QUBIC LABS

White Paper

The Real Risk of Digital Asset Investment for Pensions

October, 2021

Introduction

By this point, most Americans have at least heard of Bitcoin, the first cryptocurrency. Created by a pseudonymous inventor in late 2008, Bitcoin's blockchain technology created an ecosystem for other digital tokens whose collective market cap now equals two trillion U.S. Dollars. Thousands of companies are now implementing blockchain technology in finance, logistics, construction, energy, ESG, and sports, with new sectors coming online all the time.

The road to two trillion was certainly not easy; the space is known for the volatility of the underlying assets. Much of that volatility has been positive as the ten-year Compound Annual Growth Rate (CAGR) is 154%.[1] On the negative side, in 2014 and 2018, Bitcoin suffered 80% retracements from then-all time highs. However, after each setback, Bitcoin rallied to set new high watermarks, inspiring a growing percentage of the populace to believe that the cryptocurrency is not a "Dutch Tulip" style bubble that many professed at the beginning of its short life as an asset class.

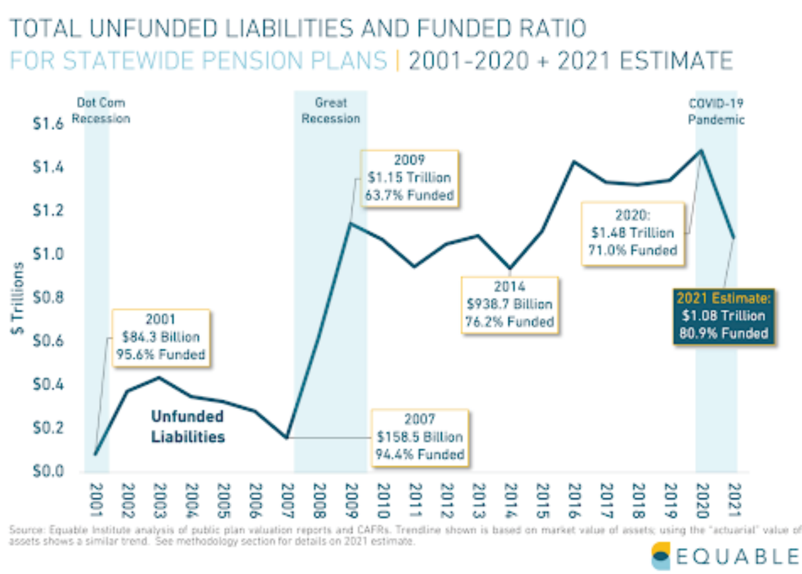
Institutional Investment in Bitcoin

In late 2020, Bitcoin began another bull run similar to those in 2013 and 2017 when the price increased dramatically. Between 01 October and 31 December 2020, Bitcoin rose 168% and would continue rising another 36% over the first week of 2021 alone. While retail investors buying spot Bitcoin drove the prices during the previous bull runs, common thinking in late 2020 attributed the drastic price appreciation to institutional investors, namely corporations purchasing Bitcoin for their balance sheets to hedge against inflation fears.

On 11 August 2020, Michael Saylor, CEO of Micro Strategy, announced the purchase of $250 million worth of Bitcoin[2] due to his concerns that U.S. monetary and fiscal policies would drive inflation. Over the next year, Jack Dorsey and Elon Musk made similar announcements for Square[3] and Tesla[4], respectively. In December 2020, 170-year-old insurance company MassMutual purchased $100 Million worth of Bitcoin[5].

While some other public companies made similar procurement announcements, analysts commonly assumed Bitcoin purchases by private companies dwarfed those by public corporations due to the perception of less arduous decision-making and compliance procedures. Many wondered if pensions would follow suit, given their impairment stemming from the Great Financial Crisis in 2008.

