The Optimal College Savings Portfolio

529 Expert

Executive Summary

529 prepaid plans (Prepaids) allow investors to save for higher education by "locking-in" current costs towards future higher education. By contrast, 529 savings plans offer an underlying mix of equity and fixed-income mutual funds and ETFs. Prepaids generally track a national or state-based college tuition inflation index. Tuition & fee increases have exceeded consumer price increases in every year on record. Stock and bond markets also have low and sometimes negative correlations to historical college tuition & fee changes. As a result, there are diversification benefits to holding a portion of assets indexed to college tuition inflation alongside traditional higher education investment vehicles. In particular, the addition of Prepaids to a more traditional investment mix of equity and fixed income securities improves the risk-adjusted return of the overall portfolio.

529 Expert modeled conservative, moderate, and aggressive 529 savings plan age-based portfolio glidepaths[1] from 1997-2018 using a combination of the S&P 500 Index, Bloomberg Barclays U.S. Aggregate Bond Index, and the 3-month T-Bill to compare against college tuition & fee inflation rates over the same period. 529 Expert used college tuition & fee inflation rates taken from College Board data as a proxy for Prepaid returns.[2]

In 114 combinations of model savings plan (Savings) and prepaid plan portfolios the data showed that returns fell slightly while the Sharpe ratio improved dramatically when adding Prepaid assets to every possible college investment portfolio. In fact, data would suggest an optimal investment portfolio include 50% or more of assets in Prepaids to optimize overall risk-return characteristics.

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[1] See, "Regarding Glidepaths" in the section, "Additional Methodology & Assumptions."
[2] Table A; note that this assumes withdrawals are made at participating schools and would, therefore, take advantage of the full tuition & fee inflation rate. Withdrawals made to out-of-program network schools, such as out-of-state schools in the case of state-sponsored prepaid plans or out-of-network schools in the case of Private College 529, would have dramatically lower rates of return.

The addition of Prepaids improves the risk-adjusted performance of a college investment portfolio, but they also carry unique risks:

1. About 70% of high school graduates go on to pursue a higher education.[3] Of those attending a 4-year school, about 62% attend a public school, with the remaining attending private schools.[4] Not knowing which school their beneficiary might attend limits the appeal of a Prepaid. If a beneficiary does not attend an in-network school, the return is usually reduced, often dramatically, decreasing the benefit of using the product.
2. More than half of state-sponsored Prepaids have closed to new investments or liquidated due to actuarial concerns or problems. State-sponsored Prepaids are generally guaranteed by the state, though, and no state has defaulted on its obligation to investors.
3. Prepaids have limited availability and restrictions. Though some programs are available nationwide, most state-sponsored prepaid plans restrict participation to state residents. And, while less common, some prepaid plans still charge account fees that can limit their appeal to lower-income investors. Further, some prepaid plans do not cover room, board and other costs that are technically federally qualified.
4. Limited advisor support. Whereas the more popular 529 savings plans may have dedicated advisor staff, marketing literature, and other resources specific to financial professionals, prepaid plans are predominately direct-sold. Compensation would need to be taken from another account, such as a brokerage account.
5. Potential changes to federal law or other external market dynamics, such as improved college affordability mandated by legislation or broader changes in college pricing resulting in lowered inflation, may reduce the benefit of holding assets inside a Prepaid.

Prepaid plans are most attractive to investors who:

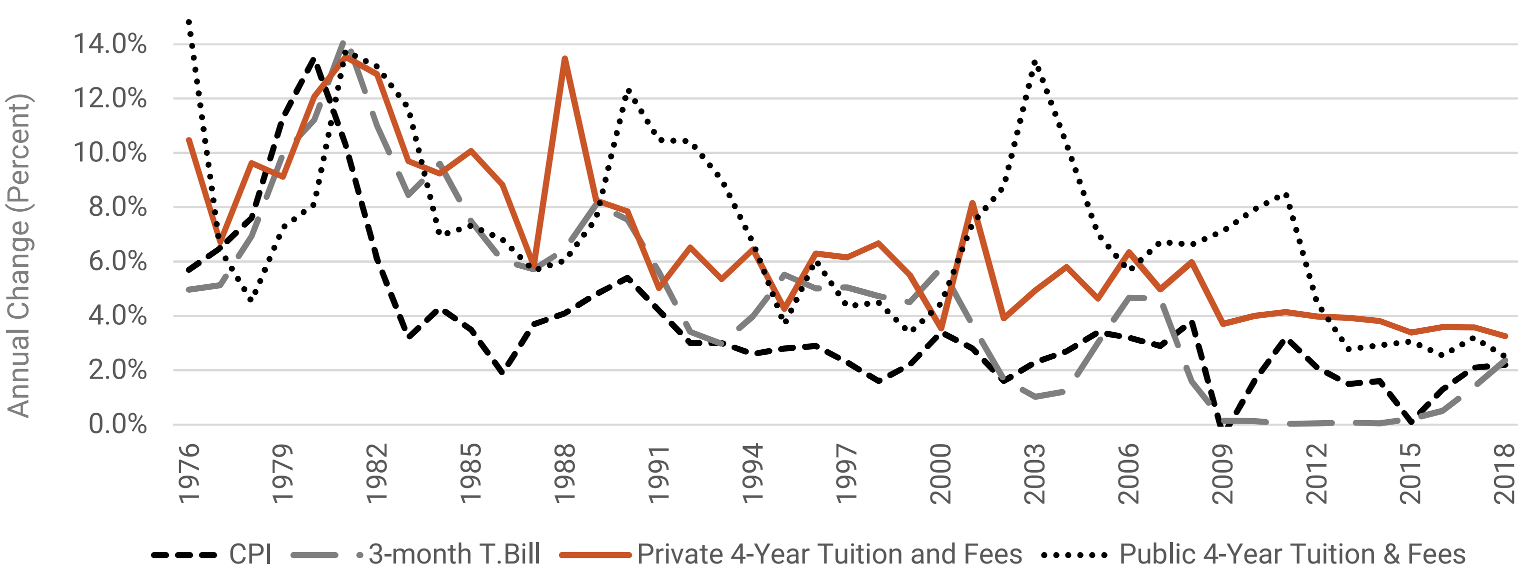
- Know with reasonable certainty where their beneficiary will attend school. For example, multi-generation legacy parents have a higher likelihood of sending their child to their alma mater. Low-income families are more likely to attend in-state schools.[5]
- Are particularly risk-averse, since they have historically shown above-market Sharpe ratios.
- Have significant assets available to immediately invest. High-net worth clients can lock-in their tuition rate.

The Growing Need For Education Planning

College planning is one of the most rapidly-growing specialties among financial professionals. A Gallup poll of parents with children under 18 found that paying for college was their top financial concern, even ahead of medical costs and retirement. For the average American, a college education is the second largest single expense an individual will incur after their home. In over 93% of annual periods from 1976 through 2018, college tuition inflation exceeded consumer inflation, meaning college purchasing power has eroded faster than the dollar. It should come as no surprise that more investors are looking to their financial advisors for guidance.

529 savings plans have quickly become the gold standard in college investment vehicles since their introduction over 25 years ago, with the Kiddie Tax limiting the appeal of UGMA/UTMA accounts and many investors earning out of Coverdell Education Savings Accounts. But too often investors look at their 529 account as mutually exclusive. Investors will use their 401(k) along with an IRA and other taxable accounts to achieve their retirement goals but rely on a single 529 account. The goal of this analysis was to determine whether an investor using a 529 savings plan would benefit from also investing in a 529 prepaid plan.

Figure 1. Historical Annual Inflation Changes By Index



[3] Bureau of Labor Statistics, 2018 Actual Data
[4] National Center for Education Statistics, 2016 Actual Data
[5] Sallie Mae, How America Pays For College, 2018

Table A. Average Tuition and Fees and Room and Board (Enrollment-Weighted) in Current Dollars 1971-72 to 2018-19

