CENTER for RETIREMENT RESEARCH at BOSTON COLLEGE

CAN EQUITY INVESTMENTS HELP SOCIAL SECURITY'S LONG-RUN FINANCING?

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Introduction

Social Security faces a well-documented financing challenge. The combined Old-Age, Survivors, and Disability Insurance (OASDI) trust fund is projected to exhaust its assets within the decade, after which incoming revenues can cover only about 80 percent of scheduled benefits. Policymakers from both sides of the aisle have generally been reluctant to raise taxes or cut benefits. Noting the lack of political appetite for tough choices, Senators Bill Cassidy (R-LA) and Tim Kaine (D-VA) proposed a third option – borrowing $1.5 trillion to create a separate fund that would be invested in equities and other risky assets for 75 years. During this period, they assume the federal government would borrow an additional $25.1 trillion to cover Social Security's annual shortfalls. At the end of the 75 years, their notion is that the proceeds from the new investment fund would be used to repay the Treasury for the initial borrowing and that the remainder could offset the additional borrowing required to cover Social Security's shortfalls. The key questions are: 1) How much of the 75-year borrowing can the Cassidy-Kaine investment fund offset? and 2) Do more realistic options exist to introduce equities into the financing of Social Security?

Policymakers periodically revisit whether Social Security should invest in equities; under current law, the trust fund only holds Treasury securities. The attraction of equities (or other risky assets) is that they earn a risk premium over Treasuries, which can reduce the need for future tax increases or benefit cuts. At the same time, higher expected returns come with higher volatility and also raise concerns about political interference and market impact. Previous research has shown, however, that strong arms-length governance can minimize political interference and that limited equity investments can improve the program's finances. Importantly, those assessments were conducted when the program still had significant trust fund reserves that could be invested, so borrowing would not have been required.

This study evaluates the role that equity investments could play in current reform discussions by comparing two approaches: 1) the Cassidy-Kaine proposal to create a separate investment fund with federal borrowing; and 2) introducing equity exposure after restoring solvency and rebuilding reserves. In both cases, the analysis provides a probabilistic range of outcomes based on various assumptions about equity returns. The assessment also includes a welfare analysis to address the contention that people will not like the risk introduced by equities

– that is, people will not value the lower taxes in good times as much as they dislike tax hikes in bad times.

The discussion proceeds as follows. The next section summarizes the historical equity investment discussions and describes how the Cassidy-Kaine plan differs. The third section describes the data and methods. The fourth section presents the results for the two equity proposals and for the welfare analysis. For the Cassidy-Kaine proposal, even under optimistic assumptions, the investment fund would, at the median, pay back only about 60 percent of the $26.6 trillion in total borrowing at the end of the 75th year. The percentage repaid could be even lower if, as financial analysts and academics believe, future equity returns are lower than in the past and the high level of proposed borrowing drives up interest rates. For introducing equity investments as part of a reform package (either raising taxes or cutting benefits or both), the results show that timing is crucial. If done immediately, the introduction of equities would produce a large and growing trust fund with historical equity returns and a solid outcome even at lower returns. If action is delayed until 2034, neither return assumption produces a growing trust fund, at the median. The welfare analysis shows that, even for risk-averse individuals, the utility gained from the higher return of equities – under the immediate reform option – dramatically outweighs the losses introduced from greater volatility. The final section concludes that the Cassidy-Kaine proposal would most likely leave the government with massive debt after 75 years, and that introducing equities as part of a reform package is the more solid option. But that option must be seized quickly, before the trust fund goes to zero.

Background

Policymakers have long known that the retirement of the Baby Boom generation would result in a sizeable rise in the ratio of Social Security recipients to workers, which would boost the cost of the program.[1] Currently, the combination of a rising cost rate and a stable income rate produces cash-flow deficits over the program's 75-year projection period (see Figure 1).

This is not the first time that Social Security has faced the prospect of being unable to pay full benefits. In 1983, the combination of a long-run deficit and the immediate prospect of falling short led Congress to enact changes that raised revenues and reduced benefits. By the 1990s, however, significant long-term imbalances re-emerged.

[1] See, for example, U.S Social Security Administration (2001).

In response, President Clinton asked the 1994-1996 Social Security Advisory Council to consider options to achieve long-term solvency. The Council could not agree on a single proposal, so its members advanced three different plans for closing the funding gap. Interestingly, all three plans included some form of investment in equities. Two of the three plans proposed equity investment in individually held private accounts. The third plan recommended that a fraction of the trust fund assets be invested in equities. President Clinton later proposed that a modest portion of reserves could be invested in equities, but Congress did not act on this proposal.[2] To this day, the trust fund is invested exclusively in special-issue Treasury securities.

The attraction of equity investment is that it has a higher expected rate of return relative to safer assets, such as Treasury bills or bonds (see Table 1). Of course, equities also carry greater risk, as evidenced by the higher standard deviation in returns historically.

With the benefit of hindsight, diversifying a portion of the trust fund in equities in 1984 – after the 1983 reforms – or in 1997 – after the 1994-1996 Advisory Council – would have increased the balance of the trust fund, despite two major stock market slumps and a financial crisis (see Figure 2). If investment had begun in 1984, the ratio of trust fund assets to outlays in 2024 would have been 4.2 compared to an actual ratio of 1.9.[3] Even, if equity investments had started in 1997, the trust fund ratio in 2024 would have been 3.7.[4] This pattern suggests that, equity investment on average would have helped maintain a healthy trust fund ratio over the next 75 years.

Beyond higher returns, economists have argued that introducing equities would improve the allocation of risk over the lifespan of Social Security beneficiaries. Theory says that efficient risk-sharing across a lifecycle requires individuals to bear more financial risk when young and less when old. But younger workers typically hold limited risky high-yielding financial assets because they have not yet accumulated much wealth. The one important asset that they do hold is a growing claim on future Social Security benefits. Shifting a portion of Social Security asset

[2] Elmendorf, Liebman, and Wilcox (2001) and Burtless et al. (2016).
[3] A trust fund ratio of 1.0, which means that the fund's reserves can cover a year of anticipated outlays, is the benchmark used by the Social Security Trustees to determine whether the fund meets the short-term test of financial adequacy. The estimates are based on the "Maintenance-of-Benefits" proposal outlined in the 1994-1996 Social Security Advisory Council report, that starting in the year of implementation of this proposal, the percentage of trust fund reserves invested in equities would increase by 2.67 percentage points each year up to a ceiling of 40 percent. See Burtless et al. (2016) for more detailed methodology.
[4] This pattern would have applied to strategies with higher equity ceilings too; however, higher ceilings also would have resulted in larger losses during the financial crises.

holdings from low-risk, low-return bonds to higher-risk, high-expected-return equities would shift some financial market risk from the old to the young, thereby improving the age distribution of risk.[5]

Despite these advantages, skeptics have questioned the wisdom of direct government investment in the stock market. One concern is that Social Security stock holdings might become large enough to threaten the stability of the market. Another is that substantial trust fund share ownership might result in undue government influence over corporate decision-making. A third concern is that the volatility of stock market returns could accelerate the exhaustion of the trust fund if returns stayed low for an extended period of time.[6]

The impact of Social Security equity investment on capital markets and corporate decision-making depends on the percentage of the total U.S. equity market held in the trust fund and on the rules that Congress imposes on the Social Security Trustees with regard to voting the shares. Figure 3 shows that if Social Security had begun investing in the stock market in 1984 and 1997 and investments were capped at 40 percent of assets, the trust fund would own less than 7 percent of the market today.[7]

In terms of the rules for voting the shares associated with equity ownership, proponents of equity investment assume that the government would take a passive role in selecting and voting company shares held in the trust fund. Moreover, they have consistently suggested that investments match or track a broad market index, such as the Wilshire 5000, Russell 2000, or Standard and Poor's Composite 1500. To achieve these objectives, the government could establish an expert investment board similar to the Federal Retirement Thrift Investment Board,

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[5] Gollier (2008) demonstrates that the expected real return could be raised by 100 basis points from such intergenerational risk-sharing. The gain comes because a better sharing of risks across generations makes it efficient to invest more in risky assets and thereby gain from the equity premium without increasing the risk at the individual household level. The challenge is that unless the contract is well specified – that is, participants know the exact rules of the game and can be assured that some mechanism will prevent decade after decade of bad experience – they will not be willing to continue to participate. Once rules are imposed – that the insurance fund remain solvent and workers receive a guaranteed minimum return on their contributions – the potential gains from spreading risks over generations are reduced somewhat, but remain positive and substantial.

[6] Similar concerns were raised during the Clinton Administration's desired reforms (see Reischauer 1999 or Marshall and Pham-Kanter 1999). For more recent discussion, see, for example, Topiwala (2023), Munnell and Wicklein (2023), and Polzer (2025).

[7] The level of where government ownership in the stock market becomes concerning is debated. While most agree that government ownership of over 50 percent will influence corporate governance, some argue that owning even 10-20 percent may influence corporate decision-making. However, as discussed above, there are ways to limit the role of government stock ownership such as outsourcing or not voting on their shares. Additionally, the concern of government interference in capital markets is also limited in countries with strong corruption control and minority shareholder protections.

which administers the Thrift Savings Plan for federal employees.[8] The Canada Pension Plan (CPP), Railroad Retirement System, and U.S. Thrift Savings Plan are real-world examples of how government equity investments can be achieved with limited government intervention or ownership of corporate stocks (see Box 1 for more details).

