Austin brought up about trust—transactions on the dark net where people don't know each other, they have to find a basis of trust in order to do their transactions. That holds not just in the dark net part of the economy but in the regular part of the economy, and that's why regular currencies—the US dollar—had gained so much obviously wide acceptance. Now, you know, there was a time when the US dollar was backed by actual gold reserves. It was a demand note against the Federal Reserve Bank somewhere that you could translate it into gold. As long as people have trust that they can exchange it for goods and services, then it just becomes another medium of exchange.

The question is whether people can value those different currencies against one another in order to determine what their value would be. So, it's probably a logical extension—it would be a dramatic growth in marketplaces where currencies can be exchanged versus one another similar, to the foreign currency market that exists globally, which is, by the way, the largest market in the entire world—foreign currency transactions, trading currencies against one another, or exchanging them one another for different economic entities around the world—to be able to facilitate the transactions that they are trying to do in their local jurisdictions.

Kristina: So it's interesting, these cryptocurrencies developed because sort of lack of trust in government or official systems. Yet, we sort of need regulations of some kind for investors to feel a little more comfortable with them. Would you agree with that, and how do you view them than as an investor when it's a little bit of the Wild West at this point?

Roger: Well, I think the regulatory agencies historically, in whatever form of capital that gets raised, have always been more reactionary and develop the rules after the innovation has already occurred. So, I would imagine that's going to be the next extension of what happens as wider adoption continues in the economy and as legitimate businesses use these protocols in order to advance their economic interests.

Austin: And I think a good history lesson here, as Roger said, the regulatory bodies are typically lagging, and they try to catch up after the fact.

Kristina: Can you share with us any possible unintended consequences that you see in this disruption of money whether it applies to these cryptocurrencies or blockchain that you have encountered in your research?

Anthony: We talk a lot of the questions focus on bitcoin as a payment. Again it was started as a peer-to-peer payment system, but right now it seems like the use case has been as a store of value rather than the payment system. You have seen transaction costs increase given the volatility; it makes paying everyday things using bitcoin more challenging. So in terms of unintended consequences, again the way I think about it; it started out as a payment system, and now it's a digital store of value. You might see other cryptocurrencies fill that payment need, and we will probably see thousands of these be created. Then the other one is—again I think important to touch on the fact that there are almost two different worlds in the blockchain space. There is the permission list—bitcoin, Ethereum, public blockchains—and then there is a whole other ecosystem where established financial institutions, kind of the traditional market if you want to think about it that way, is trying to apply this technology but in a different way using private networks where you don't need the same trust because these banks will know each other.

Kristina: Can you explain what blockchain is and how this differs from cryptocurrencies?

Anthony: Probably the easy way to think about it is decentralized distributed ledger that records transactions. I mean, at the end of the day, we are really just talking about a shared record system, but it solves a real problem especially within financial services where you have multiple parties trying to track the same transaction. If you think about trading a complex financial instrument, there can be 20 banks that are each maintaining their own ledger of this transaction, they have to reconcile with each other. It requires people, sometimes faxes, emails. Basically, with a blockchain it's a shared ledger where each of the banks can have access to this one single source of truth and that reduces all of this reconciliation that's needed. So this concept of having one source of truth shared among different parties is extremely powerful and again has applications not only within financial services but other areas of the economy as well.

I mean, there are interesting companies out there that can track diamonds to make sure that conflict diamonds aren't being inputted into the economy. There are potential applications within health care, managing records. There are applications within insurance about smart contracts where you can program what happens if a certain event happens that can automate a lot of the processes. And to be honest, every week people are dreaming up new applications with this technology, which is one of the reasons why it's so exciting.

Austin: There's a cell phone that's based on blockchain as well.

Roger: Think about how long it takes to settle a trade in real estate and all the paperwork that's involved and trying to transfer that title from one person to the next. Seems like there is massive inefficiency inside of that. With this distributed ledger that we are speaking about, that's a source of truth that starts solving a lot of problems where there are a lot of inefficiencies.

Anthony: Kind of going back to this view of—there are public blockchains and private blockchains. I mean, the two biggest and most interesting ones right now are on the public side, the bitcoin blockchain and Ethereum blockchain. Bitcoin can be a store value in a way to transfer bitcoin between two people. Ethereum is kind of this decentralized supercomputer where you can run these smart contracts, which has an infinite amount of potential use cases. That is extremely interesting. Going to the private side, again if you are thinking of 12 banks that typically do the bulk of trading or transactions in a specific asset class, you can create a network, there's no need to kind of link to this public network. That can still be a very interesting use case. It allows banks to reduce cost, reduce the capital required to put up against these trades. So I think we will probably see more public blockchains, and we will see more of these private blockchains being applied.

