



Invesco Fixed Income Investment Insights

Tobacco bonds: An unfiltered look at a unique municipal asset class

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Executive summary

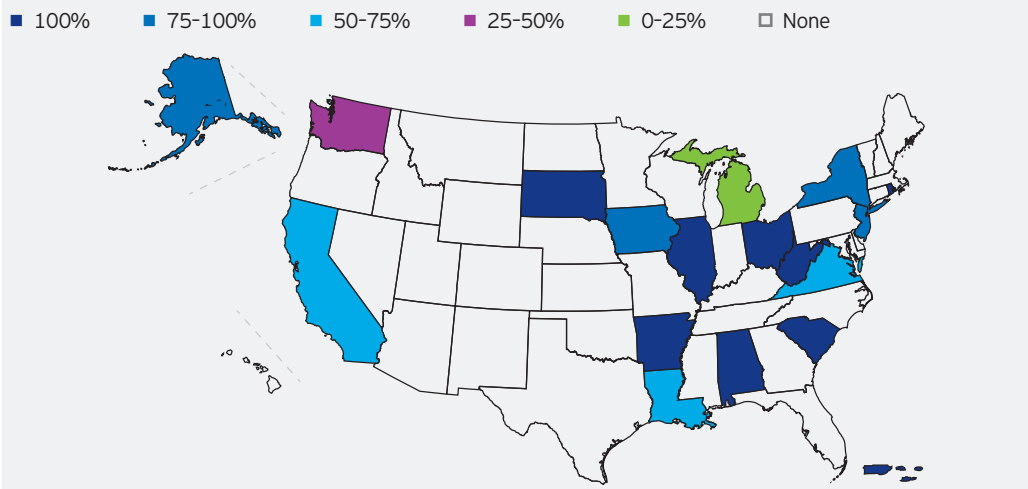
Tobacco bonds are a predominantly high yield US municipal asset class. In 2017, high yield tobacco bonds returned 22%¹, outpacing all other revenue sectors of the US municipal market. Some important drivers of this strong performance included robust high yield municipal fund flows and demand for yield. While the current total return potential may be limited on the back of this strong performance, we believe there are several other good reasons to consider holding tobacco bonds in a diversified portfolio. In this report, we discuss these benefits and provide an overview of the sector.

What are tobacco bonds and why are they part of the US municipal market?

Municipal tobacco bonds were issued shortly after 52 US states and territories (the “Settling States”) entered into a Master Settlement Agreement (“MSA”) with tobacco manufacturing companies in November 1998.² Under the MSA, the Settling States agreed to give up all future legal claims against the tobacco manufacturing companies for the recovery of tobacco-related healthcare costs. In return, the Participating Manufacturers (PMs) agreed to make annual payments in perpetuity to the Settling States, with each state receiving a fixed percentage of the total annual payments. The amount of the annual payment is dependent on a variety of factors, most importantly inflation and national tobacco consumption.

Several of the Settling States decided to securitize these payment streams, creating special purpose entities (SPE) to issue debt backed by their share of this revenue stream. In return for an upfront payment, some Settling States sold and/or transferred their rights, titles and interest related to these annual payments to the SPE. As a result, tobacco bonds can be issued as either tax-exempt or taxable in the US, depending on the intended use of the proceeds as defined by the US Internal Revenue Service. So far, 21 states and territories have securitized this payment stream, with local governments in California and New York also having issued tobacco bonds.³