Box 1. *Governance Structures to Invest in Equities While Limiting Government Intervention in Markets*

When Canada was restoring solvency to the CPP in 1997, the government recommended investing in equities. The 1997 legislation defined an elaborate set of procedures to make the CPP Investment Board (CPPIB) as independent from the government as possible. Thus, the legislation breaks the link between government and investing by allowing the Board to function like a private firm. CPP assets are invested in an actively-managed portfolio.

Unlike the CPP, the motivation for introducing equity investments in the U.S. Railroad Retirement System was not part of a reform package for solvency but rather a response to the growth of the program's trust fund. Management and labor believed that the trust fund could grow even higher if it were invested in equities. Such a shift, however, needed Congressional approval. To address concerns of political influence on investment decisions, Congress created the National Railroad Retirement Investment Trust (NRRIT) consisting of seven trustees, one independent and three selected by management and labor each. The trustees have a fiduciary mandate, requiring them to invest solely in the interest of plan participants.

The U.S. Federal Retirement Thrift Investment Board (FRTIB) for the Thrift Savings Plan has far less discretion than the CPPIB and the NRRIT in selecting investments. The FRTIB can only select investments that are "commonly recognized" and are a "reasonable representation" of the entire market. The board is prohibited from removing any stocks from the index and is also prohibited from voting on their shares to influence corporate decision-making.

[8] This board would be responsible for selecting a broad market index and for choosing, through competitive bidding, several portfolio managers to handle the accounts, and for monitoring the performance of these managers. Voting shares owned by the trust fund could either not be voted or delegated to the individual portfolio managers, which is the practice of the Thrift Savings Plan. See Burtless et al. (2016) for a more detailed discussion.

While the evidence shows that diversifying Social Security investments into equities could improve returns and that adequate governance structures could limit the government's interference with markets, investing assets in equities requires a large trust fund.[9] The challenge today is that Social Security's trust fund is rapidly trending toward zero. Rebuilding a large investable base is a prerequisite for any equity investment in Social Security to be feasible, as discussed further below. At present, policymakers from both sides of the aisle are generally reluctant to raise taxes or cut benefits to restore the long-run solvency of the program.[10]

Cassidy-Kaine Proposal

Instead of increasing revenue or reducing costs to the system, Senators Cassidy and Kaine propose capitalizing an investment fund, legally distinct from the Social Security trust fund, by asking Treasury to issue debt worth about $1.5 trillion. These assets would then be placed in long-term "escrow," with all investment returns reinvested for 75 years. While the new fund accumulates, Treasury would borrow more to continue to pay full Social Security benefits for the 75 years. The present value of the revenue shortfall is estimated to be $25.1 trillion, making the total planned borrowing for this plan $26.6 trillion in today's dollars.[11] At the end of 75 years, the fund would – in theory – pay the Treasury back for the initial borrowing to capitalize the fund and also for the debt accrued to pay benefits over the 75 years.[12]

Supporters argue that this structure offers a politically attractive alternative to immediate benefit cuts or payroll-tax increases, claiming that long-run investment returns could reduce Social Security's projected shortfall without harming current beneficiaries. They also cite as success stories the NRRIT and the other public pension plans noted above.

Critics, however, point out that the proposal's reliance on borrowing to invest introduces substantial fiscal risk. To put the proposed borrowing into context, current federal debt held by the public at the time of writing is $31.3 trillion.[13] The Cassidy-Kaine proposal would add $26.6

[9] See Burtless et al. (2016) for more details.
[10] Reform plans such as the Social Security 2100 Act, which had about 200 Democratic cosponsors, never got out of subcommittee. See 118th Congress (2024).
[11] *2025 Social Security Trustees Report,* Table IV.B6.
[12] For details, see Cassidy and Kaine (2025).
[13] U.S. Department of Treasury (2026).

trillion to the national debt, an increase of almost 85 percent.[14] Critics also argue that the proposal does not address the fundamental structural imbalance between payroll-tax revenues and scheduled benefits and may simply require a large increase in future taxes if returns underperform.

This paper addresses two basic questions: 1) How much of the 75-year borrowing can the Cassidy-Kaine investment fund offset? and 2) Do more realistic options exist to introduce equities into the financing of Social Security?

Data and Methods

The impact of introducing equities through either adopting Cassidy-Kaine or by closing the 75-year funding shortfall and rebuilding the trust fund is evaluated in two ways. The first uses a Monte Carlo model to simulate the distribution of trajectories of the trust fund. The second is a welfare analysis, which weights various market outcomes with a standard utility function. This analysis, in line with previous evidence, assumes that workers might not value strong equity returns as much as they dislike poor equity returns that result in tax increases or benefit cuts.

Trust Fund Cashflows

Modeling Social Security finances requires data on the income and cost components of the trust fund. The Social Security Trustees 2025 Report includes projections of these items for the 75-year projection.[15] Macroeconomic variables, such as the inflation rate and real wages, as well as demographic data, such as the number of covered workers and beneficiaries, also come from the Trustees.

The two potential equity investment options have different implications for trust fund cash flows. Trust fund assets in each year are:

$$A_t = I_t^N + I_t^I - C_t + A_{t-1}$$

where A_t represents assets at the end of year t, I_t^N is non-interest income, I_t^I is investment income, C_t is the total cost of the program for that year, and A_{t-1} is assets at the end of the

[14] As discussed later, such a large amount of borrowing will likely increase borrowing costs (through higher term premiums and higher inflation) and lower equity returns (through higher discount rates and lower economic growth). See Gale and Orszag (2004), Hubbard and Engen (2004), and Plante, Richter, and Zubairy (2025).
[15] See *2025 Social Security Trustees Report,* Tables IV.B3, VI.A1, VI.A3, and VI.G6.

previous year. Currently, the trust fund invests solely in special-issue Treasury securities.[16] Investment income is thus the effective interest rate on special-issue Treasury bonds payable to the trust fund in year t multiplied by assets from the previous year, A_{t-1}.

The Cassidy-Kaine proposal creates a separate fund outside of Social Security, so investment returns do not impact trust fund accounting. But, once the trust fund is depleted in 2034, Treasury must step in and provide transfers to continue paying benefits:

$$A_t = I_t^N + I_t^I + I_t^T - C_t + A_{t-1}$$

where I_t^T is the amount borrowed from the Treasury that accrues interest. The amount of debt that must be paid back at the end of the 75-year lock-up period is:

$$D_{75} = (1.5\ trillion \times r^B)^{75} + I_t^{T\,2100-2033} + I_t^{T\,2100-2034} + \cdots + I_t^{T\,2100-2099} + I_t^T$$

where r^B is the effective interest rate on special-issue Treasury bonds.[17] The assumption is that the Cassidy-Kaine investment fund can borrow at the rate that the trust fund currently earns. The present value of the amount borrowed from Treasury to pay benefits ($I_t^{T\,2100-2033} + I_t^{T\,2100-2034} + \cdots + I_t^{T\,2100-2099} + I_t^T$) is $25.1 trillion.

In traditional equity investment proposals, when equities are introduced, investment income becomes:

$$I_t^I = (p_t \times A_{t-1})\, r^E + ((1-p_t) \times A_{t-1})\, r^B$$

where r^E represents the return on equities in year t. The proportion of trust fund assets invested in equities, p_t, depends on the phase-in scheme adopted and the assumed ceiling on equity holdings. Following one of the proposals in the 1994-1996 Social Security Advisory Council report, this analysis assumes the percentage of trust fund reserves invested in equities would increase by 2.67 percentage points each year up to a ceiling of 40 percent.[18] In other words, the equity phase-in would take 15 years. Therefore, the percentage of total assets in equities is:

$$p_t = min\,[\,0.0267t, 0.4\,]$$

[16] Non-interest income is comprised of payroll taxes, taxes on benefits received, and general fund reimbursements.
[17] Due to differing maturity dates, the effective interest rates (or expected effective interest rates) earned on special-issue Treasury bonds differ from the average interest rate. The ex-post analysis uses effective interest rates. See https://www.ssa.gov/oact/progdata/annualinterestrates.html for more information.
[18] This follows the "Maintenance-of-Benefits" proposal outlined in the 1994-1996 Social Security Advisory Council report. See Burtless et al. (2016) for more detail.

Monte-Carlo Simulations

A Monte-Carlo analysis with 10,000 simulations is used to project the range of outcomes for both Cassidy-Kaine and traditional equity investment proposals. Data for equity returns are based on the Wilshire 5000.[19] While Social Security's Office of the Chief Actuary provides projections on both the rates on new special-issue bonds and the effective realized returns for the 75-year projection period, future interest rates are also simulated to ensure the symmetric treatment of equities and Treasuries.[20] Equity returns are assumed to follow a log-normal distribution, while bond returns follow an autoregressive model.[21] For simplicity, portfolio mean-reversion is not incorporated in the model.[22] The simulations assume a 100-percent equity portfolio for simplicity.

