

Bitcoin, Cryptocurrencies and Blockchain

A Technology and Financial Services Sector Report

Edward Jones' Policy on Cryptocurrency:

- We continue to believe cryptocurrencies are highly speculative.
- Edward Jones does not offer a way to purchase or hold cryptocurrencies, or futures contracts on cryptocurrencies.
- Edward Jones does not offer a way to purchase cryptocurrency-related funds, ETFs or ETNs that own cryptocurrencies directly.

Companies mentioned in this report:

Meta Platforms Inc. (formerly Facebook) (FB - \$331.62; BUY)

PayPal (PYPL - \$230.38; BUY)

Visa (V - \$208.10; BUY)

MasterCard (MA - \$329.43; BUY)

Tesla (TSLA - \$1,213.86; HOLD)

Prices and opinion ratings are as of market close on 11/03/21 and subject to change. Source: Reuters.

For more information:

Individuals can obtain the full research report with full disclosures on any of the companies mentioned in this report by contacting a local Edward Jones advisor, or write to: Edward Jones, 90 Burnhamthorpe Road West, Sussex Center, Suite 902, Mississauga, ON L5B 3C3. Information about research distribution is available through the Investments & Services link on www.edwardjones.ca.

The price of Bitcoin has once again accelerated as investors look for a potential hedge against inflation. Its recent momentum is generating headlines on a regular basis and interest with investors. We continue to view Bitcoin and other cryptocurrencies like Ethereum, XRP and Dogecoin as high-risk, speculative investments that are not suitable for most investors. In addition, these digital assets lack key characteristics that typically provide a more steady and predictable price pattern, such as stable long-term supply-and-demand dynamics and transparent regulatory oversight. **We continue to believe prices for cryptocurrencies will remain extremely volatile for the foreseeable future, and we view any investment in cryptocurrencies as highly speculative at this time.**

Why is Bitcoin on the rise?

Although the driving forces behind Bitcoin's recent price appreciation are not totally clear, the media has attributed the increase to the following:

- The market is seeking Bitcoin as an inflation hedge. Unlike many major global currencies (including the U.S. dollar), Bitcoin has a fixed supply of 21 million units.
- Large digital payment companies like Paypal (which includes Venmo) and Square are now accepting bitcoin as a form of payment/exchange on their platforms.
- Several companies, including Tesla and data analytics firm Micro Strategy, have announced large purchases of bitcoin. Tesla and other companies have also announced they will start accepting Bitcoin for payment.

We believe Bitcoin's price will remain highly volatile

After rising over 1,200% in 2017 to just over \$19,000 per bitcoin, the cryptocurrency cratered the following year, dropping 84% to \$3,200 per bitcoin (see Figure 1). Bitcoin's rise in 2017 far surpassed previous bubble peaks, such as the dot-com bubble of the late 1990s and the U.S. housing-market bubble of the late 2000s. In late 2020, we once again saw another massive upswing in Bitcoin, only to be followed by more unpredictable price volatility in the first half of this year. We believe Bitcoin's subsequent price volatility will continue for the foreseeable future given the significant risks associated with cryptocurrencies.

Risks to investing in bitcoin and other cryptocurrencies

Unlike an investment in a stock or mutual fund, there are no underlying fundamentals (cash flows, profits, etc.) to support the valuation of any given cryptocurrency. Other risks include price manipulation by unknown market participants, the potential for government interference, and competition from other cryptocurrencies.

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Please see important disclosures and analyst certification on pages 5 - 7 of the report.

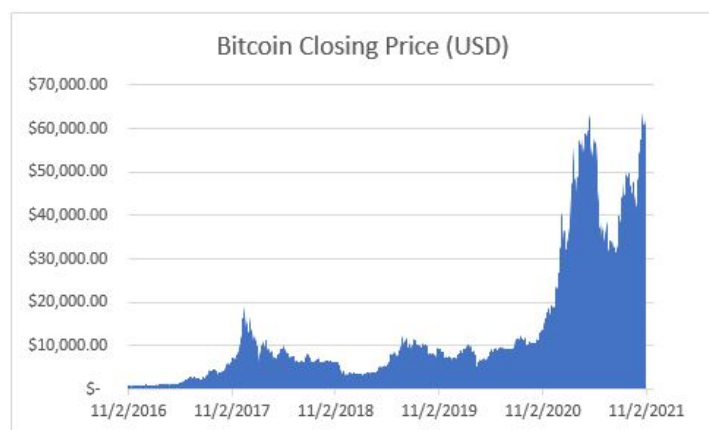
Can Bitcoin Become a New Currency?