Figure 1: Percent of tobacco revenues securitized by state



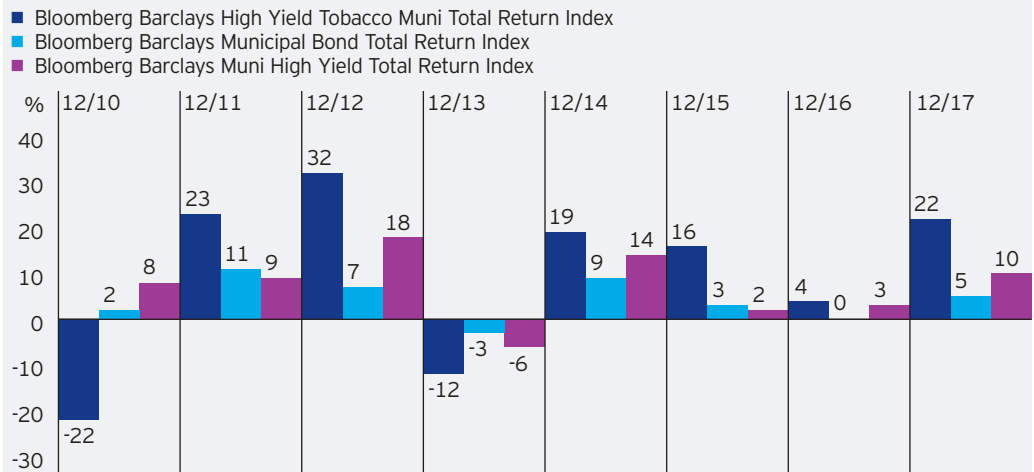
Source: Citi, U.S. Tobacco Settlement Backed Bonds, August 2017.

Municipal tobacco bonds are solely secured by payments made by the PMs. With a few exceptions, the Settling State does not put its credit rating at risk. A few Settling States have issued tobacco bonds enhanced with a state annual appropriation pledge. However, these bonds are rated based on the state’s appropriation pledge rather than debt service coverage. The tobacco bonds referenced in this report do not cover these types of credits.

Benefits of tobacco bonds

■ **Potential return enhancement:** Tobacco bonds provide potential yield and total return enhancement over traditional general obligation and revenue municipal bonds. Tobacco bonds are structured similarly to asset backed securities with various tranches that provide different return and risk profiles. Under this structure, a risk averse investor could consider purchasing a senior tranche that provides a lower risk and return profile, whereas a risk-seeking investor could consider purchasing a subordinated zero coupon bond that has amplified risk and potential for greater return.

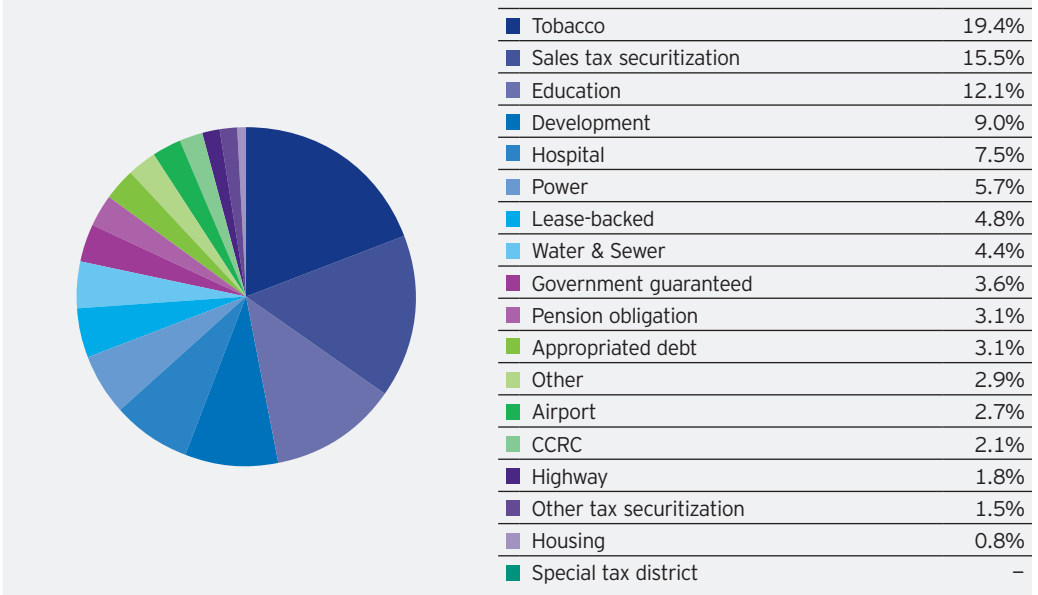
Figure 2: Total Returns 2010 – 2017



Source: Bloomberg L.P., data from Dec. 31, 2010 to Dec. 31, 2017. Total returns in US dollars. **Past performance is not a guide to future returns.**