The second option involves investing a portion of the trust fund in equities as part of a broader reform package that closes the 75-year financing gap. This approach is modeled by raising taxes – by an immediate 3.82 percent of taxable payrolls; however, the results would be similar if the financing gap were immediately closed through a benefit cut or a combination of the two. The question is whether historical proposals for diversifying Social Security assets into equities are still feasible, given the smaller and rapidly decreasing trust fund. In these simulations, equity allocations are phased in over 15 years and are capped at 40 percent of the trust fund.[23]

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[19] While the Wilshire 5000 is a better measure of total market returns than the S&P 500 or other Large Cap Indices, it only goes back to 1971. To infer annual Wilshire 5000 returns before 1971, the statistical relationship between the Wilshire 5000 and the S&P 500 Large Cap index – during the period in which they were both available, 1971-2024 – is estimated. The relationship is used to adjust the S&P 500 in historical years where the Wilshire was not available.

[20] The average special-issue interest rate for a calendar year is the average of the 12 monthly interest rates on new issues during the year. The effective interest rate for a calendar year is the interest earned in that year divided by the average level of assets held during the year. See Appendix for more details about how bond returns are constructed.

[21] An ARIMA (1,0,1) model was used.

[22] Poterba and Summers (1988) point out that if returns were independent and identically distributed (IID), the variance of the n period return ought to be root(n) of the one-period return. They find that the variance of the eight-year return is only 57 percent as large. But their statistical tests do not permit them to distinguish between mean reversion and the effects of changes in required returns resulting from fluctuations in interest rates and market volatility. Fama and French (1988) investigate the autocorrelation of stock returns. They find that these are negative for two-year returns, reach minimum values at three- to five-year returns, implying mean reversion, and then move back to zero. But their estimates of long-run mean reversion are imprecisely estimated, and it is also unclear whether the degree of mean reversion has changed over time. As the focus of our analysis is on the performance of the trust fund over long time horizons, and as it is unclear what alternative assumption would be most appropriate, IID returns are assumed throughout our analysis.

[23] See Burtless et al. (2016) for more details of the trust fund accounting.

Future Portfolio Returns. A key assumption for the Monte-Carlo analysis is what median returns will be for the next 75 years. A simple assumption is that future returns will follow historical averages. Cassidy and Kaine assume that their separate investment fund will earn 8.9 percent nominal returns a year, based on historical performance.[24] Subtracting a long-run inflation rate of 2.4 percent gives long-run real returns equal to 6.5 percent, which we use as the starting point of the analysis.

Applying a 6.5-percent return to today's high stock prices produces an extraordinarily high value of the stock market relative to GDP (see Figure 4). Today, that number is about 2 – that is, the value of the stock market is twice GDP; by 2100, the stock market value would be over 13 times GDP.

Not surprisingly, then, many academics and practitioners believe that U.S. equity returns in recent years have been much higher than fundamentals would suggest; if true, future mean equity returns will likely be lower.[25] The Gordon growth model, which establishes a steady state relationship between market value, stock returns, and GDP, suggests that stock returns equal the adjusted dividend yield plus the growth rate of dividends. In a steady state, the dividend growth is equal to the growth rate of GDP, and a dividend yield of 1.5-2.0 is often used to value U.S stocks. The long-run stock return implied by the Gordon equation is 3.5-4.0. The analysis uses 4.0 to be optimistic, in line with the predictions of many practitioners (see Table 2).

Finance theory also suggests that large increases in borrowing, such as proposed by Cassidy and Kaine, would also have implications for the interest rate on bonds, GDP growth, and equity returns. A higher debt-to-GDP ratio increases interest rates. The higher interest rate would directly lower equity returns through higher discount rates. Equity returns would also be lower due to lower GDP growth.[26] Extrapolating prior research suggests that the borrowing proposed by Cassidy-Kaine could raise interest rates by roughly 1.9 percentage points and reduce real GDP growth by about 1.5 percentage points at the end of the 75 years. As a result, real equity returns will be about 0.5 percentage points lower after all the borrowing. However, these estimates may not hold for the proposed significant increase in debt, and it is unclear how

[24] This return assumption is likely based on the NRRIT returns from 2003-2021. See Zhe (2022).
[25] See Vanguard (2026), Benz (2026), and Erdogan and McMoore (2026).
[26] Specifically, a 1-percentage-point-increase in the debt-to-GDP ratio is about 2.5 basis points due to inflationary pressures and higher term premiums (See Nelson, 2025 and Plante, Richter, and Zubairy, 2025). Kumar and Woo (2010) found a 10-percentage-point-increase in GDP would reduce GDP growth by 20 basis points.

markets will react since the proposed borrowing will occur gradually over 75 years. Additionally, extrapolations from existing models suggest that the equity risk premium would be negative. To be optimistic, the analysis assumes a floor for the equity risk premium is around 1.0. Table 3 summarizes all three scenarios.

Welfare Considerations

Regardless of how equities or other risky assets are incorporated into Social Security investments, both proposals involve uncertainty. A concern with distributional analyses, such as Monte-Carlo, is that they do not accurately reflect the effect of extremely poor equity returns. In other words, taxpayers may not value strong returns and lower required taxes as much as they dislike poor returns and higher taxes. This preference might be especially true if the bad outcomes occur when the economy is in terrible shape. A more accurate representation of how taxpayers might feel requires a welfare analysis.

To illustrate taxpayer values, the analysis calculates higher "tax refunds" or higher "back-taxes" respectively. Back taxes can also be viewed as a one-time benefit cut. The tax refunds or higher back-tax payments do not represent policy recommendations but rather are used to illustrate the impact of various fund performance outcomes on the welfare of taxpayers. If the investment fund performs well and earns more than enough to pay back the initial $1.5 trillion capital investment plus the $25.1 trillion needed to continue to pay benefits, the value that taxpayers receive is quantified in the exercise as a hypothetical "tax refund" in the 75th year. If the fund does not earn enough to pay back the accrued debt, then the harm that taxpayers face is quantified as owed "back taxes." This estimate is done by calculating the aggregate accumulated surplus or deficit at the end of each of the 10,000 simulations relative to the trust fund's short-term benchmark ratio of 1. An accumulated surplus or deficit would be distributed equally among the covered workers in 2100 – the 75th year of the projection period – as tax refunds or back-taxes, respectively.

Since people tend to be risk-averse, it is assumed that they do not value tax refunds as much as they dislike paying back taxes.[27] To account for this effect, the dollar amounts are

[27] Workers are assumed to earn the average wage and face a 25-percent tax rate. There are no bequest motives. The analysis assumes a risk-aversion coefficient, gamma, equal to two. Typical CRRA models pick a gamma between one and five. Chetty (2006) however, shows that the wage elasticity of labor supply implies that gamma is bound by an upper limit of two.

weighted by the marginal utility derived from a CRRA utility function.[28] Another likely possibility is that the investment fund has a bad outcome when the economy is bad. To represent taxpayer welfare if both those scenarios occur simultaneously (like during the Great Recession or in the early months of the COVID recession), the analysis reweights the outcomes assuming the average wage is cut by 25 percent.

Results

The following results provide answers to two questions: 1) What percentage of the $26.6 trillion debt can the Cassidy-Kaine investment fund eliminate in the 75th year? and 2) Would incorporating equities as part of a larger reform package be better or, given the small trust fund, are equities no longer a viable tool? The discussion then turns to the results of the welfare analysis.

Cassidy-Kaine Proposal

As described earlier, the Cassidy-Kaine proposal borrows $1.5 trillion to fund a separate investment fund that is invested in equities and other risky assets for 75 years. Social Security then borrows money to pay benefits in the interim, worth $25.1 trillion in present value. The gains from the investment fund at the end of the 75th year are used to pay back the initial borrowing, with interest. The remaining gains would be used to pay back the $25.1 trillion borrowed to pay benefits, also with interest.[29] The metric used to evaluate the success of the proposal under different assumptions is the percentage of the $26.6 trillion in borrowing that the investment fund can pay back. An outcome below 100 percent means that the investment fund will not be able to pay back the total amount of borrowing; an outcome of 100 percent or more means full repayment.

The first Monte Carlo simulation assumes median real equity returns are 6.5 percent over the entire 75-year period, and borrowing costs are 2.3 percent. A simple calculation suggests that if returns are consistently high, the investment fund can just about break even. The present value

[28] The weights are relative to the marginal utility of the average after-tax wage when there are no tax refunds or back taxes. This calculation is represented by: $\frac{[(1-t)W+r]^{(1-\gamma)}}{[(1-t)W]^{(1-\gamma)}}$, where t is the tax rate, W is the average wage, r is the tax refund or required back-taxes, and γ is the risk-aversion coefficient.

[29] Most governments set their discount rate equal to the borrowing cost. The analysis discounts earnings from equities in the same way; see Lucas (2023).

of the investment fund would equal $30.6 trillion at the end of 75 years, leaving $4 trillion after paying back all debts. However, once we incorporate volatility and any co-movement between stocks and bonds, as in the real world, the results look a lot different. At the 50th percentile of outcomes, the investment fund could only pay back 57 percent of the $26.6 trillion in borrowing (see Figure 5). In fact, gambling only works in the 64th percentile of outcomes, similar to results from Biggs (2026). Put differently, in 64 out of 100 outcomes, the Cassidy-Kaine investment fund would not earn enough to pay off the money borrowed. While the proposal could work, chances are, the plan would fall short, even assuming 6.5-percent historical returns.[30]

As discussed earlier, finance theory and many practitioners believe that future returns may be lower than today. Thus, the second simulation assumes median equity returns are centered around 4.0 percent real. The 50th percentile outcome for this scenario would only pay back 19 percent of the $26.6 trillion borrowed (see Figure 6). In fact, the investment fund would only be able to pay back all the borrowing in the 83rd percentile of outcomes, meaning the proposal would only work 17 out of 100 times.

