Bitcoin Policy Institute

# COLLEGE SAVINGS AND BITCOIN

## EXPANDING INVESTMENT OPTIONS FOR 529 PLANS

ANNA STENSTROM

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As a Dr. Robert E. Witt Fellow, she is completing her "Magnum Opus" project, which investigates the significance of Bitcoin for Generation Z and advocates for policy reforms to enhance the flexibility of 529 plans. Additionally, she founded the inaugural Alabama Bitcoin Club to foster student engagement with Bitcoin as a mechanism for financial empowerment and innovation.

Her research was supported by Dr. Gerald Dwyer, Senior Fellow at the Bitcoin Policy Institute, whose mentorship and expertise in traditional financial principles with Bitcoin and broader themes of financial innovation have been invaluable.

## ABOUT THE BITCOIN POLICY INSTITUTE

The Bitcoin Policy Institute (BPI) is a non-partisan, non-profit think tank. It is dedicated to educating policymakers and the public on Bitcoin and disruptive digital technologies, providing research-based insights to inform sound policy in the United States.

The BPI team comprises experts in economics, law, philosophy, energy, and environmental science, working together to explore the impacts of new technology on existing US public policy interests. The views expressed in this publication do not necessarily reflect the views of all Bitcoin Policy Institute management or its affiliated scholars.

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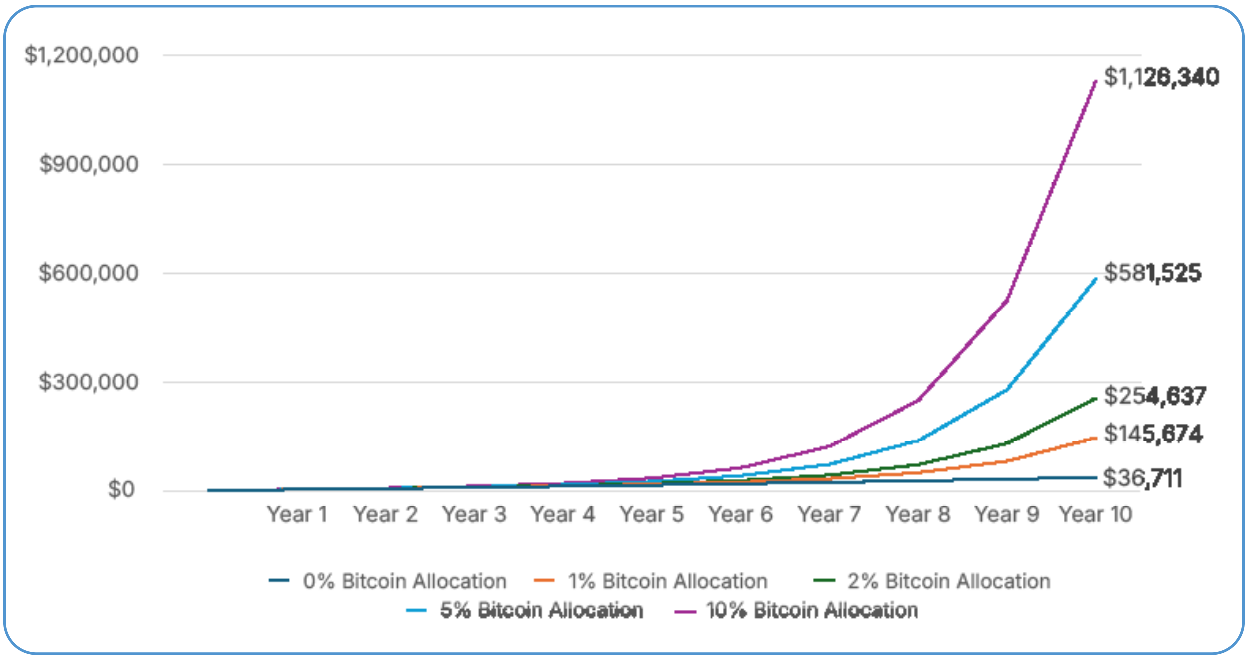
# EXECUTIVE SUMMARY

## COLLEGE SAVINGS AND BITCOIN


Rising tuition costs, persistent inflation, and limited investment options in 529 college savings plans are eroding families' ability to adequately save for higher education. While 529s provide tax advantages, they remain restricted to narrow, state-selected mutual fund portfolios that generate lower returns and higher fees compared to similar tax-advantaged accounts such as IRAs and HSAs. These restrictions prevent families from accessing inflation-resistant assets that could improve long-term outcomes.

This research examines the potential benefits of modernizing 529 plans by permitting bitcoin as an investment option. Bitcoin has delivered historically strong long-term returns and provides unique diversification benefits due to its low correlation with traditional equities. Modeling shows that even small allocations of bitcoin (1–2%) into 529 portfolios can meaningfully increase compound annual growth rates and Sharpe ratios, improving performance without materially increasing risk.


### TEN YEAR PERFORMANCE OF MARYLAND 529 PLAN WITH BITCOIN ALLOCATIONS



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## KEY FINDINGS

- **529 underperformance:** Even top-performing 529 plans trail IRA benchmarks by 4–5% annually due to higher fees and limited investor asset choice.
- **Rising costs:** Average private university tuition has outpaced inflation, making stronger returns on investments essential for households saving for college.
- **Bitcoin's asymmetric upside:** Historical analysis demonstrates that modest bitcoin allocations could have dramatically outperformed current 529 structures, offering greater protection against inflation and tuition increases.
    - For example, a $1,000 initial investment with $200 monthly contributions over the last 10 years in a portfolio with 0% allocation in bitcoin would have grown to $36,710. Without rebalancing, a 1% bitcoin allocation would have increased the portfolio to $145,674, representing **a 297% increase in overall portfolio growth** compared to the Maryland 529 plan without bitcoin.
- **Unnecessary restrictions:** Unlike IRAs and HSAs, which allow bitcoin exposure, 529s exclude it. These restrictions are driven by institutional profitability over investor financial freedom.

## POLICY RECOMMENDATIONS FOR THE FUTURE OF 529 PLANS

**1. FEDERAL MODERNIZATION:**
Issue federal guidance or amend the tax code to authorize bitcoin allocations in 529 plans. This is similar to the guidance supporting bitcoin access in 401(k) accounts (Executive Order 14330, August 2025). This would align 529 plans with the investment flexibility of HSAs and IRAs, promoting uniformity across states and enhancing investor access to assets that mitigate inflation risks and diversify portfolios.

**2. WYOMING "FREEDOM 529 PLAN":**
Create the first bitcoin-inclusive 529 plan in Wyoming, the only state without an existing 529 program. Leveraging Wyoming's pro-bitcoin legal environment, this "Freedom 529 Plan" could serve as a national model, attracting investors from all states by offering innovative, unencumbered access to modern investment options. The states that take action will have first-mover advantage.

**3. STATE-LEVEL MODERNIZATION :**
Urge states to modernize 529 plans by incorporating bitcoin and other alternative assets, implementing ACH payment systems, and advocating for federal policies to allow more frequent portfolio adjustments. These reforms would align 529 plans with contemporary financial standards. States adopting these changes will attract investors nationwide.

