

# Vaping and the Financial Markets

## How Vaping and E-cigarettes are affecting the Investing Landscape



### COMMENTARY

Tobacco and Cannabis have long been two hot button topics in the responsible investing space. But recent headline grabbing news has forced many Americans to confront uncomfortable facts about the nicotine and cannabis habits of our teenagers and young adults. The first being a dramatic increase in teen and pre-teen e-cigarette usage and the second being a mysterious outbreak of vaping-related illnesses and even deaths over the past 6-months.

As a result, we've seen a dramatic shift in the narrative for a multi-billion dollar nicotine vaping industry which many understood to be a healthier alternative for smokers than combustible tobacco cigarettes. But data has also long warned of potential negative health effects of nicotine in adolescents, teenagers, and young people (cannabis as well). Nicotine can have deleterious effects on developing brains (brains are typically fully developed by the age of 23-25).<sup>1,2</sup> Vaping teenagers are also more likely to pick-up smoking than their non-vaping peers. Sadly, teenage vaping is on the rise. To combat this rising trend, lawmakers and regulators at the federal, state, and local levels have proposed and/or enacted a flurry of new regulations, laws, and even outright bans upon a multi-billion dollar vaping industry that many cigarette smokers have come to rely upon to help kick their combustible smoking addictions.<sup>3</sup>

As is the case in most investment decisions, choices in the responsible investing space are rarely very black or white, right or wrong...there is often a lot of grey area, even for those firm in their values and beliefs. So rather than lobby for one side of the debate or the other, the goal of this piece is meant to be more informational than persuasive. But at the same time, we'd like to use this timely topic to showcase ways in which Crossmark Global Investments can assist clients in aligning their investments with their personal values, whatever those values may be.

Over time, we've seen a dramatic shift in the narrative for the multi-billion dollar nicotine vaping industry.

<sup>1</sup> US Department of Health and Human Services. *E-cigarette Use Among Youth and Young Adults: A Report of the Surgeon General*. Atlanta, GA: US Department of Health and Human Services, CDC; 2016. Accessed July 27, 2018. [https://www.cdc.gov/tobacco/data\\_statistics/sgr/e-cigarettes/pdfs/2016\\_sgr\\_entire\\_report\\_508.pdf](https://www.cdc.gov/tobacco/data_statistics/sgr/e-cigarettes/pdfs/2016_sgr_entire_report_508.pdf)

<sup>2</sup> Centers for Disease Control and Prevention. *Quick Facts on the Risks of E-cigarettes for Kids, Teens, and Young Adults*. [https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/Quick-Facts-on-the-Risks-of-E-cigarettes-for-Kids-Teens-and-Young-Adults.html](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/Quick-Facts-on-the-Risks-of-E-cigarettes-for-Kids-Teens-and-Young-Adults.html)

<sup>3</sup> Centers for Disease Control and Prevention. *About Electronic Cigarettes (E-Cigarettes)* [https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/about-e-cigarettes.html](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/about-e-cigarettes.html)

## What are “e-cigarettes?”

### First, what are “e-cigarettes”? What is “vaping”?

Electronic cigarettes (e-cigarettes or e-cigs) go by a variety of names: “vapes”, “vape pens”, “vaporizers”, “e-hookahs”, “tank systems”, and “mods” are just a few of the more common phraseology – there are many more. E-cigarettes come in many different sizes, colors, brands, and technologies, some of which resemble actual cigarettes or pipes, many of which do not (see some examples below). Despite the wide variety, most e-cigarettes perform essentially the same function for the user, which the Center for Disease Control (CDC) sums up nicely below (emphasis added) (for the purpose of this piece, smoking will refer to combustibles):