	Tuition & Fees in Current Dollars						Tuition & Fees and Room & Board in Current Dollars			
Academic Year	Private Nonprofit Four-Year	One-Year % Change	Public Four-Year	One-Year % Change	Public Two-Year	One-Year % Change	Private Nonprofit Four-Year	One-Year % Change	Public Four-Year	One-Year % Change
76-77	$2,530	10.5%	$620	14.8%	$280	12.0%	$3,980	8.2%	$1,940	9.0%
77-78	$2,700	6.7%	$660	6.5%	$310	10.7%	$4,240	6.5%	$2,040	5.2%
78-79	$2,960	9.6%	$690	4.5%	$330	6.5%	$4,610	8.7%	$2,150	5.4%
79-80	$3,230	9.1%	$740	7.2%	$360	9.1%	$5,010	8.7%	$2,330	8.4%
80-81	$3,620	12.1%	$800	8.1%	$390	8.3%	$5,590	11.6%	$2,550	9.4%
81-82	$4,110	13.5%	$910	13.8%	$430	10.3%	$6,330	13.2%	$2,870	12.5%
82-83	$4,640	12.9%	$1,030	13.2%	$470	9.3%	$7,130	12.6%	$3,200	11.5%
83-84	$5,090	9.7%	$1,150	11.7%	$530	12.8%	$7,760	8.8%	$3,430	7.2%
84-85	$5,560	9.2%	$1,230	7.0%	$580	9.4%	$8,450	8.9%	$3,680	7.3%
85-86	$6,120	10.1%	$1,320	7.3%	$640	10.3%	$8,900	5.3%	$3,860	4.9%
86-87	$6,660	8.8%	$1,410	6.8%	$660	3.1%	$9,850	10.7%	$4,050	4.9%
87-88	$7,050	5.9%	$1,490	5.7%	$740	12.1%	$10,460	6.2%	$4,200	3.7%
88-89	$8,000	13.5%	$1,580	6.0%	$800	8.1%	$11,660	11.5%	$4,460	6.2%
89-90	$8,660	8.3%	$1,700	7.6%	$840	5.0%	$12,560	7.7%	$4,720	5.8%
90-91	$9,340	7.9%	$1,910	12.4%	$910	8.3%	$13,480	7.3%	$5,070	7.4%
91-92	$9,810	5.0%	$2,110	10.5%	$1,170	28.6%	$14,190	5.3%	$5,450	7.5%
92-93	$10,450	6.5%	$2,330	10.4%	$1,120	-4.3%	$15,030	5.9%	$5,830	7.0%
93-94	$11,010	5.4%	$2,540	9.0%	$1,250	11.6%	$15,800	5.1%	$6,210	6.5%
94-95	$11,720	6.4%	$2,710	6.7%	$1,310	4.8%	$16,500	4.4%	$6,620	6.6%
95-96	$12,220	4.3%	$2,810	3.7%	$1,330	1.5%	$17,380	5.3%	$6,740	1.8%
96-97	$12,990	6.3%	$2,980	6.0%	$1,470	10.5%	$18,360	5.6%	$7,140	5.9%
97-98	$13,790	6.2%	$3,110	4.4%	$1,570	6.8%	$19,360	5.4%	$7,470	4.6%
98-99	$14,710	6.7%	$3,250	4.5%	$1,550	-1.3%	$20,460	5.7%	$7,770	4.0%
99-00	$15,520	5.5%	$3,360	3.4%	$1,650	6.5%	$21,480	5.0%	$8,080	4.0%
00-01	$16,070	3.5%	$3,510	4.5%	$1,640	-0.6%	$22,240	3.5%	$8,440	4.5%
01-02	$17,380	8.2%	$3,770	7.4%	$1,610	-1.8%	$23,860	7.3%	$9,030	7.0%
02-03	$18,060	3.9%	$4,100	8.8%	$1,670	3.7%	$24,870	4.2%	$9,670	7.1%
03-04	$18,950	4.9%	$4,650	13.4%	$1,910	14.4%	$26,060	4.8%	$10,530	8.9%
04-05	$20,050	5.8%	$5,130	10.3%	$2,080	8.9%	$27,470	5.4%	$11,380	8.1%
05-06	$20,980	4.6%	$5,490	7.0%	$2,180	4.8%	$28,740	4.6%	$12,120	6.5%
06-07	$22,310	6.3%	$5,800	5.6%	$2,270	4.1%	$30,500	6.1%	$12,840	5.9%
07-08	$23,420	5.0%	$6,190	6.7%	$2,290	0.9%	$31,990	4.9%	$13,560	5.6%
08-09	$24,820	6.0%	$6,600	6.6%	$2,380	3.9%	$33,800	5.7%	$14,370	6.0%
09-10	$25,740	3.7%	$7,070	7.1%	$2,570	8.0%	$35,070	3.8%	$15,240	6.1%
10-11	$26,770	4.0%	$7,630	7.9%	$2,740	6.6%	$36,470	4.0%	$16,180	6.2%
11-12	$27,880	4.1%	$8,280	8.5%	$2,970	8.4%	$37,970	4.1%	$17,160	6.1%
12-13	$28,990	4.0%	$8,650	4.5%	$3,150	6.1%	$39,450	3.9%	$17,820	3.8%
13-14	$30,130	3.9%	$8,890	2.8%	$3,240	2.9%	$40,960	3.8%	$18,380	3.1%
14-15	$31,280	3.8%	$9,150	2.9%	$3,340	3.1%	$42,450	3.6%	$18,930	3.0%
15-16	$32,340	3.4%	$9,430	3.1%	$3,400	1.8%	$43,880	3.4%	$19,570	3.4%
16-17	$33,500	3.6%	$9,670	2.5%	$3,460	1.8%	$45,350	3.4%	$20,150	3.0%
17-18	$34,700	3.6%	$9,980	3.2%	$3,560	2.9%	$46,990	3.6%	$20,790	3.2%
18-19	$35,830	3.3%	$10,230	2.5%	$3,660	2.8%	$48,510	3.2%	$21,370	2.8%

NOTE: Average tuition and fee prices reflect in-district charges for public two-year institutions and in-state charges for public four-year institutions.

