Sales Tax Securitization Corporation (STSC)

Issuer: Sales Tax Securitization Corporation		
Assigned	**Rating**	**Outlook**
Second Lien Sales Tax Securitization Bonds, Series 2020A	AA+	Stable
Second Lien Sales Tax Securitization Bonds, Taxable Series 2020B	AA+	Stable
Affirmed	**Rating**	**Outlook**
Sales Tax Securitization Bonds	AAA	Stable

Methodology:

- U.S. Special Tax Revenue Bond Rating Methodology
- ABS: Global General Rating Methodology for Asset-Backed Securities

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Rating Summary: The Sales Tax Securitization Bonds (the "Bonds") are secured by a lien on the pledged sales tax revenues which have been previously sold by the City of Chicago to the Corporation, a bankruptcy remote special purpose entity ("SPE"), pursuant to State law (the "Act") and a Sale Agreement.

The Corporation created the Second Lien and expanded its total debt issuing capacity so that it can help facilitate the City's plan to refinance approximately $1.3 billion of higher cost general obligation and certain other City debt. The new Second Lien Trust Indenture's ABT allows the Corporation to issue additional debt until annual pledged sales tax revenues equal 1.75x maximum combined senior and second lien debt service. The Corporation has already issued senior lien debt in an amount almost equivalent to the senior lien debt's 4x ABT.

KBRA analyzes the credit risk of the STSC bonds in two steps.

First, we examine the legal protections that have accomplished a segregation of the pledged revenues from the City's ongoing credit risk. In this regard, STSC is a unique municipal market transaction that accomplishes all the hallmarks of a true sale and securitization of the pledged revenue (Figure 1). These legal features of the transaction (further described in RD1) distinguish the STSC bonds from other bonds the municipal market sometimes colloquially calls "securitizations". The Act and the City's home rule powers provided the legal mechanisms by which the City created the Corporation, assigned and effectively accomplished a "true sale" of the pledged sales tax revenues, and irrevocably directed the State to distribute the pledged revenues directly to an account of the Trustee for the Corporation's bonds. Further, the Act provides covenants by the State to refrain from impairing these mechanisms or altering the basis upon which the City's share of transferred revenues is derived. The Act also provides that Bonds issued by the Corporation are secured by a "statutory lien" on those transferred revenues, providing additional protection to bondholders in the unlikely event of a City bankruptcy.

KBRA believes that the recent U.S. First Circuit ruling related to Puerto Rico Highway and Transportation Authority bonds did not address situations where a municipality has assigned its rights to revenue streams pursuant to a true sale and to protections provided by specific state statutes. In this regard, KBRA believes, in consultation with external counsel, the relevant Illinois statute was explicit regarding the creation of the statutory lien, as well as the Legislature's intent to effect a true sale of sales tax revenues to a third-party bankruptcy-remote entity for the benefit of bondholders. Furthermore the STSC governing documents require an independent director's consent for extraordinary corporate actions, including restrictions on STSC's ability to become a debtor in a bankruptcy case or forego its debt repayment obligations.

Figure 1

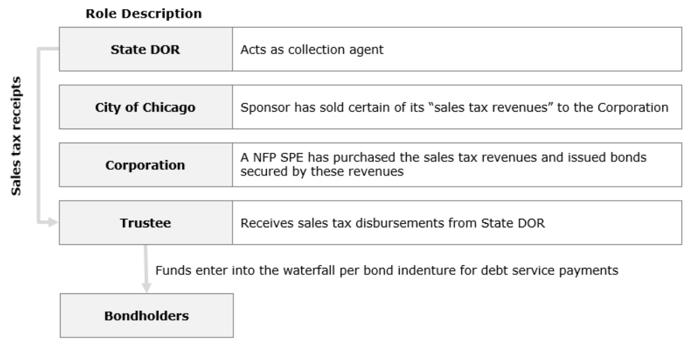
Important Features of Securitization

Other than subordination to the senior lien debt service, the Second Lien Bonds enjoy all the same exceptionally strong legal and structural protections that separate the pledged sales tax revenues from ongoing operating and financial risk of the City and KBRA believes these protections apply even in the unlikely event of an insolvency or bankruptcy of the City.

The second step in KBRA's analysis is to test the strength and resilience of the pledged sales tax revenues which are derived from various categories of taxes imposed on a very broad range of goods and services. The pledged sales tax revenues have a long history of smooth collection and distribution mechanics managed by the State. Only a small portion of the pledged Sales Tax revenues are subject to state annual appropriation and KBRA cash flow models demonstrate that the failure to appropriate this portion of the revenues does not materially impact the ability of the pledged revenues to support the senior or second lien debt service requirements. The overall sales tax rate in the City is now among the highest in the country, and this may weaken future growth of the pledged revenues. Nevertheless, with the broad nature of the sales tax, strong collection mechanics, and very limited appropriation risk, the pledged revenues provide a very strong source of cash flow for the Bonds. KBRA's analysis of the new Second Lien Bonds presumes the Corporation issues debt in an amount up to its 1.75x ABT. Then, in various stress cases, discussed later in this report, KBRA examined the ability of the pledged revenue to meet debt service requirements even in long periods of severe economic stress. The results of these stress scenarios support the respective ratings on the Corporation's senior and second lien bonds. Namely, among other things, the pledged revenues can experience 30 years of successive 2% declines and still be able to pay combined debt service. Further, the pledged revenues could experience two successive periods equivalent to the Great Recession, and still be able to cover combined debt service.

Figure 2

Transaction Overview



KBRA believes the City's deep, diverse economic base provides a very strong foundation for the pledged sales tax revenues. The City's role as a regional center of commerce, culture, higher education, and transportation support strong retail activity. The City's employment and income levels now exceed prior peaks and continue to grow at healthy rates, and pledged revenues substantially exceed pre-recessionary levels.

Pledged sales tax revenues grew by a healthy 4.3% in 2018, and have grown 3.8% in 2019 (preliminary results). The State's decision to expand online retail sales tax collections as a result of the U.S. Supreme Court Wayfair decision is expected to generate additional sales tax revenues to the STSC cash flow starting in 2018 but the amount cannot be quantified currently.

The **Stable Outlook** reflects KBRA's expectation that even under severe economic downturns and other stressful scenarios, the pledged sales tax revenues will remain more than sufficient to meet timely principal and interest requirements on the Corporation's debt. Further, even in the unlikely event of City insolvency or bankruptcy, KBRA believes the assets of the Corporation, including the right to the pledged revenues, will not be consolidated with the City's assets and the cash flow supporting the Corporation's debt will not be disrupted.

Key Rating Strengths

- The combination of the Act, the bankruptcy remoteness of the Corporation, the Sale Agreement, and the Indenture provide the Bonds with a strong legal framework that KBRA believes will insulate the pledged sales tax revenues and the Corporation from the operating and credit conditions of the City;
- The broad base of goods and services included in the pledged revenues combined with a long track record of collection and distribution mechanics provide for strong underlying asset characteristics;
- ABT of 4x prevents the Corporation from diluting the substantial cushion provided by the pledged revenues;
- Chicago's deep, diverse, and resilient underlying economic base supports substantial residential and tourist retail activity;
- Strong projected coverage of monthly deposit and annual debt service requirements that withstand KBRA's stress scenarios.

Key Rating Concerns

- The high overall sales tax rate in the City may weaken growth of the pledged sales tax revenues.

Rating Sensitivities and Drivers for Rating Change

• N/A	+
• A significant decline in pledged sales tax revenues that results in material weakening of debt service coverage ratios.	-

Rating Determinants (RD)	Senior Lien	Second Lien
1. Legal Framework	AAA	AAA
2. Nature of Special Tax Revenues	AAA	AAA
3. Economic Base and Demographics	AA	AA
4. Revenue Analysis	AAA	AAA
5. Coverage and Bond Structure	AAA	AA+

RD 1: Legal Framework

Introduction

KBRA believes that the legal mechanics and security provisions governing the Bonds provide bondholders with strong levels of protection against interruption of the cash flow from the pledged sales tax revenues. In reaching this opinion, KBRA has reviewed the Act, the Master Trust Indenture ("the Indenture"), the Corporation's organizational documents, the Sale Agreement and various other documents and legal opinions provided by the City and the Corporation that provide the legal framework for all bonds issued by the Corporation. After consulting with outside counsel, KBRA also believes that the legal mechanics and security provisions for the Bonds insulate the pledged sales tax revenues from the day-to-day operating and credit risk of the City, and that these protections would likely withstand the improbable circumstance of the City becoming insolvent or entering bankruptcy. The following paragraphs summarize KBRA's analysis of these bondholder protections.

The Act

Effective July 6, 2017, the Act added a new Division 13 to the Illinois Municipal Code. The Act authorizes home rule municipalities, including the City, to securitize future tax receipts, including Home Rule Sales Tax Revenues (a.k.a. HRM sales tax) and Local Share Sales Tax Revenues, for the financing of lawful public purposes. The Act primarily authorizes the City to (i) convey to a Special Purpose Entity (SPE) all right, title and interest in revenues or taxes, (ii) provide that any such conveyance will not be subject to disavowal for any reason, including insolvency of any party, and (iii) give the State entities that administer the collection and distribution of such taxes irrevocable directions to deposit the receipts directly with a trustee for the bondholders. The Act also requires each State entity to comply with such irrevocable directions. After reviewing relevant legal opinions and consulting with outside counsel, KBRA believes that these elements of the Act fully authorize the City's Sales Tax Securitization program.