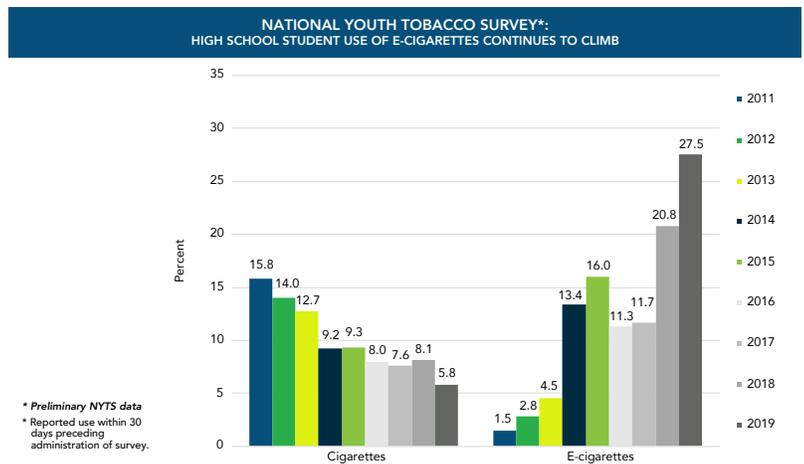
*“Electronic devices...produce an aerosol by heating a liquid typically containing nicotine, flavorings, and other additives; users inhale this aerosol into their lungs. E-cigarettes also can be used to deliver tetrahydrocannabinol (THC), the principal psychoactive component of cannabis [or cannabidiol (CBD) a non-psychoactive component of cannabis]. Use of e-cigarettes is commonly called vaping [or JUULing].”*



Source: Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion

### Teen health crisis #1: An influx of teen vaping

Despite a lack of long term studies into the lasting health effects of vaping, studies suggest that nicotine e-cigarettes are less harmful than combustible cigarettes <sup>4</sup> (but not harmless). Furthermore, for an adult smoker, completely switching to a non-combustible e-cigarette alternative is healthier than sticking with combustible tobacco cigarettes, which carry over 7,000 carcinogens, 70 of which are known to cause cancer. <sup>5</sup> In fact, as recently highlighted in the October 4th publication of Grant’s Interest Rate Observer, a 2017 study by The Georgetown Lombardi Comprehensive Cancer Center found that if 10% of US adult smokers switched to an e-cigarette non-combustible alternative every year for the next decade, as much as 6.6 million American lives would be prolonged, accumulating to a combined 87 million years of additional life.



Source: The U.S. Department of Health & Human Services

<sup>4</sup> Centers for Disease Control and Prevention. *About Electronic Cigarettes (E-Cigarettes)*. [https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/about-e-cigarettes.html](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/about-e-cigarettes.html)

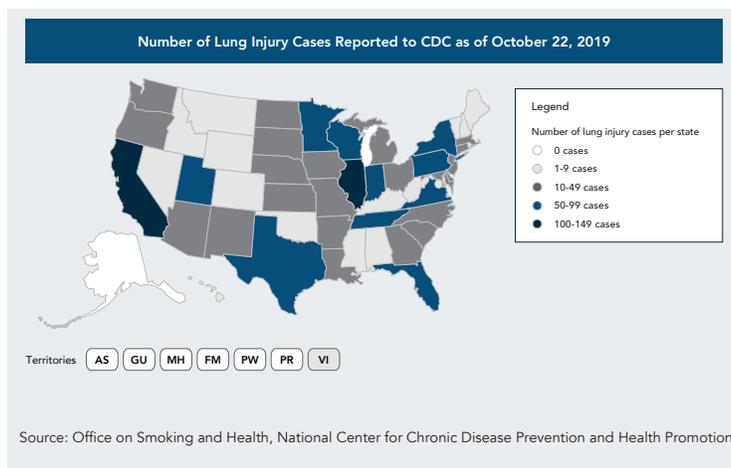
<sup>5</sup> Centers for Disease Control and Prevention. *Secondhand Smoke (SHS) Facts*. [https://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/secondhand\\_smoke/general\\_facts/index.htm](https://www.cdc.gov/tobacco/data_statistics/fact_sheets/secondhand_smoke/general_facts/index.htm)

## Teen Health Crisis

However, on the other side of the spectrum, multiple studies have shown that teenagers who vape nicotine products run a materially higher risk of becoming a regular combustible cigarette smoker relative to their non-vaping peers. In fact, according to preliminary results of the 2019 National Youth Tobacco Survey (NYTS), US teen usage of nicotine vaping products jumped materially in 2019 to 27.5% of the entire teen population (based on usage in the past 30 days), up from 20.8% in 2018, and 11.7% in 2017. For comparison, in 2011 that number was just 1.5%.

