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# Special Equalization Ratios and the City's Debt Limit

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# Special Equalization Ratios and the City's Debt Limit

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## Abstract

What is the “full valuation of taxable real estate” in New York City? The answer to this question determines how much indebtedness the City government can incur and how much property tax can be raised to pay for operating expenses, other than debt service. This report contains an analysis of the methodology used to estimate the full valuation, which revolves around Special Equalization Ratios (SERs) determined by the NYS Office of Real Property Tax Services (ORPTS). There are two main results: 1) the full valuation is a significant underestimate of the market value of real estate and, 2) SERs are based on a cumbersome methodology that results in biased and temporally misaligned parameters. ORPTS should consider implementing market surveys to correct for the undervaluation and making the survey data and estimation models and results publicly available. In addition, ORPTS should improve and streamline the methodology for SERs to achieve clear and predictable estimates.

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# Introduction

The City’s constitutional debt limit is 10% of the five-year average of the “full valuation of taxable real property.” The State Constitution also limits the amount of revenue the City can raise from the property tax for operating purposes (the “operating limit”) to 2.5% of the same five-year average.<sup>2</sup>

The full valuation is based on Special Equalization Ratios (SERs). [Equalization ratios](#) are simply the ratio of assessed to market values of real estate. Intuitively, the ratios are a way of translating different assessment rules across local governments in New York State into a comparable measurement of market value and they are calculated by the [Office of Real Property Tax Services](#) within the NYS Department of Taxation and Finance.<sup>3</sup> In this report, we assess the methodology behind the City’s SERs and its implications. To our knowledge this is the first review of the SERs methodology since a [NYS Comptroller report](#) from the 1990s.

This is far from being a merely technical issue. In the mid-1990s, the City’s debt limit declined precipitously, as shown in Chart 1. The drop necessitated the creation of the Transitional Finance Authority (TFA) and other entities such as TSASC Inc. to incur debt backed by revenue sources other than the property tax and not counted toward the limit. This allowed the City to avoid curtailing its capital program and incur indebtedness above the limit, as also shown in the chart.<sup>4</sup>

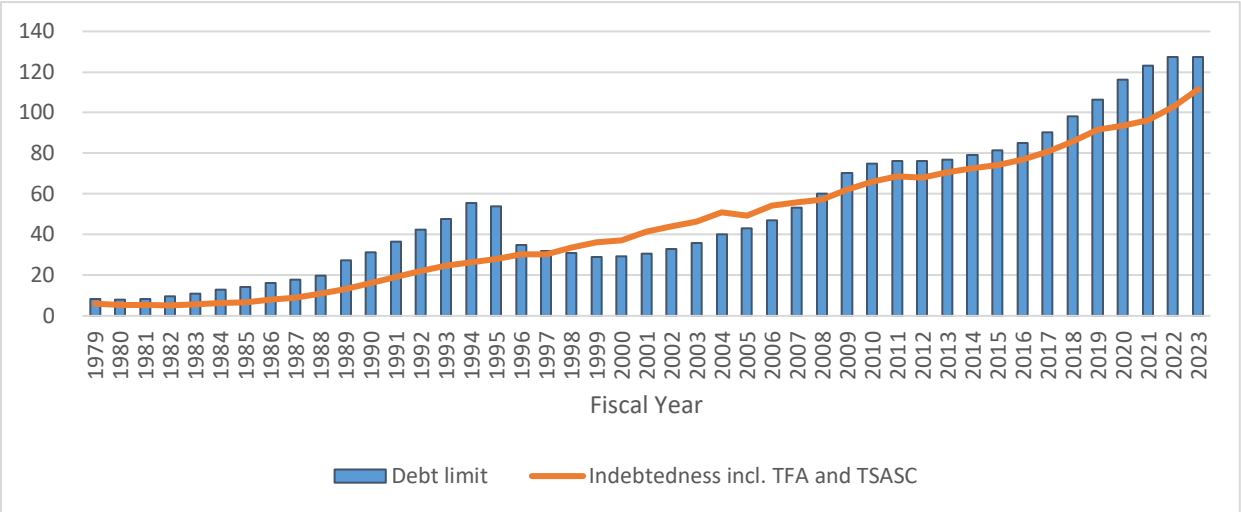
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<sup>2</sup> The State Constitution authorizes the City to levy a real estate tax without limit as to rate or amount (the “debt service levy”) to cover scheduled payments of the principal of and interest on indebtedness of the City.

<sup>3</sup> The merge of the Office of Real Property Services into NYS Department of Taxation and Finance was included in the Public Protection and General Government [budget bill](#) for the 2010-2011 fiscal year (Part W).

<sup>4</sup> A detailed explanation of the calculations for the remaining debt-incurring power can be found in Section 3 and the Appendix of the latest [Capital Debt & Obligations Report](#).

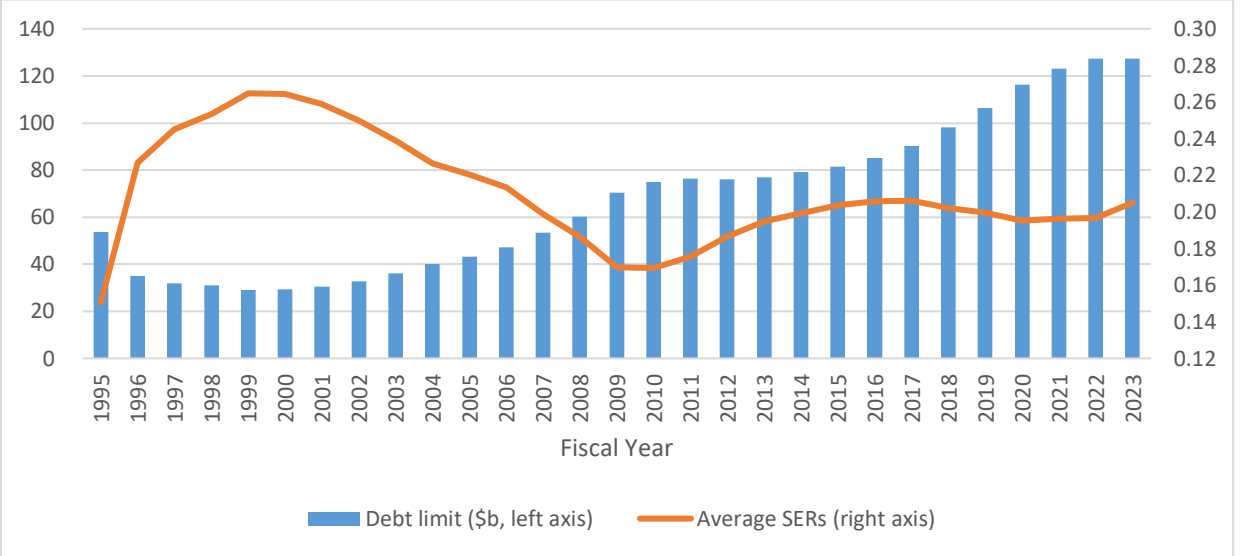
# Chart 1. The City's Debt Limit and Indebtedness (\$b)



Source: Office of the NYC Comptroller

While the recession in the 1990s drove a decline in real estate values, the sharp drop of the debt limit in FY 1996 was due to a rapid increase of SERs. Chart 2 shows the average of the five ratios used in the calculation of the debt limit for fiscal years starting in 1995. To our knowledge, the SER methodology was last reviewed by the State Comptroller in 1995 (we are publishing the archival copy [here](#)). That review concluded that the volatility of SERs and, consequently, of the debt limit were driven by methodological flaws. Since then, SERs have achieved a degree of stability: since the mid 2010s, average SERs fluctuated between 0.20 – 0.21.