The Act also provides that obligations issued by an SPE formed under the Act will be secured by a "statutory lien" on the transferred receipts assigned to the SPE. The presence of this statutory lien provides additional security for the Bonds and expresses clearly that it is the public policy of the State that the lien is mandatory for all financings undertaken pursuant to the Act. The statutory lien provided by the Act (A) has the same meaning given to that term under the U.S. Bankruptcy Code, (B) is mandatory for all receipts pledged by the SPE as security for the Bonds, (C) automatically attaches without further action by the SPE or other parties and (D) unless the financing documents otherwise provide, is a first priority lien. The Act also provides that the statutory lien is fully effective and enforceable against the Corporation, the City, the State of Illinois and all creditors. It is important to note that any pledged sales tax revenues re-conveyed to the City at the end of the Indenture's waterfall are automatically released and discharged from the statutory lien. This issue is mitigated by the excess cash flowing through the waterfall on a monthly basis (Figure 1 "Flow of Funds"). Essentially, the granting of a statutory lien in favor of the bondholders with respect to the sales tax revenues assigned to the Corporation means that such bondholders would likely be treated as secured creditors of the Corporation in a bankruptcy proceeding of the City.

However, to KBRA's knowledge, Illinois statutory lien provisions have not been applied by any reported bankruptcy court decision and thus this potential result for bondholders in such a case remains uncertain. In addition, a statutory lien is not exempted from the automatic stay arising on the filing of a Chapter 9 petition. Accordingly, a statutory lien does not fully prevent default. Nonetheless, it is KBRA's understanding that the presence of a statutory lien should reduce the risk of non-recovery on the Bonds in the event of a City bankruptcy since bondholders should be treated as secured creditors of the Corporation. The Corporation has granted to the trustee all of its rights to enforce the statutory lien.

Bondholders are also protected by the Act's non-impairment clause which provides that the State will not limit or alter (1) the basis upon which the City's share or percentage of the Local Share sales tax is derived or (2) the use of the sales tax revenues. The Corporation has granted to the trustee all rights to enforce the State's non-impairment pledge. After consulting with outside counsel, KBRA believes that the non-impairment provisions follow Illinois case law.

The Corporation's Bylaws and Bankruptcy Remoteness

As mentioned previously, KBRA's outside counsel has advised that there are no bankruptcy cases addressing whether a lien like the one provided in the Act meets the requirements for a statutory lien under the Bankruptcy Code. If it does not, and the Corporation filed for bankruptcy, pursuant to Section 552(a) of the Bankruptcy Code, all sales tax revenues received by the Corporation after the petition date would not be subject to the lien of the bondholders. As a result, it is essential to the KBRA ratings that the Corporation is structured as a bankruptcy-remote, special purpose entity where the risks of its bankruptcy are minimized and there are relatively few creditors other than the bondholders and the City (as holder of the Residual Certificate described below).

First, KBRA understands that because the Corporation is structured as a not-for-profit corporation pursuant to federal and state law, and therefore, under the Bankruptcy Code, creditors may not file an involuntary bankruptcy petition against the Corporation. Second, the Corporation is subject to provisions in its bylaws and obligations in the Sale Agreement that greatly reduce the risk of the Corporation voluntarily filing for bankruptcy. The Corporation's bylaws and its covenants in the Sale Agreement require the Corporation, among other things, to maintain its separate legal existence from other entities, including the City. The Corporation is also required by its bylaws to have five directors, and in the event of specified votes that might be adverse to the interests of bondholders, a sixth director must be added. This sixth director is required to be "independent" of the City. The Corporation cannot take certain extraordinary corporate actions, including filing a voluntary bankruptcy petition under the Bankruptcy Code, or take any other action "which could be adverse to the interests of any holders of then-outstanding obligations issued by the Corporation. . ." without the affirmative vote of all directors, including the independent director. The bylaws provide that such a vote may not be taken or become effective during any period in which the independent director is not presently seated. It is KBRA's understanding that a bankruptcy court would look to the Corporation's bylaws to determine whether a bankruptcy filing by the Corporation was properly authorized.

Figure 3

Key Documents in Legal Framework

The Act
• Authorizes absolute conveyance of the pledged revenues • Authorizes irrevocable redirection of pledged revenues to the Corporation • State covenants not to impair the pledged revenues • Establishes "Statutory Lien"

The SPE Bylaws
• Establishes separateness which helps minimize possibility the Corporation can be consolidated as an asset of the City • Helps make the Corporation bankruptcy remote

The Sale Agreement
• Establishes true sale of pledged revenues from the City to the Corporation • Includes the City's non-impairment covenant

The Indenture
• Grants Trustee all rights to pledged revenues including enforcement mechanisms • Directs the Flow of Funds and prioritizes debt service payments

The Corporation has effectively been structured as a bankruptcy remote special purpose entity. However, KBRA does note that the requirements related to an independent director listed in the bylaws and transaction documents are generally less robust than would appear in a standard asset backed securitization transaction that featured a special purpose entity. For example, the Corporation's independent director does not need to be appointed until there is a need to vote on the extraordinary matters described above. In a typical asset backed securitization transaction, an independent director would be in place at closing and throughout the life of a transaction. Mitigating this risk is the fact that the Corporation's bylaws specifically prohibit the Corporation from, among other things, engaging in actions to dissolve, liquidate, consolidate merge or sell pledged assets while the senior lien Bonds are outstanding.

The Sale Agreement

The City and the Corporation have entered into the Sale Agreement in order to accomplish the absolute conveyance by true sale from the City to the SPE of the sales tax revenues. Features of this agreement help further protect bondholders' interests. In particular, certain features of the Sale Agreement that accomplish the true sale of the sales tax revenues, as contemplated in the Act, help ensure that the pledged revenues cannot be construed by some future court as being property of the City. For example, the Sale Agreement provides that the parties intend the transfer of the sales tax revenues to be a true sale from the City to the Corporation and not a loan to the City secured by a lien on the sales tax revenues. Courts look at various factors such as these in determining whether to re-characterize a sale as a disguised loan. After consulting with outside counsel and reviewing various opinions provided by the Corporation, it is KBRA's understanding that the transfer of the sales tax revenues necessary to meet the Corporation's payment obligations to bondholders has the requisite characteristics of a true sale.

City Bankruptcy

Another key question for bondholders is what would happen to the pledged sales tax revenues in the unlikely event that the City filed for bankruptcy protection. KBRA has consulted outside counsel and it is KBRA's understanding that the City is a municipality under Illinois state law and that Illinois does not currently permit municipalities to file for protection under the U.S. Bankruptcy Code (with minor exceptions for units of local government with a population under 25,000 or for the Illinois Power Agency). Further, it is KBRA's understanding that it is unlikely that the existing broad grant of home rule powers to home rule municipalities like Chicago under the Illinois Constitution and other Illinois law would satisfy the specific authorization required in order to permit the City to file for protection under Chapter 9.

However, no assurance can be provided as to whether or not the State of Illinois may adopt in the future a law that would permit municipalities such as the City of Chicago to file for bankruptcy relief. In fact, a bill that would grant such authority was introduced in the General Assembly during a recent legislative session. Though that bill was never considered for adoption by the General Assembly, KBRA continues to monitor such legislative developments.

Therefore, KBRA consulted outside counsel regarding how bondholders and their security interest in the pledged sales tax revenues might be treated in the unlikely circumstance that the City does file for bankruptcy. It is KBRA's understanding that should the City ever file for bankruptcy under Chapter 9 of the Bankruptcy Code, compliance by the Corporation with its obligations in its bylaws and in the Sale Agreement to assure that the Corporation maintains its separate legal identity from the City minimizes the risk that the assets of the Corporation would be substantively consolidated with the assets of the City in the City's bankruptcy. Section 10.6 of the bylaws require the Corporation to (i) conduct business of the Corporation in its own name; (ii) observe all corporate formalities as required by the Illinois General Not for Profit Act of 1986, the Ordinance and the bylaws; (iii) pay all Corporation liabilities from the funds of the Corporation; (iv) procure invoices and checks bearing the name of the Corporation and not bearing the name of the City or any other person or entity, and utilize such invoices and checks in the conduct of the business of the Corporation; and (v) hold itself out as a separate entity from the City, and attempt to correct any known misunderstanding regarding its separate identity. In addition, Section 10.7 of the bylaws require that the Corporation not: (i) guarantee or become obligated for the debts of any other entity or hold out its credit as being available to satisfy the obligations of others; (ii) acquire obligations or securities of the City, its directors or employees; or (iii) pledge its assets for the benefit of any other entity or make any loans or advances to any other entity except in furtherance of the purposes for which the Corporation was established.

Furthermore, in Sections 7.03 and 7.04 of the Sale Agreement, the Corporation agrees to: (i) have its own separate telephone number, stationery and bank checks signed by it and in its own name; (ii) if it uses any premises, its portion of such premises must be defined and separately identified; (iii) maintain its books and records separately from the City and any other entity; (iv) segregate its assets from those of the City and any other entity; (v) strictly observe corporate formalities in its dealings; (vi) maintain compliance with the Illinois General Not for Profit Corporation Act; (vii) not make any change in the character of its business that could adversely affect the enforceability of the Transaction Documents or the ability of the Corporation to perform its obligations under the Transaction Documents without the prior written consent of the City and the bond trustee; and (viii) not amend its articles of incorporation, bylaws, or other governing documents without the express written consent of the City and the bond trustee. In addition, counsel for the Corporation has provided a true sale opinion relating to the conveyance of the sales tax revenues to the Corporation and a non-consolidation opinion covering the possibility of a consolidation of the Corporation with the City in the event the City becomes bankrupt or insolvent. Such opinion was reviewed by KBRA's external counsel and was found to generally be a standard true sale and non-consolidation opinion with no unusual carve-outs or qualifications. In addition, KBRA's outside counsel independently views the possibility of consolidation of the Corporation with the City in the event of a City bankruptcy or insolvency as remote, and independently views the conveyance of sales tax revenues to the Corporation as having all the hallmarks of a true sale.

KBRA and its outside counsel have reviewed other legal opinions and KBRA's outside counsel has advised that such opinions are generally standard and comprehensive. It should be noted, however, that neither transaction counsel nor bond counsel will be issuing an opinion that the Act was duly enacted and is constitutional. In KBRA's opinion, although the failure to deliver such an opinion is unusual, its omission is mitigated by the fact that opinions have been delivered regarding the City having the lawful right and power under the Act to sell the sales tax revenues, the City ordinance authorizing the transaction being duly adopted and in full force and effect, and the Sale Agreement being valid and binding, none of which could be given if opining counsel concluded that the Act was unconstitutional or unenforceable.

