Connecticut's Fiscal Guardrails: A Data-Driven Analysis

Connecticut's Volatility Cap: A Closer Look

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The volatility cap is one of the most innovative and impactful of Connecticut's fiscal guardrails. The volatility cap was designed to insulate the budget from the significant swings in revenue that had become a feature of Connecticut's budget landscape in the years following the Great Recession. It is based on the principle that unpredictable revenue sources should not be relied upon to fund predictable, recurring expenditures.[1]

Figure IV.A: Connecticut's volatility cap calculation
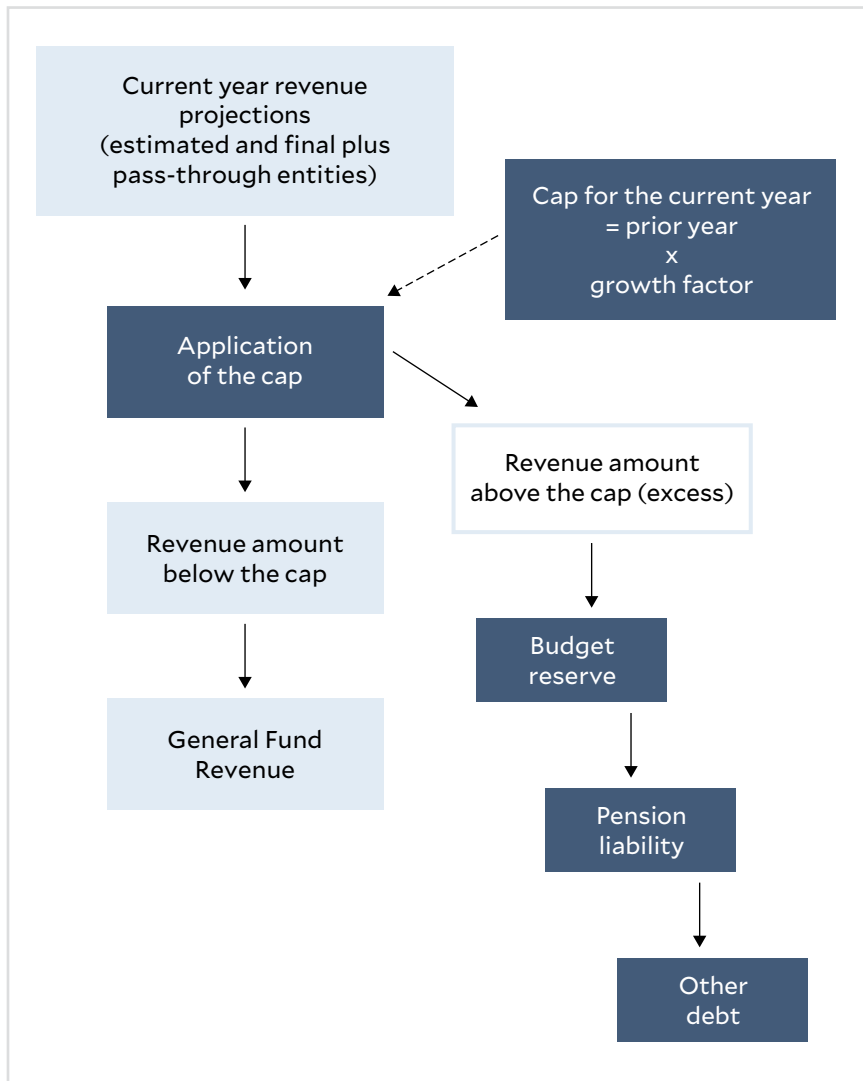
1 "Connecticut's Fiscal Guardrails Treasurer's Office Inaugural Investor Conference," Connecticut State Treasurer's Office, 2023, https://portal.ct.gov/-/media/opm/bud-other-projects/reports/other-reports/inaugural-ct-investor-conference--opm--fiscal-guardrails--may-23-2023.pdf, 19.

The volatility cap limits the amount that the General Assembly can budget from Connecticut's most significant volatile revenue sources: taxes on pass-through entities and the estimated and final payments of the personal income tax.[2] The volatility cap statute establishes a base amount that is then adjusted annually. When tax receipts are estimated for the coming year, they are compared to the cap. Any revenues above the threshold are deemed excess and are unavailable for appropriation by the General Assembly and instead are transferred to the Budget Reserve Fund (BRF).[3]

The volatility cap was set at $3.15 billion in 2018 and allowed to increase each year based upon the state's compound annual rate in personal income growth over the prior five calendar years using data reported by the federal Bureau of Economic Analysis.[4] Funds in excess of this amount are deposited into the BRF. Once the BRF reaches a set level (recently increased from 15 percent to 18 percent of the state's operating budget), any additional funds are to be used to pay down pension liabilities and debt (see Figure IV.A).