# Chart 2. Debt limit and average of equalization ratios



Source: ORPTS, Office of the NYC Comptroller

The analysis in this note revolves around two questions.

### **Does the debt limit capture the market value of NYC real estate?**

NYS Real Property Tax Law [Article 12](#) and [Article 12-A](#) provide the statutory basis for the calculation of equalization ratios. The ratios need to be based on *market value surveys*. Such surveys “sample the ratio of assessments to market values” and are “based upon any data collected or maintained by the Commissioner, including sales data, data made available by local assessors concerning physical characteristics of the parcels, the value of such parcels or the aggregate full value of some or all of the parcels within the assessing unit.”<sup>5</sup>

In practice, because the City’s Department of Finance (DOF) assesses all properties every year, ORPTS uses DOF’s market values as its market value survey. Therefore, **as estimated using ORPTS’ SERs, NYC’s full valuation is not the market value of real estate.** As is well known,<sup>6</sup> statutory constraints and assessment policies drive a significant wedge between DOF market values and actual market values, with the exception of 1-3 family homes which are valued based on comparable sales.

For instance, based on Section 581 of the Real Property Tax Law, cooperative and condominium properties in NYC must be assessed based on comparable rentals, not comparable sales. This constraint leads to substantial undervaluation of market values. We estimate that removing this distortion could increase the FY 2024 five-year average of the full valuation significantly.

### **Are SERs based on a robust methodology?**

Our [Office](#) as well as the [Mayor’s Office of Management and Budget](#) forecast the City’s debt limit and remaining debt-incurring power implied by the capital commitment plans. Key to the forecast of the debt limit is the projection of SERs. ORPTS’ methodology for the calculation of SERs is delineated in a [high-level summary](#) and in [Title 20](#) of the New York Codes, Rules, and Regulations (NYCRR). In this report we detail the steps in the methodology, which we find cumbersome. More importantly, the analysis concludes that **SERs are both biased and temporally misaligned.**

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<sup>5</sup> A general overview of the survey’s methodology is provided in the [annual report](#) on assessment equity.

<sup>6</sup> See for instance NYC IBO (2006) [Twenty-Five Years After S7000A: How Property Tax Burdens Have Shifted in New York City](#) and NYC Advisory Commission on Property Tax Reform (2020) [Preliminary Report](#).

# Definition of Special Equalization Ratios

The City’s debt limit is 10% of the five-year rolling average of the “full valuation of taxable real estate”. The full valuation is derived from two sources: the City’s Department of Finance (DOF) Taxable Billable Assessed Value (TBAV) and ORPTS’ Special Equalization Ratios. The formula is:

$$\text{Full Valuation of Taxable Real Estate} = \frac{\text{Taxable Billable Assessed Value}}{\text{Special Equalization Ratio}}$$

TBAV<sup>7</sup> is determined by the City’s Department of Finance (DOF) through the annual assessment process, which follows four main steps:<sup>8</sup> 1) classification of property into one of four classes; 2) estimation of DOF market value; 3) derivation of assessed values using assessment ratios; and 4) derivation of TBAV by applying assessed value caps, phase-ins, and exemptions. Table 1 reports the FY 2024 the debt limit inputs and calculations.

**Table 1. FY 2024 Debt Limit**

Fiscal Year	TBAV	Special Equalization Ratio	Full Valuation of Taxable Real Estate
2020	\$257,509,634,870	0.2004	\$1,284,978,217,914
2021	\$271,688,749,747	0.2308	\$1,177,160,960,776
2022	\$257,560,316,555	0.2026	\$1,271,275,007,675
2023	\$275,614,595,502	0.2025	\$1,361,059,730,874
2024	\$287,719,502,079	0.1934	\$1,487,691,324,090
5-Year Average Value			\$1,316,433,048,266
10 Percent of the 5-Year Average			\$131,643,304,827

Source: New York City Council [Tax Fixing Resolution for FY 2024](#), p.5

<sup>7</sup> Specifically, TBAV is before subtraction of property tax STAR exemptions.

<sup>8</sup> For an overview of the steps involved in the calculation process, see the [Preliminary Report](#) from the NYC Advisory Commission on Property Tax Reform issued in 2020.



## Time notation and the five-year window

The methodology for the calculation of SERs involves several steps. ORPTS refers to DOF’s assessment rolls by the calendar year of their publication, not by the property tax levy’s fiscal year. For instance, the final assessment roll published in May 2022 is the “2022 assessment roll” (the roll contains the FY2023 levy). Accordingly, in the below, time  $t$  refers to the calendar year of the assessment roll. Fiscal years are denoted FY[year].

Each debt limit estimate involves five years of full valuation of taxable real estate. Therefore, they require five SERs. For instance, the FY2024 debt limit involves estimates of the full valuation from FY2020 to FY2024. In addition, the SERs in the five-year window are *re-estimated* every year. Therefore, the FY2023 SER calculated for the FY2023 limit is (meaningfully and systematically, as shown further below) different from the FY2023 SER calculated for the FY2024 limit.

SERs are denoted with two time indexes: the fiscal year they apply to (subscript) and the fiscal year of the debt limit calculation (superscript). The superscript cannot predate the subscript. For instance:

- $SER_{FY2024}^{FY2024}$  is the FY2024 ratio that enters the calculation of the FY2024 debt limit.
- $SER_{FY2023}^{FY2024}$  is the FY2023 ratio used in the FY2024 debt limit calculation.
- $SER_{FY2023}^{FY2023}$  is the FY2023 ratio used in the FY2023 debt limit calculation; and so on.