Roger: I think, with regard to the general financial institutions, I tend to believe that a lot of these technologies are potentially going to reduce their costs of doing business quite a bit. So I think publicly traded companies who have incentives to constantly cull out costs and expenses and replace them with higher productivity and more efficiencies in their system. There is a lot of incentive for that to happen, so I see these disruptions as potentially being pretty positive for some stocks in general. I think on the fixed income side of things, where you may be a debt holder in a world that has got a lot of change, disruption, reorganization, the words reorganization and being on the other side as a bondholder don't always end up being a positive experience for bondholders when reorganizations happen. So I think this disruption means a lot of reorganization in financial services, in payment systems in general, that's just where you want to be as an investor inside of those to take advantage of it—that's going to be a really important thing in the next several years.

If you think about disruption in other sorts of industries, you can think about the concept of social media replacing regular media. While Facebook is a behemoth company with thousands and thousands of people, they have a fraction of the number of people that had been historically employed in mainstream media and they are capturing the eyeballs that people used to have, whether they came home from work and open up their evening paper, reading the paper, or watching their favorite newscaster on the evening news. Now those actual eyeballs are split in time doing something else. So the disruption is clear and it will replace and disrupt a lot of people in the economy that's for sure.

Austin: I think you can see a lot of really brilliant minds that are very forward-thinking, like Elon Musk, already proposing that we need to cut the work week back to 30 hours or 25 hours in order to keep full employment, because we can all create a lot more value in a lot more automated way with the way that blockchain will empower us.

Kristina: Why do you think investors should take disruption of money and these themes we are talking about seriously, and is there anything that you think the media might be missing in the discussion?

Anthony: A lot of the media is focused on where is the price going, are these things real or not, and what gets lost is kind of the true innovation, again these two drivers that we tried to highlight. The way I think about it, is the fact that this is probably not going to be a linear adoption of these things, we are probably going to see a period of time, it could be three years, five years, 10 years, where companies are figuring out the best way to use these things. So we might not see game-changing applications within financial services for the next few years, but the companies that aren't thinking about it properly now are going to be at significant risk for disruption in five years.

Roger: Harking back to the days when the dotcom boom was first started and everybody was thinking about the valuation of these companies that were just growing up overnight and always the question was about the valuation, are these companies overvalued or not? But lost inside of that was a fact that simply because it was occurring there was going to be a lot of other businesses who said, "I want to do that. I want to get those outsized gains," and so they began to develop another generation of businesses behind that. I think that's exactly what we are going to have happen here. We are going to see because the valuations of these cryptocurrencies went from practically nothing to be very robust that there is a lot of innovation happening that will lead to deeper disruption across a whole number of industries because of what's happened here in the last 12 months. And so I'm a little bit of believer the pace of change of technology will be much faster than most of us can process. And, as a result of that, you better be paying attention to what's happening here and how these technologies disrupt businesses that you may be currently invested in, either in the equity side or as a potential lender, because I think this is going to have ramifications for a number of different businesses in the industries in the immediate future.

Kristina: So clearly there are going to be a lot of winners and losers in this whole area, can you talk about that from your point of view?

Roger: I look at it from the fixed income perspective, and I think about credit. I think over the past 10 years, due to the zero-interest-rate policies by the global central banks, we have had a massive amount of debt issuance that's occurred as investors had been encouraged to go out the curve or down the credit curve in order to seek income, seek yield. And what I get concerned about is that this massive disruption could potentially result in reorganizations of a lot of industries, and if you're in the debt side of that transaction, and something has been reorganized, generally you need to be really concerned about protecting your interests over time. I think there are a lot of winning opportunities on the equity side because a lot of these technologies serve to reduce costs. I think as an owner of a company you have more flexibility to be able to interlay lower costs in the products and services that you are offering out in the economy. So I think of winners and losers in that concept as opposed to individual companies. How we are focusing our research efforts to avoid on the fixed income side and being lenders effectively out into the economy about what the disruption and the changes it applies here means to these established companies that may have a lot of debt outstanding.

Austin: I think that any middleman business is going to go away really, really quickly; anything that serves as a middleman is going to find themselves out of business.