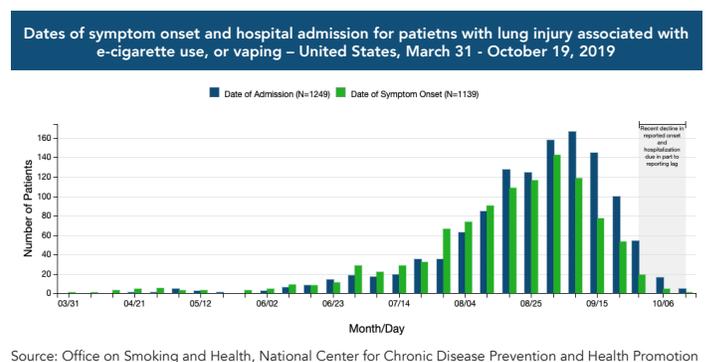
Furthermore, use among eighth graders doubled to 10% in the 2019 NYTS survey. This is even more disturbing given that data from the Department of Health and Human Services show that eighth graders who vape are 10x more likely to smoke combustible cigarettes than their non-vaping peers. So unfortunately, even though rates of teen smoking are in a decade’s long decline, teen smoking could very well be back on the rise in the near future given current trends in vaping usage among today’s teens.

### Teen health crisis #2: Mysterious lung illness and even deaths linked to vaping products



Parents of teenagers and/or young adults are likely well aware of the outbreak in vaping-related lung illnesses over the past 6 months. In a joint CDC and FDA teleconference call held on October 24th, doctors released updated statistics showing both a rise in vaping related hospitalizations and deaths relative to the prior week. Year-to-date through October 22nd, there’s been 1,604 reported cases of hospitalizations due to vaping related lung and respiratory injuries, 34 of which have resulted in death.<sup>6</sup> Most of the patients are male (70%), young (79% under 35 years old), and have a history of using vaping products containing THC.

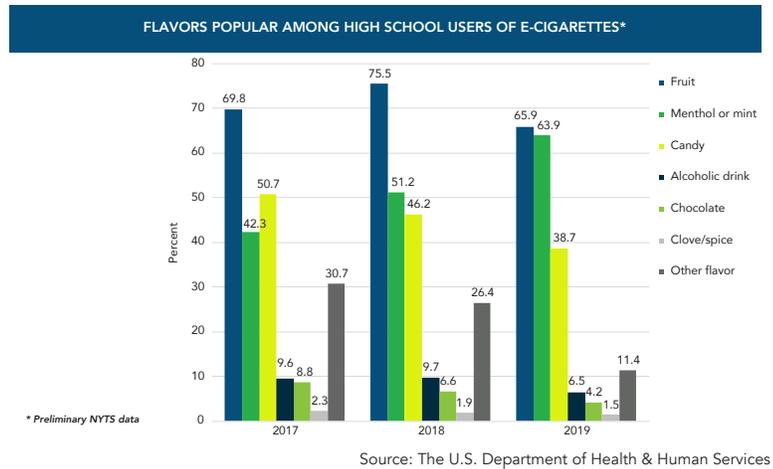
The precise cause of these lung illnesses has yet to be identified. However, the CDC has yet to find any evidence suggesting the outbreak is infectious. Therefore, the base case assumption is currently toxic doses of chemical exposures. To that end, the main suspect right now is “vitamin E acetate”,<sup>7</sup> which is harmless when applied to skin via body crèmes. However, when utilized as a thickening agent in illicit black market THC vaping e-liquids, which is then heated in a vape pen and inhaled by unsuspecting buyers, this otherwise harmless substance can potentially become toxic.