## CONCLUSION

Modernizing 529 plans to include bitcoin as an investment option enables families to better align their education savings with escalating tuition costs. By offering greater investment flexibility, these plans can enhance savings growth, leading to improved long-term outcomes for students. Updating 529 plans at both federal and state levels aligns with their core mission of supporting educational opportunities, empowering families to achieve their education savings goals.

# INTRODUCTION

With inflation, reduced buying power, and high tuition prices, a new approach for educational savings is needed. The most common tax advantaged tool to save for education expenses is a 529 Education Savings Plan. While these accounts offer valuable benefits such as tax-free growth when used for education expenses, they limit investment options and incur high fees. 529 plans do not allow for self-directed investment options. These plan constraints limit growth potential for account owners and beneficiaries, making it difficult to generate returns that consistently outpace tuition price increases.

This research examines the benefits and limitations of current 529 plans and introduces the case for bitcoin as a viable asset that could enhance the performance of these portfolios. By analyzing the historical performance of top performing 529 plans, tuition trends, and assessing bitcoin's historical and predicted compound annual growth rate (CAGR), this research demonstrates how diversified 529 investments including bitcoin can reduce risk and improve long-term outcomes for investors. Policy recommendations are included for modernizing 529 plans at the federal and state level.

# 529 PLANS AND CONSTRAINTS

A 529 plan is a tax-advantaged investment vehicle designed to help families save for education expenses. They were established under Section 529 of the Internal Revenue Code and are widely used due to the tax-free growth for qualified educational expenses. These expenses typically include tuition, textbooks, and some room and board costs. Non-qualified withdrawals incur earned income tax plus a 10% penalty on earnings.

There are two types of 529 plans: Prepaid Tuition Plans and Education Savings Plans. This research focuses exclusively on Education Savings Plans. Education Savings Plans typically feature a selection of mutual funds or age-based investment tracks. Some plans offer index funds as well.

Investment options for 529 plans are determined at the state level. States partner with financial institutions such as Vanguard and Fidelity to design and manage investment options. 529 plans have no state residency requirements which allows investors to participate in plans from any state. Each state selects investment options consisting of mutual funds and index funds. Many offer age-based portfolios that adjust mutual fund allocations as the beneficiary approaches college enrollment. When the beneficiary is young, the age-adjusted funds allocate heavily to equities and gradually shift toward bonds and cash equivalents as the beneficiary approaches college age. While this strategy reduces short-term volatility, it limits growth potential needed to offset rising higher education costs. These age-adjusted plans have layered fees which increase expenses for investors. For all investment options, 529 plans have higher administrative fees than those found in IRAs and HSAs. High fees can offset some of the growth and tax savings benefits in 529 plans and should be considered by investors.

# 529 PLANS DIFFER FROM IRAS AND HSAS

IRAs, HSAs, and 529 plans are tax-advantaged accounts designed to encourage long-term savings for specific purposes: retirement, healthcare, and education costs. Even though they serve similar goals to facilitate personal savings, these accounts are subject to various policy controls regarding permitted investment options. While IRAs and HSAs follow federal policy, 529 Plans follow both federal and state board policies. At the state level, program consultants provide guidance around finance institutional standards and recommend product offerings for their plans. The additional oversight increases overall management fees and creates institutional inertia. The result limits 529 investors to a narrow pool of investment options with high management fees, which benefit financial managers rather than protecting investors.

529 plans are limited in investment flexibility compared to other tax-advantaged accounts. While IRAs and HSAs permit exposure to individual stocks, exchange-traded funds (ETFs), mutual funds, real estate, precious metals, and bitcoin through custodial services, 529 plans offer only a narrow range of mutual fund-based portfolios managed by large financial institutions (i.e. Vanguard, Fidelity, and T. Rowe Price) with oversight from state authorities. IRAs and HSAs offer diverse investment options. They include all the benefits of a brokerage account, including individual stocks and bitcoin ETFs as well as self-directed investment in Bitcoin. 529 plans don’t offer access to invest in individual stocks and have been left behind when it comes to Bitcoin.

IRAs and HSAs allow investors to tailor their strategies and fine tune their risk tolerance based on their financial goals. Investors can change allocations as needed and have access to a variety of investment choices. In contrast, 529 plans are limited to conservative investment options with a focus on limiting downside risk. Investors are limited to a small set of state-approved mutual fund portfolios with no option for individual stock selection and no exposure to bitcoin. Also, 529 investors can make changes to their account twice per year, whereas IRA and HSA account holders can change investment as frequently as needed. This lack of investment flexibility limits the growth potential of these accounts and lowers returns.

529 investment limitations are reflected in even the highest performing plans. S&P 500 Index Funds, a common holding in many IRAs, have produced average annual returns of 15.78% over the past five years and 12.71% over the past decade (Vanguard, 2025). When compared to the highest performing 529 plans, around 12% for 5-year returns and around 6.50% for 10-year returns, 529s have lower performance by about 4-5% respectively. (Savingforcollege.com, 2025). With rising education costs, 529 plans need to expand their investment options to include inflation-resistant assets such as bitcoin.

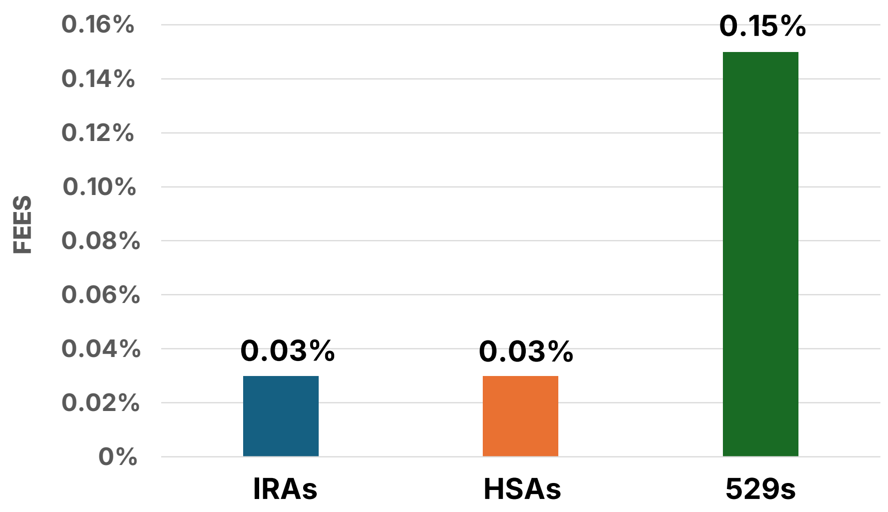
## WHO INVESTS IN THESE ACCOUNTS?

The investor demographics for IRAs, HSAs, and 529 plans overlap significantly. Households with higher education and incomes are the primary participants in all three account types. Families contributing to 529 plans are overwhelmingly the same demographic investing in IRAs and HSAs. It is unclear why investors trusted with diverse investments for retirement and healthcare savings are denied comparable investment options when saving for education through 529 plans. No data was available to suggest 529 investors are less capable of making informed investment decisions than IRA and HSA investors. The purpose for restrictive 529 Plans remains unclear at best. The plans limitations are to provide "consumer protection". Similar levels of "protection" are deemed unnecessary for retirement and health savings.