Anthony: What's a little bit ironic is that, this whole ecosystem started as a way to disrupt banks, and in a way, they might be one of the big winners from this technology. They support a lot of headcount, a lot of cost related to post-trade processes that could go away, so there is a realistic scenario where banks were able to save tens of billions of dollars annually because of this technology. To Austin's point, it's important to look at the intermediaries. You know, if you're an intermediary that is capturing more value than you're putting into the ecosystem, you are probably going to get disrupted. And so, one of the things we do as we are assessing investment opportunities in the financial ecosystem is, again, trying to understand how serious are they taking this technology. And really, the big question is going to be, are the existing intermediaries going to find a way to maintain their place in the ecosystem but manage their existing processes using a blockchain? Or, is someone else going to come in and replace them? I think that's an important question that we'll see how that plays out.

Roger: We know in the United States that there are far more banks than there are in a lot of other countries around the world. That's just one observation. But another one is that post financial crisis, the government had an idea that the banks should be more like utilities. They should be there to function to allow the economy to operate—the extension of credit, the availability of credit when money gets turned off, the economy shuts—and so I actually think that banks might be getting a pass to be able to develop using these technologies to bolster their economic utility to the rest of the economy as opposed to being disrupted away. Just because we made that decision post financial crisis that we weren't going to allow Wall Street investment banks to become proprietary trading desks, but we were going to make sure that they had their lights on and we are functioning so that American business could continue on a global scale. And so it wouldn't surprise me that some of what happens within this technology gets embedded within our current banking system in a deeper way, and there is more adoption there as opposed to it being something that totally makes current financial institutions become obsolete and go away. More likely that they will adopt and morph using these technologies as opposed to what they may be used in the past.

Kristina: So what might some of the hurdles to this adoption?

Roger: I think some of the reflections of the elections around the world have to do with dissatisfaction from people who may have had a lifestyle that existed in the 1970s that no longer exists as a result of a lot of these changes that we are talking about, so I think that's potential ramifications that could stifle.

Austin: Just the coordination, particularly with a new emerging technology, so I think as the technology continues to improve, kind of fixing some of the scalability or privacy issues, what have you, that will help with this coordination problem, but that has been a hurdle so far. There is kind of still TBD on the regulatory front. So far, regulators, overall, I think have been open to blockchain as an option within financial institutions, but obviously, for understandable reasons, they want to be careful. We are seeing them crackdown in other parts of the market, look deeper into ICOs for example, so I think we do need some more regulatory, legal clarity around the smart contracts.

I think the volatility of the underlying assets could be a huge hurdle, and re-education. Going back to school—five years from now, is that too late to go back to school and get caught up? I don't know, that's really tough, that's going to be a hurdle.

Yeah, I think more wide use would help too. Right now, it's really, really hard for me to spend my bitcoin at a point of sale system, to purchase a good. So I think usability and fungibility would start to cause widespread adoption. I also think right now bitcoin and some of the cryptocurrencies are heavily held by a couple of very, very big wallets, and to the extent that I think you can spread those assets across broader nature of wallets could really, really reduce a lot of the noise.

Kristina: Thanks everyone.

Richard: That's it for this edition of Talking Markets with Franklin Templeton. Thanks to all our contributors. If you enjoyed their insights and would like to hear more, check out our archive of previous episodes and subscribe on iTunes, Google Play, or just about any other major podcast provider. So until next time when we uncover more insights from our on the ground investment professionals, goodbye!

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All investments involve risks, including possible loss of principal. Buying and using digital currency carries risks, including the loss of principal. Speculative trading in bitcoins and other forms of cryptocurrencies carries significant risk. There is also the risk of fraud related to companies claiming to offer cryptocurrency payment platforms or other cryptocurrency-related products and services.

Blockchain technology is a new and relatively untested technology and may never be implemented to a scale that provides identifiable benefits. Investing in cryptocurrencies is highly speculative and an investor can lose the entire amount of their investment. If a cryptocurrency is deemed a security, it may be deemed to violate federal securities laws. There may be a limited or no secondary market for cryptocurrencies.

Stock prices fluctuate, sometimes rapidly and dramatically, due to factors affecting individual companies, particular industries or sectors, or general market conditions. The technology industry can be significantly affected by obsolescence of existing technology, short product cycles, falling prices and profits, competition from new market entrants as well as general economic conditions. The technology sector has historically been volatile due to the rapid pace of product change and development within the sector.