HOW DO WE KNOW IF THE VOLATILITY CAP IS "WORKING"?

There are many ways to conceptualize the volatility cap. One way is to assume that, as the name suggests, the cap should reduce or "smooth" volatility. If that is indeed the purpose, one might expect a well-designed cap to result in some years where actual revenue from volatile sources comes in below the cap and other years when revenue exceeds the cap, as depicted in Figure IV.B.

An alternative conception of the volatility cap might serve a different objective: not merely to smooth or reduce volatility, but to ensure that revenue from volatile sources will never—or at least very rarely—fall below the cap, to ensure maximum predictability. Another version of that approach might seek to ensure that actual revenue from volatile sources never—or very rarely—falls more than a certain amount below the threshold, such as 1.25 percent of total revenues or the amount of the "cushion" required by the revenue cap. A cap well-designed to achieve these objectives would be depicted as in Figure IV.C.

Connecticut's volatility cap has not, in practice, looked like either of these conceptualizations. Instead, actual revenues from sources included in the volatility cap base have come in high above the cap every year since the cap's enactment. From 2018 to 2023, the amount of volatile revenue that exceeded the volatility cap in a given year ranged from $530 million to nearly $3 billion, with an average of $1.4 billion per year (see Figure IV.D).

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2 "Connecticut's Fiscal Guardrails Treasurer's Office Inaugural Investor Conference," 7. Smaller revenue sources such as the inheritance tax are more volatile but tend to make up less than a percent of state revenues. See, "Connecticut State Budget FY 24–FY 25," Office of Fiscal Analysis, https://www.cga.ct.gov/ofa/Documents/year/BB/2023BB-20231005_FY%2024%20 and%20FY%2025%20Connecticut%20Budget.pdf, 401.
3 "Sec. 4-30a. Transfer of surplus to Budget Reserve Fund, State Employees Retirement Fund and Teachers' Retirement Fund. Reduction of outstanding state indebtedness. Transfer of funds from Budget Reserve Fund," Chapter 47, State Property and Funds, General Statutes of Connecticut, https://www.cga.ct.gov/current/pub/chap_047.htm#sec_4-30a.
4 "Sec. 4-30a."

Figure IV.B: Conceptual depiction of a volatility cap with current policy volatility cap and hypothetical revenue

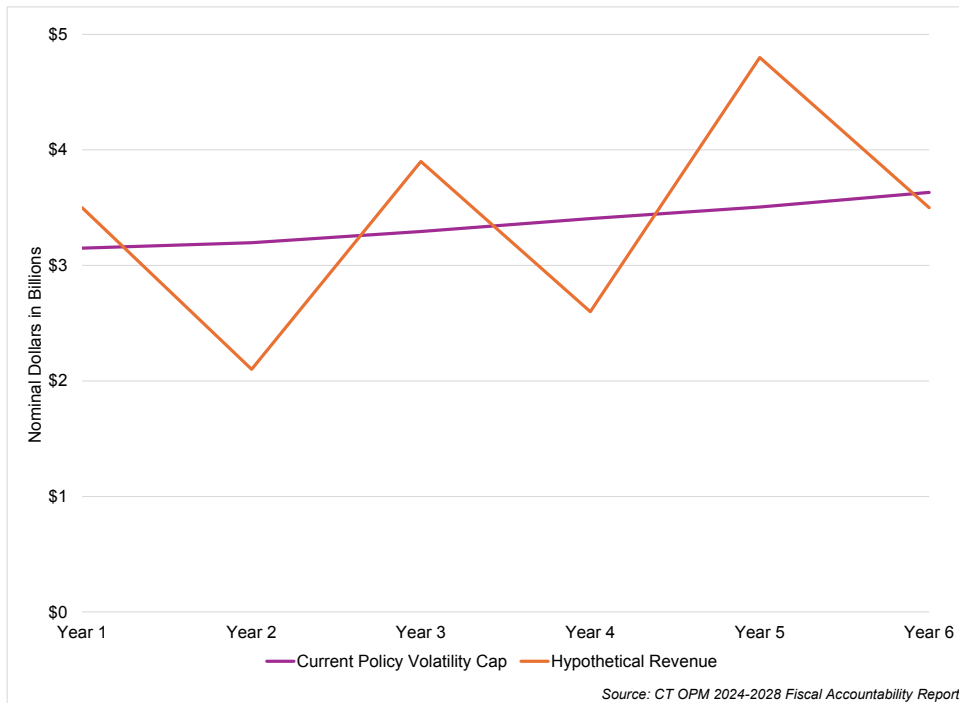*Source: CT OPM 2024-2028 Fiscal Accountability Report*