## PROFITABILITY AND INSTITUTIONAL INCENTIVES

Per dollar invested, financial institutions generate higher profits managing 529 plans over IRAs. Managed funds generate an estimated 0.2–0.7% in annual fees managing 529 plans, compared to IRAs, which average 0.1–0.5% in fees, and HSAs, which average 0.24-0.50% in fees (Investment Company Institute, 2025). This amounts to 66% higher profitability for 529 account managers. Investing in the Vanguard S&P 500 index in an IRA and an HSA has 0.03% fees, and investing in the same Vanguard S&P 500 index fund in a 529 incurs 0.15% in fees. This amounts to 5 times more in fees for the same investment in 529s over IRAs and HSAs. Administrative fees, higher expense ratios on actively managed mutual funds, and the abundance of advisor-sold 529 plans create economic incentives for financial firms. This incentive also leads to tight control over changes to approved plan offerings. Allowing broader asset selection through investor-managed accounts, including individual stocks, low-cost ETFs, and even self-directed accounts may reduce profit for financial institutions. Currently, 529 plans appear to prioritize institutional revenue over investor freedom and returns.

### FIGURE 1: VANGUARD S&P 500 INDEX FEES ASSOCIATED WITH IRAS, HSAS, AND 529S




### TABLE 1: OVERSIGHT AND INVESTMENT RESTRICTIONS: 529 PLANS VS. IRAS VS. HSAS ACCOUNT

| | 529 COLLEGE SAVINGS PLAN | HEALTH SAVINGS ACCOUNT (HSA) | TRADITIONAL IRA |
|---|---|---|---|
| **REGULATORY OVERSIGHT** | IRS (§529), state treasury office, state 529 board, 529 consultants, and managing bank policies | IRS (§223), SEC regulation, brokerage house policies, custodian policies for self-directed accounts | IRS (§408), SEC regulation, brokerage house policies, custodian policies for self-directed accounts |
| **INVESTMENT MANAGEMENT** | Centralized- Limited investor choice and centralized management of age-based portfolios and mutual fund options. | Decentralized- Individual options to invest in broad range of permitted investments. Investors choose assets. | Decentralized-Individual options to invest in broad range of permitted investments. Investors choose assets. |
| **PERMITTED INVESTMENTS** | State-selected mutual funds, index funds, ETFs, target-date portfolios | Stocks, ETFs, mutual funds, bonds, REITs, bitcoin (custodian-dependent) | Stocks, bonds, ETFs, mutual funds, REITs, private equity, gold, bitcoin |
| **RESTRICTED INVESTMENTS** | Individual stocks, bonds, real estate, commodities, bitcoin, life insurance, collectables, and real estate for personal use | Life insurance, collectables, and real estate for personal use | Life insurance, collectables, and real estate for personal use |
| **TRANSACTION LIMITATIONS** | Change to investment allocation/ transactions limited to (2x/year)- Federally controlled | Unlimited transactions | Unlimited transactions |
| **BITCOIN EXPOSURE** | No direct or indirect bitcoin exposure is allowed. 529 Bitcoin exposure is not allowed | Spot bitcoin ETFs**, bitcoin treasury company stocks, and Bitcoin through custodial services* | Spot bitcoin ETFs**, bitcoin treasury company stocks, and bitcoin through custodial services |

*As of August 2025, Sound HSA plans to launch bitcoin custodial accounts for health savings.

**Some banks do not allow spot bitcoin ETFs, i.e. Vanguard.

# CURRENT PERFORMANCE OF TOP 529 PLANS

To evaluate how 529 plans are performing relative to inflation and tuition increases, this section examines five of the highest-performing 529 savings plans based on returns, fees, and flexibility consistently over the last 5 and 10 years. Despite their relatively strong performance compared to other 529 plans, all 529 plans still lack access to higher-growth, inflation-resistant assets such as bitcoin.

## MARYLAND COLLEGE INVESTMENT PLAN (MARYLAND)

Managed by T. Rowe Price, the Maryland College Investment Plan is a direct-sold plan open to all U.S. residents. The plan allows contributions beginning at $25, with a lifetime limit of $500,000. Investors may choose between age-based portfolios which automatically adjust from 100% equity exposure down to 20%, and static portfolios composed of stock, bond, or index funds. Individual securities or ETFs are not available. Expense ratios range from 0.13% to 0.67%. The plan delivered a 5-year compound annual growth rate (CAGR) of 12.48%, and a 10-year return of 7.04% (Savingforcollege.com, 2025).

## ALASKA 529 PLAN (ALASKA)

Alaska's 529 plan, also managed by T. Rowe Price, offers investment options nearly identical to Maryland's plan. A unique feature is the University of Alaska Portfolio which guarantees a return that tracks tuition increases at the University of Alaska. The plan requires a $25 minimum contribution and allows accounts to grow up to $550,000. Expense ratios range from 0.15% to 0.87%. The plan's 5-year CAGR is 12.35%, and its 10-year return is 6.95% (Savingforcollege.com, 2025).

## SMART529 SELECT (WEST VIRGINIA)

West Virginia's SMART529 Select is managed by Hartford Funds and invests in Dimensional Fund Advisors (DFA) mutual funds. The plan includes nine age-based and ten static portfolio options. With a higher initial contribution of $250 and a $550,000 cap, this plan targets families seeking enhanced diversification. Management fees are higher than average, ranging from 0.53% to 0.62%. The plan delivered a 5-year CAGR of 11.29% and a 10-year CAGR of 6.47% (Savingforcollege.com, 2025).

## ISAVE 529 PLAN (IOWA)

The iSave 529 Plan, administered by Ascensus and investing in Vanguard mutual funds, features a wide array of age-based and static options. The plan requires $25 to start and supports maximum balances up to $420,000. Its expense ratios begin at 0.17%. Iowa residents receive a state income tax deduction of up to $3,785 per beneficiary in 2025. The plan delivered a 5-year CAGR of 8.89% and 10-year CAGR of 6.22% (Savingforcollege.com, 2025).

## DELAWARE 529 EDUCATION SAVINGS PLAN (DELAWARE)

Delaware's 529 plan, managed by Fidelity Investments, offers more investment flexibility for 529 plans including age-based portfolios and Fidelity Freedom Funds, but does not include bitcoin or other individual assets/stocks. Contributions start at $15 with balances up to $350,000. Expense ratios, ranging from 0.10% to 0.50%, are among the lowest. Its 5-year CAGR is 9.82%, and its 10-year CAGR is 5.84% (Savingforcollege.com, 2025).