■ **Liquidity:** Tobacco bonds account for USD19.81 billion or 19% of total rated high yield municipal revenue debt outstanding in the US.⁴ Given the significant weighting of tobacco bonds within the high yield municipal bond sector, there is demand throughout a credit cycle for tobacco bonds from both US mutual funds and hedge funds. Since tobacco bonds are structured similarly to asset backed securities, key factors such as structure, cigarette consumption, and MSA payments can be modeled and stressed, helping investors to determine credit quality.

Figure 3: US high yield municipal debt outstanding by weight



Source: Citi, Aug. 24, 2017.

Figure 4: US high yield municipal debt outstanding by sector

Sector	High Yield Municipal Debt Outstanding (USD mn)	Weighting (%)
Tobacco	19,813	19.4
Sales tax securitization	15,878	15.5
Education	12,399	12.1
Development	9,220	9.0
Hospital	7,679	7.5
Power	5,800	5.7
Lease-backed	4,948	4.8
Water & Sewer	4,465	4.4
Government guaranteed	3,682	3.6
Pension obligation	3,183	3.1
Appropriated debt	3,119	3.1
Other	2,963	2.9
Airport	2,769	2.7
CCRC	2,130	2.1
Highway	1,871	1.8
Other tax securitization	1,525	1.5
Housing	788	0.8
Special tax district	26	-
Total	102,258	

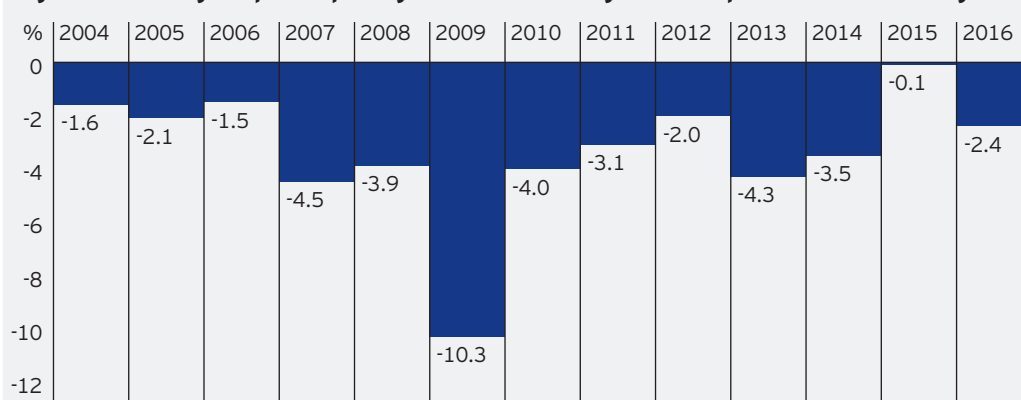
Source: Citi, Aug. 24, 2017.

- **Inflation adjustment:** Annual MSA payments are subject to an inflation adjustment, with a floor of 3%. However, it is important to note that tobacco bonds are issued in a variety of structures, some of which have very long durations and, thus, can be highly sensitive to changing interest rates.
- **Payments extend into perpetuity:** Annual payments from the PMs are made in perpetuity. In the event a tobacco bond is not paid in full by its maturity date, this would constitute an event of default. However, bondholders have the right to continue to receive these payments from the PMs until all outstanding debt has been repaid. Given the perpetual revenue stream, relative value analysis also incorporates internal rate of return projections.

How does the Master Settlement Agreement work?

Since the 1998 MSA, several additional tobacco manufacturing companies have signed onto the MSA and collectively, the PMs have close to a 94% market share, as per sales year 2016.⁵ As previously discussed, the Settling States agreed to give up any future legal claims against the PMs in return for annual payments to be made in perpetuity. The PMs also agreed to various advertising and marketing restrictions and to fund anti-smoking initiatives in the US.