SOURCES: College Board, Annual Survey of Colleges; NCES, Digest of Education Statistics; NCES, IPEDS Fall Enrollment data.

Seeking Diversification And Returns

Diversification is the most basic form of risk management in investing. Within a 529 savings plan this usually means using diversified mutual funds and ETF portfolios. However, there are additional diversification benefits between 529 program types. Prepaid 529 plans are similar to TIPS (Treasury Inflation-Protected Securities), but instead of following the CPI (Consumer Price Index) prepaid 529 plans follow the respective plan's selected college tuition inflation index. For a state program this is usually linked to the tuition rates among in-state public schools. The Florida Prepaid plan, for example, uses tuition and fee rates based on a weighted average of fees charged by Florida colleges and universities. The Private College 529 Plan varies by the tuition and fee rate increases at its member institutions.

The varied benchmarks between plans is a unique challenge in benchmarking Prepaids as a whole. To represent the broadest number of plans, 529 Expert used national annual price change data from the College Board as its measure of tuition inflation.[6] The annual "4-Year Tuition & Fees" changes at Public and Private Universities were selected from 1976 through 2018, and then again as a subset from 1997 to 2018.

These two time periods of data were used for three reasons:

1. To get a larger sample set of data from which to demonstrate theoretical returns.
2. To show returns and price changes since the creation of 529 plans in 1996.
3. To mimic a 0 – 22 year investment time period, as if a family were investing for their child's college education.

These data sets were proxies for the potential annual returns an investor would see from a prepaid 529 plan. The drawback to this methodology is that it does not reflect actual plan returns, but is the closest reasonable proxy available. Further, it assumes that the Prepaid participant will use assets at an in-state or in-network school. Most Prepaid plans have reduced benefits for using out-of-network schools. As a result, clients with reasonable certainty of school choice stand to benefit most from a prepaid 529 plan.

The other challenge is how widely performance varies between savings plans. Investors can select from a number of different options within these plans. However, over 80% of assets are invested in age-based portfolios. 529 Expert replicated glidepath (age-based) models using a combination of index data and model portfolios to approximate returns an investor might see from 1997 through 2018.[7] This represented the most recent 22 annual periods, or the time it would take from birth to graduation at a four-year school.

Table B. Correlation from 1996 - 2018	60/40 S&P/Barclays Agg	Private 4-Year Tuition and Fees	Public 4-Year Tuition & Fees
529 Conservative Age-Based Glidepath	0.64	0.41	0.14
529 Moderate Age-Based Glidepath	0.82	0.28	0.06
529 Aggressive Age-Based Glidepath	0.91	0.15	0.02
60/40 S&P/Barclays Agg	1.00	0.00	-0.08

Benefits Of Complementary Portfolios

Calculating correlation between market portfolios and prepaid tuition portfolios is the first step to determining if there is value between a savings and prepaid plan. If highly correlated, there is less likelihood to be a diversification benefit.

The model savings plan glidepath portfolios had a low correlation to tuition & fee changes at both public and private four-year school, ranging from 0.02 to 0.41. The most highly-correlated portfolios were the Conservative benchmark and the Private 4-Year Tuition & Fee benchmark, likely due to the lower volatility and fixed-income like returns of the Conservative benchmark. Both tuition & fee benchmarks had lower standard deviations and returns than any of the savings plan benchmarks, meaning they had lower risk and return potential, but were consistently positive.

If in 1976 an investor bought and held a security indexed to tuition inflation their minimum annual return would have been 2.51%, and they would have had a CAGR (compound annual growth rate) between 6.60% and 7.08%, annually.[8] Average returns over that time were still higher among market portfolios, with the S&P 500 averaging 11.10% annually. A straight 60/40 split between the S&P 500 and the Bloomberg Barclays U.S. Aggregate Bond Index would have yielded a return of 9.88% relative to Private and Public tuition & fee increases of 6.60% and 7.08%, respectively.

But looking at the most recent 22-year period and glidepath portfolios changes the metrics dramatically. It is not realistic that a 529 investor would make a pure play on the S&P 500 or hold a static portfolio of 60% S&P 500 and 40% Bloomberg Barclays U.S. Aggregate Bond Index. Since most 529 savings plan investments are allocated to age-based portfolios, those are the most relevant metrics. Returns on portfolios that become more conservative over time had a lower CAGR over the more recent period, as shown in Table C (next page).

[6] Table A; College Board compiles its database through a combination of its Annual Survey of Colleges, a Web-based survey of nearly 4,000 accredited undergraduate colleges and universities in the U.S., National Center for Education Statistics, and IPEDs (Integrated Postsecondary Education Data System). It represents the best available tuition, fee, and other higher education financial data currently available.