**TABLE 2: RETURNS OF TOP PERFORMING 529 PLANS**

| 529 PLAN | 5-YEAR CAGR | 10-YEAR CAGR | MAXIMUM BALANCE | EXPENSES |
|---|---|---|---|---|
| MARYLAND COLLEGE INVESTMENT | 12.48% | 7.04% | $500,000 | 0.13% -0.67% |
| ALASKA 529 | 12.35% | 6.95% | $550,000 | 0.15%-0.87% |
| SMART529 SELECT | 11.29% | 6.47% | $550,000 | 0.53%-0.62% |
| ISAVE | 8.89% | 6.22% | $420,000 | 0.17% |
| DELAWARE 529 | 9.82% | 5.84% | $350,000 | 0.10%-0.50% |
| AVERAGE 529 PERFORMANCE | 9.00% | 5.50% | $428,000 | 0.10%-1.50% |

# COLLEGE TUITION TRENDS

Over the past decade, the cost of higher education has risen at a significantly faster pace than the general cost of goods and services, as measured by the Consumer Price Index (CPI). Between the academic years 2014–15 and 2024–25, average published tuition and fees at private nonprofit four-year institutions increased from $31,231 to $43,350 (a 38.8% rise). Public four-year in-state tuition increased from $9,139 to $11,610, a 27.0% increase, while out-of-state tuition rose from $22,958 to $30,780, a 34.1% increase (College Board, 2024). The CPI rose from 237.8 in May 2015 to 321.5 in May 2025, marking a cumulative inflation of approximately 35.3% over the same period (U.S. Bureau of Labor Statistics, 2025). Tuition costs, particularly at private universities, have outpaced the general inflation rate. For example, Texas Christian University (TCU) saw tuition and fees rise from $40,720 in 2014–15 to $61,650 in 2024–25, a 51.4% increase that far exceeds both CPI and average tuition inflation (TCU, 2025). The rising cost of tuition requires families to save more and/or generate higher returns on their investments in order to afford college education for their children.

**FIGURE 2: COLLEGE TUITION TRENDS OVER THE LAST 5 AND 10 YEARS**

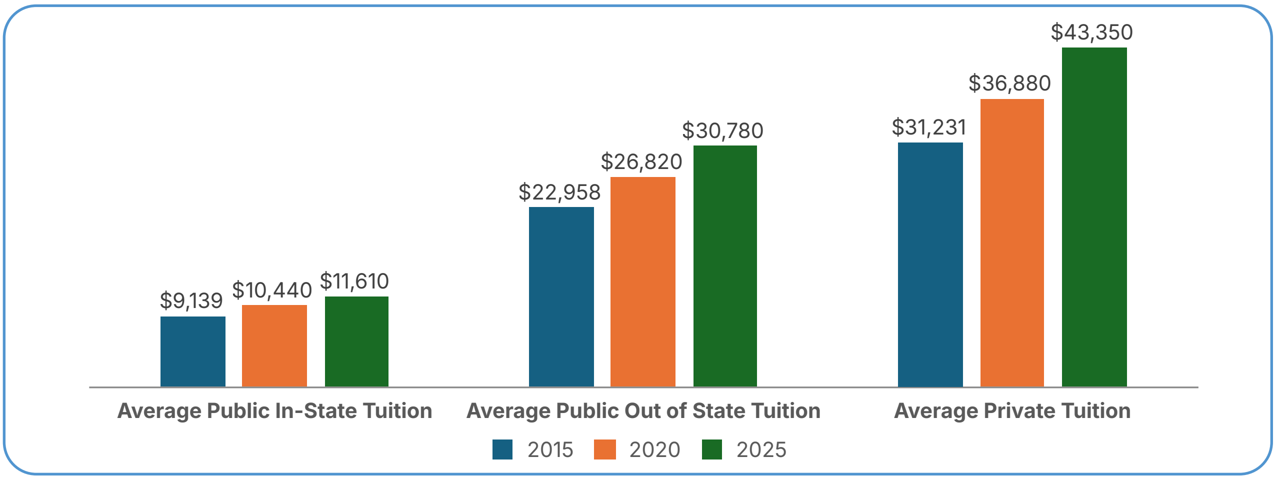
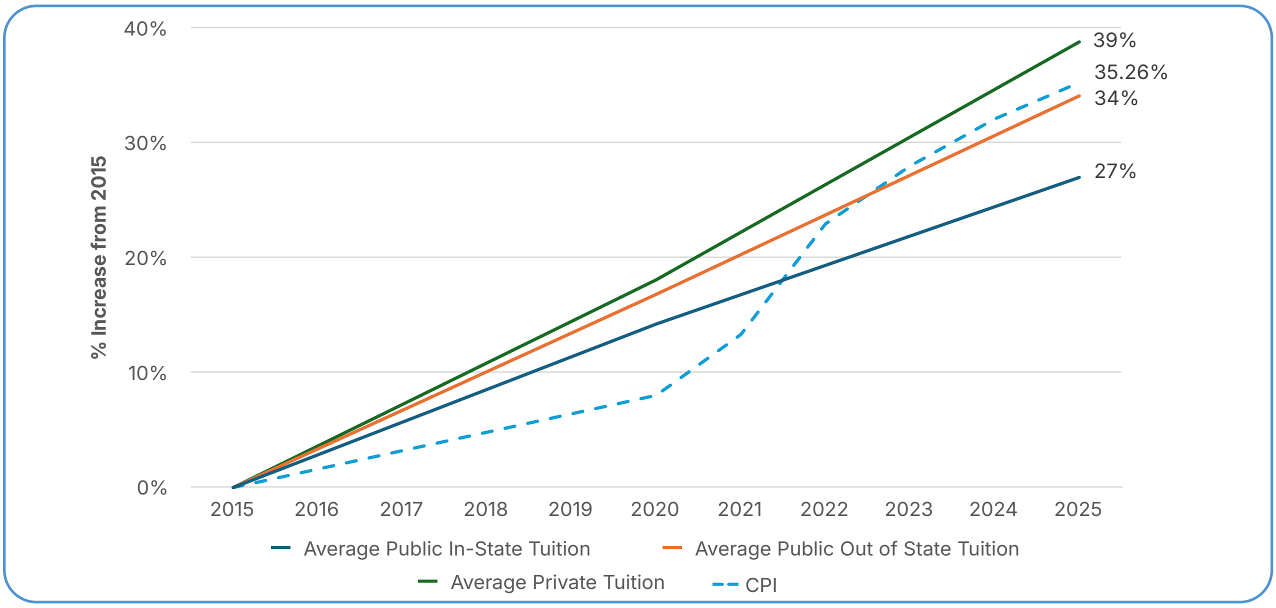