Figure 5: US original participating manufacturer cigarette shipment YOY % change



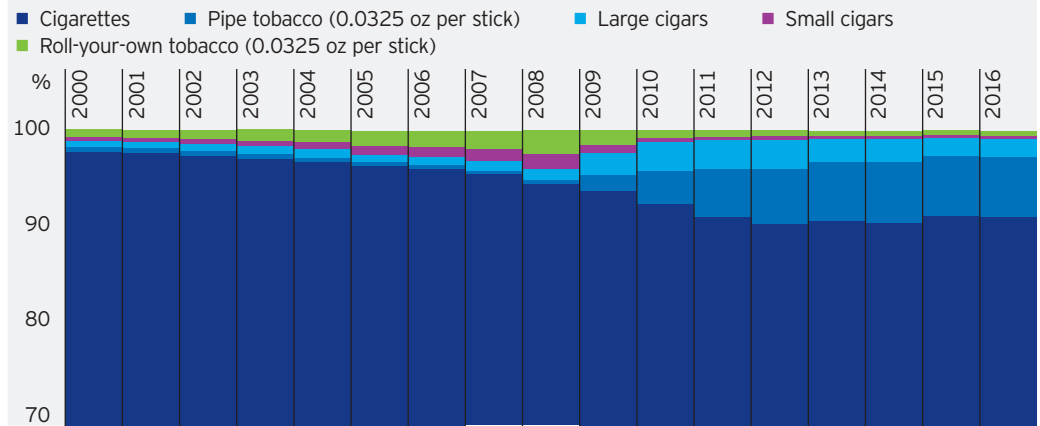
Source: National Association of Attorneys General, Jan. 1, 2004 to Dec. 31, 2016.

There are also tobacco manufacturing companies that have not joined the MSA (the “non-participating manufacturers” or NPMs). While the NPMs are not required to make annual payments, the Settling States are required to levy a tax on the NPMs to offset any potential cost advantage they may derive as a result of the PMS’ MSA obligations. As described in more detail later in this report, if a Settling State were to fail to levy or enforce the collection of such tax, it could lose a significant portion of its annual payment (see NPM Adjustment).

What products are covered in the MSA?

Not all tobacco products are covered under the MSA but are, rather, limited to cigarettes, which are strictly defined as any product that (a) contains nicotine and (b) is intended to be burned or heated under ordinary conditions of use. Also included is roll-your-own (RYO) tobacco. The MSA does not overlap with the US Food and Drug Administration’s (FDA) definition of tobacco products under the US Family Smoking Prevention and Tobacco Control Act and excludes products such as cigars, smokeless tobacco and e-cigarettes. As a result, these products are generally cheaper than cigarettes and RYO tobacco, which is one of the reasons we have seen an increase in the market share of “alternative” smokeable tobacco products, although this shift appears to have leveled off in recent years.

Figure 6: Market share of smokeable tobacco products in the US

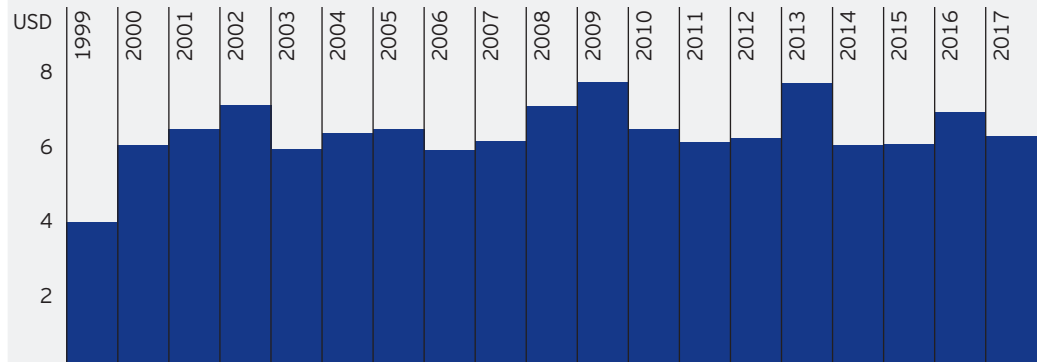


Source: US Department of the Treasury, Alcohol and Tobacco Tax and Trade Bureau, Jan. 1, 2000 to Dec. 31, 2016.