As noted above, borrowing $26.6 trillion, the equivalent of increasing current federal debt balances by 85 percent, is also likely to have implications for equity returns and borrowing costs. Thus, the third Monte Carlo simulation incorporates even lower equity returns and higher interest rates. Even assuming only one-quarter of the effect suggested by prior literature, the model shows that the Cassidy-Kaine investment fund would only be able to pay back 11 percent of the total borrowing at the 50th percentile outcome (see Figure 7). The results show that the potential market effects of high debt suggest that no outcomes would allow the fund to produce enough to cover all the borrowing.

Equities After a Reform Package

These far-from-sanguine results do not necessarily mean that a diversified portfolio should not be part of a broader Social Security reform package. As discussed previously, many earlier proposals to close the long-run financing gap have included raising taxes (or cutting benefits) alongside equity issuance.[31] However, unlike when these prior discussions occurred,

[30] The results are for a 100-percent equity portfolio. A diversified portfolio that includes bonds, real estate, and alternatives, as suggested by Cassidy and Kaine, would have lower expected returns.
[31] See Burtless et al. (2016) for a summary.

Social Security's trust fund is much smaller today. Raising taxes or cutting benefits would mostly go toward maintaining benefits, with only a small amount used to build up a balance for investing in the near term. The question is whether, under this context, equities could still improve trust fund balances and reduce the need for future tax increases or benefit cuts.

For this exercise, solvency is achieved by raising the tax rate on taxable payrolls – again, the results would be similar if the financing gap were closed through a benefit cut or a combination of the two. The size of the tax increase (or benefit cut) depends on when action is taken. If enacted immediately, the 2025 Trustees Report says the required tax increase would be 3.82 percent, split between the employer and employee. If action were delayed until 2034, after the trust fund is depleted, the required tax increase would be 4.53 percent. In addition to considering two action dates, the analysis uses two of the alternative real returns on equities: 6.5 percent and 4.0 percent. Equity allocations are phased in over 15 years and are capped at 40 percent of the trust fund balance. The metric for success if equities were introduced as part of a reform package is the extent to which the exercise produces a large and growing trust fund.

Immediate Reform Package. If a reform package were passed immediately and equity returns were at historic averages, the trust fund ratio would be 10.1 in 2100 in a 40/60 equity/bond portfolio compared to 0.7 if the trust fund were invested solely in special-issue Treasury bonds as it is currently (see Figure 8). In fact, virtually all outcomes of the 40/60 portfolio would be better than an all-bond portfolio. Most importantly, at the 50th percentile, the trust fund could remain solvent indefinitely, reducing the need to raise taxes or cut benefits in the future. Even if returns were at the 5th percentile, the trust fund would remain solvent indefinitely.[32]

Interestingly, introducing equities into the trust fund is useful even if median real returns are 4.0 percent in the future. If action is taken immediately, the trust fund ratio would be 4.2 in 2100 in a 40/60 equity/bond portfolio compared to 0.7 if the trust fund were invested solely in special-issue bonds as it is currently (see Figure 9). Once again, the trust fund could remain solvent indefinitely at the 50th percentile, although not if returns were at the 25th percentile.

[32] Under 6.5 percent real returns and current cost assumptions, Social Security would be able to pay promised benefits without further tax increases or benefits cuts if the trust fund ratio remained above roughly 2.2. With the lower 4.0 percent real return assumption, the trust fund ratio would need to be 3.5.

Reform in 2034. The window for incorporating equities in a Social Security reform solution is quickly closing. As discussed above, for equities to be successful, the trust fund must have sufficient assets to invest. Currently, the trust fund still has a small balance, but it is rapidly being depleted to pay benefits. If Congress waited until 2034, when the trust fund is depleted, to implement the same proposal, not only would the tax increase (or benefit cut) required to close the long-run financing gap be larger, but equity investments would no longer provide robust outcomes.

Assuming a 6.5-percent real return on equities, the trust fund ratio would only be 3.5 at the 50th percentile of outcomes (see Figure 10).[33] At the 25th percentile, the trust fund would also not be large enough to remain solvent indefinitely, so policymakers would once again have to consider further tax increases or benefit cuts to keep the program solvent going forward. In short, waiting 8 years means that the trust fund balance will be less than a third of that in an immediate reform package and may not be a permanent solution to Social Security's long-run financing shortfall, even under optimistic return assumptions.

Of course, if median returns end up being around 4.0 percent real, the story will look even worse. The trust fund ratio at the 50th percentile would only be 1.4 percent (see Figure 11). Additionally, the trust fund would not be able to remain solvent indefinitely at the median outcome.

Welfare Considerations

Diversifying trust fund assets into equities as part of a larger reform package could substantially improve Social Security finances if done soon. But the proposal still involves risk. The question is how extremely poor market outcomes affect taxpayer welfare, especially if such outcomes occur during a poor labor market. The evaluations are done for an environment in which the median future return is 4.0 percent.

As shown in Figure 12, taxpayers would gain $18,338 in tax refunds at the 50th percentile outcome in Figure 8 but would have to pay $145 more in back taxes at the 5th percentile (one of the worst outcomes). Workers with a diminishing marginal utility of consumption, however, do not value tax refunds as much as they dislike paying back taxes. To

[33] Since costs are increasing over the 75 years, a one-time tax increase that closes the 75-year gap will produce small surpluses in the early years that can be invested.

account for this effect, the dollar amounts are weighted by the marginal utility derived from a CRRA utility function with risk-aversion. This weighting narrows the gap between the gains and losses, as shown by the second cluster of bars in Figure 12. Since back taxes are more likely to occur when the economy is bad, the amount is then re-weighted assuming that the average wage declines by 25 percent. Even this dramatic assumption shows tax refunds at the median will still outweigh losses when poor returns occur during a bad economy. The picture for the Cassidy-Kaine proposal looks entirely different. Taxpayers would owe "back taxes" in all but the 95th percentile of outcomes (see Figure 13).

Conclusion

The premise of the Cassidy-Kaine proposal is that borrowing and investing could help solve Social Security's financing problem. The analysis shows that the trust fund would not be able to pay back the full amount borrowed even under optimistic return assumptions. The results should not be surprising given the magnitude of the proposed borrowing. Seeding the investment fund and continuing to borrow to pay full benefits require $26.6 trillion. Currently, U.S. debt held by the public is $31.3 trillion. The Cassidy-Kaine proposal would increase the national debt by about 85 percent.

While borrowing to invest is not the silver bullet for solving Social Security's financing problems, introducing equities can help improve the program's finances if coupled with a reform package that restores solvency. If an immediate tax increase (or benefit cut) that closed the long-run financing gap is implemented, a 40-percent allocation to equities could reduce the need for future tax increases or benefit cuts. However, the window of action is limited. If Congress waits to implement the same plan in 2034, even a 50th-percentile outcome would not provide much additional benefit.

For policymakers, the implication is straightforward. If equity investment is to play any constructive role in Social Security reform, it must be considered early, alongside a comprehensive solvency package that restores balance between revenues and benefits and rebuilds reserves.

References

Benz, Christine. 2026. "Experts Forecast Stock and Bond Returns: 2026 Edition." Article. Chicago, IL: Morningstar.

Biggs, Andrew G. 2026. "Stress-Testing the Cassidy-Kaine 'Big Idea' Social Security Plan." Article. Washington, DC: American Enterprise Institute.

BlackRock. 2026. "Capital Market Assumptions." New York, NY.

Burtless, Gary, Anqi Chen, Wenliang Hou, Alicia H. Munnell, and Anthony Webb. 2016. "How Would Investing in Equities Have Affected the Social Security Trust Fund?" Working Paper 2016-6. Chestnut Hill, MA: Center for Retirement Research at Boston College.

Capital Group. 2026. "2026 Capital Market Assumptions." Los Angeles, CA.

Cassidy, Bill and Tim Kaine. 2025. "Our Bipartisan Plan Could Rescue Social Security." (July 8). Washington, DC: *The Washington Post.*

Chetty, Raj. 2006. "A New Method of Estimating Risk Aversion." *American Economic Review* 96(5): 1821-1834.

Damodaran, Aswath. 2025. *Historical Returns on Stocks, Bonds, and Bills – United States*. New York, NY: NYU Stern School of Business.

Elmendorf, Douglas W., Jeffrey B. Liebman, and David W. Wilcox. 2001. "Fiscal Policy and Social Security Policy During the 1990s." Working Paper No. w8488. Cambridge, MA: National Bureau of Economic Research.

Erdogan, Emre and Seth McMoore. 2026. "Schwab's 2026 Long-Term Capital Market Expectations." Article. Westlake, TX: Charles Schwab Corporation.

Fama, E. F. and K. R. French. 1988. "Permanent and Temporary Components of Stock Prices." *Journal of Political Economy* 96: 246-273.

Gale, William G. and Peter R. Orszag. 2004. "Budget Deficits, National Saving, and Interest Rates." *Brookings Papers on Economic Activity* 2: 2004 101-210. Washington, DC: The Brooking Institution.

Gollier, Christian. 2008. "Intergenerational Risk-Sharing and Risk-Taking of a Pension Fund." *Journal of Public Economics* 92(5-6): 1463-1485.

Hubbard, R. Glenn and Eric M. Engen. 2004. "Federal Government Debt and Interest Rates." Economic Working Paper Series. Washington, DC: American Enterprise Institute.