Figure IV.C: Conceptual depiction of a volatility cap with alternative volatility caps and hypothetical revenue

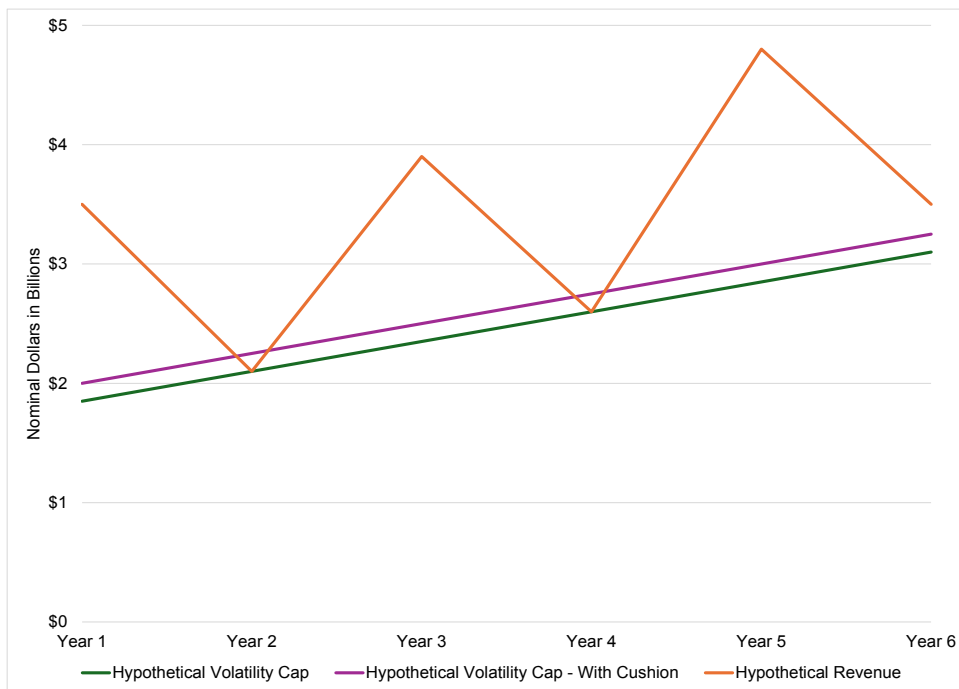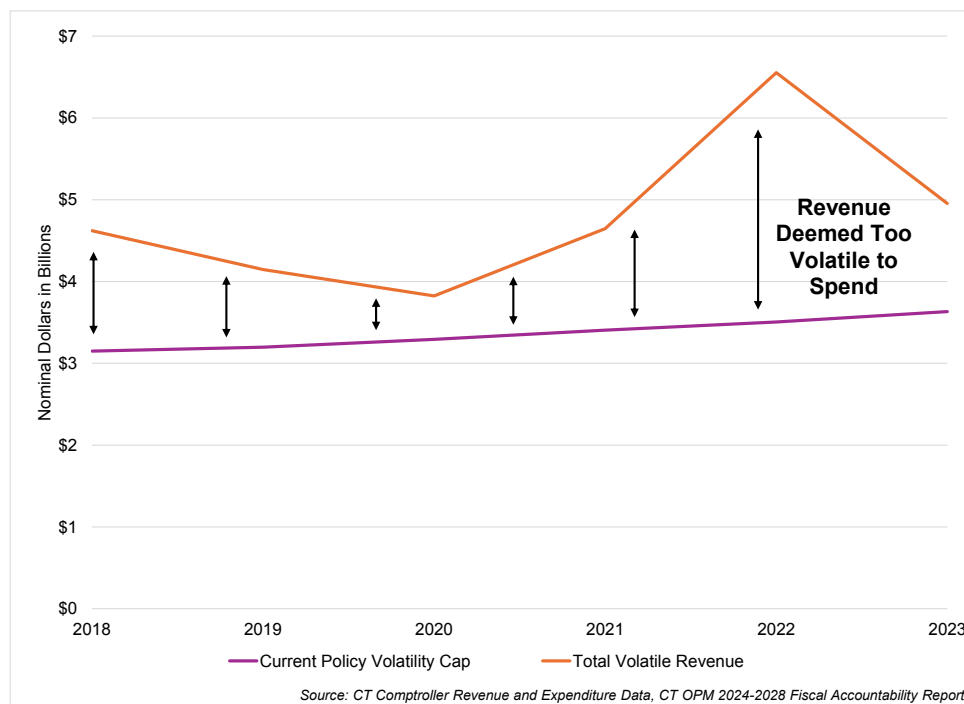Figure IV.D: Connecticut's volatility cap in practice, 2018–2023