How are MSA payments determined?

The MSA established an annual base payment amount, which, beginning in sales year 2007, was and will remain at USD9 billion in perpetuity.⁶ However, the base payment amount is adjusted annually by various factors, most notably US inflation and national cigarette consumption. Payments are made once a year on April 15.

Figure 7: Total MSA payments to US states (USD bn)



Source: National Association of Attorneys General, data as of April 30 of each calendar year.

The inflation adjustment is based on the percentage change in the Consumer Price Index for All Urban Consumers, as published by the US Bureau of Labor Statistics. It has a floor of 3%⁷ and thus, increases the base payment amount. The base amount is also adjusted based on the number of cigarettes (the "actual volume") shipped within the US by the Original Participating Manufacturers (OPM). The volume adjustment compares the actual volume of cigarettes to a base volume of 475.7 billion cigarettes.⁸ With consumption declining annually since the adoption of the MSA, the volume adjustment has reduced the base payment amount. From sales year 2000 to 2016, OPM shipments fell by an average of 3.5%⁹ and we expect shipments to continue to decline going forward.

The NPM adjustment

Total MSA payments are further reduced by the NPM adjustment. The NPM adjustment was created to ensure that the Settling States enforced provisions that were designed to level the playing field between PMs and NPMs. Under the MSA, states were required to (a) establish statutes whereby a tax is levied and collected on NPMs on a per-unit of cigarettes sold basis and deposited into an escrow account (the "Qualifying Statutes") and to (b) "diligently enforce" said statute. Additionally, PMs had the right to withhold a certain percentage of the total MSA payment if they suffered a market share loss due to the adoption of the MSA. A formula determines the maximum amount PMs can withhold for NPM adjustments and, since sales year 2003, this amount has averaged 12.5% of total MSA payments.¹⁰ Thus, this can have a material impact on annual cash flow and return projections of tobacco bonds. Such payments are deposited into a disputed payments account (DPA) and remain in this account until (a) a settlement is reached or (b) the dispute is resolved by an arbitration panel.

Securitization

Since 1999, 21 states and territories have securitized their MSA payments by selling and/or transferring their rights, title and interest to the MSA payments to a SPE, without recourse, in exchange for an upfront payment.¹¹ The SPE is a conduit entity created by the sponsoring government which issues debt and uses those proceeds to "purchase" the MSA payments from the underlying government. This structure is designed to be bankruptcy-remote from the sponsoring government, but there is a lack of legal precedence in the US. Additionally, each tobacco securitization structure is different, so a careful analysis of the SPE, as well as the sale agreement, is critical.

Pursuant to the MSA, the PMs' annual payments are made directly to an MSA escrow agent, who forwards such payments to a bond trustee to administer debt servicing. MSA bonds can be structured in several different ways but the most common structures consist of serial bonds, term bonds and capital appreciation bonds (or CABs) with "turbo redemption provisions."¹⁷ The turbo redemption feature requires that all excess cash be used to redeem bonds having a turbo redemption feature in order of maturity, which could shorten the weighted average life (or WAL) of that particular bond.

Two states, California and New York, allocate a certain percentage of their MSA payments to underlying government entities and several of these entities securitized this revenue stream. While there are slight differences in how these entities structured their MSA bonds, of note are the MSA bonds issued by California counties. The amount of MSA payments each county receives is based on the percentage of the state's population that resides within that county, as determined by the US Decennial Census.¹² This adds an additional risk factor not present in other structures.

What typically drives US cigarette consumption?