**FIGURE 3: PERCENTAGE INCREASES IN COLLEGE TUITION COMPARED TO CPI OVER THE LAST 10 YEARS**

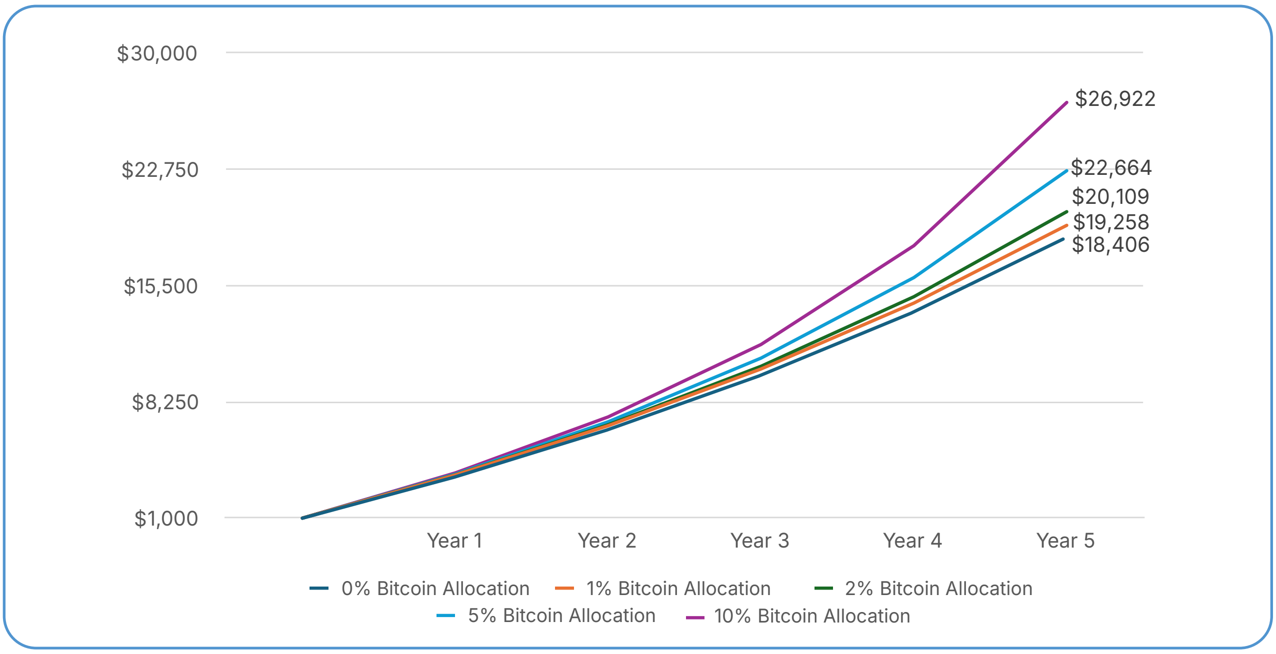


# BITCOIN PRICE PERFORMANCE AND ITS IMPACT ON 529 PLANS

Bitcoin (BTC) has delivered substantial returns over the past decade with significant volatility. Between 2015 and 2025 bitcoin achieved an estimated 10-year CAGR of 82% and a five-year CAGR of 64% (Glassnode, 2025). This performance has been driven by factors such as institutional adoption, bitcoin's capped supply of 21 million coins, and its increasing use as a hedge against monetary inflation. Bitcoin's asymmetric return profile suggests that even small allocations within long-term portfolios can improve purchasing power.

The Maryland 529 plan, recognized as one of the highest-performing 529 plans over the last 5 and 10 years, had a 7.04% CAGR over the last 10 years and a 12.48% CAGR over the last 5 years. A $1,000 initial investment with $200 monthly contributions over the last 10 years in a portfolio with 0% allocation in bitcoin would have grown to $36,711. Without rebalancing, a 1% bitcoin allocation would have increased the portfolio to $145,674, representing a 297% increase in overall portfolio growth compared to the Maryland 529 plan without bitcoin. A 2% bitcoin allocation would have grown the portfolio to $254,637, a 594% increase in total portfolio value compared to no bitcoin allocation. Higher allocations, such as 5% and 10%, would have grown the portfolio to $581,525 and $1,126,340 which resulted in overall portfolio growth of approximately 1,484% and 2,968% over the 10-year period compared to a portfolio without bitcoin.

**FIGURE 4: FIVE YEAR PERFORMANCE OF MARYLAND 529 PLAN WITH BITCOIN ALLOCATIONS**



Annual rebalancing ensures bitcoin does not dominate the entire portfolio. A 1% bitcoin allocation readjusted annually would have increased the portfolio to $39,398, representing a 7.3% increase in total portfolio value compared to the Maryland 529 plan without bitcoin. A 2% bitcoin allocation would have grown the portfolio to $42,272, a 15.1% increase in total portfolio value compared to no bitcoin allocation. Higher allocations, such as 5% and 10% rebalanced annually, would have grown the portfolio to $52,140 and $73,610 which results in overall portfolio growth of approximately 42.0% and 100.5% over the 10-year period compared to a portfolio without bitcoin.

Higher allocations of bitcoin significantly increased returns, with even small allocations increasing overall growth. Below are graphs that show the historical performance of the Maryland 529 over the last 5 and 10 years with various allocations of bitcoin.