Source: CT Comptroller Revenue and Expenditure Data, CT OPM 2024-2028 Fiscal Accountability Report

What these data and depictions suggest is that, as currently designed, Connecticut's volatility cap is doing more than protecting against volatility. Rather, it has worked to compel substantial annual transfers into pension funds and other long-term liabilities, beyond what is budgeted and required by the actuarially required contributions to the pension funds.

Creating a structural surplus that must be deposited into the pension funds is a legitimate policy objective. However, if the purpose of the volatility cap is indeed to guard against volatility, it is worth examining whether alternatives to the current cap design might achieve that purpose, while putting less revenue "off limits" for expenditure on current programs and services.

ALTERNATIVE APPROACHES TO THE VOLATILITY CAP

Changes to the Base

One possibility for adjusting the volatility cap is to reconsider the sources of revenue that are deemed volatile. Under current policy, two sources of revenue represent the base for the volatility cap—the pass-through entity (PTE) tax and estimated and final payments (EFP) from the personal income tax. These revenue sources represented about 21 percent of total state revenue in FY23.

Both sources have demonstrated volatility over time. However, they are not the only volatile sources of revenue. Other volatile revenue lines include the inheritance tax, the real estate tax,

and the reported personal income tax refunds. An earlier volatility cap model, which was enacted in 2015 but was superseded by the current cap formula before it went into effect, included the corporate business tax.[5]

In short, identifying the sources of revenue that should be included in the base for a volatility cap is a matter of discretion and choice. Arguably, the base should reflect the intended goals of the policy. If the goal is to provide a check on policymakers when revenue dramatically exceeds expectations, then it may make sense to broadly define the base with the cap set so that extraordinary peaks and drops are apparent. In contrast, if the goal is to make fairly regular contributions to savings that accumulate over time, a narrow base with a relatively low cap set such that most of the revenue from that source is directed to reserves might be preferred.

Given that current policy applies to 21 percent of total state revenues, we explored what alternative volatility cap bases might look like that represent both a smaller and larger share of total state revenue:
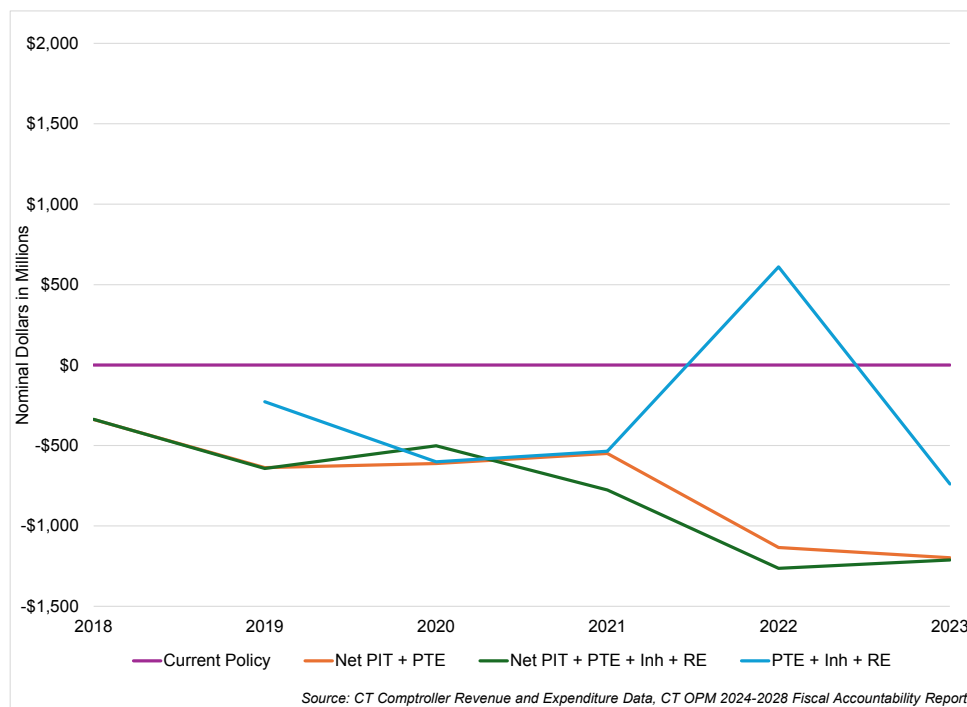
- A base that includes net personal income tax, which includes withholdings plus estimated and final payments less refunds, (Net PIT) and the pass-through entity tax (PTE): 49 percent of 2023 General Fund revenues