It is a common argument that Bitcoin can be a replacement for fiat currencies, such as the dollar, and upend typical currencies around the world. However, we do not view this as likely, and we maintain our view that cryptocurrencies, including Bitcoin, are speculative investments that are not suitable for most Edward Jones clients. We think widespread use of Bitcoin is limited by several factors.

Bitcoin Price Volatility, Fees and Approval Times Limit Use

While cryptocurrency apps and wallets have gained in popularity more recently, using Bitcoin as a currency faces several headwinds. First, the extreme price volatility (**Figure 1**) of Bitcoin has made it difficult to use it for daily transactions. Bitcoin prices can change dramatically day-to-day, increasing the risk to both parties in a bitcoin transaction. This has limited the widespread acceptance of cryptocurrencies as a form of payment. Second, fees are also roadblocks for use in daily transactions. For example, cryptocurrencies are treated as property, so holders are subject to capital gains taxes when they sell it. Additionally, the average fee per bitcoin transaction is about \$25. High taxes and fees make Bitcoin unsuitable for most daily purchases. Finally, approval times for Bitcoin are around 10 minutes and can stretch into hours when network congestion is high. This approval time is built into the Bitcoin protocol, so it is not easy to change.

Figure 1. Bitcoin price volatility



Sources: CoinDesk.com. Past performance is no guarantee of future results. Bitcoin's last price is as of November 02, 2021.

Cryptocurrencies Are Not Hard Assets

A unique characteristic is that digital coins are not backed by any physical assets. For example, gold and silver prices are tied to a physical asset that is

used to make goods. While commodity prices do fluctuate, there is an inherent value, or utility, to the underlying commodity given its use in various end-markets or products. Cryptocurrencies do not have this characteristic. Their price is inherently driven by what the next investor is willing to pay for a particular digital coin, which further adds to their speculative nature.

Cryptocurrencies Lack Price Support

A defining characteristic of a fiat currency is that it is supported by a government body, such as the dollar and the Federal Reserve. This is important because it more or less guarantees the value of the underlying currency. Governments strive for stable currencies to support the overall health of the economy. Cryptocurrencies, with no ties to physical assets or support from a governing body, have a theoretical price of zero.

If Cryptocurrencies Aren't Currencies or Hard Assets, What Are They?

In our view, cryptocurrencies are speculative digital products built upon blockchain technology. Our main concern is that it is next to impossible to arrive at an intrinsic value of various cryptocurrencies, given they produce no cash flows and offer no physical utility. In our view, the price of most cryptocurrencies is determined solely by what the next investor is willing to pay for them. This only fuels the speculative nature of these digital assets. We believe Bitcoin prices will continue to be volatile.

The Bull Case for Bitcoin

There are several points that many investors use as the backbone of why they believe Bitcoin should increase in value. Below we will discuss the main points regarding the bull thesis for Bitcoin.

1) Scarcity Equates to Value

Since the current Bitcoin protocol limits the total outstanding bitcoins to 21 million, some investors argue this means its value will be maintained in perpetuity because there is built-in scarcity. However, we caution painting with broad strokes like this because we do not believe it is this simplistic. Bitcoin resembles other collectibles like art, baseball cards or comic books. Even though there are many pieces of art that are technically scarce, they do not all have value. Bitcoin is similar to art in this way: It has value because there is a perceived value, not solely due to scarcity. This ties back to our belief that the price of Bitcoin is determined solely by what the next investor is willing to pay for it.

2) Bitcoin Is the New Store of Value and Will Equal the Market for Gold

Another popular argument is that since the market capitalization of gold is approximately \$11 trillion, and Bitcoin is approximately \$1 trillion, the difference between the two is the upside. We think the comparison to other commodities based purely on market value is difficult. Other precious metals (gold, silver and platinum) have served as stores of value, but also have some use in end-market applications. These metals have long track records of holding value, with the case of gold stretching back thousands of years. We also view a majority of Bitcoin ownership being driven by speculation that prices will go meaningfully higher, not as a store of value of that investment.