**FIGURE 5: TEN YEAR PERFORMANCE OF MARYLAND 529 PLAN WITH BITCOIN ALLOCATIONS**

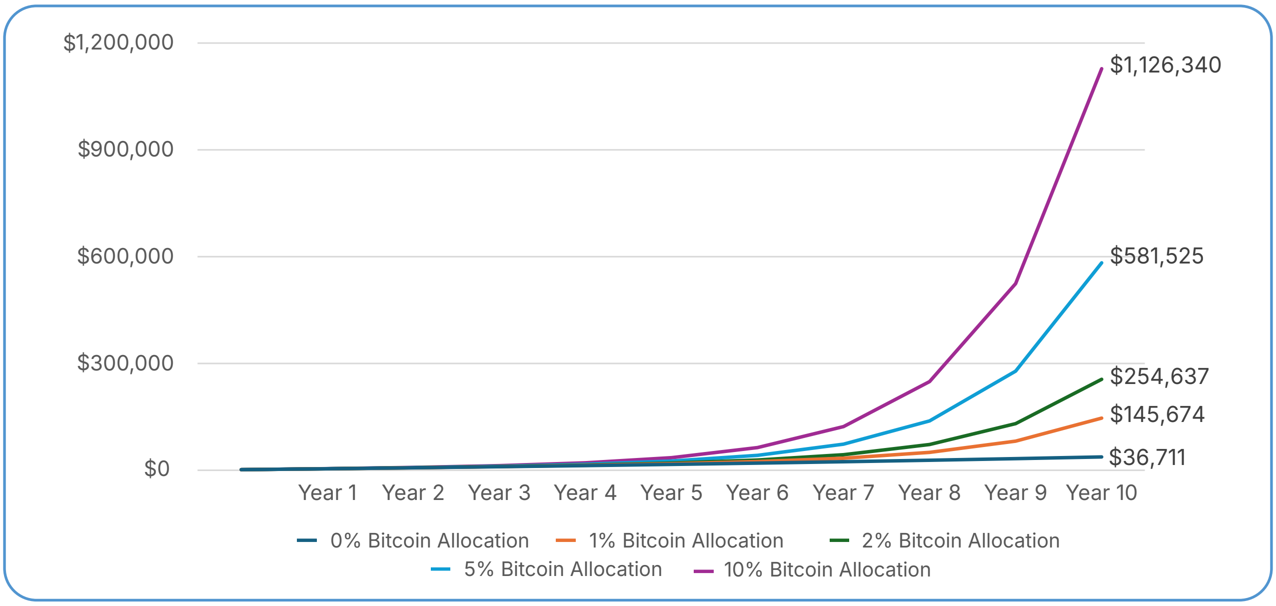
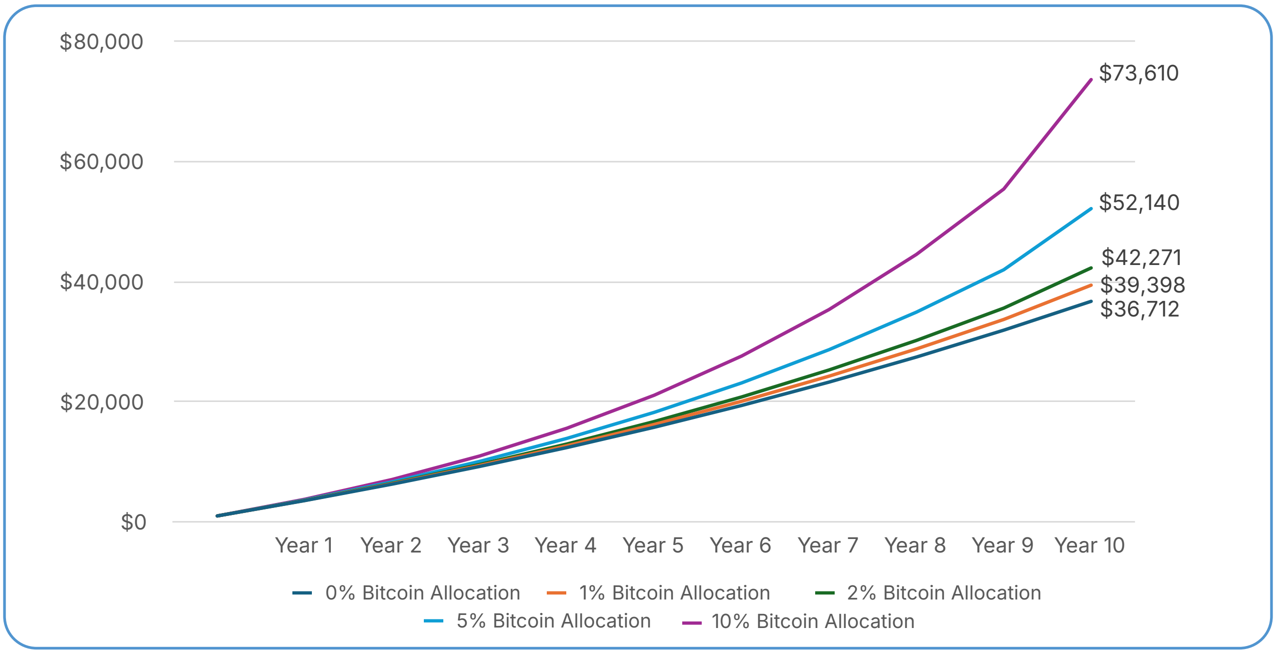



**FIGURE 6: TEN YEAR PERFORMANCE OF MARYLAND 529 PLAN WITH BITCOIN ALLOCATIONS (REBALANCED ANNUALLY)**



# BITCOIN MODEL ANALYZING RISK AND RETURNS

This analysis evaluates the effect of adding bitcoin (BTC) to a traditional equity portfolio and considers the implications for 529 college savings accounts. The data uses the Center for Research in Security Prices (CRSP) Value-Weighted Index which is a broad index of U.S. stocks commonly used in academic finance research as the baseline portfolio. Returns are measured annually from December 2014 through December 2024. BTC returns are based on monthly close prices over the same period (Glassnode, 2025). Risk-free rates were obtained from the Federal Reserve Bank of St. Louis (FRED) 1-Month Constant Maturity Treasury yield series (DGS1MO) for December of each year from 2014 to 2024, along with U.S. Department of the Treasury daily bill rates (Federal Reserve Bank of St. Louis, 2025; U.S. Department of the Treasury, 2025). These annualized yields served as the risk-free rate for calculating Sharpe ratios in the portfolio analysis.

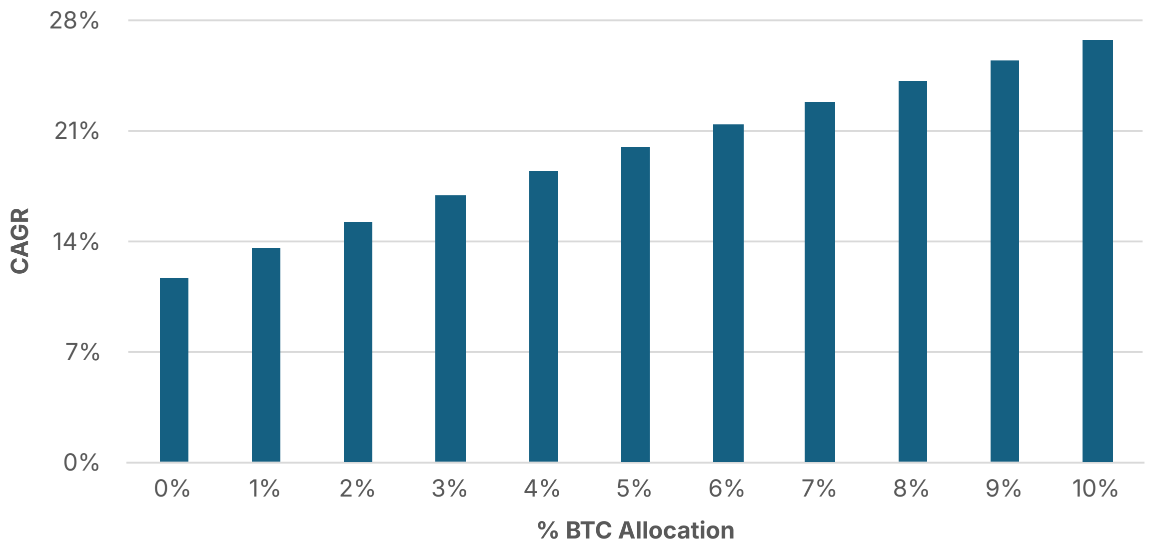
Portfolio returns were calculated with allocations of BTC alongside the CRSP index. Analysis of standard deviations as a measure of volatility and Sharpe ratios as a standard measure of risk-adjusted return were completed. The Sharpe ratio measures the risk-adjusted return of a portfolio. A higher Sharpe ratio signifies a better risk-adjusted portfolio.

Adding BTC to a CRSP portfolio enhances returns and diversification with manageable risk. Trends indicate higher allocations of bitcoin increasing return, while increasing standard deviation and decreasing the Sharpe ratio indicating higher risk. A 1% BTC allocation increased the CAGR from 11.7% to 13.6% while the Sharpe ratio improved from 0.76 to 0.78. A 2% allocation raised CAGR to 15.3%, with a Sharpe ratio of 0.75. A 2% allocation in bitcoin increases returns while maintaining essentially the same level of risk compared to a portfolio with no allocation in bitcoin. Higher allocations of 5% and 10% increased returns to 19.9% and 26.7% CAGR, respectively, but increased volatility to 28.9% and 49.3%, which also lowered Sharpe ratios to 0.63 and 0.50. **This analysis shows that incorporating bitcoin into a portfolio, even at small allocations of 1–2%, can enhance long-term returns without increasing risk.**

Future BTC performance is projected to have a CAGR between 29% and 35% over the next 10 years, lower than its historical 82% 10-year CAGR and 64% 5-year CAGR (Saylor, 2025). This reflects market maturation as more people and institutions adopt bitcoin while still offering growth. Historically for 529 plans, a small BTC allocation increases returns with minimal risk. Even though lower returns are expected in the future, higher allocations towards bitcoin could provide better risk adjusted returns. Bitcoin's price movements are largely uncorrelated with traditional assets and offers a unique diversification benefit to investors. This low correlation asset reduces portfolio risk by diversifying against equity downturns, making it ideal for underperforming 529 accounts needing higher returns without excessive risk (Dwyer, 2025). Adding even a small amount of BTC can increase the performance of a portfolio and act as insurance against inflation and market underperformance.