- A base that includes Net PIT, PTE, inheritance (Inh), and real estate (RE): 51 percent of 2023 General Fund revenues

- A base that includes just PTE, inheritance, and real estate: 11 percent of 2023 General Fund revenues

To compare these options, we first calculate what the new base would have been in 2018 (i.e., 99.55 percent of the 2017 reported level[6]) and then increase it each year based on the current deflator (i.e., the five-year compound annual growth in Connecticut personal income). Figure IV.E reports the impact of these different options, showing how much more or less revenue would be available to policy makers relative to current policy.

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5 "Annual Report of the State Comptroller Statutory Basis (GAAP Based Budgeting)," Kevin Lembo, State Comptroller, 2015, https://osc.ct.gov/wp-content/uploads/2024/03/AnnualReportOfTheStateComptroller-Budgetary-Basis-2015.pdf.
6 99.55% is the proportion of FY17 revenues ($3.2 billion) that makes up the FY18 volatility cap ($3.15 billion).

Figure IV.E: Freed up revenue from narrowing and broadening of the volatility cap base, 2018–2023

Source: CT Comptroller Revenue and Expenditure Data, CT OPM 2024-2028 Fiscal Accountability Report

Note: For the PTE + Inh + RE analysis, the 2019 data point is excluded because the PTE tax was established as a separate tax revenue stream in 2019, meaning it cannot be distinctly incorporated into the 2018 data point. Prior to 2019, PTE was part of the EFP tax revenue stream.
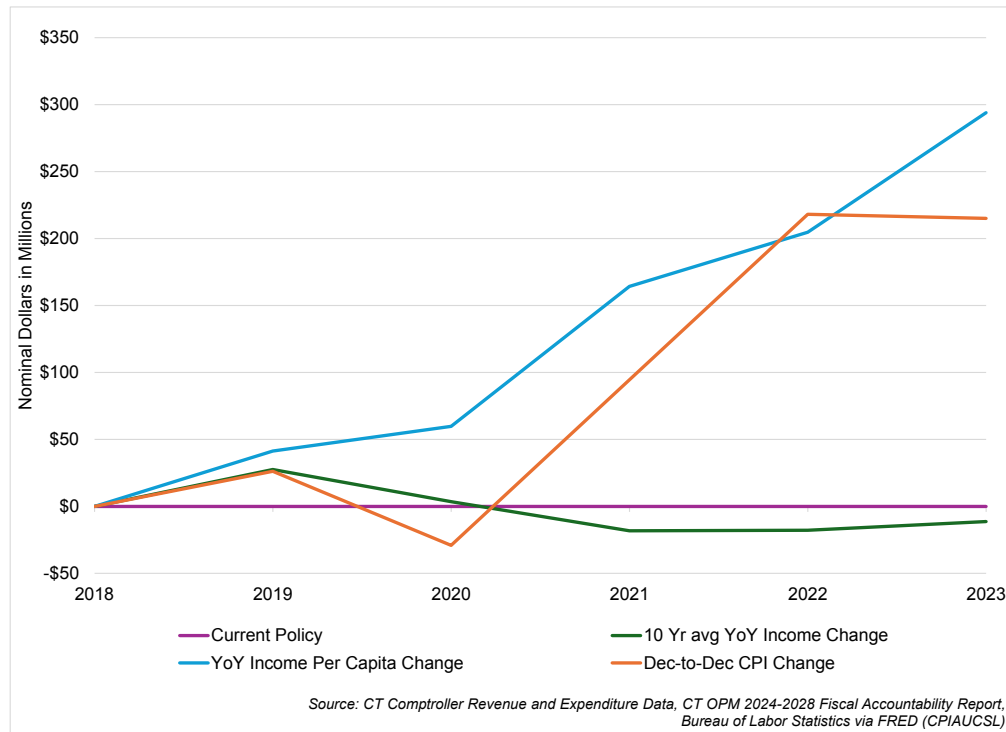
How one conceives of volatility might drive whether the cap is designed using a broad or narrow base. A narrow base targets more unreliable but smaller sources of state revenues, allowing for other more "moderate" net fluctuations in revenue. A broad base for calculating volatility suggests a focus on fiscal discipline and the setting aside of resources for future expected downturns. As noted above, we constrained the comparison to use the same approach to calculating the base year as exists in current policy (e.g., 99.55 percent of 2017 levels). Below, we demonstrate the extent to which this analysis is sensitive to the choice of the base year.