3) Bitcoin and Blockchain Are Ideal for Remittance Payments

Remittance payments, also known as cross-border payments, are the ideal application for blockchain and Bitcoin. Sending larger sums of money around the world is usually expensive, time consuming, and can involve multiple banks and systems. Conversely, an individual can perform the same transaction for under \$100 and in 10 minutes using blockchain technology. Even though this is an appealing feature, we note this is a feature of blockchain and not dependent on Bitcoin. A blockchain like this could be replicated that is based on coins linked to a hard currency, offering the same benefits as the Bitcoin blockchain with the advantage of being tied to real currencies.

Cryptocurrencies and Illegal Activity

While it is true that cryptocurrencies, like Bitcoin, have been used for illegal activities, the scope is widely overstated based on statistics. The largely discrete nature of bitcoin transactions makes them appealing for illegal activities since there is no requirement for a name, address or social security number to receive electronic payments. According to a report from Chainalysis, illegal activities made up about 0.34% of all cryptocurrency transactions in 2020, down from 2% a year earlier. This equates to about \$5 billion. For perspective, the UN estimates that \$1.6 trillion-\$4 trillion is tied to illegal activity globally. So while cryptocurrency is used for illegal activities, the amount is not as widespread as some may think.

The Potential of Blockchain Technology

Bitcoin is the product of a technology called blockchain. The original intent of blockchain was to enable peer-to-peer digital payments that do not require a trusted third party, such as a financial institution. The problem blockchain solves is assuring the recipient of a digital asset that the asset is wholly and directly transferred (as opposed to copied and then transferred), thereby eliminating the possibility of digital double-spending and the need for a third party to verify peer-to-peer digital transactions. Blockchain technology has many potential applications, including 1) regulatory recordkeeping of any sort (health history, land title, etc.), 2) financial transactions or transfers of value (payments, loans, etc.), 3) personal control of online identity, 4) supply-chain optimization, and 5) consumer-royalty programs.

What Is Next for Cryptocurrencies?

We think the excitement and wider use of cryptocurrencies likely results in two outcomes: further innovation and more regulation. In terms of innovation, we think many governments will look to develop digital coins based on their underlying currency, such as a token based on the U.S. dollar. This increases ease of payments and security due to the use of blockchain, as well as digitizes hard currencies. China has been a first mover in this regard, and we believe the U.S. Government will not be far behind. Given the increased use among retail investors, we do believe cryptocurrencies will face heightened regulatory scrutiny. The ultimate outcome is unknown, but could take the form of higher taxes or fees and possibly trading limits.

The Mechanics of Blockchain

Blockchain is a digital ledger, or record, of transactions managed by a decentralized network of computers. Each computer on the network has a copy of the ledger. In order to make a ledger entry, a special type of computer ("miner") must solve a mathematical puzzle and, in doing so, expend energy in the form of electricity. For a set of ledger entries ("block") to be successfully added to the blockchain, all computers on the network must agree that the entries are accurate, which they are able to do because they each have a copy of the ledger. If they all agree, then the block will be added, and the miner is rewarded in the form of bitcoin. If not, the miner has expended useless energy. In this way, miners are incentivized to add valid transactions

to the ledger, removing the need for a central trust authority.

Risks to investing in cryptocurrencies

While blockchain solves an important technology problem, the value of any given cryptocurrency remains highly uncertain. Cryptocurrencies such as Bitcoin, Ethereum, XRP and Dogecoin have all exhibited significant price fluctuations due to these high levels of uncertainty. In addition to price risk, there are other risks to investing in cryptocurrencies, such as loss of the device storing the digital asset, potential for government interference, competition from other cryptocurrencies, and lack of historical track record. Also, cryptocurrencies are not common stocks of companies and do not trade on stock exchanges. Edward Jones does not offer a way to purchase or hold cryptocurrencies, or future contracts on cryptocurrencies. It's also important to note that money launderers and other criminal organizations often use cryptocurrency to launder illicit funds. Finally, each cryptocurrency is unique and claims to offer some sort of service or utility to the market. However, not all, if any, will be useful or valuable in the future. Unlike an investment in a stock or mutual fund, there are no underlying fundamentals (cash flows, profits, tangible assets, etc.) to support the valuation.