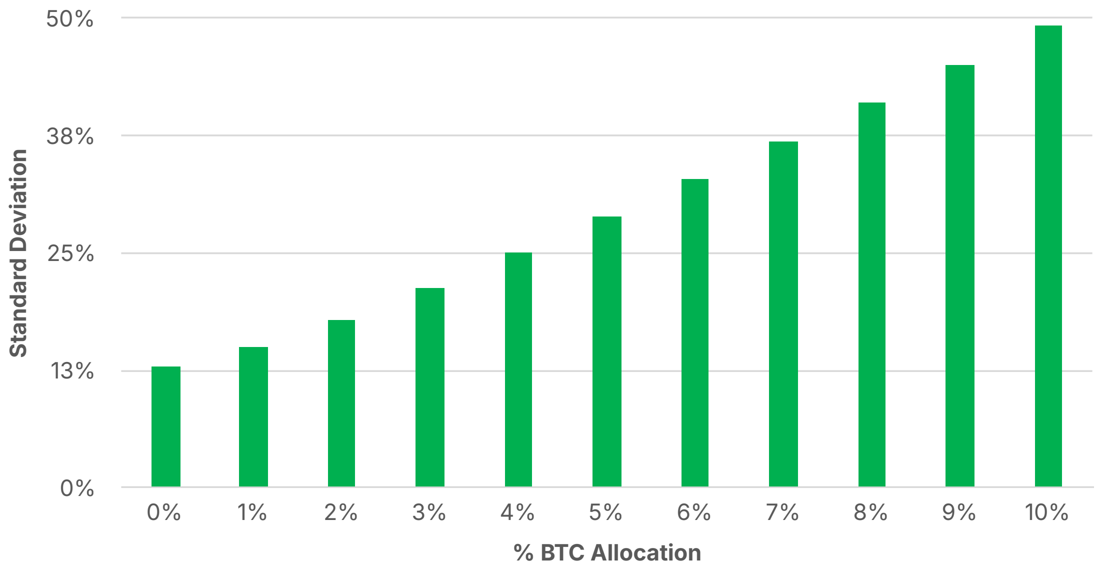
Looking at the time horizon of 529 investments, between 15-18 years, they are a long-term investment. Michael Saylor highlights the importance of holding on to the asset for longer periods of time, stating, "No one has ever lost money holding bitcoin for 4 years" (Saylor, 2025). Allowing bitcoin as an investment option in 529s allows investors seeking exposure to assets like bitcoin the ability to diversify their portfolio, decrease risk, and increase overall growth of their investments.

**FIGURE 7: IMPACT OF BITCOIN ALLOCATION ON PORTFOLIO RETURNS (BASED ON HISTORICAL CRSP INDEX AND BITCOIN PRICES, ANNUALLY REBALANCED)**



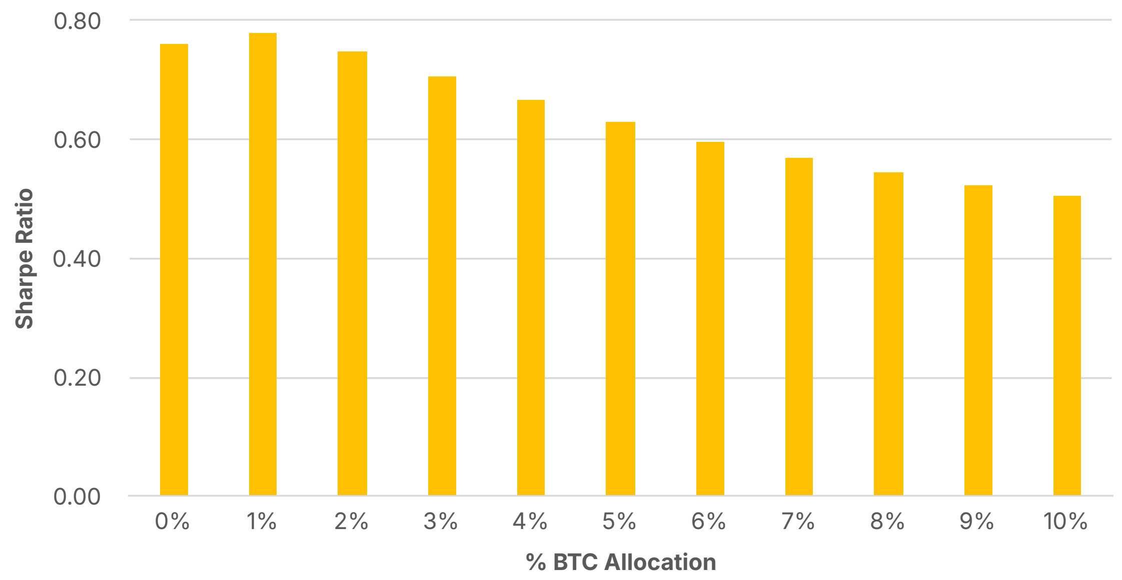

Higher bitcoin allocations increase portfolio returns.

**FIGURE 8: IMPACT OF BITCOIN ALLOCATION ON PORTFOLIO STANDARD DEVIATION (BASED ON HISTORICAL CRSP INDEX AND BITCOIN PRICES, ANNUALLY REBALANCED)**




As bitcoin allocation increases, the portfolio's standard deviation increases.