Nature and Strength of the Pledge

The Corporation issues bonds pursuant to a Master Trust Indenture and has secured the repayment of the its bonds by granting a pledge to the Trustee in (i) all right, title and interest in the pledged sales tax revenues, and (ii) all right, title and interest of the Corporation in the Sale Agreement, as well as all rights to enforce provisions of the Act and the Sale Agreement on behalf of bondholders. The pledged sales tax revenues were acquired by the Corporation from the City under authority granted by the Act in consideration for the proceeds from the sale of the Bonds. The Corporation has issued a Residual Certificate that entitles the City to monthly payments of excess funds available after payment of

Corporation expenses and bondholder interest and principal pursuant to the Indenture's waterfall. Such taxes, imposed on a broad tax revenue base, are collected by the State and will be deposited directly to an account of the Trustee for the benefit of bondholders.

The purchased and pledged sales tax revenues are those collected and payable to the City by the State Department of Revenue, and therefore eligible for sale to the Corporation under the Act. These purchased and pledged components of the City's sales tax revenues comprise roughly 92% of the City's total sales tax revenues – or $687.4 million in FY 2018.

Lien Structure

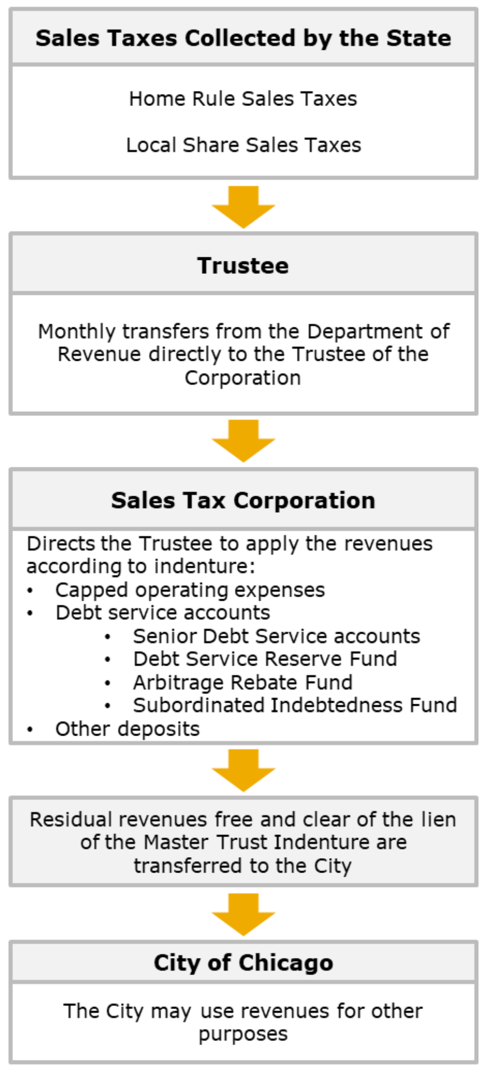
The Master Indenture and Supplemental Indentures permit the issuance of senior lien bonds secured by a first priority lien on the pledged sales tax revenues and subordinated indebtedness secured by a lien or a charge on the Subordinated Indebtedness Fund. Note that the pledged sales tax revenue is subject to the application thereof for the payment of the Corporation's operating expenses, which are capped at $250,000 per year.

In November 2019, the Corporation received initial authorization to issue Second Lien Sales Tax Bonds up to $1.5 billion. Proceeds of the Second Lien Sales Tax Bonds will be used to refund any outstanding bonds, notes, lines of credit, and any other obligations of the City and fund capitalized interest on the Second Lien Bonds.

Timing of Deposits, Waterfall, Flow of Funds

Pursuant to the Act and the Sale Agreement, the City will irrevocably direct the State to send monthly distributions of the pledged sales tax revenue to an account of the trustee for benefit of the Corporation and the bondholders. The Indenture directs the Trustee to first pay the Corporation's capped operating expenses, then to set aside 150% of the monthly accrual of interest, and then 150% of 1/12th of the annual principal due on the Senior Lien Bonds. After payment of all monthly Senior debt service or reserve requirements, the Corporation is required to deposit 120% of 1/12th of the monthly accrual of Second Lien interest, then 120% of 1/12th of the annual Second Lien principal requirements (Figure 4). At the end of the waterfall, each month, all excess funds are deposited to the Residual Fund, and transferred to the City. KBRA views this waterfall, especially in the context of the large amount of monthly cash flow from the State, as providing strong protection for bondholders.

Figure 4
Flow of Funds



Source: Sales Tax Securitization Corporation

Additional Bonds Test

The Corporation pledges not to issue additional Senior Lien debt unless the pledged sales tax revenues for the most recently completed fiscal year are at or above 4x the Maximum Annual Debt Service (MADS). KBRA views this restriction as strong protection for bondholders, especially in the context of the breadth and depth of the pledged sales tax base.

Issuance of subordinated revenue bonds are permitted provided pledged sales tax revenue collected in the most recently completed fiscal year are at or above 1.75x of the combined MADS on senior and second lien obligations.

Debt Service Reserve

There is no debt service reserve fund requirement for the Senior Lien Bonds or the Second Lien Bonds.

The absence of a debt service reserve fund is unusual in a highly rated transaction, but this concern is substantially mitigated by the nature of the pledged revenues, the direct deposit of these revenues to an account of the Trustee, the excess cash and timing of deposits that flow through the waterfall, as well as the early accumulation of the amounts necessary to meet semi-annual interest and annual principal requirements. For example, in a base case, the monthly deposits of 150% of each month's accrued senior lien interest and 150% of the senior lien monthly principal requirement results in the accumulation of semi-annual interest requirement in month four and month ten instead of months six and twelve, respectively. Likewise, in a base case, the annual principal requirement is accumulated in month eight instead of month twelve. Similarly, because of the 120%

deposit requirement described above, the semi-annual second lien interest requirements are accumulated in months five and eleven and the annual second lien principal requirement is accumulated in month ten. These early accumulations of funds and then the continued running of the cash flow through the waterfall to ensure that the various buckets are full provides bondholders with the effective equivalent of a reserve. Later, KBRA describes various stresses to the monthly cash flow that support this conclusion.

Rights of General Obligation Bondholders

In light of constitutional questions raised in the Puerto Rico bankruptcy, KBRA examined questions related to potential claims by existing City general obligation bondholders. After consulting with outside counsel, it is KBRA's understanding that Article VII, Section 6 of the Illinois constitution grants to the City and other home rule units the constitutional authority to incur debt. No provision of the Illinois Constitution grants additional rights to the holders of general obligation bonds. Bondholders have no constitutional right to a pledge of "first revenues" or a pledge of the "full faith and credit" of the City or a pledge of a "dedicated debt service tax". While the City regularly levies a dedicated debt service tax for each issue of its general obligation bonds and may pledge its full faith and credit and make other contract covenants with its bondholders, no priority for general obligation bondholders exists under the Illinois Constitution.

RD 2: Nature of Special Revenues

KBRA views the pledged sales tax revenues as providing a broad and sustainable source of cash flow for debt service payments (Figure 5). The City has historically received revenue from eight different categories of sales taxes covering a very broad range of goods and services. Six of the eight sales tax categories, and a portion of a seventh category were completely assigned to the Corporation and are pledged as security for the Bonds. The sales tax revenues that were not assigned to the Corporation are those that are collected directly by the City, and therefore not subject to the Act and not able to be legally insulated from the City's financial operations. The pledged sales tax revenues consist of three of the City's four Home Rule (HRM) sales tax revenues (these taxes are imposed by the City pursuant to its Home Rule powers, municipal code, and laws of the State) and all of the City's four "Local Share" sales tax revenues (these revenues come from the City's formulaic share of sales and use taxes imposed by the State).

The State collects and distributes all the pledged sales tax revenues on a monthly basis - the mechanics for which are well established and have experienced no material disruptions in recent history. KBRA notes that the State has delayed distribution of a small portion of the pledged revenues several times in recent years. These short-lived delays, related to roughly 11% of the pledged revenues that are subject to annual appropriation, are described more fully later in this report. KBRA also notes that the State recently expanded its 2% administrative fee to cover all the State collected HRM sales taxes. This change does not materially impact the Bonds.

An increase in the Local Share tax rates or the HRM use tax on non-titled personal property would require State legislative action. The City does have the legal ability to raise the remainder of its HRM tax rates. Nevertheless, KBRA believes that neither the City nor the State have any practical or political ability to significantly raise sales tax rates given that the combined sales tax rate in Chicago for all jurisdictions is now among the highest in the nation at 10.25%. For modeling and cash flow analysis purposes described later in this report, KBRA views the sales tax rates as capped.

With regard to the risk of the City possibly lowering its HRM tax rates, KBRA notes two mitigating factors. First, the City's Home Rule portion of the overall sales tax rate is only 1.25% and not the main driver of the high overall rate, therefore in KBRA's opinion there is little political incentive to lower the rate. And second, the City's General Fund will remain dependent on the excess cash flow coming out of the bottom of the Bond structure's waterfall, so the City has no financial incentive to lower the rates. Meanwhile, the State is highly dependent on sales tax revenues collected in the City for re-distribution outside the City making it highly unlikely that it will lower rates (Figure 6). KBRA also believes that the State's ability to alter the formulae by which it distributes Local Share sales taxes is limited by political realities given how many municipalities depend on these revenues and, is also limited by the State's non-impairment covenant in the Act.

Figure 5 also shows the collection trend of each of the seven pledged sales tax revenues in FY 2018 and FY 2019. Pledged sales tax revenues collected in FY 2019 shows a 3.8% growth compared to FY 2018.