[7] See, "Additional Methodology & Assumptions." There are limitations to this methodology given it will not reflect actual investor returns and cannot predict future model portfolios. However, these proxies reflected the most fair representation of their investments to determine if there would be value combining a typical age-based savings product with a prepaid plan in terms of risk-adjusted performance over the time period.

[8] Average annual returns are measured by geometric mean to account for compounding

Table C. Price Change Comparison By Index		CAGR 1976 - 2018	CAGR 1996 - 2018
	CPI	3.64%	2.15%
	S&P 500	11.10%	7.64%
	Bloomberg Agg Bond Index	7.27%	4.96%
	3-month T.Bill	4.50%	2.10%
	10-Yr T. Bond	7.03%	4.97%
	60/40 S&P/Barclays Agg	9.88%	7.03%
Age-Based Model Portfolios	Conservative	5.11%	5.11%
	Moderate	5.32%	5.32%
	Aggressive	5.77%	5.77%
Tuition & Fees Model Indices	Private 4-Year	6.60%	4.72%
	Public 4-Year	7.08%	5.77%

The Importance Of Risk-Adjusted Returns

Harry Markowitz's Modern Portfolio Theory posits that investors – given equal opportunity – will seek the portfolio that will optimize their return given a level of risk. An investor could diversify their portfolio by investing in a lottery ticket, but it is not going to be a viable retirement strategy. This is why measuring return relative to risk is so important.

Nobel laureate William F. Sharpe developed the Sharpe ratio to help investors better understand this relationship between risk and return. The ratio measures a portfolios' excess return beyond what the investor could have gotten with zero risk over the portfolio's risk. As a result, you get your return per unit of risk, allowing the investor to compare different asset classes. The higher the number the more return per unit of risk.

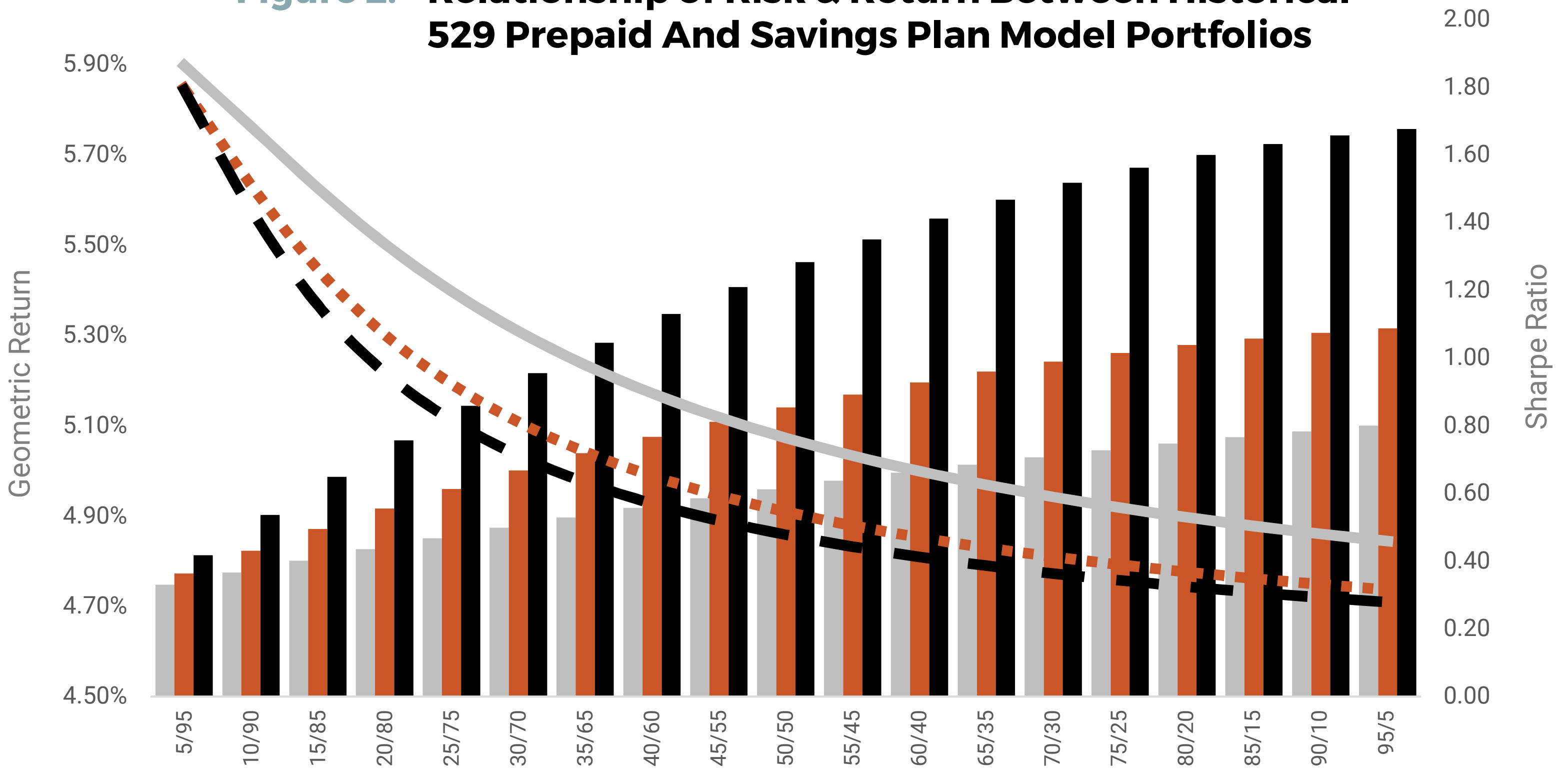
529 Expert looked at multiple combinations to determine Sharpe Ratios for model portfolios:

- Combinations of a 60/40 S&P 500 and Bloomberg Barclays U.S. Aggregate Bond Index (Market Portfolio) with a Prepaid Private School Index, and the Market Portfolio with a Prepaid Public School Index using data from 1976–2018.
- Combinations of model 529 savings plan Conservative, Moderate, and Aggressive portfolios with a prepaid private school index, and the Market Portfolio with a prepaid public school index using data from 1997–2018.

Results showed that prepaid plans typically offered the best possible return per unit of risk given historical return metrics over both the 1976– and 1996–2018 time periods (see Table D. Sharpe Ratio by Portfolio Combination). By almost every measurement you cannot have too much allocated to prepaid plans if you look at returns over the past 22 years. Even from 1976–2018 the value of a static market portfolio is limited at around 15% of the optimal college savings portfolio.

Not only is the risk-adjusted return, as measured by the Sharpe ratio, superior to potential returns from a savings plan, it exceeds the average and geometric averages for all but the most aggressive portfolios, as well. Considering that average historical college inflation has ranged between 6.60% and 7.08% since 1976, and between 4.72% and 5.77% since 1996, prepaid plans set a very high bar in terms of return potential relative to other investment options, and especially so when taking risk into account

Figure 2. Relationship of Risk & Return Between Historical 529 Prepaid And Savings Plan Model Portfolios



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Note: Model uses Private Tuition & Fee data index shown here. Public Tuition & Fee data not shown.

TABLE D. Sharpe Ratio by Portfolio Combination

	Mostly Model Savings Portfolio					←→		Mostly Model Prepaid Using PRIVATE Not-for-Profit Tuition & Fees (Current Dollar)											
Glidepath and Metric	95/5	90/10	85/15	80/20	75/25	70/30	65/35	60/40	55/45	50/50	45/55	40/60	35/65	30/70	25/75	20/80	15/85	10/90	5/95
Conservative Geometric Return	5.10%	5.09%	5.07%	5.06%	5.05%	5.03%	5.01%	5.00%	4.98%	4.96%	4.94%	4.92%	4.90%	4.87%	4.85%	4.83%	4.80%	4.77%	4.75%
Moderate Geometric Return	5.32%	5.31%	5.29%	5.28%	5.26%	5.24%	5.22%	5.20%	5.17%	5.14%	5.11%	5.08%	5.04%	5.00%	4.96%	4.92%	4.87%	4.82%	4.77%
Aggressive Geometric Return	5.76%	5.74%	5.72%	5.70%	5.67%	5.64%	5.60%	5.56%	5.51%	5.46%	5.41%	5.35%	5.28%	5.22%	5.14%	5.07%	4.99%	4.90%	4.81%
Conservative Sharpe Ratio	0.46	0.48	0.50	0.53	0.56	0.59	0.63	0.67	0.71	0.76	0.83	0.90	0.98	1.08	1.20	1.34	1.50	1.68	1.87
Moderate Sharpe Ratio	0.32	0.33	0.35	0.37	0.39	0.41	0.44	0.47	0.51	0.55	0.59	0.65	0.72	0.81	0.92	1.07	1.26	1.51	1.80
Aggressive Sharpe Ratio	0.28	0.29	0.31	0.32	0.34	0.36	0.39	0.41	0.44	0.48	0.52	0.57	0.63	0.71	0.82	0.96	1.16	1.44	1.79