But as of data collected through October 22nd, the CDC nor FDA can definitively point to a specific chemical as the precise root cause of the outbreak. In fact, on an October 11th teleconference, officials stated there will likely be “multiple causes and potentially more than one root cause.” Furthermore, despite acknowledging that many of the patient samples are linked to black market THC vaping products and an FDA statement urging consumers to stop using THC vaping

<sup>6</sup> Centers for Disease Control and Prevention. *Outbreak of Lung Injury Associated with the Use of E-Cigarette, or Vaping, Products.* [https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/severe-lung-disease.html](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html)  
<sup>7</sup> The Wall Street Journal. *Researchers Say Vitamin E Likely Isn’t the Culprit in Vaping-Related Ailments.* [https://www.wsj.com/articles/researchers-say-vitamin-e-unlikely-culprit-in-vaping-related-ailments-11570050000?mod=article\\_inline](https://www.wsj.com/articles/researchers-say-vitamin-e-unlikely-culprit-in-vaping-related-ailments-11570050000?mod=article_inline)

products,<sup>8</sup> there does not appear to be a clear cut connection across all cases. According to the CDC, there are situations where patients used nicotine only vapes (10%), THC only vapes (31%), or multiple vaping products (78% reported using THC; 58% reported using nicotine).<sup>9</sup> But officials seem to be most concerned over black market THC vaping products. Will a blanket ban on all vaping products (as seen in states like Massachusetts), legal THC and nicotine, force more users to the black market or back to more harmful combustible smoking products?

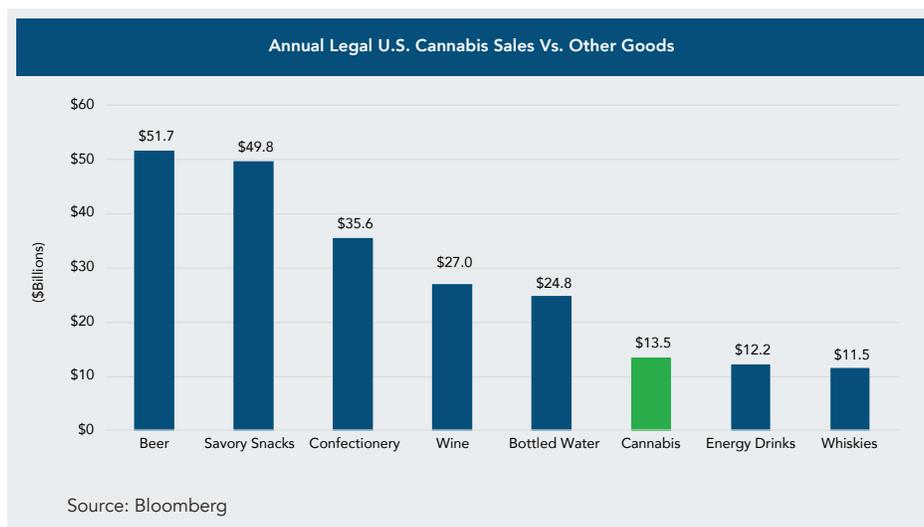


### Proposed FDA ban of non-tobacco flavored e-cigarettes

Many within the regulatory and medical fields hypothesize that non-tobacco e-liquid flavors like “Mint”, “Menthol”, and “Fruit” are one of the leading drivers of youth initiation into vaping. And for years, the FDA made it clear that they desired to see material improvement in teen usage to allow flavored vapor products to remain on the market.