**FIGURE 9: IMPACT OF BITCOIN ALLOCATION ON RISK. (BASED ON HISTORICAL CRSP INDEX AND BITCOIN PRICES, ANNUALLY REBALANCED)**



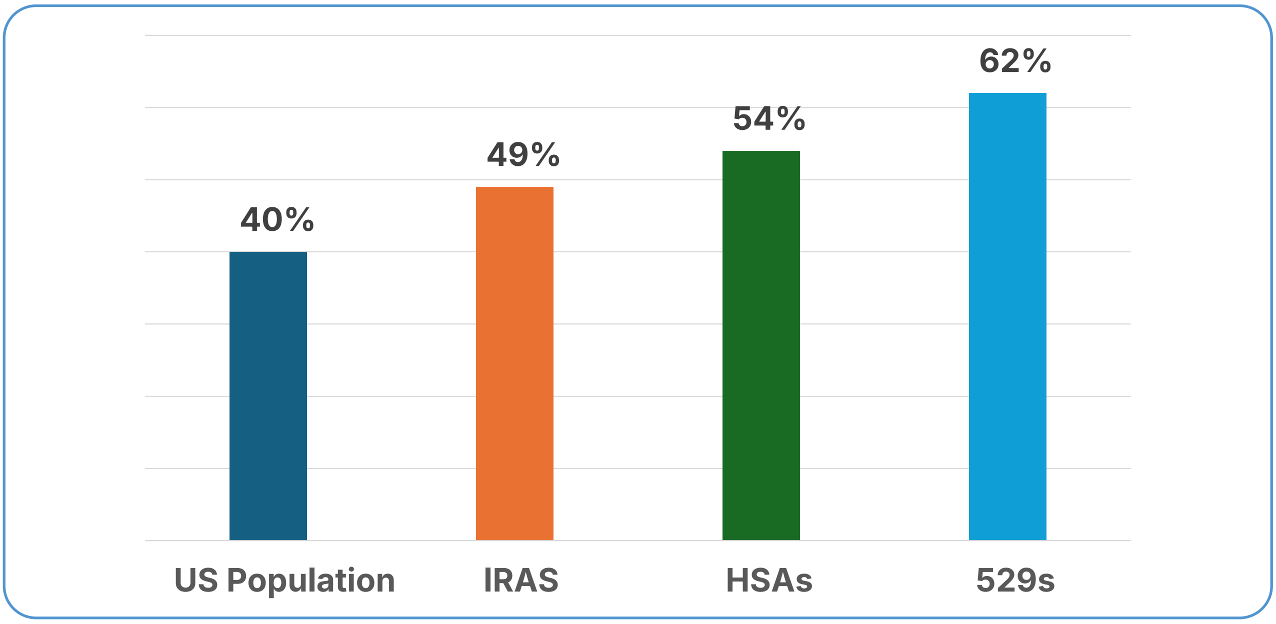

This figure demonstrates the effect of varying bitcoin allocations on portfolio risk, measured by the Sharpe ratio, using historical performance data with annual rebalancing. Small bitcoin allocations reduce overall portfolio risk, increase the Sharpe ratio, and enhance total returns.

# UNNECESSARY 529 INVESTMENT RESTRICTIONS

The exclusion of bitcoin from 529 college savings plans is often justified by reducing risk and protecting the investor. 529s were "designed to balance growth with the need to preserve capital for education expenses" (SEC, Investor Bulletin: An Introduction to 529 Plans, 2023). The argument is that the money in 529 accounts is too valuable to include risky assets like bitcoin in them even though risk analysis suggests otherwise. Data from the CRSP Index (2014–2024) shows that adding a 1–2% bitcoin allocation to a traditional equity portfolio increases the compound annual growth rate with only a marginal increase in standard deviation while improving the Sharpe ratio. The Sharpe ratio improves from 0.76 to 0.78 for a 1% bitcoin allocation and only decreases to 0.75 for a 2% allocation, which indicates enhanced risk-adjusted returns for a small allocation. A 1% bitcoin allocation lowers risk and increases returns, while a 2% allocation maintains a similar level of risk to a traditional equity portfolio with higher returns.

The other argument against bitcoin in 529 plans is the need to protect the investor from making poor investment decisions. Financial institutions have suggested that "complex assets like cryptocurrencies require a level of sophistication that most retail investors, including 529 account holders, may not possess" (Goldman Sachs Investor Call, 2024). 62% of 529 plan investors hold a college degree or higher, compared to 54% for HSA investors, 49% for IRA investors, and 40% for the general U.S. population (U.S. Census Bureau, 2024). Assuming this high education level correlates with greater financial literacy, this suggests 529 investors are well-equipped to understand diversified portfolios. There is no justifiable reason to restrict investment options in 529 plans. Investors in 529 plans should have the same financial freedom as those with IRAs and HSAs. Permitting bitcoin exposure in 529s is crucial to ensuring families maximize their investment returns, helping them better meet the rising costs of education.

**FIGURE 10: PERCENT OF INVESTORS WITH A COLLEGE DEGREE OR HIGHER COMPARED TO THE US GENERAL POPULATION**



# CONCLUSION

With college tuition costs rising, families face challenges in saving effectively for education expenses. Traditional 529 plans, while offering the benefit of tax-advantaged growth, are restricted by limited investment options. These restrictions limit their overall performance and make it more challenging for families to save against rising tuition costs. Incorporating bitcoin into 529 portfolios, even at small allocations of 1–2%, can enhance long-term returns without substantially increasing risk. By allowing bitcoin access, 529 plans could more effectively fulfill their purpose of helping households meet future educational needs, ensuring families' savings keep pace in an era of rapid financial change.

As such, federal and state policies should be revised to allow bitcoin exposure and expand 529 investor options. Incorporating bitcoin into 529 plans gives investors more financial freedom and allows families to have the best possible chance to save for future education costs.

The following page provides policy recommendations to this end.

# POLICY RECOMMENDATIONS FOR THE FUTURE OF 529 PLANS

## 1. MODERNIZE 529 PLANS THROUGH FEDERAL GUIDANCE SUPPORTING THE INCLUSIONS OF BITCOIN:

Federal policy should provide guidance to integrate bitcoin into 529 plans, ensuring that 529 plans offer investment opportunities equal to HSAs and IRAs. Clear guidance would streamline adoption across state bureaucracies and would enable bitcoin allocations in 529s. This option provides restructuring of all 49 state 529 plans and requires congressional action and executive action. Modernization of 529 plans at the federal level would require an amendment to the tax code through congressional approval, or an executive order similar to the guidance provided in Executive Order 14330, Democratizing Access to Alternative Assets for 401(k) Investors" signed in August 2025. Such an order would issue a formal statement clarifying that bitcoin is allowed as an investment in 529 plans, like Executive Order 14330 in its offering access to bitcoin for 401(k) investors. Providing federal guidance that allows bitcoin allocations in 529 plans would give investors greater financial freedom and access to assets that can hedge against inflation, yielding higher returns and reducing portfolio risk.

## 2. CREATE A "FREEDOM 529 PLAN," INCLUDING BITCOIN, FOR THE STATE OF WYOMING:

Changes are implemented more efficiently when starting from a clean slate. Established 529 plans, encumbered by entrenched state and financial institution stakeholders, often face resistance to innovation. A new plan presents an opportunity to expand 529 offerings with minimal obstacles. Wyoming, the only state without a 529 plan and a leader in pro-bitcoin policy, is uniquely positioned to create a "Freedom 529" that could serve investors from all states and serve as a model for college saving plans. This option offers the most comprehensive and efficient path toward investor freedom at the state level.

## 3. MODERNIZE INDIVIDUAL STATE PLANS EXPANDING ACCESS TO BITCOIN:

529 plans should adopt modern financial practices. This would include allowing the same investor freedoms available in IRA and HSA accounts. Additionally. States should collaborate with financial institutions that oversee 529 plans to implement ACH capabilities and lobby the federal government to increase portfolio adjustment frequency. These changes would help modernize 529s and diversify investment choice. Change would be slow as the state plan administrators and advisors are resistant to change that could lower control and profit. The state plans that transform and modernize their 529s will attract investors from across the country.

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