Changes to the Growth Calculation

A second option for modifying the volatility cap is to change the method by which the amount of allowable annual growth under the cap is calculated. As noted above, current policy applies the compound rate of growth in Connecticut's total personal income over the prior five calendar years, starting from a base amount of $3.15 billion in 2018.

We explore alternative ways to adjust the base from one year to the next in an effort to calculate the impact on available revenue. We first calculate the impact of using a simple ten-year average change in personal income as a way to smooth short-term trends driven by the business cycle. In an effort to account for changes in population, we analyze year-over-year changes in income per capita for the deflator. Finally, we used the year-over-year change in the December consumer price index (CPI) for urban consumers.

Figure IV.F: Freed up revenue from static modification of the volatility cap calculation, 2018–2023

Source: CT Comptroller Revenue and Expenditure Data, CT OPM 2024-2028 Fiscal Accountability Report, Bureau of Labor Statistics via FRED (CPIAUCSL)

The impact of these changes is relatively modest (Figure IV.F). For example, while substituting the December-to-December CPI growth frees up over $200 million in 2022 and 2023, it also can produce a tighter cap in some years. This analysis suggests that an approach which uses *the greater* of a five-year compound average personal income growth or annual CPI growth, as is done with the spending cap, might have some merit.

Rethinking the Base Year: A Static and Dynamic Approach

It is important to recognize that the initial base value for the volatility cap, which was set at $3.15 billion in 2018, was not based on a thorough examination of trends over a multi-year period. Rather, it was simply, and rather arbitrarily, pegged relative to the amount of revenue collected from EFP taxes from 2017 (including the revenues that would be later broken out into the PTE tax), the last year before the guardrails package was negotiated.

Given the actual performance of the volatility cap, with revenues consistently and often substantially above the cap, one could question whether the base was set appropriately. To demonstrate the impact of the choice of the starting year, we (1) replicate the rate of growth used under current policy, then (2) reset the base year to 2008, 2013, and 2019 (five and ten years prior to, and one year after, the 2018 reference year currently used). The choice of a base year has a powerful impact.

For example, setting the base year to 2013 and growing the cap each year at the five-year compound rate of personal income growth would have resulted in a cap threshold approximately $520 to $600 million higher than the current threshold (Figure IV.G), freeing up those resources for current spending while still producing surpluses in the majority of years. Resetting the base year to 2008 has an even greater impact, raising the cap and freeing up an average of $1.0 billion per year. Finally, recalibrating the calculation to use 2019 revenue figures for EFP and PTE taxes as the cap (i.e., using $4.15 billion instead of $3.2 billion for that year) frees up $900 to $950 million in each of the subsequent years.

Figure IV.G: Freed up revenue from a static approach to resetting the volatility cap base, 2018–2023 (nominal dollars in millions)