Figure 5

Pledged Sales Tax							
Tax	**Item Taxed**	**Tax Rate**	**% of Net Tax Collections Payable to Corporation**	**Subject to Annual Appropriation**	**FY 2018 ($million)**	**FY 2019[P] ($million)**	**2019 as % of 2018 Full Year**
HRM Retailers Occupation Tax	Tax on most tangible personal property items sold by retailers in the City	1.25%	100%	No	**$264.0**	**$269.0**	102%
HRM Service Occupation Tax	Tax imposed on service providers when tangible personal property or real estate is transferred within the course of performing a service in the City	1.25%	100%	No			
HRM Use Tax on Titled Property	Tax on the privilege of using within the City personal property purchased from a retailer and titled or registered at a location in the City – Collected on sales in Cook County and five adjoining counties	1.25%	100%	No	**$37.3**	**$38.0**	102%
Local Share Illinois Retailers Occupation Tax	Tax imposed by the State on most tangible personal property items sold by retailers in the State	6.25%	16%	No	**$293.2**	**$300.0**	102%
	Tax on qualified food, drugs and medical appliances	1.00%	100%	No			
Local Share Illinois Service Occupation Tax	Tax imposed by the State on service providers when tangible personal property is transferred within the course of performing a service	6.25%	16%	No			
	Tax on qualified food, drugs and medical appliances	1.00%	100%	No			
	Tax imposed by the State on tangible personal property purchased outside the State and titled or registered by a State agency	6.25%	16%	No			
Local Share Illinois Use Tax	Tax imposed by the State on nontitled tangible personal property purchased outside the State	6.25%	4%	Yes	**$92.9**	**$106.8**	115%
	Tax on qualified food, drugs and medical appliances purchased outside of the State	1.00%	20%	Yes			
Local Share Illinois Service Use Tax	Tax imposed by the State on the privilege of using most tangible personal property items acquired because of the purchase of a service from service providers outside the State	6.25%	4%	Yes			
	Tax on qualified food, drugs and medical appliances purchased outside of the State	1.00%	20%	Yes			
				Total Pledged Amount	**$687.4**	**$713.8**	104%

Sales Tax Not Pledged				
HRM Use Tax on Titled Personal Property	1.25%	100%	No	**$57.0**
HRM Use Tax on Nontitled Personal Property	1.25%	100%	No	
			GRAND Total:	**$744.4**

Source: Sales Tax Securitization Corporation

As mentioned previously, the State has delayed distribution a portion of the pledged revenues for several months on several occasions. However, the State has not failed to appropriate this category since the enactment of the Sales Tax Reform Act in 1990 including during the recent years of State budgetary morass. Nevertheless, as discussed later in the report, KBRA modeled a lengthy loss of these and other pledged revenues and determined that the bond structure more than adequately protects bondholders from this stress scenario. For the remaining sales tax revenues, the State essentially serves as a collection and distribution agent – a position that is reinforced by the State's non-impairment covenant in the Act.

Both the City and State have adjusted sales tax rates upwards several times over the last three decades. Figure 6 shows the history of sales tax rate increases and the combined State and City sales tax rate.

Figure 6

Historic Pledged Sales Tax Rates														
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994 <-> 2016	2019
City Sales Tax	1%												1.25%		
State Sales Tax	4%			5%						6.25%					
Combined Rate	<-------5%------->			<-----------------6%----------------->						<-----7.25%----->			<---------7.5%--------->		

Source: Illinois Department of Revenue

In 2016, Cook County increased its sales tax rate to 1.75% from 0.75% bringing the total sales tax rate in the City to 10.25% (Figure 7). In addition to the drag this high sales tax rate may have on retail activity, KBRA notes there may be a problem of leakage. To assess this potential problem, KBRA compared the City's total sales tax rate to 17 other municipalities in Cook County and in five adjacent counties (Figure 8). KBRA notes that sales tax leakage to neighboring cities and counties is possible but unlikely to create a large impact on the pledged revenues given the distances involved for a consumer seeking a significantly lower rate.

Figure 7

City of Chicago Combined Sales Tax Rate As of December 1, 2019	
City of Chicago Sales Tax	1.25%
State Sales Tax	6.25%
Cook County Sales Tax	1.75%
Regional Transportation Authority Sales Tax	1.00%
Combined	**10.25%**

Source: City of Chicago

Figure 8

Current Sales Tax Rates of Cities in 5 Adjoining Counties

City	County	State	City	County	Other	Total	Distance from Chicago
Cicero	Cook	6.25%	1.75%	1.75%	1.00%	10.75%	7 miles
Chicago	**Cook**	**6.25%**	**1.25%**	**1.75%**	**1.00%**	**10.25%**	**-**
Elgin	Cook	6.25%	1.25%	1.75%	1.00%	10.25%	36 miles
Skokie	Cook	6.25%	1.25%	1.75%	1.00%	10.25%	14 miles
Arlington Heights	Cook	6.25%	1.00%	1.75%	1.00%	10.00%	24 miles
Evanston	Cook	6.25%	1.00%	1.75%	1.00%	10.00%	13 miles
Schaumburg	Cook	6.25%	1.00%	1.75%	1.00%	10.00%	26 miles
Des Plaines	Cook	6.25%	1.00%	1.75%	1.00%	10.00%	17 miles
Aurora	Du Page	6.25%	1.25%	0.00%	0.75%	8.25%	37 miles
Naperville	Du Page	6.25%	0.50%	0.00%	0.75%	7.50%	29 miles
Geneva	Kane	6.25%	0.50%	0.00%	0.75%	7.50%	35 miles
Saint Charles	Kane	6.25%	1.00%	0.00%	0.75%	8.00%	35 miles
Waukegan	Lake	6.25%	1.25%	0.00%	0.75%	8.25%	36 miles
Highland Park	Lake	6.25%	1.00%	0.00%	0.75%	8.00%	24 miles
Joliet	Will	6.25%	1.75%	0.00%	0.75%	8.75%	34 miles
Bolingbrook	Will	6.25%	1.50%	0.00%	0.75%	8.50%	26 miles
Crystal Lake	Mchenry	6.25%	0.75%	0.00%	0.00%	7.00%	43 miles
Marengo	Mchenry	6.25%	0.75%	0.00%	0.00%	7.00%	56 miles

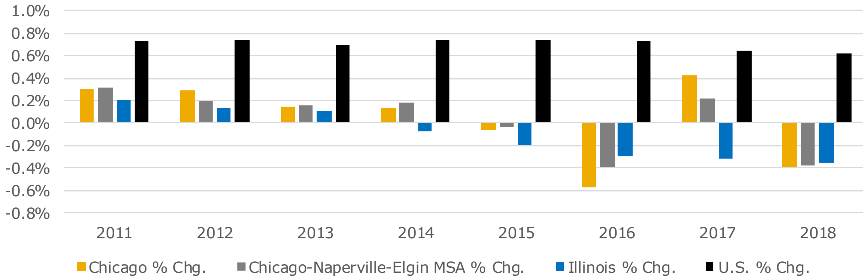
Source: Illinois Department of Revenue

RD 3: Economic Base and Demographics

City of Chicago is the largest city in the Midwest and the third largest city in the United States by population. The City has a population of approximately 2.7 million including roughly 1.0 million households. Population growth has been relatively stable for the last seven years, with a mix of small increases and small declines (Figure 9).

Figure 9

% Change in Population



	2010	2018	8 Yr Δ
City of Chicago	2,698,831	2,705,988	0.3%
Chicago-Naperville-Elgin MSA	9,474,211	9,497,790	0.2%
State of Illinois	12,840,762	12,741,080	-0.8%
United States	309,326,085	327,167,434	5.8%

Source: U.S. Bureau of Economic Analysis

The City is the county seat for Cook County and a regional hub for commerce and culture. The Chicago-Naperville-Elgin MSA is home to over 400 corporate headquarters, including 35 in the Fortune 500, and more than 60 post-secondary education institutions. KBRA notes that Chicago exhibits characteristics of an important world business center and houses one of the world's largest and most diversified economies based on employment. The City is ranked number eight on A.T. Kearney's 2019 Global Cities Index based on business activity, human capital, information exchange, cultural experience, and political engagement. The City is the second largest financial center in the U.S. and accounts for 20% of the world's global derivatives trading and half of the exchange-based derivatives trading in North America. Chicago also ranks as a top U.S. city for direct foreign investment for the past seven years.

The City has a very diverse employment base that is not concentrated in any single employer. The top ten employers represent only 11.6% of total City employment and are not in cyclical industries (Figure 10).

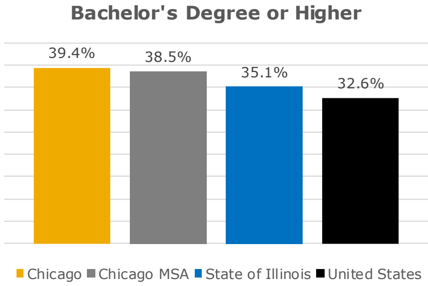
Figure 10

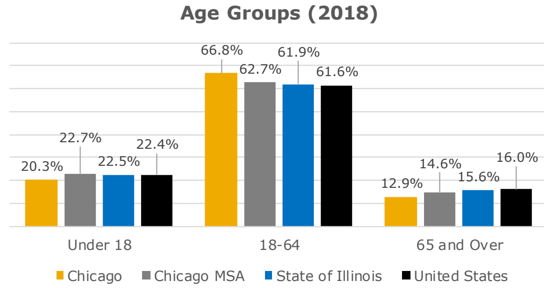
Top Employers of City of Chicago (2018)

Company	Sector	# of Employees	Employees as % of Total Employments
Northwestern Memorial Healthcare	Health Care	19,886	1.54%
Advocate Health Care	Health Care	19,513	1.51%
University of Chicago	Higher Education	17,345	1.35%
Amita Health	Health Care	16,231	1.26%
United Continental Holdings Inc	Airline	14,582	1.13%
Amazon.com Inc.	E-Commerce	14,018	1.09%
JPMorgan Chase & Co.	Finance	13,795	1.07%
Walgreens Boots Alliance Inc.	Pharmaceutical / Retail	12,311	0.96%
Walmart Inc.	Retail	11,420	0.89%
Northwestern University	Higher Education	10,865	0.84%
Total		149,966	11.6%
Source: City of Chicago CAFR			
	Total Employments 2018	1,288,755	

The City's employment base is attractive to employers with over 39.4% of the population having a B.A. degree or higher, which is above the comparable state and national levels (Figure 11).