One of the key drivers that affects the total amount of annual payments made by the PMs is consumption. There are several factors that affect consumption, including:

- **Taxes:** The federal government, along with state and local governments, levies excise taxes on cigarettes. The impact of a federal tax increase tends to be greater than a state-specific tax increase on PMs' annual payments, mainly because such payments are based on national cigarette consumption. Additionally, smokers have the ability to purchase cigarettes from lower tax neighboring states. The federal government last increased the federal tax rate on cigarettes in 2009, from USD0.39 to USD1.01,¹³ which was one of the main reasons for the 10.4% decline in consumption,¹⁴ in our view. This was, by far, the greatest decline in consumption seen since 2004.¹⁵ More recently, New York and Illinois, two of the largest states in the US, increased their state-specific tax rates by 58% and 102% in 2010 and 2012, respectively.¹⁶ Consumption declined by 4% and 2%, respectively, during those two years.¹⁷ California, the most populous state, recently enacted a 330% tax increase on cigarettes (from USD0.87 to USD2.87 per pack).¹⁸
- **Regulations:** Federal and state regulation can take many forms, including minimum age requirements for sale of cigarettes and restrictions on marketing. However, similar to taxation, the most impactful regulations have occurred at the federal level. While changes to existing federal regulation on tobacco has been somewhat muted in recent years, the FDA recently announced a new comprehensive plan to further regulate the tobacco industry, including limiting the amount of nicotine levels in cigarettes. While we do not anticipate material changes in current regulations for reasons we discuss in the next section, additional regulation at the federal level could have a significant impact on consumption.
- **Alternative products:** As covered products in the MSA are limited to cigarettes, manufacturers have rebranded various tobacco products so that they would not fall within the scope of the MSA. Little cigars and pipe tobacco are just a few examples of tobacco products that look very similar to cigarettes or the equivalent of roll-your-own products yet are not subject to the MSA. Additionally, these manufacturing companies have started to develop alternative "healthier" products such as e-cigarettes, which are also not included in the MSA, and more recently Philip Morris International's heat-not-burn product, titled IQOS, which could receive FDA approval in early 2018.
- **Health studies and warnings:** Generally, most health studies and warnings are tied to regulations with the goal of reducing cigarette consumption. Reputable tobacco studies are usually performed by the Center for Disease Control, National Institutes of Health, academic institutions or other third party independent research firms in the US. Combined with increased government regulation, these studies could lead to additional consumption declines.
- **Disposable income:** Research has shown that tobacco consumption is highly correlated with disposable income, which tends to result in increased consumption during periods of economic growth and decreased consumption during downturns. An example of this is the recent decline in gasoline prices, which is one of the reasons cited as a cause for the relatively benign cigarette consumption decline of 0.1% in 2015.¹⁹ The price elasticity of cigarettes is generally accepted to be given by the following relationship: a 1% increase in price tends to lead to a 0.3%-0.5% decline in demand.²⁰

Impact of recent developments within the tobacco sector

US Food and Drug Administration announcement

In July 2017, the FDA announced a comprehensive plan to potentially modernize tobacco and nicotine regulations, which could lead to greater declines in cigarette consumption. However, the announcement's primary objective was not to take immediate action on regulations, but to begin a dialogue intended to generate additional research to further support the Family Smoking Prevention and Tobacco Control Act (the "Tobacco Control Act").

The FDA has three primary objectives it would like to achieve over the next several years. First, begin a dialogue on reducing nicotine levels in combustible cigarettes to non-addictive levels, which would likely result in reduced cigarette consumption. The FDA cannot outright ban nicotine or tobacco, but through the Tobacco Control Act, it can limit what and how much goes into a combustible cigarette. We understand there is currently minimal scientific support to suggest that reducing nicotine levels would significantly reduce cigarette consumption. As such, it will likely take five to ten years for the FDA to perform scientific studies, evaluate its findings and pass legislation.