But with the numbers released in the 2019 NYTS in early September (see above) combined with growing numbers of vaping related illnesses and deaths (even if black market THC vaping products are the proximate culprit at this point), the FDA on September 11th announced its intentions to rid the market of non-tobacco e-cigarettes flavors. On September 20, the FDA released a proposed rule that “sets forth requirements for premarket tobacco product applications (PMTAs) and would require manufacturers to maintain records establishing that their tobacco products are legally marketed”.<sup>10</sup>

Up until this proposed rule, e-cigarette (electronic delivery system and e-liquid) manufacturers were not required to obtain approval from the FDA to market these products. While tobacco flavored e-liquids have until May 2020 to comply with the ruling, non-tobacco flavored e-liquids like menthol and mint (JUUL’s highest grossing product) will be banned immediately upon the proposed rulemaking going into law (until the FDA approves their PMTA application, which can be several \$100k in compliance costs, a heavy burden for small vape shop owners/manufacturers).



### US Market demand for vaping (THC and Nicotine)

The market for both nicotine and cannabis vaping products has grown substantially over the past 5 years. According to Bloomberg data, sales of nicotine electronic smoking devices (includes e-liquids) have grown at a compound annual growth rate (CAGR) of +26% between 2013 to year-end 2018 with the majority of that growth starting in 2015 with the JUUL e-cigarette coming to market (see more on JUUL below).

<sup>8</sup> U.S. Food and Drug Administration. *Statement on consumer warning to stop using THC vaping products amid ongoing investigation into lung illnesses.* <https://www.fda.gov/news-events/press-announcements/statement-consumer-warning-stop-using-thc-vaping-products-amid-ongoing-investigation-lung-illnesses>

<sup>9</sup> Centers for Disease Control and Prevention. *Outbreak of Lung Injury Associated with the Use of E-Cigarette, or Vaping, Products.* [https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/severe-lung-disease.html](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html)

<sup>10</sup> U.S. Food and Drug Administration. *FDA issues proposed rule for premarket tobacco product applications as part of commitment to continuing strong oversight of e-cigarettes and other tobacco products.* <https://www.fda.gov/news-events/press-announcements/fda-issues-proposed-rule-premarket-tobacco-product-applications-part-commitment-continuing-strong>

According to a leading provider of cannabis market data, BDS Analytics, from 2014 to 2018, legal cannabis sales in the US grew from \$3.4B to \$10.5B for a CAGR of 33%. By comparison, the \$USD value of traditional cigarette sales in the US have remained relatively flat over that same period, growing at a CAGR of just 1%. Furthermore, when compared to CAGRs of other highly regulated products like beer (+3%), wine (+4%), and spirits (+5%), we see these couldn't come close to the growth rates of e-cigarettes or legal cannabis either.

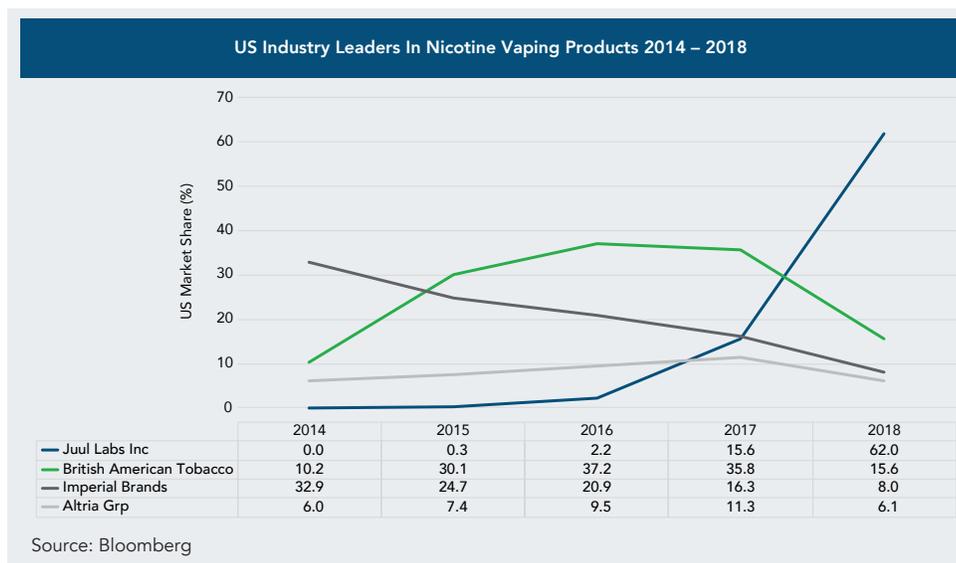
In 2019, data according to Bloomberg estimates that the \$USD value of legal sales of US cannabis will exceed that of energy drinks and whiskies in US domestic markets. However, according to the *2019 Marijuana Business Factbook*, the total combined legal and illicit demand for recreational cannabis in the US is estimated between \$50-55B (billion), which exceeds Bloomberg estimates of legal US sales of both beer (\$52B) and savory snacks (\$50B).