Be aware of companies taking advantage

Several small publicly traded companies have recently rebranded their businesses to take advantage of the growing interest in cryptocurrency, even though their actual underlying business strategies have little or nothing to do with blockchain technology or cryptocurrencies.

New Investment Products Beginning to Emerge

Several investment companies have begun introducing cryptocurrency-related products that are either tied to one specific cryptocurrency or a basket of cryptocurrencies. These products are usually tied to futures contracts for a particular cryptocurrency. This means the investment vehicle will track the price of the underlying cryptocurrency relatively closely, but does not own any coins. At this time these types of products are restricted due to the high volatility associated with cryptocurrencies and the rapidly changing regulatory environment. We do not believe these investments align with our long-term investment philosophy.

Meta Platforms Inc. (formerly Facebook) announced a cryptocurrency in 2019

In 2019, Facebook introduced a new blockchain-based cryptocurrency called Libra via a new subsidiary called Libra. The Libra electronic currency was not to be controlled by Facebook but was to be run by the nonprofit Libra Association that Facebook formed with 27 other companies and organizations. Since that time, Libra has faced significant regulatory opposition, and the Libra Association has lost several of its original members, including MasterCard, Visa, PayPal and eBay. The Libra cryptocurrency was to be backed by bank deposits in multiple currencies and U.S. Treasury securities.

Since that time, Meta Platforms Inc. (Facebook) has reduced the original Libra plans, with the cryptocurrency to be backed only by the U.S. dollar rather than multiple currencies. The cryptocurrency's name has been changed to Diem, and the Libra Association was renamed the Diem Association. The Diem cryptocurrency and network are not yet available, and a schedule for the Diem rollout has not been announced. Calibra, which has changed its name to Novi, has developed a digital wallet for holding Diem. Novi is currently seeking licenses in all 50 states, so the Novi wallet is not yet publicly available.

What is Edward Jones' guidance?

While we believe blockchain technology has significant promise, we view any investments in cryptocurrencies as highly speculative. We recommend following time-tested investment principles and avoid letting the "fear of missing out" impact your long-term investment strategy.

Please see the individual research reports for additional information, including disclosures, analyst certifications, valuation and risks specific to each company.

Analyst Certification

I certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers; and no part of my compensation was, is, or will be directly or indirectly related to the specific recommendations or views contained in the research report.

Logan Purk, CFA; David Heger, CFA

Required Research Disclosures

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Buy (B) - We believe the valuation is attractive and total return potential is above average over the next 3-5 years compared with industry peers.

Hold (H) - We believe the stock is fairly valued and total return potential is about average over the next 3-5 years compared with industry peers or a special situation exists, such as a merger, that warrants no action.

Sell (S) - We believe the stock is overvalued and total return potential is below average over the next 3-5 years compared with industry peers. In some cases we expect fundamentals to deteriorate considerably and/or a recovery is highly uncertain. FYI - For informational purposes only; factual, no opinion.

The table below lists the percent of stocks we follow globally in each of our rating categories. Investment banking services indicate the percentage of those companies that have been investment banking clients within the past 12 months. As of: November 04, 2021

	BUY	HOLD	SELL
Stocks	55%	45%	0%
Investment Banking Services	5%	3%	0%

Other Disclosures

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This opinion is based on information believed reliable but not guaranteed. The foregoing is for INFORMATION ONLY. Additional information is available on request. Past performance is no guarantee of future results.

In general, Edward Jones analysts do not view the material operations of the issuer.

Diversification does not guarantee a profit or protect against loss in declining markets.

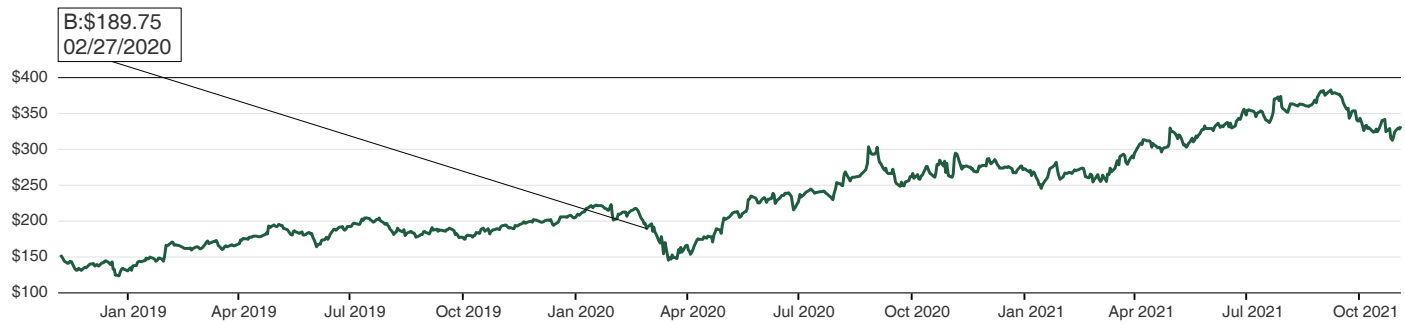
Special risks are inherent to international investing including those related to currency fluctuations, foreign political and economic events.