Kumar, Manmohan S. and Jaejoon Woo. 2010. "Public Debt and Growth." Working Paper 10/174. Washington, DC: International Monetary Fund.

Lucas, Deborah. 2023. “Reflections on What Financial Economics Can and Cannot Teach Us About the Social Discount Rate.” *Annual Review of Financial Economics* 15: 185-195.

Marshall, David and Genevieve Pham-Kanter. 1999. “Investing Social Security Trust Funds in the Stock Market.” *Chicago Fed Letter* No. 149. Chicago, IL: Federal Reserve Bank of Chicago.

Munnell, Alicia H. and Michael Wicklein. 2023. “Should Social Security Invest in Equities?” *Issue in Brief* 23-14. Chestnut Hill, MA: Center for Retirement Research at Boston College.

Nelson, Jaeger. 2025. “Effects of Federal Borrowing on Interest Rates and Treasury Markets.” Hoover Institution’s Fiscal Policy Initiative: The Economic Consequences of U.S. Fiscal Policy Trends. Washington DC: Congressional Budget Office.

Plante, Michael, Alexander W. Richter, and Sarah Zubairy. 2025. “Revisiting the Interest Rate Effects of Federal Debt.” Research Department Working Papers No. 2513. Dallas, TX: Federal Reserve Bank of Texas.

Polzer, Karl. 2025. “Investing Social Security funds in the Stock Market Is Way Too Risky.” Opinion. Washington, DC: *The Hill.*

Poterba, James P. and Lawrence H. Summers. 1988. “Mean Reversion in Stock Prices: Evidence and Implications.” *Journal of Financial Economics* 22: 27-59.

Reischauer, Robert D. 1999. “Investing Social Security Reserves In Private Securities.” Commentary. Washington, DC: The Brookings Institution.

Social Security Advisory Council. 1994-1996. *Advisory Council on Social Security Technical Panel on Trends and Issues in Retirement Savings Final Report.* Washington, DC.

Topiwala, Pankaj. 2023. “Towards Long-Term Solvency of US Entitlement Trust Funds, I: How to Market Time Trillions.” *The Journal of Retirement* 11(4): 61-86.

U.S. Railroad Retirement Investment Trust. 2026. “National Railroad Retirement Investment Trust Questions and Answers.” Chicago, IL. Available at: https://www.rrb.gov/FinancialReporting/NRRIT/Background/QandA

U.S. Social Security Administration. 2025. *The 2025 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds.* Washington, DC.

U.S. Social Security Administration. 2001. *Strengthening Social Security and Creating Personal Wealth for All Americans.* Washington, DC.

U.S. Department of Treasury. 2026. “Debt to the Penny.” Washington, DC. Available at: https://fiscaldata.treasury.gov/datasets/debt-to-the-penny/debt-to-the-penny

Vanguard. 2026. “2026 Outlook: Economic Upside, Stock Market Downside.” Article. Malvern, PA.

Wilshire Associates. 2026. “FT Wilshire 5000 Index Series.” Santa Monica, CA.

Zhe, Li. 2022. “Railroad Retirement Board: Trust Fund Investment Practices.” Report No. CRS RS22782 Washington, DC: Congressional Research Service.

118th Congress. 2024. “Social Security 2100 Act.” H.R. 4583. Washington, DC. Available at: https://www.congress.gov/bill/118th-congress/house-bill/4583.

Table 1. *Average Real Returns and Standard Deviation of Different Assets, 1928-2025*

	Average geometric returns	Standard deviation
Wilshire 5000	6.9%	19.7%
3-month Treasury bill	0.3	3.8
10-year Treasury bond	1.4	8.9
Inflation	3.1	2.9

Notes: Wilshire data only go back to 1971. Earlier returns were constructed using the average difference between the Wilshire 5000 and S&P 500 for the period in which both were available.
Source: Authors' calculations from Damodaran (2025) and Wilshire Associates (2026).

Table 2. *Expert Forecasts of Long-Term Equity Returns*

Source	Period	Expected real return
BlackRock	20 years	5.5%
Capital Group	20 years	3.7
Fidelity	20 years	3.4
JP Morgan	10-15 years	4.3
Vanguard	30 years	2.6-4.6

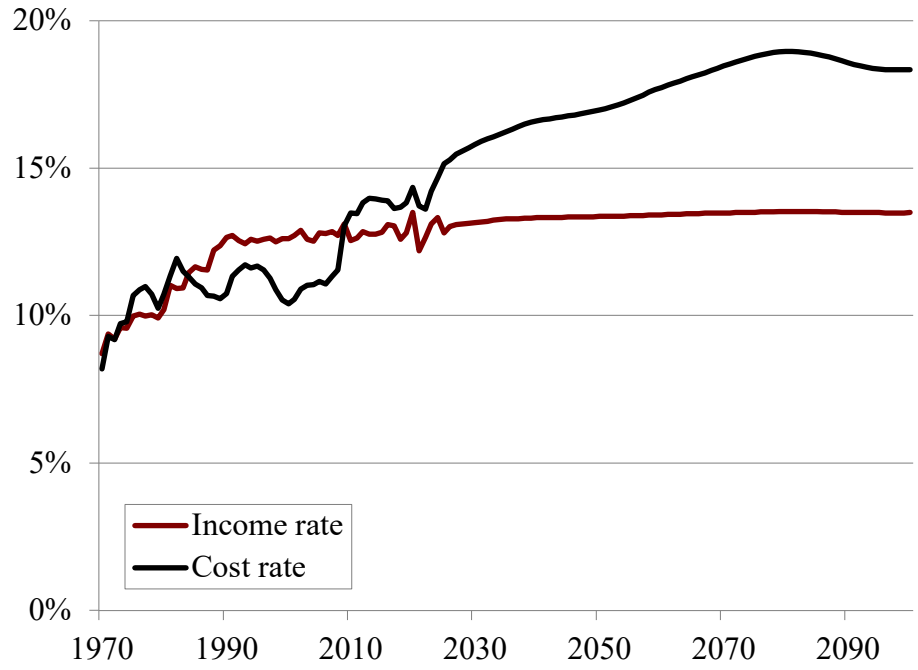
Notes: Sources report nominal returns. Real returns are calculated assuming a 2.4-percent inflation rate.
Sources: Benz (2026), BlackRock (2026), Capital Group (2026), and Vanguard (2026).

Table 3. *Investment Return Assumptions of Cassidy-Kaine Simulations*

	Real return	Interest rate
Historical returns	6.5%	2.3%
Lower future returns	4.0	2.3
Lower returns + debt	3.5	2.6

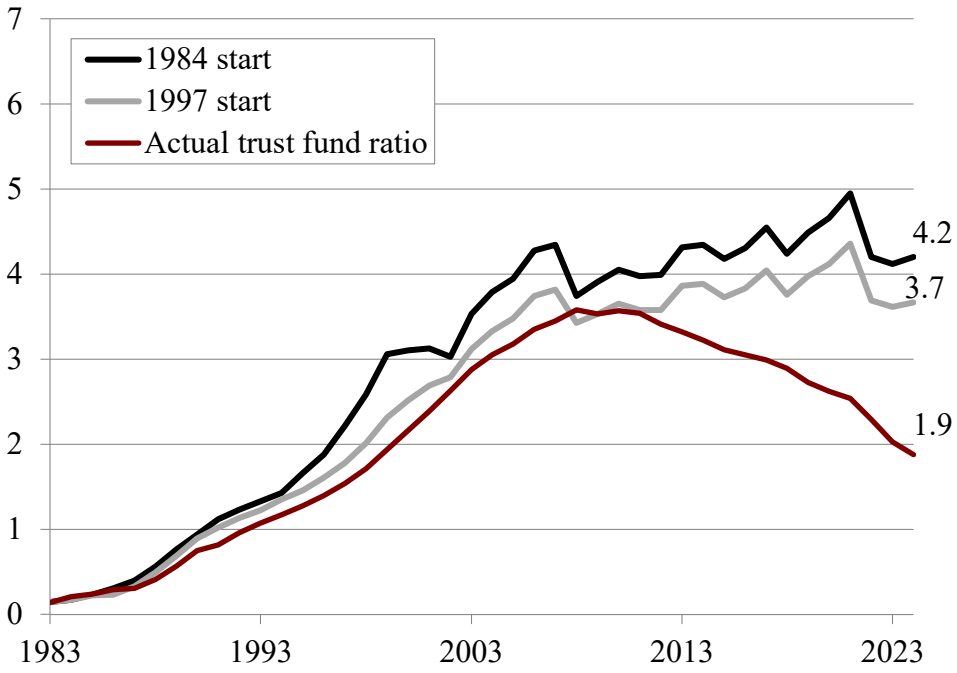
Sources: Authors' calculations based on U.S. Social Security Administration (2025), Biggs (2026), Zhe (2022), Nelson (2025) and Plante, and Richter, and Zubairy (2025).