Second, the FDA wants to further study the impact of flavoring, such as menthol, on youth addiction. The FDA has performed numerous scientific studies in the past on flavoring, meaning that, if the FDA wanted to eliminate menthol, it could move at a quicker pace than reducing nicotine levels. Although the FDA has thus far not acted on menthol, it has the authority to ban all flavoring under the Tobacco Control Act. If this were to occur, consumption levels would likely decline sharply, given that menthol cigarettes comprise 25% of total cigarette consumption.²¹ Longer term, however, the impact is unclear, as consumers may end up shifting from flavored to non-flavored cigarettes, which could mute the negative impact on tobacco bonds.

Third, the FDA wants to encourage the usage of “less risky” next generation products, such as iQOS and other forms of e-cigarettes. The FDA wants to streamline guidelines to make the review process more efficient, predictable and transparent for manufacturers. We believe these actions could lower regulatory hurdles, making it easier for tobacco companies to bring “healthier” alternative options to the market. If these alternative options fall outside the scope of the MSA, this could be negative for cigarette consumption.

The FDA has not set a timeline for these initiatives and all conclusions must be based on strong scientific facts. Tobacco lobbyists will likely be out in full force to litigate scientific findings and delay any additional regulations implemented by the FDA. Thus, impactful regulatory changes will likely not take place in the near-to-medium term.

Advances in heat-not-burn technologies

Philip Morris International’s (Altria Group) iQOS product and British American Tobacco’s similar product, marketed as Glo, are likely to be the type of next generation products the FDA will consider as a “healthier” alternative option for tobacco consumers. Philip Morris and British American Tobacco have, or plan to submit, applications to the FDA for use in the US. Philip Morris could receive FDA approval as early as the first quarter of 2018 to sell iQOS in the US and British American Tobacco will likely begin the FDA approval process for Glo in 2018.

It is unclear, at this time, if iQOS or Glo tobacco “heat sticks” will be included in the MSA and how they would be accounted for in MSA’s payment formula. Once the FDA approves them, the rollout of these products will likely be selective and methodical. We believe the immediate impact will be neutral for the tobacco bond market as consumers gradually become familiar with the new products. However, if tobacco “heat sticks” are included in the MSA, the long-term impact would likely be positive for the tobacco bond market.

How does Invesco Fixed Income analyze tobacco bonds?

We consider two main factors in analyzing tobacco bonds: underlying credit fundamentals and relative value.

- **Credit fundamentals:** When we assess underlying credit fundamentals, the primary credit driver is the breakeven rate, which is the percentage change in consumption that a particular bond can withstand before defaulting. This projection is based on several assumptions, including a 3% inflation rate (the floor).
- **Relative value:** To assess relative value, we look at a bond’s yield spread and dollar price, and, specific to CABs, its dollar price relative to accreted value. Additionally, we look at the percentage change in the internal rate of return and the weighted average life based on a change in the projected breakeven rate (for example a change in the breakeven rate from 3% to 4%). This is important because there are several different tobacco bond structures and these calculations can capture this heterogeneity.

Risks to investing in tobacco bonds

The following are some major risks to investing in tobacco bonds:

- Greater than expected consumption declines could result in lower potential investment returns. Key drivers behind potential decreased consumption include:
 - Increased federal and state excise taxes
 - More stringent regulation
 - Increased popularity of alternative products not included in the MSA
 - Economic downturn resulting in decreased disposable incomes
- Failure of the Settling States to enforce Qualifying Statutes, resulting in a higher NPM adjustment
- Bankruptcy of a major tobacco manufacturing company

- Extension or prepayment risks
 - If cigarette consumption declines more than projected, bond maturities would potentially extend
 - If cigarette consumption declines less than projected, turbo bonds would potentially be subject to prepayment risk

The importance of partnering with an active manager

The municipal bond market continues to grow in complexity, with over 36,000 government and non-government obligors currently.²² Now more than ever, we believe investing in this market requires in-depth analysis. Prior to the global financial crisis, the overwhelming majority of US municipal bonds were insured, meaning they were viewed as having the same credit risk as the insurer versus the underlying borrower. After the financial crisis, the municipal market has placed more weight on the fundamentals of the underlying borrower rather than the insurer's credit quality. This change in investment approach has made the municipal market more credit-driven and less interest rate-driven than in the past. Careful credit analysis has, therefore, become a critical component in municipal investing.