Figure 11





Educational Attainment

	2010	2018	Point Δ 2010 to 2018
Chicago	33.3%	39.4%	0.06
Chicago MSA	n.a.	38.5%	n.a.
State of Illinois	30.8%	35.1%	0.04
United States	28.2%	32.6%	0.05

Age Groups

	Under 18	18-64	65 and Over
Chicago	20.3%	66.8%	12.9%
Chicago MSA	22.7%	62.7%	14.6%
State of Illinois	22.5%	61.9%	15.6%
United States	22.4%	61.6%	16.0%

Source: U.S. Census Bureau

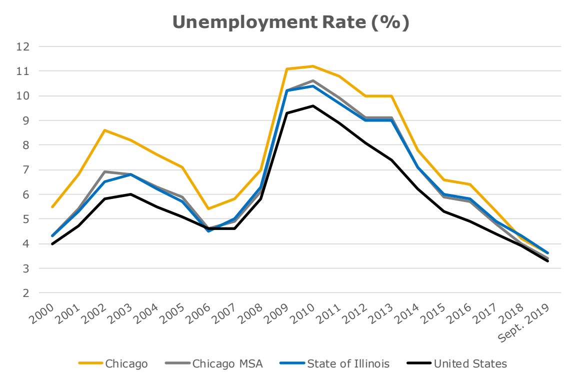
And despite the severity of the Great Recession, Chicago has now returned to pre-recession peaks in employment (Figure 12). KBRA expects the City's employment base, higher education facilities, and cultural attractions will continue to attract and retain talented individuals.

Figure 12

Employment
(Not Seasonally Adjusted) (in thousands)

	City of Chicago		Chicago MSA		State of Illinois		United States	
	Employment	Δ YOY	Employment	Δ YOY	Employment	Δ YOY	Employment	Δ YOY
2000	1,308		4,560		6,211		136,891	
2001	1,283	-2.0%	4,509	-1.1%	6,114	-1.6%	136,933	0.0%
2002	1,224	-4.6%	4,369	-3.1%	5,934	-2.9%	136,485	-0.3%
2003	1,203	-1.7%	4,344	-0.6%	5,875	-1.0%	137,736	0.9%
2004	1,198	-0.4%	4,375	0.7%	5,933	1.0%	139,252	1.1%
2005	1,195	-0.2%	4,423	1.1%	6,034	1.7%	141,730	1.8%
2006	1,222	2.3%	4,565	3.2%	6,231	3.3%	144,427	1.9%
2007	**1,243**	1.7%	**4,645**	1.8%	**6,334**	1.7%	**146,047**	1.1%
2008	1,231	-1.0%	4,600	-1.0%	6,239	-1.5%	145,362	-0.5%
2009	1,174	-4.6%	4,381	-4.8%	5,943	-4.7%	139,877	-3.8%
2010	1,206	2.7%	4,358	-0.5%	5,937	-0.1%	139,064	-0.6%
2011	1,208	0.2%	4,378	0.5%	5,948	0.2%	139,869	0.6%
2012	1,228	1.6%	4,439	1.4%	5,991	0.7%	142,469	1.9%
2013	1,236	0.7%	4,461	0.5%	5,957	-0.6%	143,929	1.0%
2014	1,258	1.8%	4,542	1.8%	6,052	1.6%	146,305	1.7%
2015	1,273	1.2%	4,602	1.3%	6,123	1.2%	148,834	1.7%
2016	1,284	0.9%	4,653	1.1%	6,170	0.8%	151,436	1.7%
2017	1,288	0.3%	4,665	0.3%	6,171	0.0%	153,337	1.3%
2018	1,289	0.0%	4,679	0.3%	6,191	0.3%	155,761	1.6%
September 2018	1,284		4,669		6,187		156,191	
September 2019	1,292	0.6%	4,706	0.8%	6,251	1.0%	158,478	1.5%
Growth 2007 Peak to September 2019	**3.7%**		**1.3%**		**-1.3%**		**8.5%**	

Source: U.S. Bureau of Labor Statistics

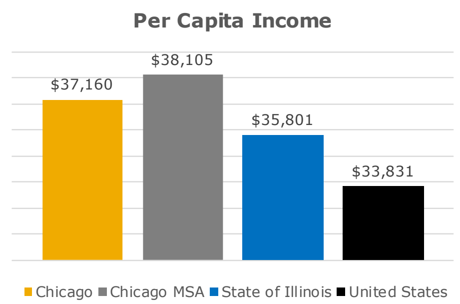


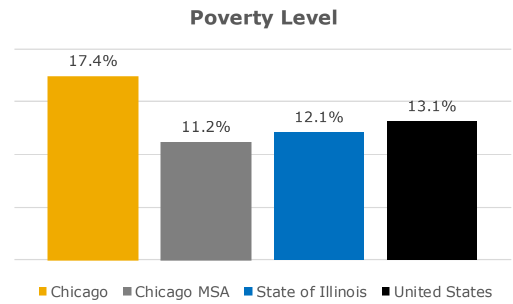
	Chicago	Chicago MSA	State of Illinois	United States
Peak	11.2	10.6	10.4	9.6
Current	3.6	3.4	3.6	3.3
Point Δ Since Peak	-7.6	-7.2	-6.8	-6.3

Source: U.S. Bureau of Labor Statistics

Chicago's growth in wealth levels are strong, with income per capita growing 44.9% from 2010 to 2018, which is higher than both the State and the U.S. The City, however, has a sizable amount of poverty. Poverty rate in the City increased to over 17% in 2018 from approximately 15% in 2010 (Figure 13). Chicago's neighborhoods exhibit wide disparities in poverty levels, life expectancy, and levels of violence. In recognition of the high poverty, lower life expectancy and high violence level in certain neighborhoods on the City's west and south sides, and more limited access to quality food, healthcare and educational opportunities, City officials have enacted reforms designed to catalyze change and reduce neighborhood disparities. These areas have lost a large percentage of their middle-income population over the past 20 years. The City aims to partner with the private sector in making investments in these areas that will drive improvement. Concurrently, important initiatives are underway to curb violence including weekly Chicago Police Department briefings, the creation of the position of Deputy Mayor for Public Safety and the hiring of a Director of Violence Intervention. The City is also developing a comprehensive violence reduction strategy and aligning its departments, overlapping governments and community partners.

Figure 13





Per Capita Income

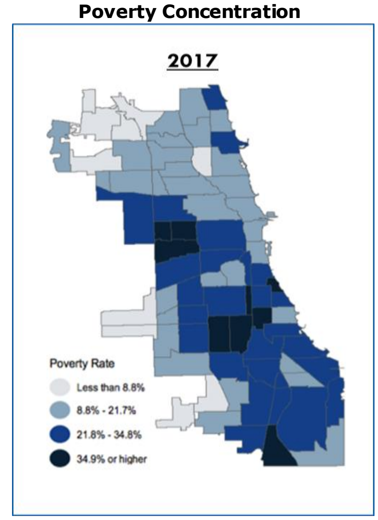
	2010	2018	Δ 2010 to 2018
Chicago	$25,650	$37,160	44.9%
Chicago MSA	n.a.	$38,105	n.a.
State of Illinois	$27,325	$35,801	31.0%
United States	$26,059	$33,831	29.8%

Source: U.S. Census Bureau

Poverty Level

	2010	2018	Point Δ 2010 to 2018
Chicago	15.3%	17.4%	0.02
Chicago MSA	n.a.	11.2%	n.a.
State of Illinois	13.8%	12.1%	0.0
United States	15.3%	13.1%	-0.02

Poverty Concentration



Source: The Voorhees Center at the University of Illinois at Chicago

The figure below shows how Chicago's demographic profile compares to the largest cities in the Illinois and it is consistent with the trend observed.

Figure 14

Demographic Profiles of Largest Cities in Illinois

City	County	2018 Population	2018 Per Capita Income	2018 Poverty Rate	Unemployment Rate 2017	Unemployment Rate 2018	Unemployment Rate 2019 Sept[1]
Chicago	Cook	2,704,965	$37,160	17.4%	5.3%	4.2%	3.6%
Aurora	Du Page	206,389	$29,804	11.6%	4.8%	4.4%	3.5%
Naperville	Du Page	147,823	$55,761	3.7%	3.8%	3.0%	2.7%
Rockford	Winnebago	148,640	$23,297	22.2%	7.7%	6.8%	6.6%
Joliet	Will	149,356	$27,748	10.9%	6.1%	4.9%	3.6%
Peoria	Peoria	115,720	$32,472	20.3%	6.1%	5.7%	5.1%
Springfield	Sangamon	114,512	$32,061	18.2%	4.6%	4.5%	3.8%
Elgin	Cook	114,521	$29,682	10.1%	5.6%	5.4%	3.8%

Source: U.S Census | Bureau of Labor Statistics

[1] *Preliminary*

The City is a as a major transportation and tourism hub. Chicago O'Hare International Airport (A+/Stable) is the third busiest airport in the U.S. Together with the City's Midway Airport (A/Stable), the airport system served over 52 million passengers in 2018. In addition, Chicago set another record high number of 57 million visitors in 2018, which surpassed its goal of attracting 55 million visitors annually by 2020.

Available hotel room nights increased 18.6% in the past five years or 3.5% YOY increase from 2017. Daily room rates increased 11.1% over the last five years. Hotel tax revenue hit a record high in 2018 at over $140 million (Figure 15).