## Building Blocks

**Market Value Ratio (MVR).** This parameter is calculated from DOF’s assessment roll. For the assessment roll in year  $t$ :

$$MVR_t = \frac{AV_t^{DOF/ORPTS}}{MV_t^{DOF/ORPTS}} \quad (1)$$

Where AV denotes assessed value and MV denotes market value. The superscript is DOF/ORPTS because DOF values are calculated and modified by ORPTS. Table 2 below reports the components of ORPTS’ MVR calculations and compares them with DOF’s. DOF’s assessed values are gross of property tax STAR exemptions because these are the values used in the debt limit calculation (see Table 1), as published in the [annual property tax reports](#). As it can be seen, the “locally assessed property” values are different from both DOF’s taxable billable AV and DOF market values and the addition of “isolated property” values pushes ORPTS’ market value ratio

further up. The fact that ORPTS market value is slightly higher than DOF’s is immaterial for the debt limit because only the market value ratio enters the calculation.

**Table 2. ORPTS MVR from the 2022 assessment roll (\$m)**

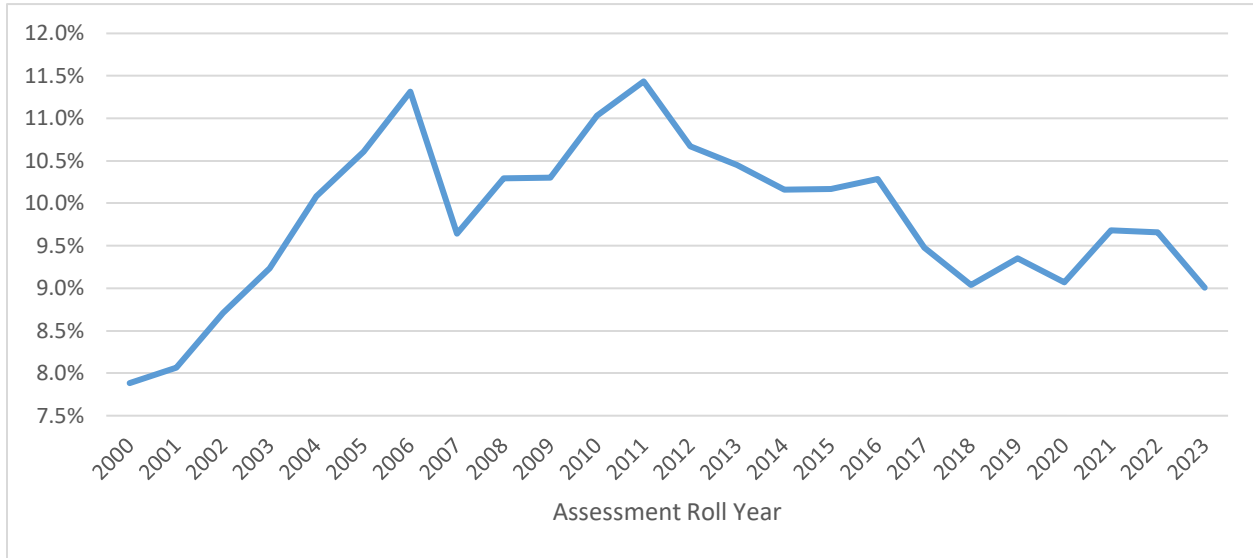
	Assessed Value	Market Value
<b>Locally assessed property</b>	\$290,940	\$1,380,623
<b>Isolated property:</b>		
<b>Taxable State Land</b>	\$227	\$536
<b>Ceiling Railroad</b>	\$9	\$41
<b>Special Franchise</b>	\$16,176	\$35,946
<b>Total</b>	\$307,351	\$1,417,145
<b>ORPTS MVR 2022</b>	0.2169	
<b>DOF values (excl. fully exempt properties and gross of STAR exemption)</b>	\$275,615	\$1,393,644
<b>DOF ratio</b>	0.1978	

Source: ORPTS, NYC DOF [FY 2023 Annual Property Tax Report](#). DOF AV is taxable billable

Chart 3 shows that MVR is systematically and significantly higher than the DOF ratio, although trending downward somewhat since 2011. For assessment rolls published in the last five years the difference averaged 9.4%.<sup>9</sup>

<sup>9</sup> ORPTS parameters based on the 2023 (FY2024) assessment roll are tentative as of the time of writing.

### Chart 3. Percentage difference between MVR and DOF ratio



Source: ORPTS, Office of the NYC Comptroller

**Observation 1.** *ORPTS’ market value ratios are systematically higher than DOF’s. Correspondingly, MVRs introduce a further downward bias in the calculation of the full valuation of taxable real estate.*

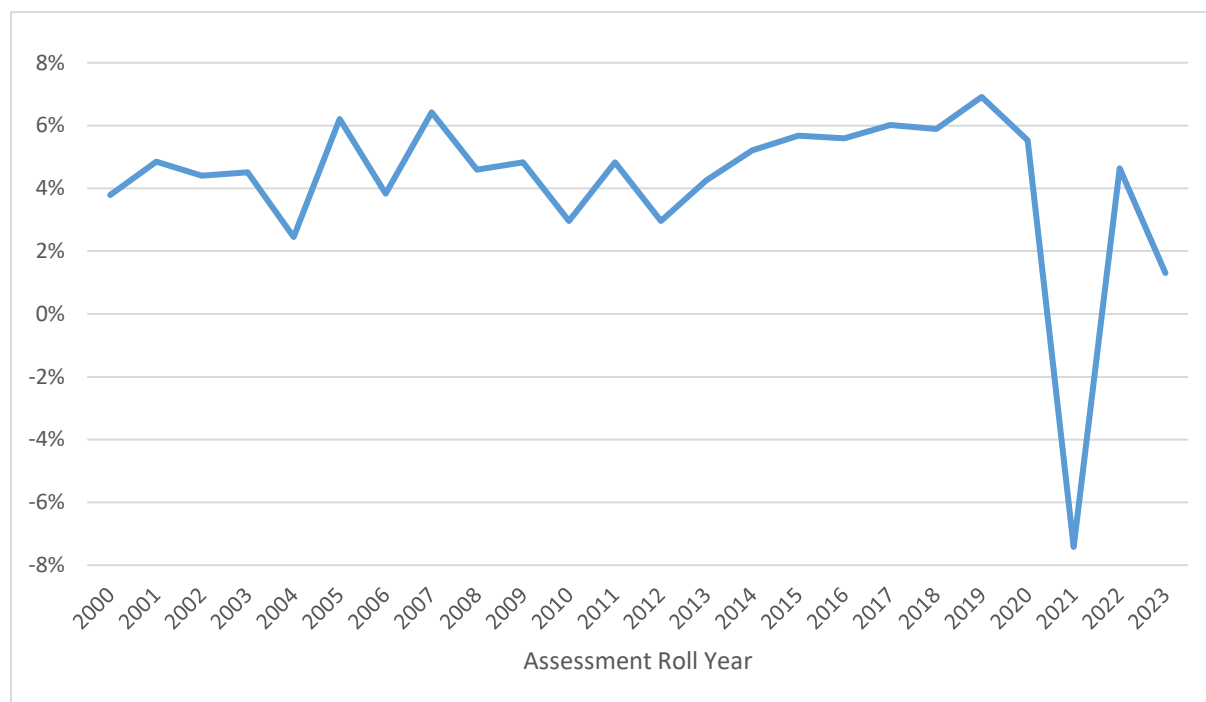
**Change-In-Level Factor (CILF).** This parameter approximates the AV growth rate for parcels that can be found in subsequent rolls. This is calculated from DOF assessment roll values as:

$$CILF_t = 1 + \tilde{\gamma}_t^{AV} = 1 + \frac{\Delta AV_t^{DOF/ORPTS\ MKT}}{AV_{t-1}^{DOF/ORPTS} - \Delta AV_t^{DOF/ORPTS\ QTY-}} \quad (2)$$

Where *MKT* and *QTY* indicate changes in AV due to market conditions and quantity changes, respectively. The denominator in the formula subtracts the value of parcels that were dropped from the tax rolls (denoted  $\Delta AV_t^{DOF/ORPTS\ QTY-}$ ). Further down, the overall AV growth rate is denoted as  $\gamma_t^{AV} = \frac{AV_t^{DOF/ORPTS}}{AV_{t-1}^{DOF/ORPTS}} - 1$ .

Chart 4 shows  $\tilde{\gamma}_t^{AV}$  starting from the 2000 assessment roll. Over this period, assessed values dropped only in the 2021 roll (-7.4%), the first to estimate the impact of the pandemic on market values and assessments. Assessed values returned to growth in 2022 but the rate of change moderated to 1.3% in 2023. It should be noted that  $\tilde{\gamma}_t^{AV}$  is by construction lower than the growth rate of DOF’s taxable billable assessed value. In the 2021-2023 assessment rolls, the difference has widened from 2.2 to 3.1 percentage points, the largest differences in historical data.

## Chart 4. ORPTS AV growth rate



Source: ORPTS, Office of the NYC Comptroller

**Adjusted MVR (AMVR).** This parameter is calculated by growing the previous year MVR by  $\tilde{\gamma}_t^{AV}$ . Substituting equation (1) in the formula, we obtain:

$$AMVR_t = MVR_{t-1} CILF_t = \frac{AV_{t-1}^{DOF/ORPTS}}{MV_{t-1}^{DOF/ORPTS}} (1 + \tilde{\gamma}_t^{AV}) \quad (3)$$

**Survey Period Trend (SPT).** Denotes the growth rate of AMVR relative to MVR. Using equations (1) and (3) we obtain:

$$\begin{aligned} SPT_t &= \frac{AMVR_t}{MVR_t} - 1 = \frac{MVR_{t-1}}{MVR_t} (1 + \tilde{\gamma}_t^{AV}) - 1 = \frac{\frac{AV_{t-1}^{DOF/ORPTS} (1 + \tilde{\gamma}_t^{AV})}{MV_{t-1}^{DOF/ORPTS}}}{\frac{AV_t^{DOF/ORPTS}}{MV_t^{DOF/ORPTS}}} - 1 \\ &= \frac{MV_t^{DOF/ORPTS} AV_{t-1}^{DOF/ORPTS} (1 + \tilde{\gamma}_t^{AV})}{MV_{t-1}^{DOF/ORPTS} AV_t^{DOF/ORPTS}} - 1 = \frac{(1 + \gamma_t^{MV})(1 + \tilde{\gamma}_t^{AV})}{1 + \gamma_t^{AV}} - 1 \end{aligned} \quad (4)$$

*SPT* equals the Implied Annual Trend (*IAT*) if market surveys are conducted annually. As mentioned above, ORPTS does not conduct a market survey for NYC as it relies on the annual assessments from DOF.

The interpretation of *SPT* (or *IAT*, as the case may be) is not straightforward and it hinges on the ratio  $\frac{(1+\tilde{\gamma}_t^{AV})}{1+\gamma_t^{AV}}$ . As mentioned above,  $\tilde{\gamma}_t^{AV}$  is an estimate of the AV growth rate for parcels that exist in subsequent rolls while  $\gamma_t^{AV}$  is just the AV growth rate from one roll to the next. The difference between the two should hinge on physical additions that are not exempted. It is possible that the formula is an attempt to adjust  $(1 + \gamma_t^{MV})$  to approximate the growth of DOF/ORPTS market value of properties that exist in subsequent rolls. To the extent that physical additions and subtractions to AV are relatively small, then  $\frac{(1+\tilde{\gamma}_t^{AV})}{1+\gamma_t^{AV}} \sim 1$  and  $SPT_t \sim \gamma_t^{MV}$ . If this is the case, the survey period trend should approximate the growth rate of DOF/ORPTS market value. For assessment rolls from 2020 to 2023, the ratio ranged between 0.97 and 1.01.<sup>10</sup>

*Observation 2.* The survey period trend is an approximation of the growth rate of DOF/ORPTS market values. The approximation should intuitively be driven by the amount of physical AV changes that are not exempted but it lacks a straightforward economic interpretation.

**Cumulative Trend (CT).** This is the sum since 1990 of *IAT*s with starting value set at one. Formally:

$$CT_t = CT_{t-1} + IAT_t = 1 + \sum_{s=1991}^t IAT_s \quad (5)$$

where  $IAT_s = \left[ (1 + SPT_s)^{1/p} - 1 \right]$  and  $p$  is the number of years between market surveys. For  $p = 1$ , the formula implies  $IAT_s = SPT_s$ .<sup>11</sup>

**Time trend ( $\tau_t$ ).** This parameter is the slope of a regression of  $CT_t$  on a time trend (referred to as “trend points”). The progression of time adds one trend point for each calendar year between surveys (0.5 points for a “mid-year survey” in 2004). Each new roll changes  $\tau_t$  but the effect is