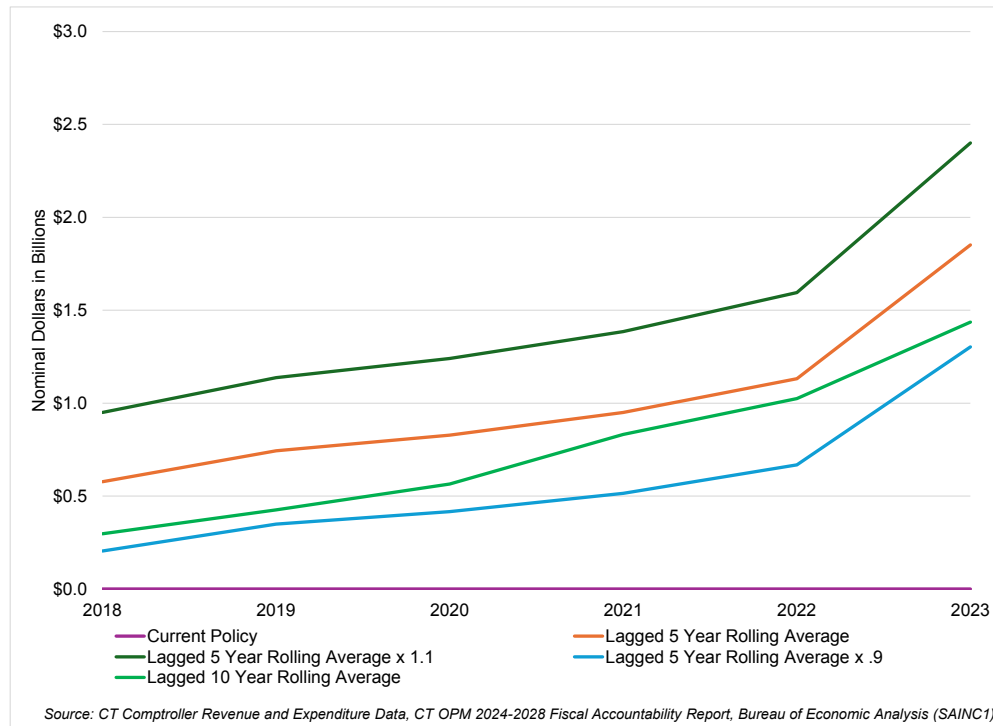| Reset Year	2018	2019	2020	2021	2022	2023
Reset to 2019			$943	$928	$925	$907
Reset to 2013	$601	$601	$586	$563	$552	$524
Reset to 2008	$1,016	$1,021	$1,016	$1,003	$1,002	$985
Source: CT Comptroller Revenue and Expenditure Data, Bureau of Economic Analysis (SAINC1)						

The cap's sensitivity to the choice of a base year, and the relatively arbitrary way in which the current base year was selected, is an argument in support of rethinking how the base is chosen and whether it is possible to periodically update the provisions of the cap to reflect more accurately the longer-term shifts in the economy.

The above comparisons took a static approach, making a single change while holding other factors constant. We also explored what would happen if the structure of the cap employed a dynamic look back at the trends in these revenue sources, then carried that process forward into future years to establish a cap level. To provide an example of what a more dynamic cap might look like, we took the following steps.

- We draw upon data going back sixteen years (2008–2023).

- Beginning in 2018, we estimate an average base of volatile revenues (EFP and PTE) based upon the prior ten years' revenues in real dollars for each year (e.g., for 2018, we convert revenues in 2008 through 2017 to 2018 dollars, then average them).

- We roll that process forward in subsequent years.

We performed a similar process using a five year look back to determine the averages beginning with 2013. We also apply multipliers of 1.1 and 0.9 in order to test an explicitly "looser" and "tighter" cap, respectively.

Figure IV.H: Freed up revenue using a 5- and 10-year dynamic volatility cap calculation, 2018–2023

Source: CT Comptroller Revenue and Expenditure Data, CT OPM 2024-2028 Fiscal Accountability Report, Bureau of Economic Analysis (SAINC1)

This dynamic approach retains the spirit of the original cap structure by placing revenue off limits when volatile revenue sources come in unusually high, while at the same time establishing a cap threshold that is more responsive to longer-term changes in the state's economy. Depending on the dynamic model chosen and the year, the amount of additional room under the cap ranges from $205 million to over $2.4 billion.

It is important to note that under most of these sensitivities in the dynamic approach, revenue levels continue to exceed the cap, resulting in surplus transfers to the BRF and potentially to pensions (depending on the level of surplus). Under the five-year lagged average sensitivity, the average transfer to the BRF over the period would have been $413 million per year, for a total of $2.5 billion. Under the ten-year lagged average sensitivity, the average transfer is $663 million or $4.0 billion total. These figures compare to the current policy of $8.6 billion transferred to the BRF and pensions over the same six years.[7]

7 "Fiscal Accountability Report Fiscal Years 2025-2028," Jeffrey R. Beckham, Office of Policy and Management, 2024, https://portal.ct.gov/-/media/opm/budget/fiscalaccountability/opm-2024-fiscal-accountability-report-final.pdf?rev=62b1ee2e4449447aae844475a9a500c7&hash=C76D46300CDD088FFD55F6A05E6CA60C, 52; "Treasurer Erik Russell Deposits $608.2 Million Volatility Transfer into State Pension Funds," The Office of Treasurer Erick Russell, State of Connecticut's Treasurer's Office, 2024, https://portal.ct.gov/ott/newsroom/news/news-releases/volatilitytransfer_fy24.