Figure 15

Chicago Central Business District
Historic Hotel Performance and Visitor Trends

	Available Hotel Room Nights (millions)	Average Hotel Occupancy Rate (%)	Average Daily Rate ($)	Chicago Hotel Tax Revenue ($ millions)	Total Domestic Visitors (millions)	Total Overseas Visitors (millions)
2013	13.19	75.3%	191.83	106.28	46.96	1.38
2014	13.53	75.7%	198.76	113.57	48.71	1.33
2015	14.06	**76.0%**	207.74	123.89	50.97	**1.62**
2016	14.60	75.1%	207.73	127.06	52.35	1.47
2017	15.12	74.7%	203.84	128.53	53.73	1.54
2018	**15.65**	75.4%	**213.09**	**140.23**	**56.09** (1)	1.58
% Change 2018 vs 2013	18.6%	0.1%	11.1%	31.9%	19.4%	14.7%

Source: Choose Chicago

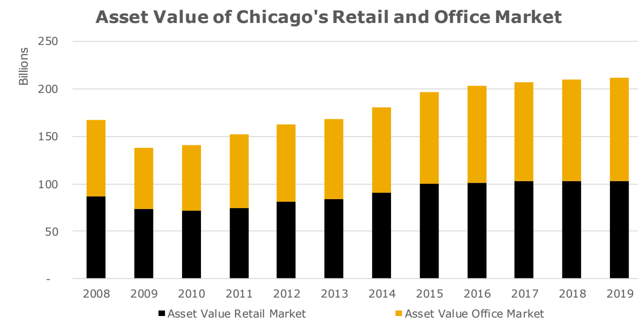
(1) Preliminary | ***Bolded values indicate a record for the City***

Along with rebounding employment and income data, other signs of Chicago's rebound from the Great Recession include its residential and commercial property values. Total full market value (FMV) was hit hard by the Great Recession and experienced declines between 2008 and 2013. Since then, FMV has stabilized and is recovering steadily to $306 billion in 2017, an increase of 48% since 2012 (Figure 16).

Figure 16

Source: City of Chicago | The Civic Federation

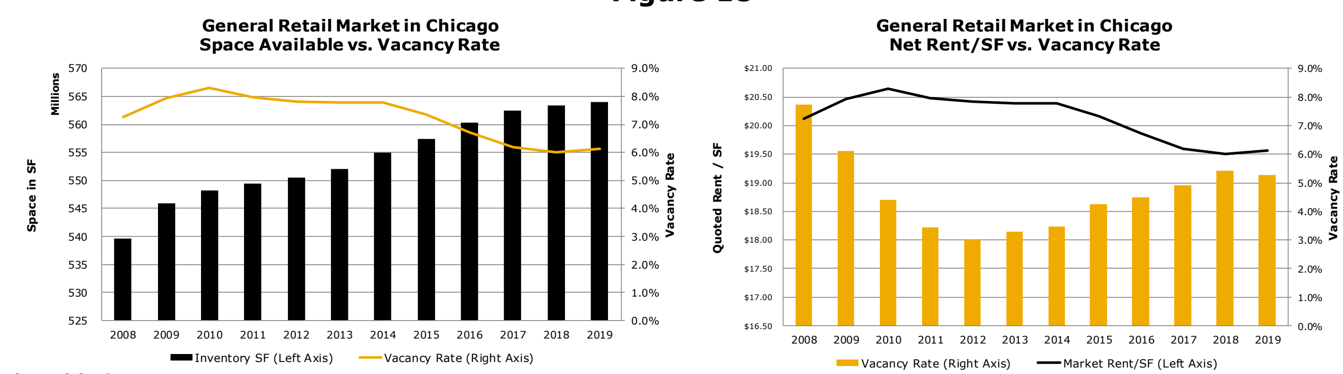
Figure 17



Source: CoStar Property

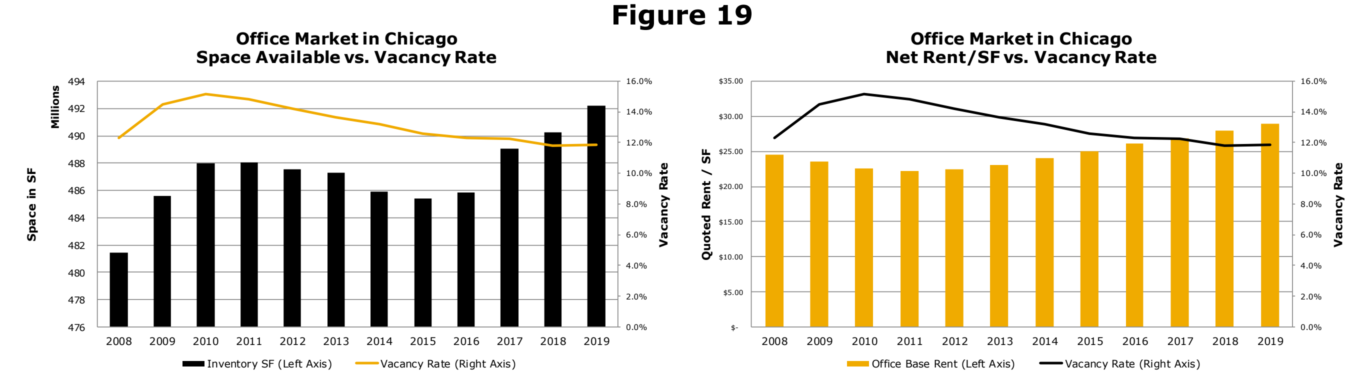
Based on CoStar data, asset value of Chicago's retail and office markets show healthy expansion after the Great Recession. Growth in asset values, however, have slowed down in the last few years to an average annual rate of 1.9% from an average annual rate of almost 7% (Figure 17). KBRA notes that continued growth in commercial activity is important and essential to provide a healthy environment for sales activities. According to CoStar, Chicago office vacancy rates have also improved since the Great Recession and office vacancy rates are at a 15-year low. Market rent rates for offices have recovered and exceeded the pre-recession peak, but generally, retail market rent rate began to soften in 2019 (Figure 18 and 19).

Figure 18



Source: CoStar Property

Figure 19



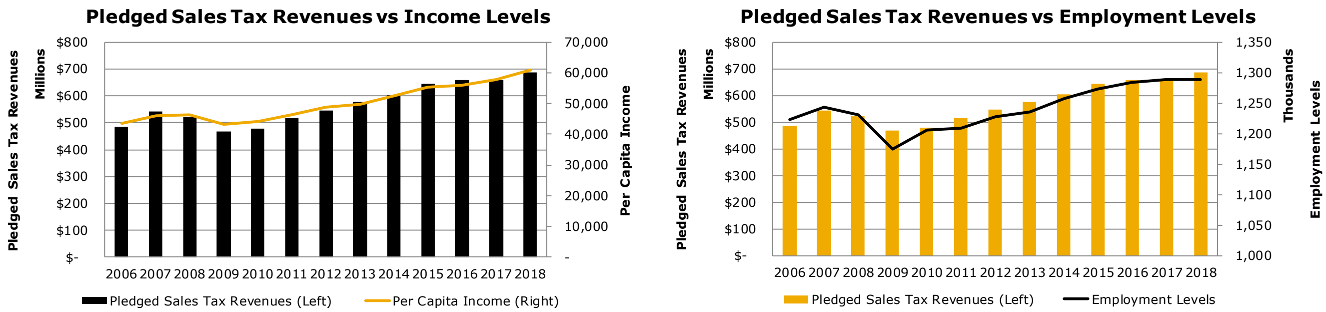
Source: CoStar Property

RD 4: Revenue Analysis

Trends

In general, consumer purchasing power is highly sensitive to the local and global economy, costs of living, employment, and income levels. KBRA notes that trends in pledged sales tax revenues closely follow the City's employment and per capita income trends (Figure 20). Pledged sales tax revenues had reached a peak in 2007 at approximately $543 million then declined sharply by a total of 14% in 2008 and 2009 during the Great Recession. Retail sales and related tax revenues began to improve in 2010 as employment and income markets began to recover.

Figure 20



Source: City of Chicago | Bureau of Economic Analysis

Pledged sales tax revenues have grown steadily since then, considerably exceeding inflation between 2010 and 2018 with an average annual growth rate of 4.3%. (Figures 21). KBRA noted a slow-down in the rate of growth in 2016 and 2017, when pledged sales tax revenues grew by less than $1 million or 0.1%, which is slower than the inflation rate of the MSA (1.9%). KBRA notes that the slower growth in pledged sales tax revenues corresponded with Cook County's 1% hike in the overall rate.

Preliminary pledged sales tax collected in 2019 increased by a healthy 3.8% or $26.4 million compared to 2018, notably higher than the inflation rate of the MSA in 2019. Composition of the pledged revenues in 2019 is shown in Figure 22 and it has been consistent in the last decade.

Figure 21

Trend of Pledged Sales Tax

	Pledged HRM Sales Tax	*YOY % Chg.*	Pledged Local Share Sales Tax	*YOY % Chg.*	Total Pledged Sales Tax	*YOY % Chg.*
2006	218,663		267,209		485,872	-
2007	266,825	*22.0%*	276,044	*3.3%*	542,869	*11.7%*
2008	240,710	*-9.8%*	280,517	*1.6%*	521,227	*-4.0%*
2009	213,338	*-11.4%*	255,427	*-8.9%*	468,765	*-10.1%*
2010	219,295	*2.8%*	258,666	*1.3%*	477,961	*2.0%*
2011	235,908	*7.6%*	281,189	*8.7%*	517,097	*8.2%*
2012	251,055	*6.4%*	295,912	*5.2%*	546,967	*5.8%*
2013	263,984	*5.1%*	312,378	*5.6%*	576,361	*5.4%*
2014	276,192	*4.6%*	327,379	*4.8%*	603,571	*4.7%*
2015	292,512	*5.9%*	352,841	*7.8%*	645,353	*6.9%*
2016	295,299	*1.0%*	363,448	*3.0%*	658,746	*2.1%*
2017	292,669	*-0.9%*	366,481	*0.8%*	659,150	*0.1%*
2018	301,275	*2.9%*	386,152	*5.4%*	687,427	*4.3%*
2019^P	307,056	*1.9%*	406,764	*5.3%*	713,820	*3.8%*
% Chg. Since 2009		*43.9%*		*59.2%*		*52.3%*
CAGR Since 2009		*4.1%*		*5.3%*		*4.8%*