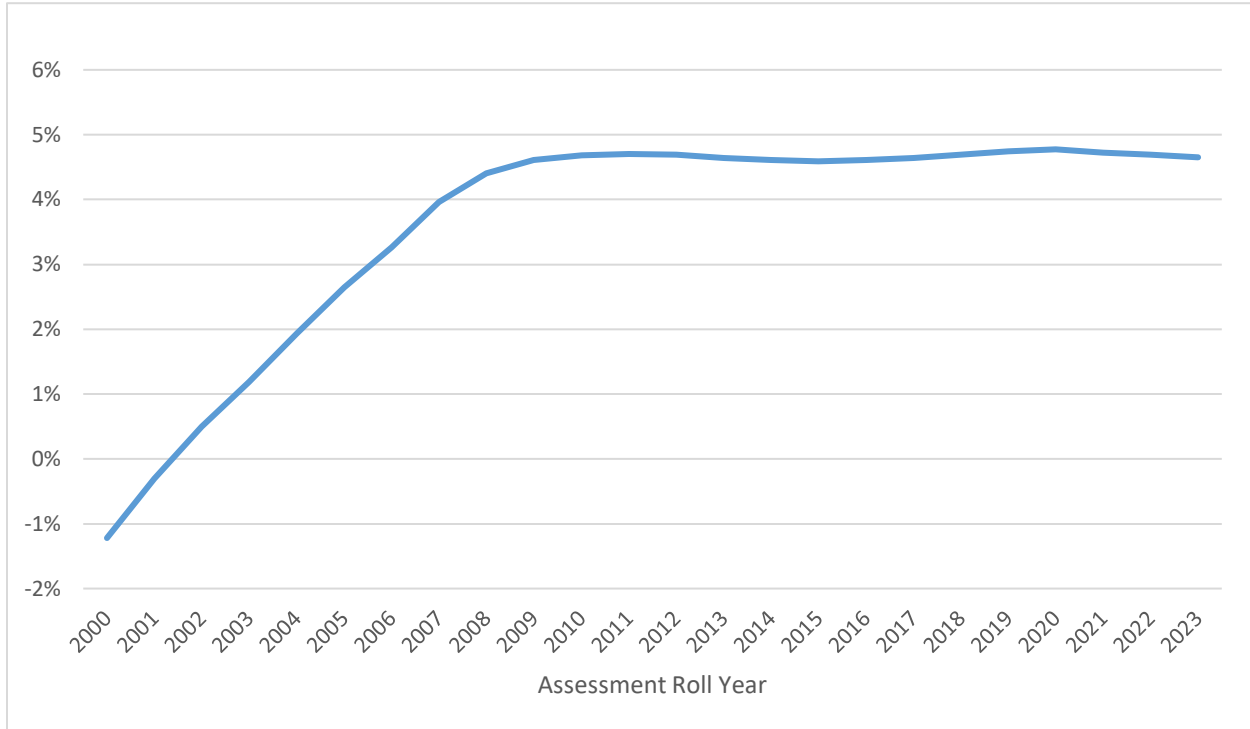
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<sup>10</sup> For 2020,  $AV_t^{DOF/ORPTS}$  and  $MV_t^{DOF/ORPTS}$  excluded taxable state land. This lowered the growth rate of AV and MV in the 2020 roll and increased it in the 2021 roll, potentially distorting the ratios.

<sup>11</sup> Market surveys are missing in 1991, 1995, and 1998. As an example,  $AMVR_{1992} = MVR_{1990} CILF_t = 21.2$  and  $SPT_{1992} = \frac{AMVR_{1992}}{MVR_{1992}} - 1 = -0.1920$ . Consequently,  $IAT_{1991} = IAT_{1992} = \sqrt{1 - 0.1920} - 1 = -0.1011$ .

more muted at time progresses. As shown in Chart 5, the trend fluctuated within a narrow range around 4.7% since 2009.

### Chart 5. Time trend



Source: ORPTS, Office of the NYC Comptroller

*Observation 3. In general terms, the time trend is a measure of the long-term annual growth of DOF/ORPTS market values. Because it is based on a long history, the time trend moves within a narrow band around 4.7% and it behaves as a slow-moving parameter in the calculations.*

# Special Equalization Ratios Estimates

For each fiscal year  $FY[t]$ , ORPTS calculates five equalization ratios:  $SER_{FY[t-4]}^{FY[t]}$  through  $SER_{FY[t]}^{FY[t]}$ . The ratios are defined as follows:

$$SER_{FY[t-4]}^{FY[t]} = \frac{MVR_{t-4}}{CILF_{t-4}(1 + \tau_{t-2})^{1/2}} \quad (6)$$

$$SER_{FY[t-3]}^{FY[t]} = \frac{MVR_{t-3}}{CILF_{t-3}(1 + \tau_{t-2})^{1/2}} \quad (7)$$

$$SER_{FY[t-2]}^{FY[t]} = \frac{MVR_{t-2}}{CILF_{t-2}(1 + \tau_{t-2})^{1/2}} \quad (8)$$

$$SER_{FY[t-1]}^{FY[t]} = SER_{FY[t-2]}^{FY[t]} \frac{CILF_{t-2}}{(1 + \tau_{t-2})} = \frac{MVR_{t-2}}{(1 + \tau_{t-2})^{3/2}} \quad (9)$$

$$SER_{FY[t]}^{FY[t]} = SER_{FY[t-1]}^{FY[t]} \frac{1}{(1 + \tau_{t-2})} = \frac{MVR_{t-2}}{(1 + \tau_{t-2})^{5/2}} \quad (10)$$

As an example, for the FY2024 debt limit calculation, the ratios are:

$$1) \quad SER_{FY2020}^{FY2024} = \frac{MVR_{2020}}{CILF_{2020}(1 + \tau_{2022})^{1/2}} = \frac{0.2164}{1.0553 (1 + 0.0469)^{1/2}} = 0.2004$$

$$2) \quad SER_{FY2021}^{FY2024} = \frac{MVR_{2021}}{CILF_{2021}(1 + \tau_{2022})^{1/2}} = \frac{0.2186}{0.9258 (1 + 0.0469)^{1/2}} = 0.2308$$

$$3) \quad SER_{FY2022}^{FY2024} = \frac{MVR_{2022}}{CILF_{2022}(1 + \tau_{2022})^{1/2}} = \frac{0.2169}{1.0463 (1 + 0.0469)^{1/2}} = 0.2026$$

$$4) \quad SER_{FY2023}^{FY2024} = \frac{MVR_{2022}}{(1 + \tau_{2022})^{3/2}} = \frac{0.2169}{(1 + 0.0469)^{3/2}} = 0.2025$$

$$5) \quad SER_{FY2024}^{FY2024} = \frac{MVR_{2022}}{(1 + \tau_{2022})^{5/2}} = \frac{0.2169}{(1 + 0.0469)^{5/2}} = 0.1934$$

*Observation 4. Three of the five SERs in the debt limit formula are determined by one assessment roll, putting too much weight on one observation.*