Dividends can be increased, decreased or eliminated at any time without notice.

An index is not managed and is unavailable for direct investment.

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3-Year Rating and Price History for: Meta Platforms Inc. (FB.O) as of 11/03/2021



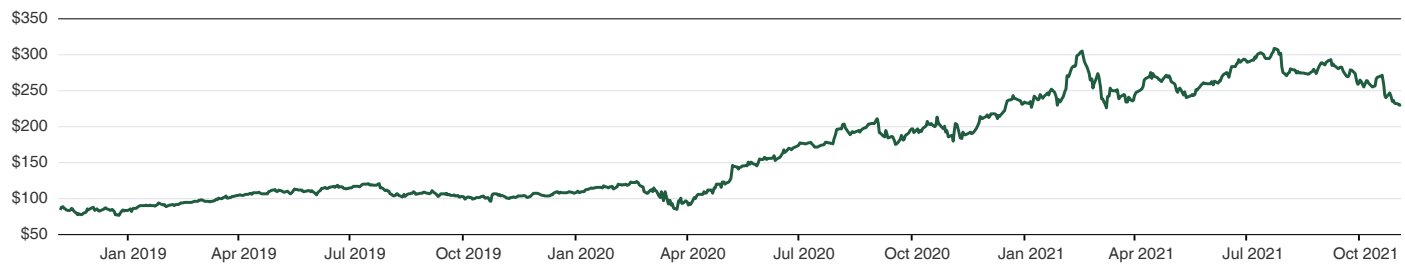
Source: Reuters

3-Year Rating and Price History for: MasterCard Inc. (MA) as of 11/03/2021



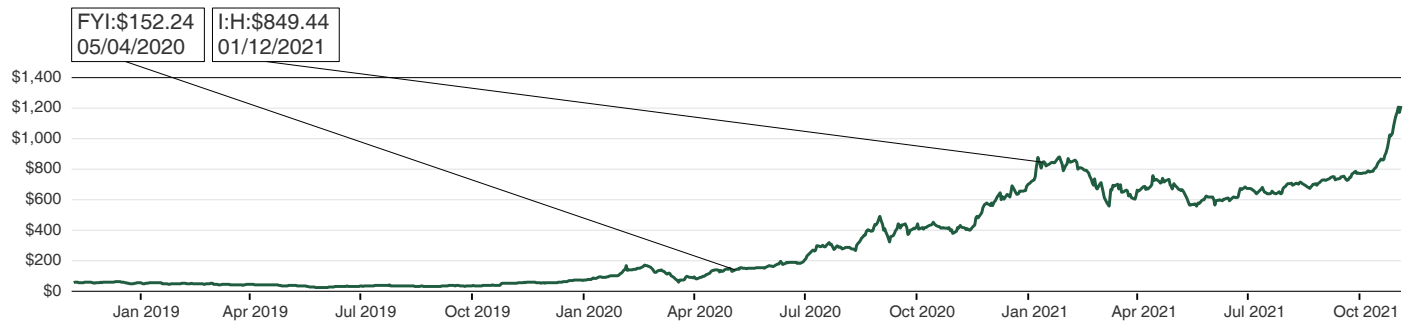
Source: Reuters

3-Year Rating and Price History for: PayPal (PYPL.O) as of 11/03/2021



Source: Reuters

3-Year Rating and Price History for: Tesla (TSLA.O) as of 11/03/2021



Source: Reuters

3-Year Rating and Price History for: Visa Inc. (V) as of 11/03/2021



Source: Reuters