Source: City of Chicago

Composition of Pledged Sales Tax

Total: $713.8 million in 2019^P

($ in 000s)

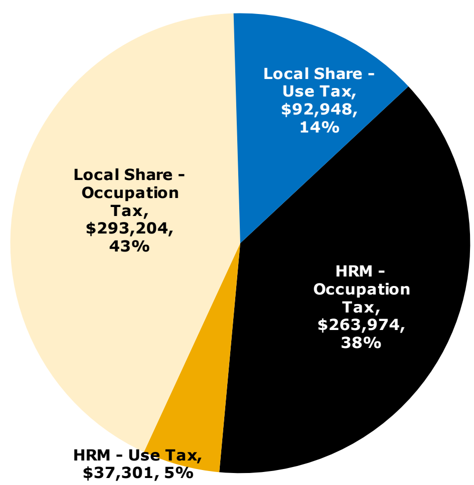
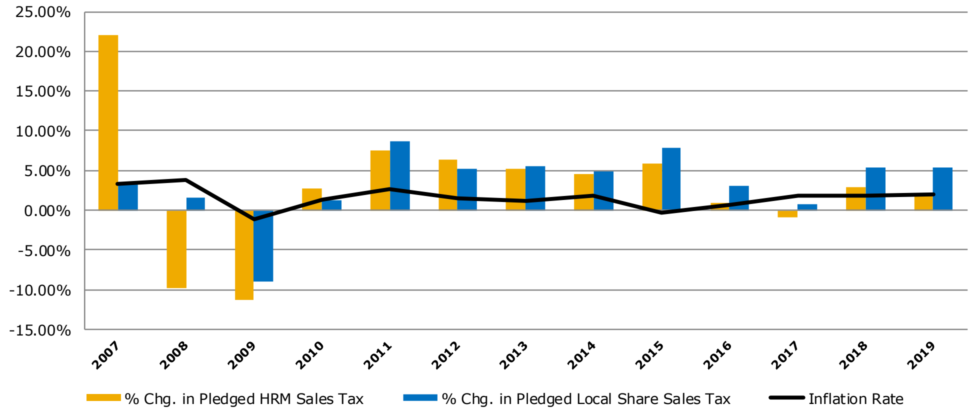


Figure 22

Inflation Rate vs. Pledged Sales Tax Revenues



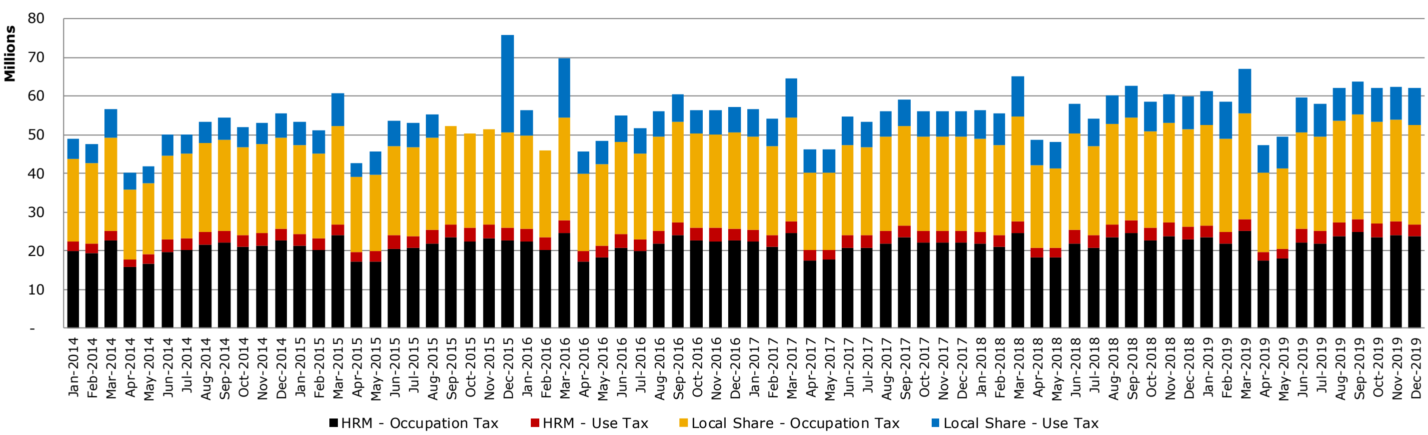
Source: City of Chicago and the Bureau of Labor Statistics

Seasonality and Appropriation Risks

A large portion of the pledged sales tax revenues are generated by seasonal retail sales and service occupations. HRM sales tax revenues and local share sales tax revenues each have their own peak period during the calendar year. HRM sales tax revenues generally peak in August. Local share sales tax revenues generally peak in March, which reflects a three-month lag in collecting sales tax revenues generated during the December holiday season (Figure 23). Overall, the seasonal trends exhibited a high degree of consistency over the past nine years.

Figure 23 also shows several outsized monthly spikes and troughs in the Local Share use tax and the Local Share service use tax (shaded blue). As mentioned previously, these revenues are subject to State appropriation and account for 14% of total pledged revenues in FY 2018. The spikes and troughs of these revenues show the impact of the previously discussed occasions when the State has withheld these revenues. The State typically makes up the distribution delays within one month, except for a longer delay during the late fall of 2015. Though the net impact of these delays is immaterial given the small portion this revenue category represents relative to the overall pledged revenues, later in this report KBRA models the possibility that these and other revenues subject to appropriation are permanently withheld by the State.

Figure 23
Monthly Pledged Sales Tax Revenue Collection
2014 - 2019P



Source: City of Chicago

RD 5: Coverage and Bond Structure

The Corporation has $2.64 billion senior sales tax securitization bonds outstanding with final maturity in January 1, 2048. The senior sales tax securitization bonds were issued in low-risk structures, with fixed interest rates and an overall level amortization schedule at approximately $170 million between FY 2022 and FY 2047. The Corporation can sell senior sales tax securitization bonds up to 4x ABT or, using current sales tax revenue data, approximately $3.0 billion.

If the Corporation were to issue senior lien bonds up to 4x ABT based on the pledged revenues collected in 2019, the MADS for the senior lien bonds would equal to approximately $178 million, the MADS for the second lien bonds would equal to roughly $229 million, and the combined MADS would equal to approximately $407 million between FY 2021 and FY 2047.

Figure 24

STSC Debt Service Requirements
($ in Thousands)

Base Case				Assumes STSC to Issue Senior Lien Debt Up to 4x ABT and Second Lien Up to 1.75x ABT				
Fiscal Year	Est. Pledged Revenue Net of Admin Fee[1]	Current Senior Lien DS Requirement	Current Senior Lien DSCR	Pro Forma Senior Lien DS	Pro Forma Senior Lien DSCR	Pro Forma 2nd Lien DS Requirement (up to 1.75x ABT)	Pro Froma Combined DS	Pro Forma Combined DSCR
2020	713,570	120,970	5.90x	**178,394**	4.00x	-	178,394	4.00x
2021	713,570	165,268	4.32x	178,393	4.00x	**228,665**	**407,057**	1.75x
2022	713,570	170,348	4.19x	178,391	4.00x	228,569	406,960	1.75x
2023	713,570	170,350	4.19x	178,390	4.00x	228,567	406,957	1.75x
2024	713,570	170,349	4.19x	178,388	4.00x	228,565	406,954	1.75x
2025	713,570	170,350	4.19x	178,387	4.00x	228,563	406,951	1.75x
2026	713,570	170,346	4.19x	178,386	4.00x	228,562	406,947	1.75x
2027	713,570	170,349	4.19x	178,384	4.00x	228,560	406,944	1.75x
2028	713,570	170,345	4.19x	178,383	4.00x	228,558	406,941	1.75x
2029	713,570	170,349	4.19x	178,381	4.00x	228,556	406,937	1.75x
2030	713,570	170,347	4.19x	178,380	4.00x	228,554	406,934	1.75x
2031	713,570	170,346	4.19x	178,378	4.00x	228,552	406,930	1.75x
2032	713,570	170,347	4.19x	178,376	4.00x	228,550	406,926	1.75x
2033	713,570	170,349	4.19x	178,375	4.00x	228,548	406,923	1.75x
2034	713,570	170,348	4.19x	178,373	4.00x	228,546	406,919	1.75x
2035	713,570	170,350	4.19x	178,371	4.00x	228,544	406,915	1.75x
2036	713,570	170,350	4.19x	178,370	4.00x	228,541	406,911	1.75x
2037	713,570	170,347	4.19x	178,368	4.00x	228,539	406,907	1.75x
2038	713,570	170,350	4.19x	178,366	4.00x	228,537	406,903	1.75x
2039	713,570	170,688	4.18x	178,364	4.00x	228,543	406,908	1.75x
2040	713,570	170,688	4.18x	178,362	4.00x	228,541	406,903	1.75x
2041	713,570	170,687	4.18x	178,360	4.00x	228,539	406,899	1.75x
2042	713,570	170,688	4.18x	178,358	4.00x	228,536	406,894	1.75x
2043	713,570	170,686	4.18x	178,356	4.00x	228,534	406,890	1.75x
2044	713,570	170,685	4.18x	178,354	4.00x	228,531	406,885	1.75x
2045	713,570	**170,689**	4.18x	178,352	4.00x	228,528	406,881	1.75x
2046	713,570	170,686	4.18x	178,350	4.00x	228,526	406,876	1.75x
2047	713,570	170,686	4.18x	178,348	4.00x	228,523	406,871	1.75x
	MADS	**170,689**		**178,394**		**228,665**	**407,057**	

Source: City of Chicago and STSC

[1] Estimated pledged revenue is based on sales tax collection in 2019

Based on the senior and combined capacity of the pledged sales tax revenues described above, KBRA modeled six stress cases to assess the ability of the pledged sales tax revenues to cover debt service requirements under adverse conditions. KBRA notes that pledged revenues substantially covers e annual DS requirements for the Corporation's senior lien bonds in all of the stress scenarios, however, pledged sales tax revenue does not cover the annual DS requirements for the combined senior and second lien bonds in only the Great Depression stress case.