	Mostly Model Savings Portfolio					←→		Mostly Model Prepaid Using PUBLIC Not-for-Profit Tuition & Fees (Current Dollar)											
Glidepath and Metric	95/5	90/10	85/15	80/20	75/25	70/30	65/35	60/40	55/45	50/50	45/55	40/60	35/65	30/70	25/75	20/80	15/85	10/90	5/95
Conservative Geometric Return	5.15%	5.20%	5.24%	5.28%	5.31%	5.35%	5.39%	5.42%	5.46%	5.49%	5.52%	5.55%	5.59%	5.61%	5.64%	5.67%	5.70%	5.72%	5.74%
Moderate Geometric Return	5.37%	5.41%	5.46%	5.50%	5.53%	5.57%	5.60%	5.63%	5.65%	5.68%	5.70%	5.71%	5.73%	5.74%	5.75%	5.76%	5.77%	5.77%	5.77%
Aggressive Geometric Return	5.81%	5.85%	5.89%	5.92%	5.94%	5.96%	5.98%	5.99%	6.00%	6.00%	6.00%	5.99%	5.98%	5.96%	5.94%	5.91%	5.88%	5.85%	5.81%
Conservative Sharpe Ratio	0.47	0.50	0.53	0.57	0.61	0.65	0.70	0.75	0.81	0.87	0.94	1.01	1.08	1.14	1.21	1.26	1.30	1.31	1.31
Moderate Sharpe Ratio	0.32	0.34	0.37	0.39	0.42	0.46	0.49	0.54	0.58	0.64	0.70	0.77	0.85	0.94	1.03	1.13	1.22	1.29	1.31
Aggressive Sharpe Ratio	0.28	0.30	0.32	0.35	0.37	0.40	0.43	0.46	0.50	0.55	0.61	0.67	0.74	0.83	0.94	1.05	1.17	1.27	1.32

Portfolios are comprised primarily of the model 529 savings plan glidepath model at left, starting at 95% savings and 5% of the prepaid model portfolios (as denoted by private and public 4-year school tuition & fee changes, respectively. The portfolio shifts to include more of the prepaid model at right, with 5% savings and 95% prepaid.

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Shown visually, the data in Figure 2. illustrates the risk-adjusted benefit of holding a sizable portion of assets inside a Prepaid portfolio, as represented by the Private Tuition & Fee Index.[9] As the portfolio is weighted more heavily to the model savings plan portfolios the potential return increases slightly while the risk-adjusted return declines sharply. Conservative portfolios are affected the most, while aggressive portfolios are affected the least, but every portfolio benefits from an allocation to Prepaids on a risk-adjusted basis.

The Sharpe ratio is not foolproof. A high Sharpe might only assure the investor that their low-yield return was at an even lower risk. Adding additional assets to the Prepaid allocation of a combination Prepaid and Savings portfolio improves the risk-adjusted return, but also reduces the overall return. The Sharpe ratio also relies on historical data and assumes that the distribution curve, as measured by standard deviation, is normal. Future returns may not behave like historical returns due to any number of external events. As noted earlier, these assumptions rely on the investor making withdrawals from a Prepaid for use at a participating college or university.

What's The Catch?

"Guaranteed" does not mean "without risk." While all 529 plan withdrawals must be used at an accredited school to be considered qualified withdrawals, prepaid plans may be restricted to in-state (in the case of a state-sponsored 529 plan) or in-network (in the case of the Private College 529 plan) schools. If a beneficiary does not go to an in-state or partnership school the account owner will likely receive less funding than anticipated. For example, a student attending a school out-of-network of the Private College 529 can request a refund instead of redeeming their certificates at an in-network school. However, their return would then be based on the performance of the Program Trust, which is capped annually at 2%, positive or negative.

Ten prepaid 529 plans have closed to new investors, liquidated, or closed and reopened. Because the plan sponsor bears the return risk, if actuarial price projections are low or returns are lower than expected the plan provider can end up underfunded. As a result, there is the risk to the investor that the plan could close, change, or liquidate prior to college. Note, however, that no state has ever defaulted on its payment, so the risk is low. Also note that the Private College 529 Plan is not a state-sponsored plan and carries its own unique risks. Because the colleges and universities guarantee the return, the plan sponsor does not bear the actuarial risk of state-sponsored plans.

The terms and conditions of the plans are subject to change by the sponsor. For example, guaranteeing a dollar-for-dollar return at any school in the state versus the average school in the state. In this case a student going to a more expensive in-state school would have less funds available.

Do Clients Need More Than One College Plan?

Regardless of whether measured by historical returns or risk, prepaid plans merit consideration in a college planning portfolio. But do investors really need more than one 529 plan? Having multiple plans may reduce overall risk, but adding prepaid plans also reduces potential returns and increases the administrative burden to client and advisor. Both savings and prepaid 529 plans share many of the same benefits, such as tax-deferred investing, but there are differentiators, as well.