**Who are the major US industry leaders in nicotine and cannabis vaping products?**

In the US, the use, sale, or possession of cannabis with THC content >0.3% is illegal under federal law, despite state laws. However, 33 states have legalized cannabis for medicinal use, 11 of which have also legalized recreational adult use. Additionally, separate from the 33 states above, limited use of non-psychoactive CBD (cannabidiol, which is just 1 of 113 identified cannabinoids found in cannabis plants) has been legalized by 15 states. As such, the cannabis industry market structure (and therefore THC and CBD vapor industries) is highly fragmented due to individual state regulation (legal cannabis) and due to a highly policed illicit market throughout the country.

This contrasts to the highly concentrated market structure in the US nicotine e-cigarette market, which is entirely dominated by one player: JUUL. This privately-held San Francisco startup has 70% market share in the US as of September 2019, up from 62% in 2018, just 16% in 2017, 2% in 2016, and 0.3% when the company came to market in 2015. The JUUL boasts a sleek USB-drive like design, which is quite differentiated relative to competing products. According to Bloomberg, JUUL is expected to do ~\$3.5B in total sales in 2019.

One JUUL pod (e-liquid) is equivalent to a traditional pack of cigarettes both in terms of number of inhalations and in terms of its total delivered nicotine content. Compared to combustible cigarette competitors, JUULpods (e-liquid) are priced more competitively (at ~\$4-5/pod online)<sup>11</sup> relative to its highly taxed (excise taxes) domestic combustible cigarette manufacturing competition like Altria (MO), British American Tobacco (BAT), Imperial Brands (IMB), and Philip Morris International (PMI).



JUUL strictly sells electronic nicotine delivery systems (ENDS) and nicotine liquid JUULpods (e-liquid). However, its pod cartridges and packaging are often pirated in overseas markets like China,<sup>12</sup> shipped to the United States with or without vaping liquids, and distributed illegally or filled by street dealers with nicotine or THC vaping liquids and re-sold as the real thing or as THC JUUL pods on the black market.

<sup>11</sup> JUUL Labs. <https://www.juul.com/shop/pods/mint-5-percent>

<sup>12</sup> The Wall Street Journal. *Vaping's Black Market Complicates Efforts to Combat Crises* <https://www.wsj.com/articles/vapings-black-market-complicates-efforts-to-combat-crises-11570354204>

The company has come under scrutiny for using celebrities and social media platforms like Instagram to market aggressively to a younger audience. A more cynical view, however, like those being taken currently by various regulators and lawmakers, attribute most of the credit for the sharp rise in teen vaping to this Silicon Valley startup. In 2018, Altria Inc. (NYSE: MO) took a 35% stake in JUUL at a \$38B valuation.

### **Just two companies on US stock exchanges have exposure to e-cigarettes or e-cigarettes plus cannabis related vaping products**

Currently, the only way to play nicotine e-cigarette and/or cannabis vaping stocks in US exchanges is via Altria (MO) and Phillip Morris International (PMI). Combined, these two companies make up the S&P 500 Tobacco Total Return Index. Since mid-2017, it has underperformed the S&P 500 Total Return Index by nearly 60%. Over the trailing 12-months, the S&P 500 Tobacco TR Index has caught up some ground underperforming by ~17%.

### **Aligning investments with values**

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