Description of the Stress Scenarios

Base Case – also shows the Bonds current DSCR

In the base case, KBRA assumes there is no growth in pledged revenues collected after the 2019 (based on preliminary estimates), resulting in annual Corporation revenue of $713.6 million (after reduction of the $250,000 annual administrative fee).

Stress Case 1 – Distribution Shock

In this case, KBRA targets any vulnerability the Corporation might have to the fact that there is a monthly sweep of excess cash flow back to the City. To test this vulnerability, KBRA modeled the impact of a 25% decline in revenues in month ten of every year, followed by two months of zero cash flow. KBRA repeats the scenario in every year of the transaction. Such stress resulted in a total revenue decline of 20% over the life of the bonds.

Cash flow under the distribution shock scenario remains sufficient to meet debt service requirements over the life of the senior and second lien bonds.

Stress Case 2 – Population Erosion

KBRA notes there have been several instances of extreme population loss in major U.S. municipalities – Detroit being one of the most notable. In the period 1990 to 2016, Detroit lost 34.5% of its population. While Chicago has none of the industry concentration risk that Detroit had, KBRA nonetheless modeled an extreme population loss scenario. In this test, KBRA assumes that the population steadily and consistently declines at 1% per year for the life of the Bonds. Further, KBRA assumes that each 1% decline in population translates into a 2% decline in retail sales activity. Such stress resulted in a total revenue decline of 42% over the life of the bonds.

Despite the compounding effect of these population and retail sales declines, the cash flow remains sufficient to meet debt service requirements over the life of the senior and second lien bonds.

Figure 25

		Base Case				Stress Case 1 Distribution Shock			Stress Case 2 Population Erosion		
Assumptions		Assumes a static monthly sales tax collection based on recently observed average collected in the last 12 months (Jan - Dec 2019)				Assumes distribution of pledged sales tax revenues in month 10 at only 75%, and in 11 and 12 with no distribution at all, over the life of the bonds Total declines = 20% over the life of the bonds Assumes admin Fee inflats by 2% annually (this is not currently permitted in the documents)			Assumes a 1% annual decline in City's population, which translates to a 2% annual decline in pledged sales tax revenues over the life of the bonds Total declines = 42% over the life of the bonds Assumes admin Fee inflats by 2% annually (this is not currently permitted in the documents)		
Current Senior DS ($000)	**Bond Year**	**Pledged Revenues (Net Admin Fee)**	**Current Senior Lien DSCR**	**Senior Lien Issued at 4x ABT**	**Combined DSCR**	**Pledged Revenues (Net Admin Fee)**	**Senior Lien Issued at 4x ABT**	**Combined DSCR**	**Pledged Revenues (Net Admin Fee)**	**Senior Lien Issued at 4x ABT**	**Combined DSCR**
120,970	1/1/2021	713,570	5.90x	4.00x	4.00x	573,556	3.22x	3.22x	713,560	4.00x	4.00x
165,268	1/1/2022	713,570	4.32x	4.00x	1.75x	573,551	3.22x	1.41x	699,279	3.92x	1.72x
170,348	1/1/2023	713,570	4.19x	4.00x	1.75x	573,545	3.22x	1.41x	685,282	3.84x	1.68x
170,350	1/1/2024	713,570	4.19x	4.00x	1.75x	573,540	3.22x	1.41x	671,566	3.76x	1.65x
170,349	1/1/2025	713,570	4.19x	4.00x	1.75x	573,535	3.22x	1.41x	658,124	3.69x	1.62x
170,350	1/1/2026	713,570	4.19x	4.00x	1.75x	573,529	3.22x	1.41x	644,950	3.62x	1.58x
170,346	1/1/2027	713,570	4.19x	4.00x	1.75x	573,523	3.22x	1.41x	632,039	3.54x	1.55x
170,349	1/1/2028	713,570	4.19x	4.00x	1.75x	573,517	3.22x	1.41x	619,387	3.47x	1.52x
170,345	1/1/2029	713,570	4.19x	4.00x	1.75x	573,511	3.22x	1.41x	606,987	3.40x	1.49x
170,349	1/1/2030	713,570	4.19x	4.00x	1.75x	573,505	3.22x	1.41x	594,835	3.33x	1.46x
170,348	1/1/2035	713,570	4.19x	4.00x	1.75x	573,473	3.22x	1.41x	537,622	3.01x	1.32x
170,688	1/1/2040	713,570	4.18x	4.00x	1.75x	573,437	3.21x	1.41x	485,899	2.72x	1.19x
170,685	1/1/2045	713,570	4.18x	4.00x	1.75x	573,398	3.21x	1.41x	439,138	2.46x	1.08x
170,686	1/1/2048	713,570	4.18x	4.00x	1.75x	573,372	3.21x	1.41x	413,263	2.32x	1.02x

Stress Case 3 – Legislature Lowers Sales Tax Rates

KBRA notes that, despite the State and City's non-impairment pledges regarding certain other characteristics of the pledged revenues, it is hypothetically possible that future legislators could decide to lower sales tax rates regardless of the impact this may have on bondholders. To test this highly unlikely scenario, KBRA models the effects of the combined State and City sales tax rate returning to 5% to the level it was in the 1980s. Such legislative action resulted in a 33.3% drop in pledged sales tax revenues over the life of the bonds.

Cash flow under the lower sales tax rate scenario remains sufficient to meet debt service requirements over the life of the senior and second lien bonds.

Stress Case 4 – Double Dip, Double Dose Great Recession

KBRA notes that Chicago experienced a 14% decline in its sales tax receipts during the Great Recession. KBRA doubled this decline to 28% and allowed it to persist for 3 years. Then after a 2-year period during which sales tax receipts climb halfway back to their starting point, KBRA modeled a second decline of 28%. Such stress resulted in a total revenue decline of 42% over the life of the bonds.

Cash flow under this extreme recession scenario remains sufficient to meet debt service requirements over the life of the senior and second lien bonds.

Stress Case 5 – Double Dip Great Depression

KBRA notes there were four consecutive years of personal consumption declines during the Great depression. KBRA modeled the same Great Depression declines, followed by four years of recovery, then repeats the same Great Depression declines for four years. The net impact of the double dip Great Depression resulted in a 52% decline in total personal consumption. The second phase of personal consumption decline modeled below did not occur during the Great Depression.

Cash flow under this Great Depression scenario remains sufficient to meet debt service requirements over the life of the senior lien bonds but not for the second lien bonds.

Figure 26

		Stress Case 3 Legislature Lowers Sales Tax Rates			Stress Case 4 Double Dip, Double Dose Great Recession			Stress Case 5 Double Dip Great Depression		
Assumptions		Assumes the HRM sales tax and local share sales tax rate reverted to 1980's level, at 5%, resulting in a 33.3% decline in pledged sales tax revenues over the life of the bonds Assumes admin Fee inflats by 2% annually (this is not currently permitted in the documents)			Assumes a 2x the effect of the Great Recession with a 28% drop of pledged revenues sustained for 3 consecutive years; Followed by a 2-year recovery period to half of what was lost; Followed by another recession with a 28% drop of pledged revenues sustained for 3 consecutive years, total declines = 42% over the life of the bonds Assumes admin Fee inflats by 2% annually (this is not currently permitted in the documents)			Assumes the effect of the Great Depression occurring twice over a 13-year period. Starting in 2021, pledged revenues mirrored the personal consumption declines experienced during the Great Depression, erode by 9%, 14%, 20%, and 6%. Pledged revenues experienced a period of revovery, increase by 12%, 9%, 11%, and 7%, followed by a repeat of the same Great Depression declines for another 4 years. Total revenue lost = 52% over the life of the bonds. Assumes admin Fee inflats by 2% annually (this is not currently permitted in the documents)		
Current Senior DS ($000)	**Bond Year**	**Pledged Revenues (Net Admin Fee)**	**Senior Lien Issued at 4x ABT**	**Combined DSCR**	**Pledged Revenues (Net Admin Fee)**	**Senior Lien Issued at 4x ABT**	**Combined DSCR**	**Pledged Revenues (Net Admin Fee)**	**Senior Lien Issued at 4x ABT**	**Combined DSCR**
120,970	1/1/2021	713,560	4.00x	4.00x	713,560	4.00x	4.00x	713,560	4.00x	4.00x
165,268	1/1/2022	475,617	2.67x	1.17x	513,685	2.88x	1.26x	649,311	3.64x	1.60x
170,348	1/1/2023	475,612	2.67x	1.17x	513,680	2.88x	1.26x	558,365	3.13x	1.37x
170,350	1/1/2024	475,607	2.67x	1.17x	513,675	2.88x	1.26x	446,633	2.50x	1.10x
170,349	1/1/2025	475,601	2.67x	1.17x	613,604	3.44x	1.51x	419,813	2.35x	1.03x
170,350	1/1/2026	475,595	2.67x	1.17x	613,598	3.44x	1.51x	470,218	2.64x	1.16x
170,346	1/1/2027	475,590	2.67x	1.17x	413,723	2.32x	1.02x	512,558	2.87x	1.26x
170,349	1/1/2028	475,584	2.67x	1.17x	413,717	2.32x	1.02x	568,966	3.19x	1.40x
170,345	1/1/2029	475,578	2.67x	1.17x	413,711	2.32x	1.02x	608,808	3.41x	1.50x
170,349	1/1/2030	475,572	2.67x	1.17x	413,705	2.32x	1.02x	584,438	3.28x	1.44x
170,348	1/1/2035	475,539	2.67x	1.17x	413,673	2.32x	1.02x	343,790	1.93x	0.84x
170,688	1/1/2040	475,504	2.67x	1.17x	413,637	2.32x	1.02x	343,754	1.93x	0.84x
170,685	1/1/2045	475,464	2.67x	1.17x	413,597	2.32x	1.02x	343,715	1.93x	0.84x
170,686	1/1/2048	475,439	2.67x	1.17x	413,572	2.32x	1.02x	343,689	1.93x	0.84x