Figure 1. *Projected Social Security Income and Cost Rates, as a Percentage of Taxable Payroll, 1970-2100*



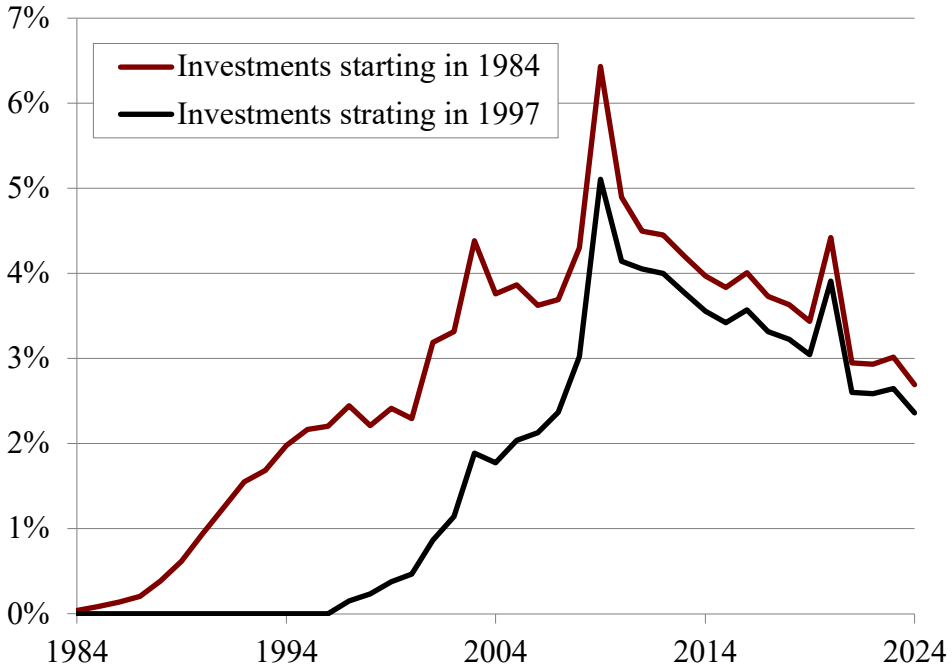
Source: 2025 Social Security Trustees Report, Table IV.B1.

Figure 2. *OASDI Trust Fund Ratio with Equity Investment Starting in 1984 and 1997, 1983-2024*



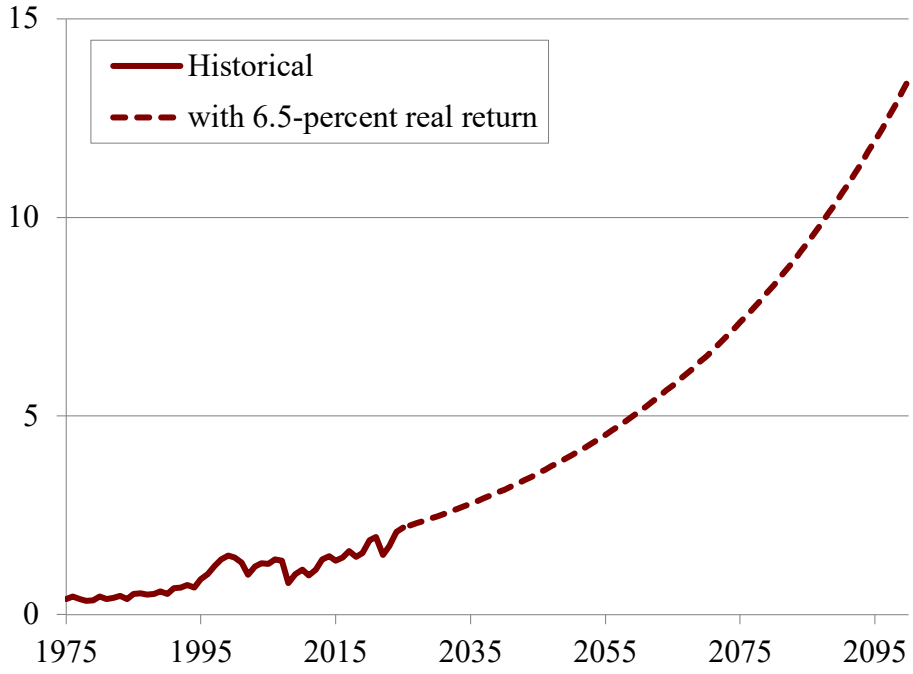
Source: Authors' calculations.

Figure 3. *Percentage of Total Equities Held by the Trust Fund, 1984-2024*



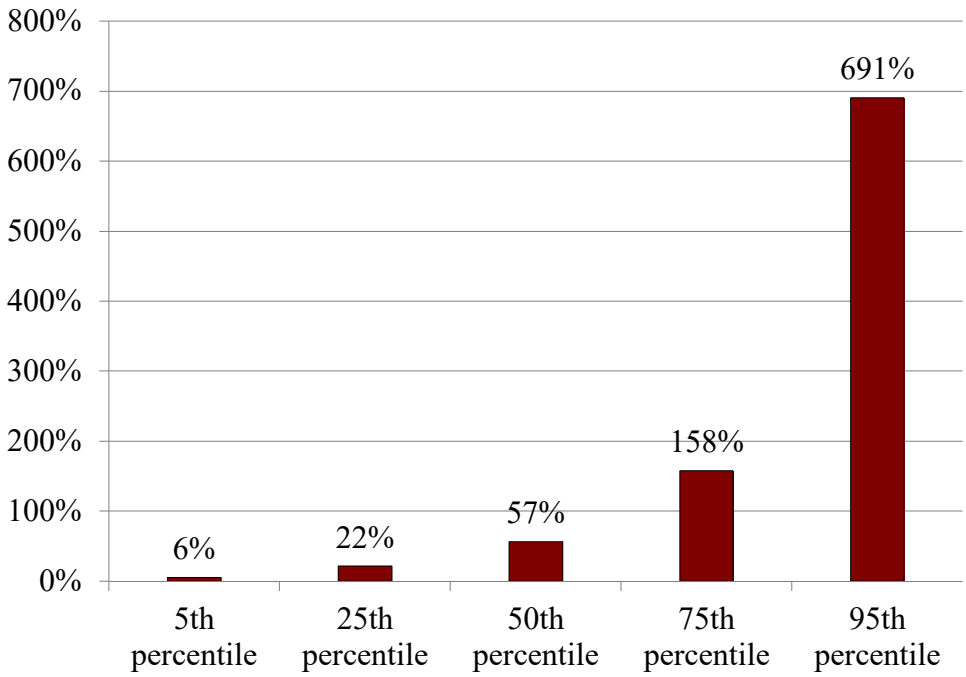
Source: Authors' calculations.

Figure 4. *Stock Market as a Percentage of GDP with Projected 6.5-Percent Return, 1975-2100*



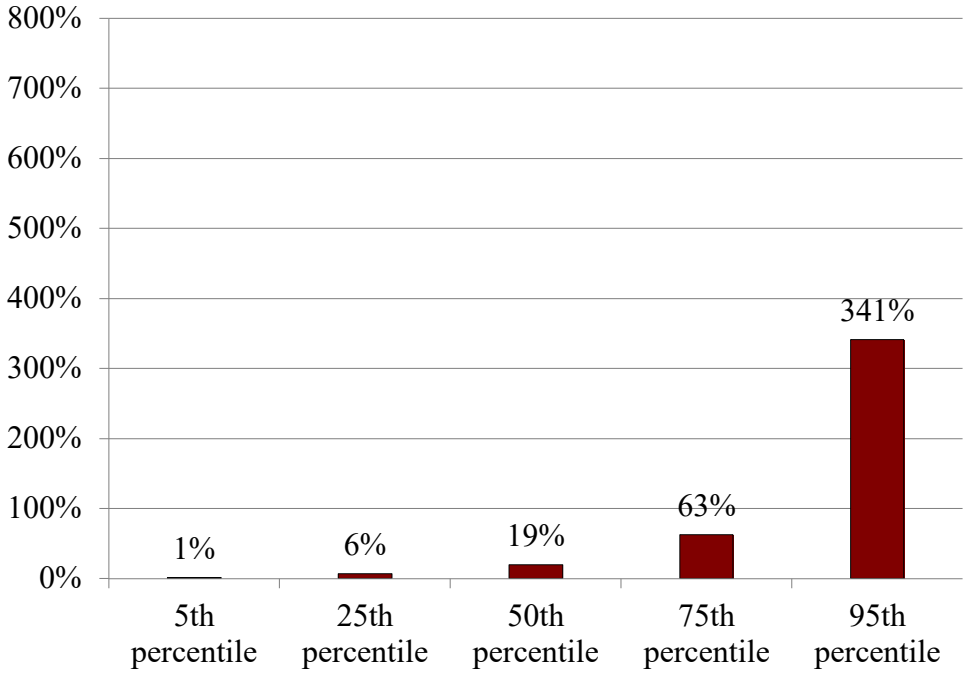
Source: Authors' calculations.