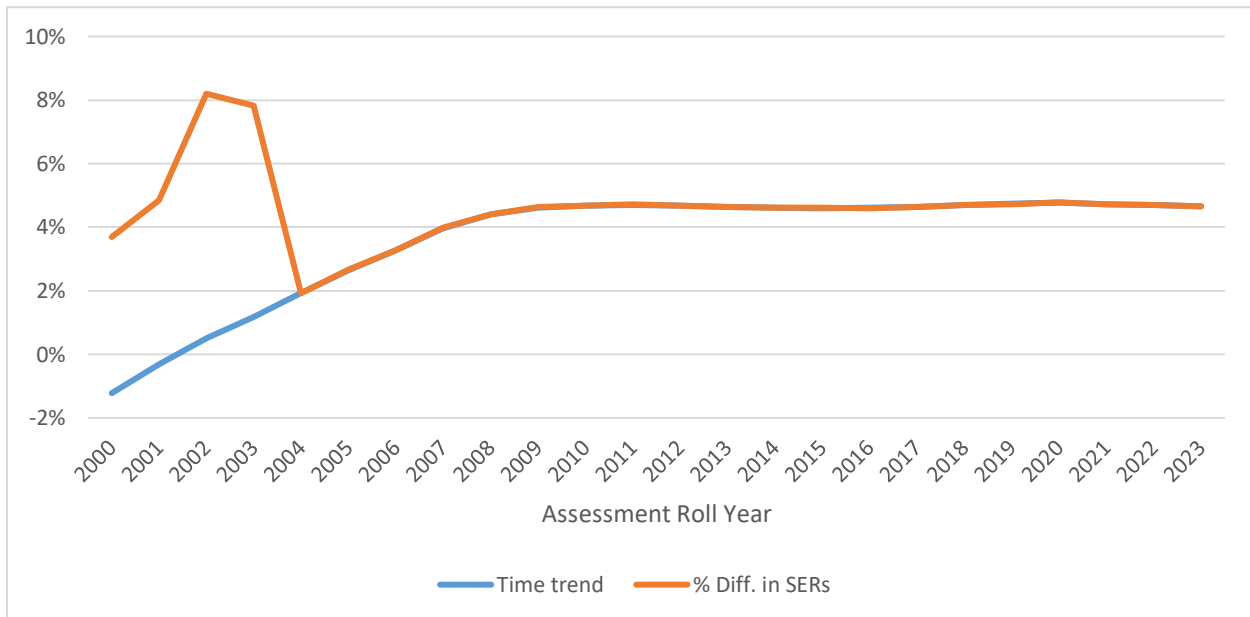
## Systematic bias, volatility, and co-movement with DOF ratio

The formulas imply that  $SER_{FY[t-1]}^{FY[t]}$  and  $SER_{FY[t]}^{FY[t]}$  are proportional to  $MVR_{t-2}$  and vary inversely with the time trend. Given that the time trend is positive,  $SER_{FY[t]}^{FY[t]} < SER_{FY[t-1]}^{FY[t]} < MVR_{t-2}$  and:

$$\mu_{FY[t-1]/FY[t]}^{FY[t]} = \frac{SER_{FY[t-1]}^{FY[t]}}{SER_{FY[t]}^{FY[t]}} - 1 = \tau_{t-2} \quad (11)$$

where  $\mu_{FY[t-1]/FY[t]}^{FY[t]}$  is the percentage difference between the equalization ratios for  $FY[t - 1]$  and  $FY[t]$  in the  $FY[t]$  limit calculation. Chart 6 shows that the time trend and the percentage difference between  $SER_{FY[t-1]}^{FY[t]}$  and  $SER_{FY[t]}^{FY[t]}$  differed before the 2004 roll, possibly because of a different methodology.

**Chart 6. Time trend and percentage difference in the two most recent SERs in the 5-year window**



Source: ORPTS, Office of the NYC Comptroller



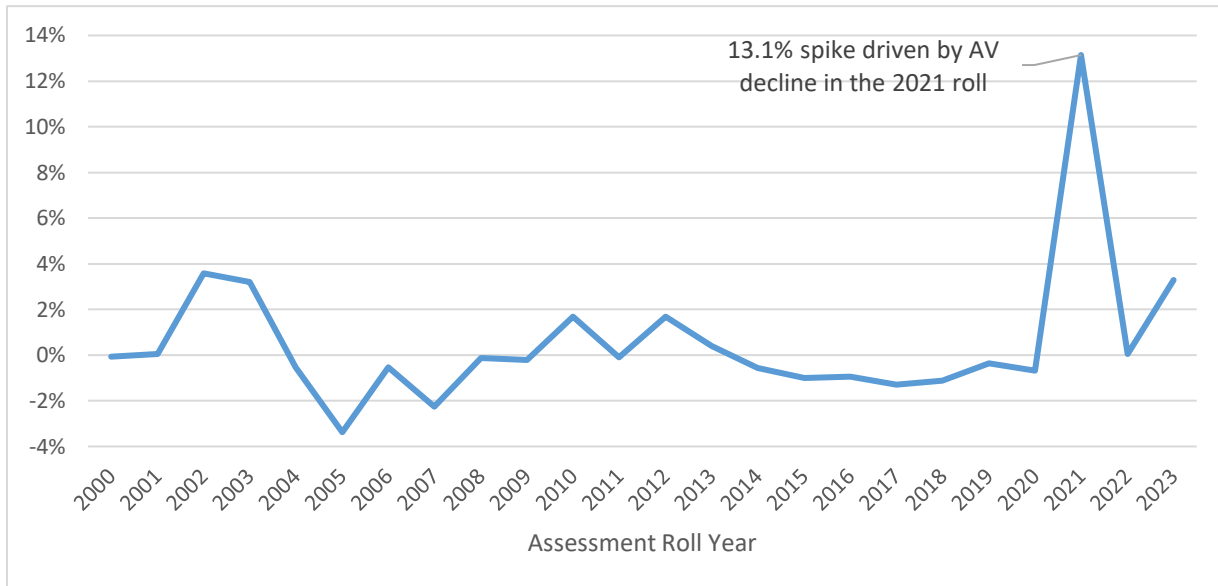
**Observation 5.** SERs are affected by mechanical bias:  $SER_{FY[t-1]}^{FY[t]}$  discounts ORPTS'  $MRV_{t-2}$  by  $(1 + \tau_{t-2})^{3/2}$  while  $SER_{FY[t]}^{FY[t]}$  discounts  $SER_{FY[t-1]}^{FY[t]}$  by  $(1 + \tau_{t-2})$ . Each year,  $SER_{FY[t-1]}^{FY[t]}$  and  $SER_{FY[t]}^{FY[t]}$  differ by a factor approximately equal to 4.7%.