Current State of Pensions



1 https://casebitcoin.com/charts
2 https://www.businesswire.com/news/home/20200811005331/en/
3 https://squareup.com/us/en/press/2020-bitcoin-investment
4 https://www.cnbc.com/2021/02/08/tesla-buys-1point5-billion-in-bitcoin.html
5 https://www.wsj.com/articles/massmutual-joins-the-bitcoin-club-with-100-million-purchase-11607626800

While many believe private and public pensions are similarly compromised due to the last 13 years of economic activity, public pensions are instructive given the data stemming from their reporting requirements. In 2007, state pensions on average had 94.4% of funding necessary to meet all future obligations[6]. That funding rate was slashed to 63.7% by 2009 due to the losses seen across almost every investment sector. Losses steadied and slowly improved but then deteriorated again in 2020 with the economic downturn due to COVID-19, creating a total pension debt of $1.48 Trillion. While 2021 is projected to be a year of recovery, the projected recovery only climbs to an 80.9%-funded rate, with an aggregate state pension liability of $1.08 trillion.

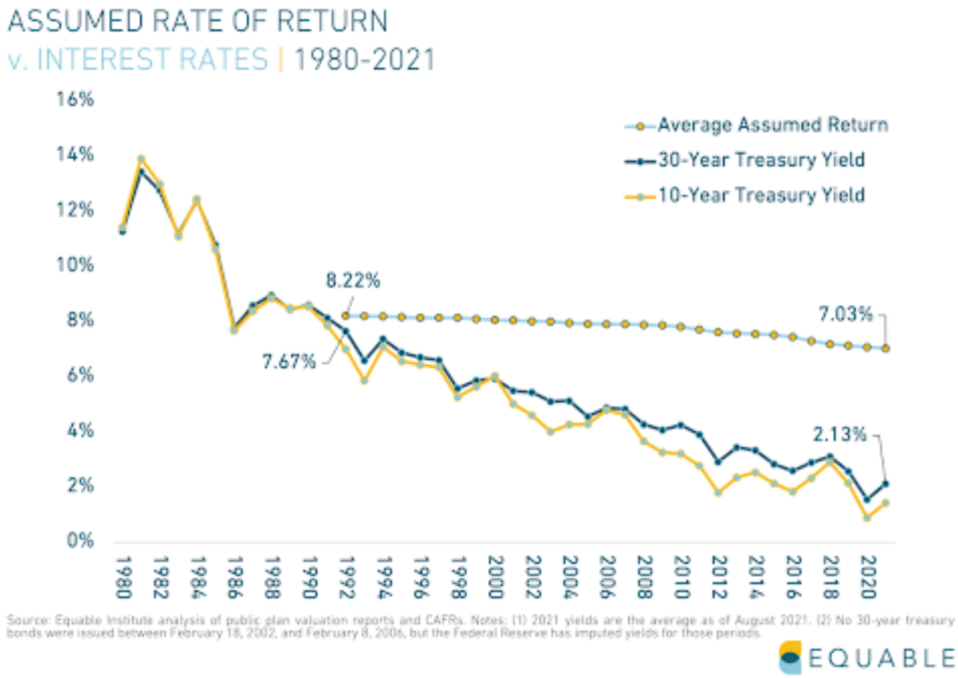


Figure 1

On the surface, that rate of pension recovery in 2021 would suggest the shortfall will lessen over the next few years to a pre-2008 level. One of the pitfalls of this thinking is the role of interest rates in pension Return on Investments (ROI). At the time of writing, the average state pension Assumed Rate of Return (ARR) was 7.03%, whereas the rate on the 10-year treasury was 1.465%. This return delta is incredibly significant for the future of pension performance (Figure 1).

It is important to note that the ARR is THE benchmark on which pensions base all calculations. While the ARR had decreased ever so slightly in the last couple of decades from 8.0% in 2001, the delta between the ARR and interest rates has altered the investment strategies available to pensions. The almost non-existent risk-free rate of return is causing pension fund managers to skew their portfolios away from instruments like fixed income and further out the risk curve. These dynamics are particularly ill-timed as the Baby Boomers, the largest generation in recorded history, heads into retirement.