Why consider Invesco? The strength of the Invesco Fixed Income Municipal Bond Team

The Invesco Fixed Income Municipal Bond Team's investment philosophy is based on the belief that creating long-term value through comprehensive, forward looking research is the key to providing clients with diversified portfolios that aim to maximize risk-adjusted returns. Proprietary credit research and risk management are the foundations of our investment process, supported by a deep and experienced team of investment professionals with expertise that spans the entire municipal investment universe. We maintain an integrated, team-based investment process that combines the strength of our fundamental credit research analysts with the market knowledge and investment experience of our portfolio managers.

Our position among the top-10 municipal investment managers by assets in the US²³ enables us to access preferred market opportunities and gain valuable market insight. Our team has established relationships with more than 120 national and regional tax-exempt debt dealers in the US.²⁴ We believe these established relationships, as well as our size, allow us to achieve fluid execution in daily transactions. Our ability to aggregate trades across multiple portfolios also enables us to obtain lower institutional pricing, which can contribute to portfolio performance.

Please read the Investment risk section on the following page.

- 1 Bloomberg Barclays High Yield Tobacco Muni Total Return Index, return of 22% as of Dec. 31, 2017. Total return in USD.
- 2 The MSA was originally entered into with four tobacco manufacturing companies (Phillip Morris, Reynolds American, Lorillard, and Brown & Williamson). However, subsequent to the signing of the MSA, additional cigarette manufacturing companies joined the MSA. These tobacco manufacturing companies are collectively referred to as Participating Manufacturers, or PMs.
- 3 Citi, U.S. Tobacco Settlement Backed Bonds, August 2017.
- 4 Citi, Aug. 24, 2017.
- 5 National Association of Attorney Generals (NAAG), Dec. 31, 2016.
- 6 Prior to the 2017 sales year, base payments were split between Annual Payments (AP) and Strategic Contribution Payments (SCP). There were slight differences in how these payments were calculated as well as the percentage of each payment states received. However, beginning with the 2017 sales year, all of the base payments are considered Annual Payments.
- 7 1998 Master Settlement Agreement.
- 8 1998 Master Settlement Agreement.
- 9 National Association of Attorneys General, (NAAG), April 11, 2017.
- 10 National Association of Attorneys General (NAAG), data from Jan. 1, 2003 to Dec. 31, 2016.
- 11 Citi, U.S. Tobacco Settlement Backed Bonds, August 2017.
- 12 Inland Empire Tobacco Securitization Authority, Tobacco Settlement Asset-Backed Bonds Official Statement, Series 2007.
- 13 US Department of the Treasury, Alcohol and Tobacco Tax and Trade Bureau.
- 14 National Association of Attorneys General.
- 15 National Association of Attorneys General.
- 16 www.Tobacco Free Kids.org.
- 17 National Association of Attorneys General.
- 18 https://www.boe.ca.gov/industry/cigarettes_tobacco_products.html.
- 19 <https://emma.msrb.org/ER1015883-ER795504-ER1196735.pdf> page A-1-17 - TSASC Tobacco Settlement Bonds Official Statement, Fiscal 2017.
- 20 <https://emma.msrb.org/ER1015883-ER795504-ER1196735.pdf> page A-1-9 - TSASC Tobacco Settlement Bonds Official Statement, Fiscal 2017.
- 21 <https://www.fda.gov/downloads/ucm361598.pdf> - page 3 of executive summary - Preliminary Scientific Evaluation of the Possible Public Health Effects of Menthol versus Nonmenthol Cigarettes.
- 22 Bloomberg L.P., Nov. 21, 2017.
- 23 Strategic Insight Simfund, Sept. 30, 2017.
- 24 Invesco, Dec. 31, 2017.

Investment risks

The value of investments and any income will fluctuate (this may partly be the result of exchange rate fluctuations) and investors may not get back the full amount invested. Past performance is not a guide to future returns.

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