The percentage difference between  $SER_{FY[t-2]}^{FY[t]}$  and  $SER_{FY[t-1]}^{FY[t]}$  is given by:

$$\mu_{\frac{FY[t]}{FY[t-2]}} = \frac{SER_{FY[t-2]}^{FY[t]}}{SER_{FY[t-1]}^{FY[t]}} - 1 = \frac{1 + \tau_{t-2}}{CILF_{t-2}} - 1 = \frac{\tau_{t-2} - \tilde{\gamma}_{t-2}^{AV}}{1 + \tilde{\gamma}_{t-2}^{AV}} \quad (12)$$

Chart 7 shows the percentage difference between  $SER_{FY[t-2]}^{FY[t]}$  and  $SER_{FY[t-1]}^{FY[t]}$ . The percentage difference is positive (the third SER higher than the second) if ORPTS' AV growth rate is lower than the time trend and vice versa.

### Chart 7. Percentage difference between second and third SER in the 5-year window



Source: ORPTS, Office of the NYC Comptroller

As to the spike shown in the chart, the 2021 assessment roll was the first roll conducted after the start of the pandemic and DOF's estimated large drops in market and assessed values that were

subsequently reversed. The ORPTS methodology picked up the 2021 roll in  $SER_{FY2021}^{FY2023}$ , when  $\tilde{\gamma}_{2021}^{AV} = -7.4\%$ .<sup>12</sup> As a result:

$$\mu_{FY2021/FY2022}^{FY2023} = \frac{SER_{FY2021}^{FY2023}}{SER_{FY2022}^{FY2023}} - 1 = \frac{1 + \tau_{2021}}{CILF_{2021}} - 1 = \frac{\tau_{2021} - \tilde{\gamma}_{2021}^{AV}}{1 + \tilde{\gamma}_{2021}^{AV}} \sim \frac{4.7\% + 7.4\%}{0.926} = 13.1\%$$

As can be seen in the FY2024 SERs, the spike was isolated with  $SER_{FY2022}^{FY2024}$  returning to more normal levels because  $\tilde{\gamma}_{2022}^{AV} > 0$ .<sup>13</sup>

*Observation 6.* If  $\tilde{\gamma}_{t-2}^{AV} < \tau_{t-2}$  then  $SER_{FY[t-2]}^{FY[t]} > SER_{FY[t-1]}^{FY[t]} > SER_{FY[t]}^{FY[t]}$ , amplifying the impact of one year of slower growth. When  $\tilde{\gamma}_{t-2}^{AV} < 0$ , ORPTS' formulas generate large, unbounded, increases in  $SER_{FY[t-2]}^{FY[t]}$ .

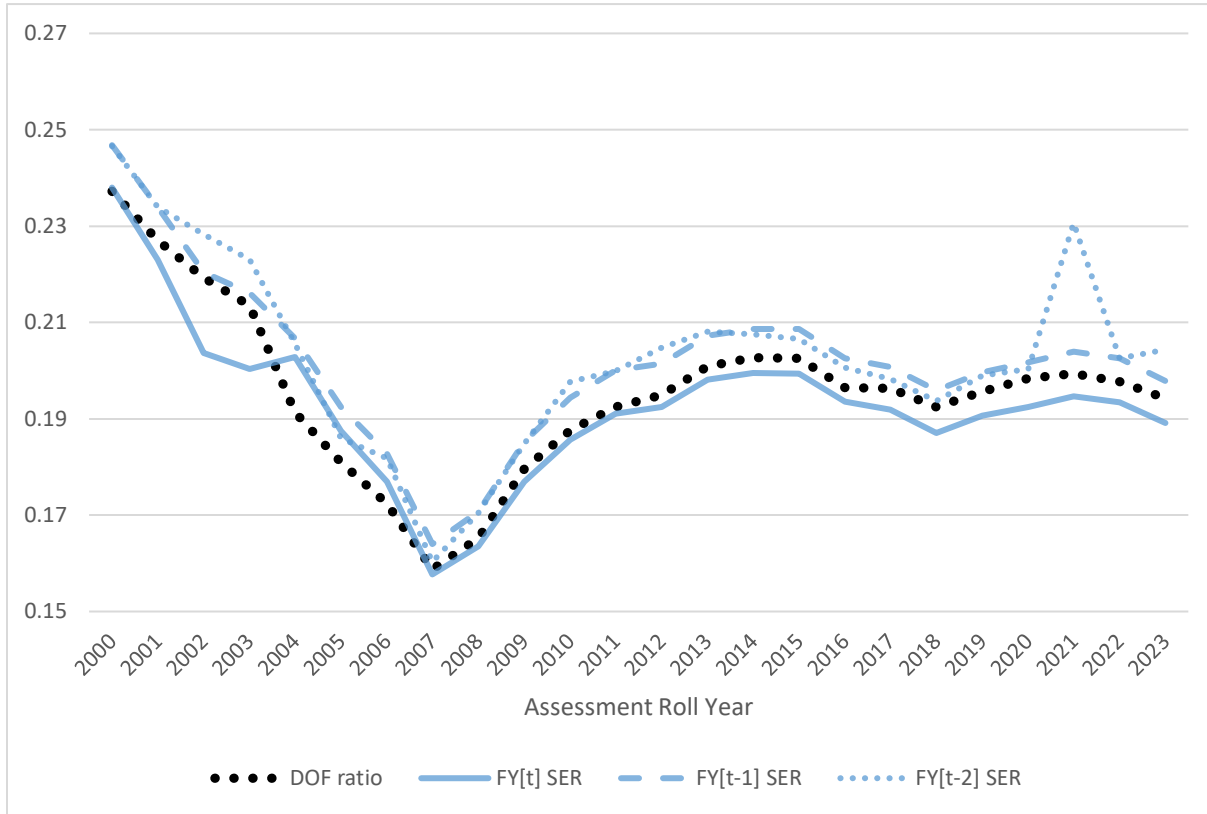
Chart 8 shows the co-movement of the three most recent SERs in the five-year window with the ratio derived from DOF values. If SERs were actual estimates of a given year's ratio, they would not fluctuate synchronously.

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<sup>12</sup> The first estimate of the FY2021 ratio ( $SER_{FY2021}^{FY2021}$ ) was based on positive ORPTS AV growth ( $\tilde{\gamma}_{2019}^{AV}$  of 6.9%), and so was the second estimate  $SER_{FY2021}^{FY2022}$  ( $\tilde{\gamma}_{2020}^{AV}$  of 5.5%).

<sup>13</sup> The effect of  $\tilde{\gamma}_{2021}^{AV}$  on future ratios is indirect and works through its impact on the time trend. However, as already seen, each individual ORPTS AV growth rate has only a marginal effect on the time trend.