6 https://equable.org/state-of-pensions-2021-national-pension-funding-trends/

Strategies of Recovery

Pension funds have only three strategies to decrease their liabilities:

1. Default on an obligation (wholly or partially)
2. Take in more contributions from current workers
3. Diversify into riskier investments to seek greater yield

For most pension fund managers, the first two options are untenable. Most states' constitutions have language making it illegal for pension funds to default on an obligation. The one measure which is often in their control is Cost of Living Adjustments (COLA) made for inflation YoY. Taking more of a contribution away from workers' paychecks is not exactly palatable either, given the current economic downturn.

Fund managers are left seeking alpha through new assets. The issue investment officers face, however, is that most other institutional investors face similar conditions. These pensions, in effect, are now competitors for the same opportunities which meet compliance standards and risk appetites of their boards. This environment of competition drives some funds to explore digital assets investment as a partial solution.

Is Digital Assets Investment Responsible for Pensions?

Despite the burgeoning asset class's incredible performance to date, many proffer that it is irresponsible for investment officers to manage their workers' retirement by betting on such a risky asset[7]. Financial learning platform Real Vision commissioned an informative white paper by Joel Coverdale[8], a strategic advisor in investment analytics at Eight Aisle, to look at Bitcoin specifically through the lens of risk for an institutional investor.

Mr. Coverdale theorized that institutions must address three criteria when evaluating Bitcoin as an investment option: volatility, correlations to other portfolio assets, and position sizing. While Bitcoin volatility usually receives the most attention, Coverdale found positive aspects regarding the lack of correlation to other assets and harnessing asymmetric returns with appropriate position sizing.

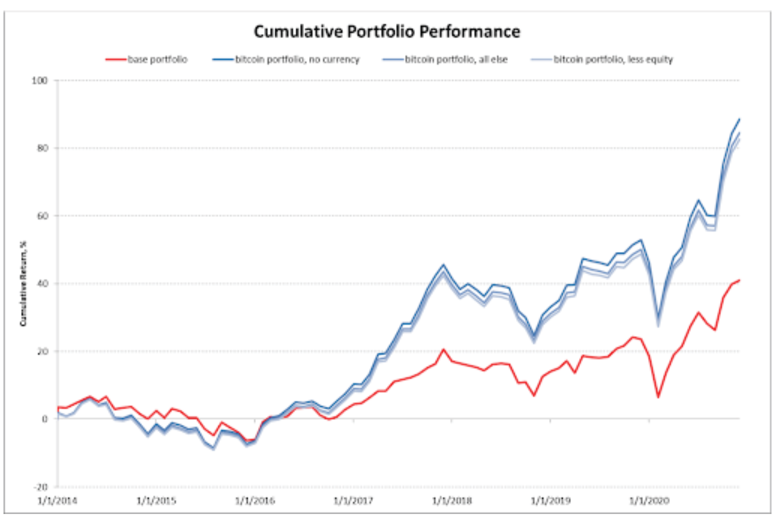


Figure 2

As an exercise baseline, Mr. Coverdale simulated a fairly typical portfolio of 50% equities, 40% fixed income, 5% commodities, and 5% currency. He then compared this baseline portfolio to three slightly varied portfolios of a similar mix with an added 5% Bitcoin allocation. The three portfolios with Bitcoin exposure all performed very similarly, and all three outperformed the baseline by at least 40% since the beginning of 2016 (Figure 2). While it is inevitable that results will vary depending on specific portfolio construction, the fact remains that for just 5% Bitcoin risk exposure, the simulated portfolios produced impressive asymmetric returns.