Figure 5. *Share of Total Borrowing Repaid by the Cassidy-Kaine Investment Fund, with a 6.5-Percent Real Return*



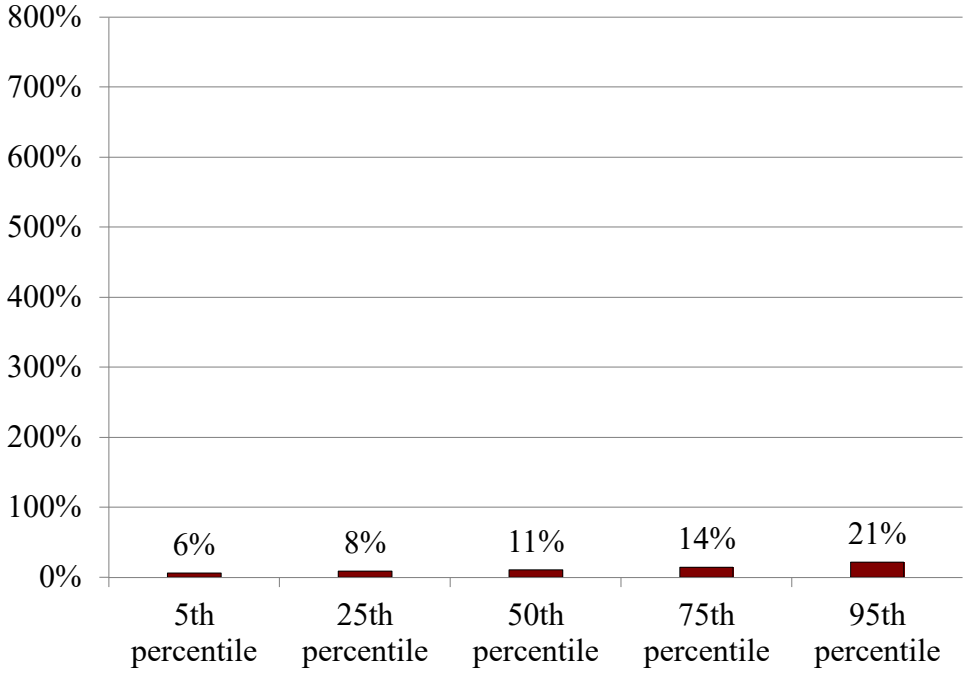
Source: Authors' calculations.

Figure 6. *Share of Total Borrowing Repaid by the Cassidy-Kaine Investment Fund, with a 4.0-Percent Real Return*



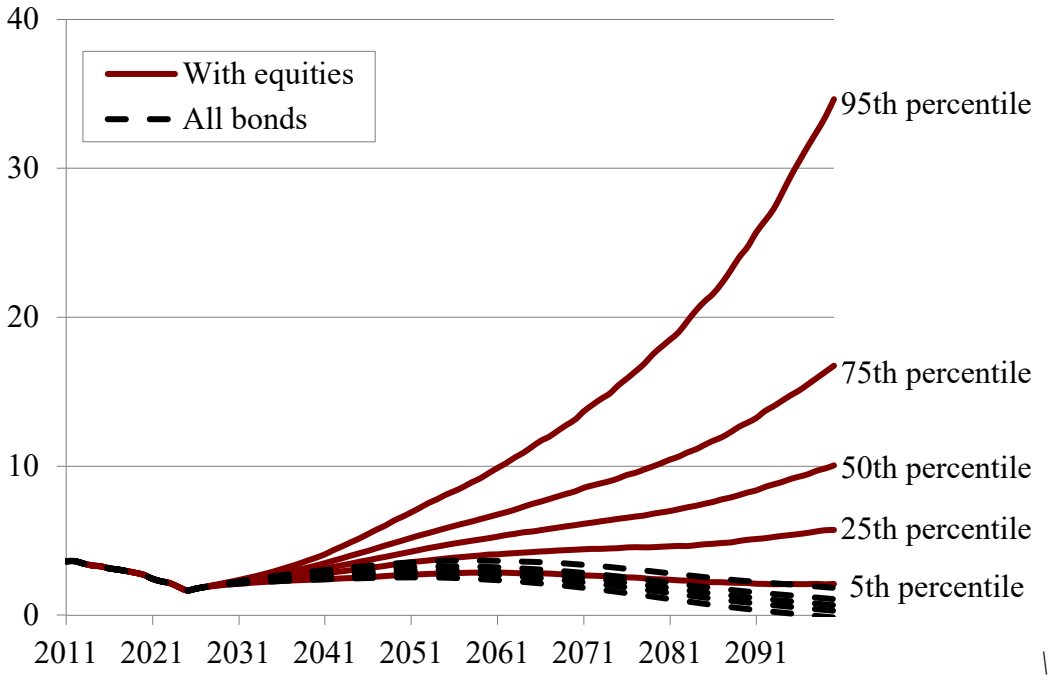
Source: Authors' calculations.

Figure 7. *Share of Total Borrowing Repaid by the Cassidy-Kaine Investment Fund, with a 3.5-Percent Real Return*



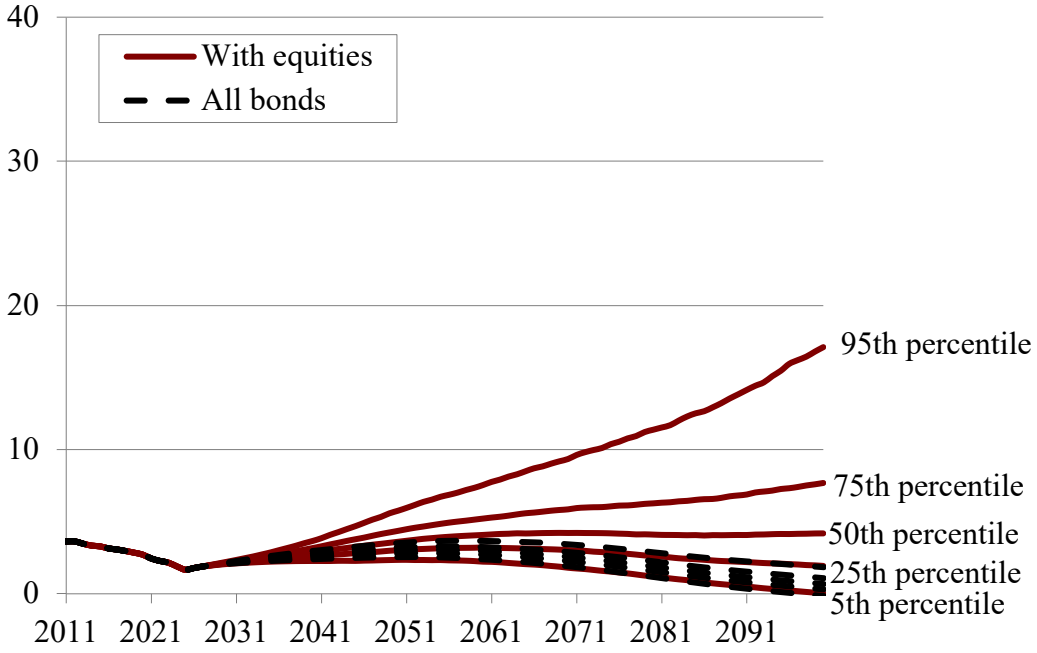
Source: Authors' calculations.

Figure 8. *Projected Trust Fund Ratio with an Immediate 3.82-Percent Tax Increase and 6.5-Percent Real Return, Under Different Portfolios, 2011-2100*



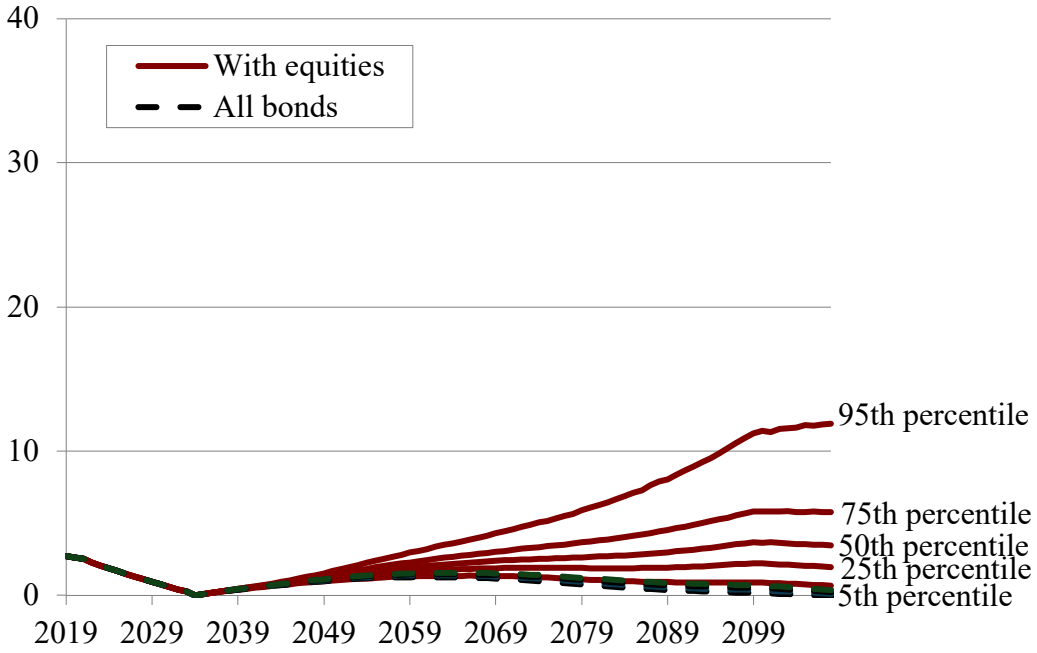
Note: The mixed portfolio begins investing in 2025 and is invested in a 40-percent equity portfolio, phased in over 15 years.
Source: Authors' calculations.