## Chart 8. Co-movement between DOF ratio and SERs



Source: ORPTS, NYC DOF, Office of the NYC Comptroller

## Time misalignment

After substituting (1) and (2) into (6), we obtain:

$$SER_{FY[t-4]}^{FY[t]} = \frac{\frac{AV_{t-4}^{DOF/ORPTS}}{(1 + \tilde{\gamma}_{t-4}^{AV})}}{MV_{t-4}^{DOF/ORPTS} (1 + \tau_{t-2})^{1/2}} \cong \frac{AV_{t-5}^{DOF/ORPTS}}{MV_{t-4}^{DOF/ORPTS} (1 + \tau_{t-2})^{1/2}}$$

where  $AV_{t-5}$  is the assessed value from assessment roll year  $t - 5$ . Conversely, the market value from the  $t - 4$  roll is grown for six months based on the time trend that includes information from assessment rolls up to year  $t - 2$ .

Taking the FY 2024 limit calculation as an example, the FY2020 SER is based on an approximation of the DOF/ORPTS assessed value from the 2019 assessment roll. But the denominator is based

on the DOF/ORPTS market value from the 2020 roll, brought six months forward at a rate that is affected by the 2022 assessment roll. This is done to align taxable status date (January of the assessment year) and market survey date (July), although to our knowledge no survey is conducted. Similarly:

$$SER_{FY[t-3]}^{FY[t]} \cong \frac{AV_{t-4}^{DOF/ORPTS}}{MV_{t-3}^{DOF/ORPTS} (1 + \tau_{t-2})^{1/2}}$$

$$SER_{FY[t-2]}^{FY[t]} \cong \frac{AV_{t-3}^{DOF/ORPTS}}{MV_{t-2}^{DOF/ORPTS} (1 + \tau_{t-2})^{1/2}}$$

For the two most recent years in the 5-year window, the formulas are simply  $AV_{t-2}$  (in the FY 2024 limit calculation, the 2022 assessment roll) divided by the market value from the same year grown by 1.5 and 2.5 years, respectively. The formulas are:

$$SER_{FY[t-1]}^{FY[t]} = \frac{AV_{t-2}^{DOF/ORPTS}}{MV_{t-2}^{DOF/ORPTS} (1 + \tau_{t-2})^{3/2}}$$

$$SER_{FY[t]}^{FY[t]} = \frac{AV_{t-2}^{DOF/ORPTS}}{MV_{t-2}^{DOF/ORPTS} (1 + \tau_{t-2})^{5/2}}$$

These SERs are also misaligned because they keep the assessed value constant but grow the market value, introducing systematic downward bias, as previously discussed.

*Observation 7. The SERs formulas produce ratios that are temporally misaligned, with revisions to historical data based on subsequent changes in the long-term growth of DOF/ORPTS market values.*

# Correcting for the undervaluation of Class 2 cooperative and condominium properties

Article 5, Section 581 of the Real Property Tax Law requires DOF to estimate Class 2 cooperative and condominium properties using “comparable rental” properties. This constraint results in sales-based market values that are roughly five times the DOF market values.<sup>14</sup> Here, we recalculate the FY 2024 debt limit correcting for the undervaluation.

To illustrate the exercise, assume that the ratio between sales-based and DOF market values equals four. Conservatively, we exclude from the calculation coops and condos with up to 10 units (class 2c). We calculate the difference between sales-based and DOF market values for assessment rolls from 2020 to 2022, and add the difference to ORPTS’ market values. Because assessed values are not affected, the restated MVRs are lower than the ones used ORPTS. Table 3 contains the information.

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<sup>14</sup> See NYC IBO “[The Coop/Condo Abatement and Residential Property Tax Reform in New York City](#),” and “[Twenty-Five Years After S7000A: How Property Tax Burdens Have Shifted in New York City](#),” Advisory Commission on Property Tax Reform “[The Road to Reform](#).”

### Table 3. Recalculation of MVRs

FY	AV year	Class 2 Condos and Coops Values (\$b)			MVR	
		DOF Market Value (MV)	True market value (4x DOF MV)	Difference added to ORPTS MV	Original	Restated
2021	2020	\$124.4	\$497.6	\$373.2	0.2164	0.1703
2022	2021	\$113.9	\$455.6	\$341.7	0.2186	0.1733
2023	2022	\$125.5	\$502.1	\$376.5	0.2169	0.1714

Source: ORPTS, DOF, Office of the NYC Comptroller

We then proceed to recalculate IAT, the time trend, and SERs. The result is, logically, lower SERs than those used by ORPTS leading to a higher full valuation between \$307.5 billion and \$395.3 billion. The five-year average of the difference is \$349.9 billion, which implies that the debt limit would increase by \$35.0 billion. Table 4 summarizes the results.

### Table 4. Recalculation of SERs and full valuation

FY	TBAV (\$b)	SER		Difference in full valuation (\$b)
		Original	Restated	
2020	\$257.5	0.2004	0.1577	\$347.9
2021	\$271.7	0.2308	0.1830	\$307.5
2022	\$257.6	0.2026	0.1601	\$337.5
2023	\$275.6	0.2025	0.1600	\$361.5
2024	\$287.7	0.1934	0.1528	\$395.3

Source: ORPTS, DOF, Office of the NYC Comptroller

Finally, table 5 shows the increase in FY2024 debt limit assuming ratios of sales-based to DOF market value ranging between 3 and 5.

**Table 5. Restated FY2024 Limit After Correcting for Class 2 Cooperatives and Condominiums Undervaluation**

Ratio of sales-based to DOF market value	Restated FY2024 Limit (\$b)	Increase (\$b)	% increase
5	\$178.3	\$46.7	35.5%
4	\$166.6	\$35.0	26.6%
3	\$155.0	\$23.3	17.7%

Source: ORPTS, DOF, Office of the NYC Comptroller

While these are theoretical calculations, they illustrate the significant under-estimation of the City’s debt limit that, in turn, necessitated the creation of other entities whose debt is partially or fully exempt from the limit or, from time to time, the increase of such exemptions.<sup>15</sup>

## Conclusions

This note analyzes the methodology used in the derivation of the “full valuation of taxable real estate” in New York City. The full valuation constrains the amount of indebtedness that the City government can incur and the amount of property tax that can be raised to pay for operating expenses. As currently estimated, the full valuation is a significant underestimate of the market value of real estate. Furthermore, SERs are based on a cumbersome methodology that results in biased and temporally misaligned parameters.

ORPTS should consider correcting the undervaluation by using market data and a transparent and robust estimation methodology or delegate such tasks to DOF. In addition, ORPTS should improve streamline the methodology for SERs to achieve clear and predictable estimates.

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<sup>15</sup> It should be noted that a higher estimate of the full valuation does not imply higher taxation. In a fractional assessment system, sales-based assessments for coops and condos could be accompanied by other changes (such as lowering assessment ratios, which can be done administratively by NYC DOF) to leave tax burdens constant. Similarly, as [advocated by the Office of the Comptroller](#), moving toward sales-based assessments and repealing fractional assessments would make SERs altogether superfluous.







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