7 https://reason.org/commentary/should-public-pension-funds-be-investing-in-cryptocurrency/
8 https://www.realvision.com/l/bitcoin-asset-allocation-and-risk-modelling-in-institutional-portfolio

Digital Assets Investment Vehicles

In early 2021, Fidelity surveyed 1,100 investment professionals represented by financial advisors, high-net-worth individuals, family office managers, venture capital funds, traditional hedge funds, endowments & foundations, and pension fund and defined benefit plan managers[9]. Fifty-two percent of total respondents owned digital assets, but that ownership varied greatly due to geography. Seventy percent of respondents in Asia had digital asset exposure, compared to fifty-six percent in Europe and thirty-three percent in the United States. As much as institutional investors might be seeking alpha in the U.S., their risk tolerance for digital assets is diminished compared to the other two major global markets.

Frequently, compliance protocols prevent a pension fund manager who has overcome the risk-aversion to digital assets from owning cryptocurrency directly; however, options to satisfy compliance remain. Numerous tech-centric venture capital funds with digital assets exposure, or outright crypto-centric venture funds, have accommodated such purposes. Stocks of public companies in the space, such as cryptocurrency mining corporations, recently direct listed Coinbase, or the aforementioned Micro Strategy, serve as proxies for owning digital assets. Comments made by SEC Chairman Gary Gensler lead many to speculate that the SEC will approve a Bitcoin futures ETF in late 2021[10]; trusts such as Grayscale and crypto-specific hedge funds operate as alternatives until such approval exists.

Appetite for Digital Asset Investment

The last year has brought maturity to the digital asset market according to a survey of 25 large institutions[11], including pensions and endowments, by Aite Group. Some of the reasons cited for this maturity were greater liquidity and bits and pieces of regulatory clarity. In June 2020, the Office of the Comptroller of the Currency (OCC) ruled that banks could custody digital assets[12]. On 01 October 2021, Federal Reserve Chair Jerome Powell stated there was no intention to ban cryptocurrencies[13].

There are signposts that growth in this sector will be parabolic. 10T, a late-stage growth equity fund investing in digital asset companies, recently raised a $750 million fund to invest in blockchain-native companies. Dan Tapiero, 10T CEO and Managing Partner, recently described growth in the digital asset ecosystem by highlighting that in late 2020 there were only 20 blockchain-native companies with billion-dollar valuations. Today that number stands at 70[14]. Further supporting the growth trend, venture capital firms had invested at least $12.1 billion (as of late-August 2021) in blockchain native companies year-to-date, nearly four times the amount from the previous year through only eight months[15].

Pension Investment Activity To Date

The first public pension to make a splash investing in the digital assets space was the Fairfax County Police and Employee Funds in February 2019[16]. In September 2021, they sought approval for an additional $50 million to make a similar investment[17]. Katherine Molnar, the Chief Investment Officer for the Fairfax Police Fund, noted the success of the first investment. While declining to detail specific ROI, she highlighted that the original investment intended to make up 2% of their portfolio, but in actuality, made up 7% due to appreciation.

Other large pensions, particularly at the state level, have followed suit. The Municipal Employees Retirement System of Michigan is one of the L.P.s of the previously mentioned 10T fund[18]. Both California Public Employees Retirement System (CALPERS)[19] and New Jersey's Common Pension Fund D[20] invested in Bitcoin mining companies. There are also signs that more are keen to follow, as shown by the education of Texas Association of Public Employee Retirement Systems employees in September 2021[21].