Figure 9. *Projected Trust Fund Ratio with an Immediate 3.82-Percent Tax Increase and 4.0-Percent Real Return, Under Different Portfolios, 2011-2100*



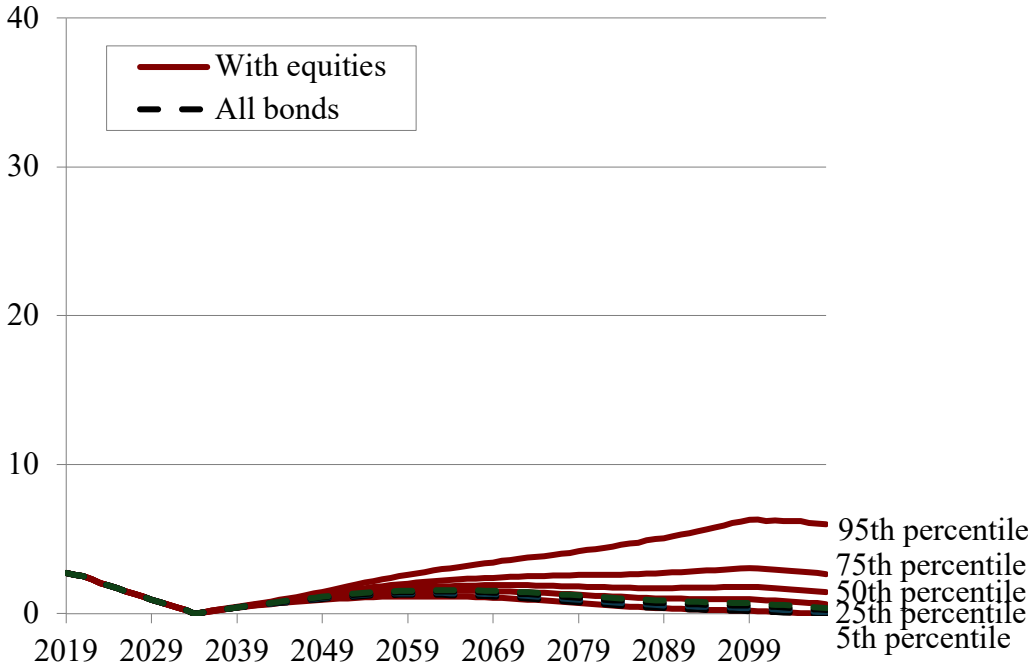
Note: The mixed portfolio begins investing in 2025 and is invested in a 40-percent equity portfolio, phased in over 15 years.
Source: Authors' calculations.

Figure 10. *Projected Trust Fund Ratio with a 4.53-Percent Tax Increase Starting in 2034 and 6.5-Percent Real Return, Under Different Portfolios, 2019-2108*



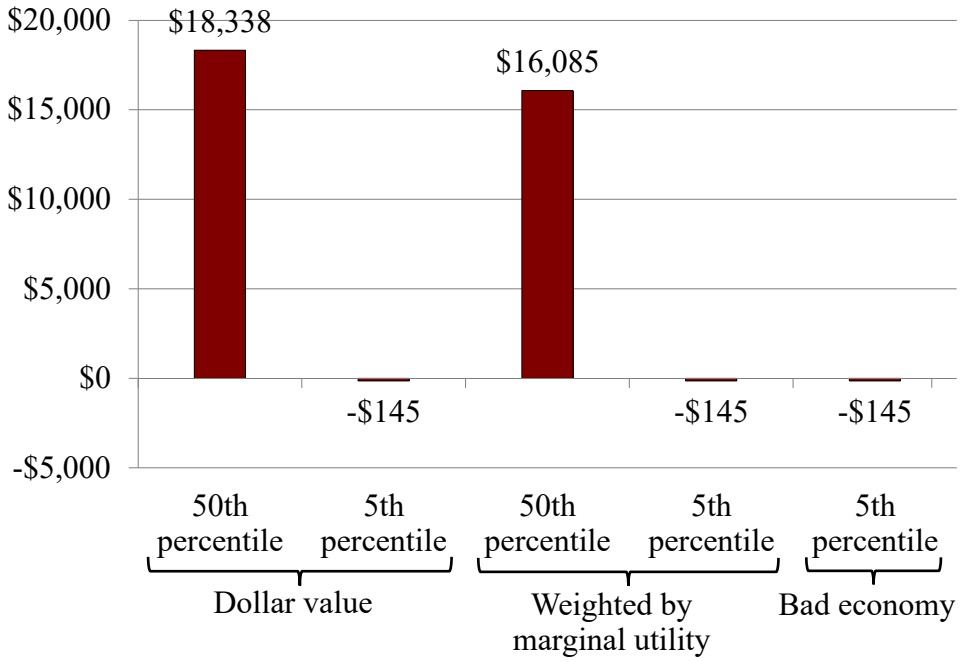
Note: The mixed portfolio begins investing in 2025 and is invested in a 40-percent equity portfolio, phased in over 15 years.
Source: Authors' calculations.

Figure 11. *Projected Trust Fund Ratio with a 4.53-Percent Tax Increase Starting in 2034 and 6.5-Percent Real Return, Under Different Portfolios, 2019-2108*



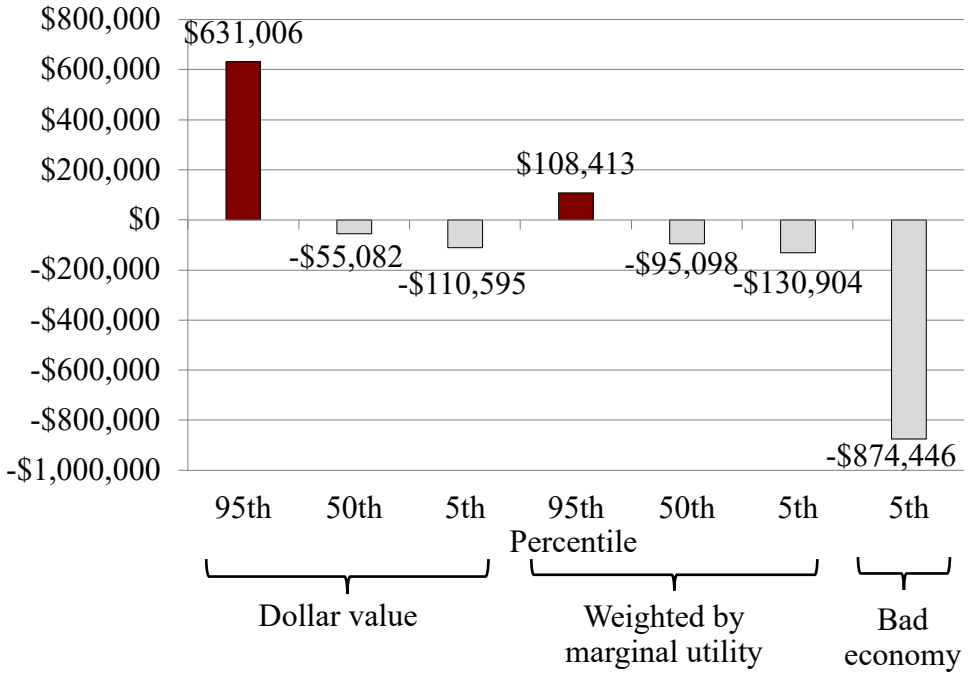
Note: The mixed portfolio begins investing in 2025 and is invested in a 40-percent equity portfolio, phased in over 15 years.
Source: Authors' calculations.

Figure 12. *Increases in "Tax Refunds" and "Back Taxes" for Mixed Portfolio with Tax Increase Proposal ($2025)*



Source: Authors' calculations.

Figure 13. *Increases in "Tax Refunds" and "Back Taxes" for Cassidy-Kaine Proposal ($2025)*



Source: Authors' calculations.

Appendix: Construction of Bond Returns

Investment policy and hence the maturity structure of the bond portfolio held by the trust fund have fluctuated considerably over time, ranging from bonds with durations of a year or less to the current policy of spreading the maturities of newly purchased bonds equally over a 15-year period. The current bond management policy is assumed to continue over the projection horizon, so the historical distribution of market returns on Treasury securities will not be appropriate for predicting future annual returns. It therefore makes sense to simulate the bond interest rate on new special Treasury issues rather than the effective yield on the bond portfolio. The effective yield on the bond portfolio will then be the weighted average of interest rates on past special Treasury issues, with the weights determined by the share of the bond portfolio that was purchased in each of the past 15 years.

Then Monte-Carlo simulations use the interest rates, r_t^B, on new special-issue Treasury securities purchased by the trust fund during a calendar year. These rates are independent of the timing of portfolio rebalancing and evolving investment policies.[34]

The effective (realized) return I_t^B, is the sum of interest earned on all bonds held in the portfolio (that is, purchased over the previous 15 years) and P_t is the amount of new bond purchases at time t.

$$I_t^B = (P_{t-1} \times r_{t-1}^B) + \frac{14}{15}(P_{t-2} \times r_{t-2}^B) + \ldots + \frac{1}{15}(P_{t-15} \times r_{t-15}^B)$$

Since the special-issues can always be redeemed at par, the value of bonds maturing in year t, M_t, is:

$$M_t = \frac{P_{t-1} + P_{t-2} + \ldots + P_{t-15}}{15}$$

[34] The interest rate on new special-issues in a given month is the average market yield on marketable interest-bearing securities of the federal government with maturities of four or more years. This interest rate is assigned to all the special-issue securities purchased in a month, regardless of the maturity of the security. One-fifteenth of the securities purchased are assigned a maturity of one year, one-fifteenth are assigned a maturity of two years, and so on up through an assigned maturity of 15 years.