VOLATILITY CAP AND THE RISK OF AN ECONOMIC DOWNTURN

One potential concern about adjusting the volatility cap threshold is that the volatility cap would serve as an important shock absorber in the event of a substantial reduction in revenue during an economic downturn. A recession could indeed result in a revenue decline that exceeds the cushion currently provided by the volatility cap.

While the volatility cap provides an important hedge against recession, however, it is not Connecticut's only fiscal shock absorber. As discussed in Overview of the Caps, the revenue cap requires an additional cushion of 1.25 percent to be built into every adopted budget. More important, Connecticut's Budget Reserve Fund, the primary fiscal shock absorber, is currently funded at the statutory cap of 18 percent of budget or an estimated $4.1 billion for FY24.[8] In addition, lawmakers have the ability to reduce spending in response to reductions in revenue and would likely do so in the face of a severe recession. There is no reason to believe that the volatility cap was intended to remove all risk of future revenue reductions.[9]

To the extent that policymakers seek to insulate the state budget more fully from revenue decline during the most severe economic recessions, such as that experienced following the historic 2008 financial crisis, that objective could also be achieved by lifting the cap on contributions to the Budget Reserve Fund. Adjusting the volatility cap downward, while adjusting the Budget Reserve Fund cap upward, could allow the state to utilize more revenue for current priorities while increasing the state's ability to absorb the most severe declines in revenue.

Ultimately, striking the appropriate balance between long-term savings in the form of supplemental pension contributions, protection against economic downturns by building the Budget Reserve Fund, smoothing revenue projections year to year, and meeting current needs through spending requires policymakers to weigh priorities. Again, we do not advocate for the volatility cap threshold to be adjusted to a particular level. Our analysis simply suggests that there is room to adjust the volatility cap, perhaps using a dynamic volatility cap threshold, in a way that allows additional revenue to be utilized for current needs, while still guarding against the kind of volatility experienced in the years prior to the establishment of the fiscal guardrails.

8   "Fiscal Accountability Report Fiscal Years 2025–2028," 49.
9   Office of Policy and Management models published in the most recent Fiscal Accountability Report demonstrate that Connecticut could reduce the volatility cap threshold by roughly $500 million annually and still remain fully insulated, over a two-year period, from a recession of the severity experienced in 2002–2003 following the bursting of the dot-com bubble, should policymakers choose to utilize the full Budget Reserve Fund rather than reducing spending. A recession of the severity experienced following the historic 2008 financial crisis would result in revenue declines that exceed both the cushion provided by the volatility cap and the Budget Reserve Fund. As a result, a recession of such severity would require spending adjustments regardless of where the volatility cap threshold is set. See, "Fiscal Accountability Report Fiscal Years 2025–2028," 16.

CONCLUSION

Measuring the success of the volatility cap ultimately depends on the objective against which it is measured. However, if the cap is intended, as its name suggests, to insulate the state budget from the unpredictability of revenue *volatility*, its current design appears to cast too wide a net. Taking the dynamic approach outlined above would allow the state to guard against volatility, while being more responsive to economic growth and actual revenue collections over a period of years. In designing a dynamic volatility cap, the state could also choose to embrace a more- or less-cautious approach, depending on policymakers' preference.

Without advocating for any particular model, these illustrative examples demonstrate that there are theoretically-sound and data-supported alternatives to the current cap design that achieve the objectives of reducing uncertainty and promoting fiscal stability. In many years — and certainly over a period of years, taken in the aggregate — these alternative designs would continue to compel additional savings, albeit to a lesser degree than current policy.

As a result of the "bond lock" described in the "Overview" paper, it would be difficult to amend the statutory formula by which the volatility threshold is set prior to FY28. However, with a three-fifths vote in both chambers, the General Assembly could reset the volatility threshold "due to changes in state or federal tax law or policy or significant adjustments to economic growth or tax collections."[10] Should they choose to do so, the General Assembly could utilize the kind of dynamic model described above to inform such an adjustment.

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10   "Sec. 4-30a. Transfer of surplus to Budget Reserve Fund, State Employees Retirement Fund and Teachers' Retirement Fund. Reduction of outstanding state indebtedness. Transfer of funds from Budget Reserve Fund," Chapter 47, State Property and Funds, General Statutes of Connecticut, https://www.cga.ct.gov/current/pub/chap_047.htm#sec_4-30a.