9 https://www.fidelitydigitalassets.com/bin-public/060_www_fidelity_com/documents/FDAS/2021-digital-asset-study.pdf
10 https://www.coindesk.com/policy/2021/09/29/gensler-reiterates-support-for-futures-based-bitcoin-etfs/
11 https://www.coindesk.com/business/2021/01/21/etoro-survey-finds-pensions-and-endowments-are-finally-waking-up-to-crypto/
12 https://www.occ.gov/news-issuances/news-releases/2020/nr-occ-2020-98.html
13 https://www.wsj.com/articles/bitcoin-price-jumps-after-powell-says-u-s-has-no-plans-to-ban-crypto-11633094452
14 https://www.theblockcrypto.com/post/117505/hedge-fund-vet-dan-tapiero-has-invested-more-than-650-million-into-cryptos-largest-companies
15 https://news.crunchbase.com/news/crypto-corns-unicorn-numbers-explode-as-venture-investment-surges-in-crypto/
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19 https://www.nasdaq.com/articles/california-pension-fund-loaded-up-on-riot-shares-during-bitcoins-q4-rally-2021-02-02
20 https://www.ai-cio.com/news/new-jersey-pension-fund-gambles-on-bitcoin-miners/
21 https://www.pionline.com/frontlines/texas-pension-funds-receive-lessons-cryptocurrency

Conclusions

Undoubtedly, pension fund managers are in an unenviable position. Soliciting additional worker contributions, particularly from the blue-collar community, would not go over well in the court of public opinion. Additionally, one of the most effective tools at their disposal, decreasing the COLA, is a tough message to deliver when inflation is hovering around 5%. While state pensions might get some targeted federal relief through fiscal funding, that is dependent on an increasingly gridlocked political process. Not to mention that fiscal relief does nothing for private pension funds servicing unions, hospitals, and utilities.

As noted, position sizing can drastically diminish volatility while retaining the possible upside. It may be necessary to reexamine conventional thinking regarding portfolio construction as well. Allocating 40% to fixed income has been recognized as a risk mitigation measure; is this assumption valid? As noted by Jurrien Timmer[22], the Global Head of Macro for Fidelity, portfolio managers used to allocate this 40% to get paid, albeit a small percentage yield, for negative correlation to the rest of their portfolio. Now managers are paying for this same effect.

With Interest rates capped near zero, and inflation printing well above those rates, the real rates are, in fact, negative. Even if inflation is not the primary concern of pensions, these capped interest rates are well below targeted ARRs. The more of their portfolio they allocate to low-yield fixed income instruments, the more the rest of their portfolio has to outperform the ARR to achieve a balance.

While digital assets do not serve as a hedge against liquidity events when all correlations tend toward 1, they have demonstrated a negative correlation over time. For example, the COVID crash in early 2020: the Dow Jones lost roughly 36% from a local high on 20 February 2020 to the bottom of the trough on 23 March 2020. Bitcoin, losing even more, was down 50% from 20 February to the bottom on 12 March. Interestingly, it took Bitcoin eight weeks to regain the value from 20 February. In contrast, the Dow Jones would not eclipse the February high until November 2020 (36+ weeks later), demonstrating the lack of correlation and volatility to traditional markets working in Bitcoin's favor.

Pensions historically have been conservative in their allocation, and investing in a new asset class is undoubtedly a departure from traditional practice. It would appear though, that sticking with the status quo is likely fighting a losing battle against monetary policy, demographics, and poor market performance. Lagging behind other pensions that successfully reap the rewards from a new asset class is a new risk. It's not beyond reason to see workers of similar skills move to different municipalities or unions, given the health of one pension over another.

Take, for instance, the Fairfax pensions highlighted earlier. The digital assets portion of their fund outperformed their 2% target to 7%, which would suggest their original digital assets investments outperformed the rest of their portfolio by 250% since early 2019. Other funds who invested in the last year might see a similar first-mover advantage. We may be witnessing a transition where the risk to a fund manager's career isn't from voicing a digital assets strategy; the risk is not having one.

About the Author

Jacob Langenkamp is an advisor to Qubic Labs, providing research and insight into different topics within the blockchain arena. Jacob has studied the intersections of digital assets with numerous issues, including energy, payments, pension allocation, and corporate treasuries. Jacob is currently the Managing Director at IdenX, a data aggregation and research company.

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22 https://www.thewolfofallstreets.io/podcast/