Using multiple plans mitigates the risks of a single-plan strategy, improving the overall risk-adjusted performance of a college savings portfolio. Each plan has unique performance characteristics, making 529 prepaid and savings plans natural complements to each other. For example, in 2008 the S&P 500 fell nearly 36.6%, while tuition and fees *increased* at 6.0% and 6.6% at private and public four-year schools, respectively. Holding a combination of plans would have dramatically reduced or eliminated losses, depending on the client's portfolio weighting.

Investors need to carefully weigh the pros and cons of using either type of 529 plan before investing. Investors should also consider how in-state tax benefits may impact their college planning strategy.

Table E.	529 Savings Plan	529 Prepaid Plan
Benefits	• Unlimited return potential tied to its underlying investment options • Can be used for all qualified higher education expenses • No residency requirements	• Returns guaranteed by sponsor • Locks-in tuition costs at a predetermined rate • Above-average risk-adjusted returns • Historically above-market CAGR
Drawbacks	• Returns are not guaranteed • Limited investment selection	• Limited school choice for full benefit • State actuary/solvency risk • Limited availability • Limited support for advisors

Benefits and drawbacks that are shared by both types of plans, such as tax-deferred growth and fees and penalties on non-qualified withdrawals, were excluded from the plan comparison in Table E.

[9] For simplicity, the Public Tuition & Fee Index is not shown due to substantially similar results.

Additional Methodology & Assumptions

The goal of this analysis was to determine whether a combination of savings and prepaid 529 products would result in a materially superior risk-adjusted return profile to savings alone. The underlying study used over 8,200 data elements including historical returns, inflation data, and financial models. Results of this study are theoretical, using model portfolios. Past performance is not necessarily an indicator of future returns. Actual results will vary by time period, fees, particular investment options selected, and other factors. Note also that this analysis relies heavily on its model portfolios for a 22-year period.

This analysis used the following assumptions:

- The most recent 22-year period from 1996 - 2018 (assuming the investor starts saving at birth and continued to hold their 529 portfolio through their senior year of college).
- A combination of the S&P 500, Barclays U.S. Aggregate Bond Index, and the 3-month T-Bill to represent equity, fixed-income, and money market asset class returns.
- Fees were excluded for purposes of this analysis and may have a significant impact on the results depending on the combination of plans used and state of residency.
- Tax implications were excluded. In-state incentives such as matching grants, tax deductions, or other incentives would modify individual results.

Regarding Glidepaths: The portfolio "glidepaths" of the Vanguard 529 Plan Moderate Age-Based Option and its Conservative and Aggressive counterparts were used to shift the weightings between asset classes of the model portfolios over time. A glidepath is how a portfolio changes over time, starting aggressive by holding more equity, and becoming more conservative over time. This model mimics Vanguard's glidepath only and does not represent Vanguard in any way. For example, in year one, there is a 90/10 equity/fixed income weighting, and 30/70 equity/fixed income weighting in year 13, etc. The last four years all use the 19+ weightings.

Sources

Raw data for this research was sourced from the College Savings Plans Network (529 plan metrics), College Board (tuition data), Bloomberg (index returns), and the St. Louis Federal Reserve (various economic data). Model portfolio data glidepath weightings in proportion to certain Vanguard 529 Plan portfolios. Additional contextual data was taken from National Center for Education Statistics, Bureau of Labor Statistics, and the Integrated Postsecondary Education Data System.

About The Analysis

The original 2018 analysis was conducted by 529 Expert, LLC without third-party funding or outside bias, resulting in the Forbes article, "The Best College Savings Plan You're Not Using." The original 2018 analysis had – in error – used inflation-adjusted growth, understating the impact of investing in an index that tracks college tuition inflation. This 2019 update was commissioned by Private College 529 Plan for use in educating college savings stakeholders on the benefits of using a prepaid 529 plan alongside a 529 savings plan.

About The Author

Brian Boswell, CFP® is President and founder of 529 Expert, LLC. He has worked with 529s in many capacities since 2001. At 529 Expert, LLC he is responsible for providing his expertise in 529 plan construction, distribution, and sales to college savings stakeholders. Previously, at Savingforcollege.com, he was responsible for all things 529, including analysis, contributing content, quarterly rankings, and media relations. Brian served as Director of Advisor Distribution to Ascensus College Savings, the leading administrator of 529 savings and prepaid plans for eight years, and previously was Subject Matter Expert for educational savings research at Financial Research Corp., now Strategic Insight. Brian has been quoted in hundreds of publications including The Wall Street Journal, Reuters, and Investor's Business Daily, among others. Brian received two Bachelor of Science degrees from Rensselaer Polytechnic Institute and holds a Certificate in Financial Planning from Bryant University. He is a father of triplets with significant higher education expenses in his future.

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529 Expert