

EQUITY RESEARCH

July 26, 2019

- Cannabis
- Tobacco

Vivien Azer

646 562 1351
vivien.azer@cowen.com

Steven Schneiderman

646 562 1306
steven.schneiderman@cowen.com

Zachary Ajzenman

646 562 1363
zachary.ajzenman@cowen.com

Gerald Pascarelli, CFA

646 562 1362
gerald.pascarelli@cowen.com

QUICK TAKE: INDUSTRY UPDATE

COWEN'S CIGARETTE & CANNABIS CIRCULAR

THE COWEN INSIGHT

Our Cowen Cigarette & Cannabis Circular highlights important news in the tobacco and cannabis industry for the week ending 7/26/2019.

Cannabis

- Health Canada announced May dry cannabis volumes increased 7% QoQ while oil volumes increased 19.2%.
- Quebec will introduce rules to ban the sale of cannabis candies and desserts as well as topical products.
- House Judiciary Committee Chairman Jerry Nadler (D-NY) and Senator Kamala Harris (D-CA) introduced legislation to decriminalize cannabis at the federal level.
- According to a new Gallup poll, adults between 18 and 29 years old are more likely to smoke cannabis (22%) than cigarettes (14%).
- In a Senate Banking Committee hearing, Chairman Mike Crapo (R-ID) did not commit to supporting the SAFE Act. See our colleague Jaret Seiberg's note [here](#).
- New York lawmakers that sponsored the 2019 legislation to legalize cannabis vowed to renew their push for legalization in 2020.
- One of the new Thailand government's top priorities will be to develop a medical cannabis market.
- IMB made a C\$123 mm strategic investment in XLY. See our note [here](#).
- CTST terminated CEO Peter Aceto with cause while its Chairman Eric Paul resigned at the request of the Board of Directors.
- CURA received a warning letter from the FDA for marketing CBD products with unsubstantiated claims.
- ATD made an investment in FAF, with warrants that could increase its ownership up to 50.1%.

Tobacco

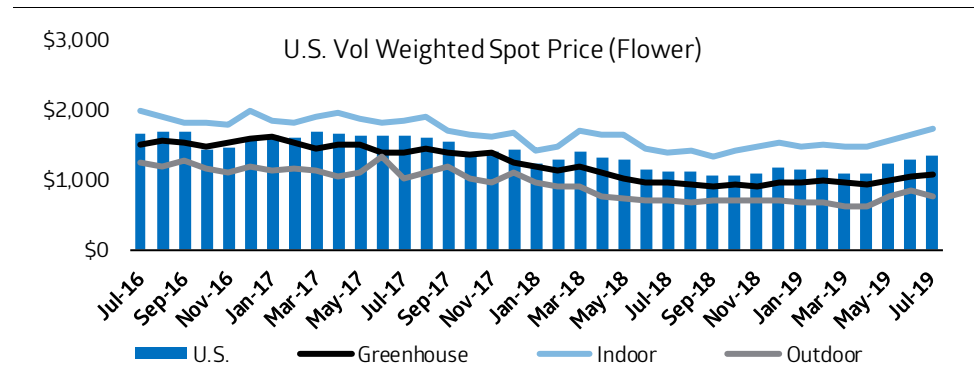
- The FDA announced the launch of its first e-cigarette prevention TV ads educating kids about the dangers of e-cigarette use.
- U.S. Representatives Rosa DeLauro (D-CT) and Kelly Armstrong (R-ND) introduced legislation to prevent online sales of e-cigarettes to minors.
- JUUL's role in youth e-cigarette incidence was the subject of a two-day hearing in the House of Representatives Oversight and Reform committee. Separately, a Florida law firm filed a motion to ban the sale of JUUL across the U.S.

COWEN'S CIGARETTE & CANNABIS CIRCULAR

Welcome to our Cowen Cigarette & Cannabis Circular, an inside look at tobacco and cannabis news that mattered to us over the past week.

U.S. Cannabis Spot Prices: The volume weighted average spot price of cannabis in the U.S. (through legal markets) for the week ending 07/19/2019 was \$1,349 per pound, representing a 17.7% YoY increase. We also note that prices were 7.1 pts higher MoM and 4.3 pts higher WoW. In addition, the spread between indoor and outdoor prices was \$954 per pound, representing a 31.1% YoY increase.

Figure 1 U.S. Flower Spot Prices

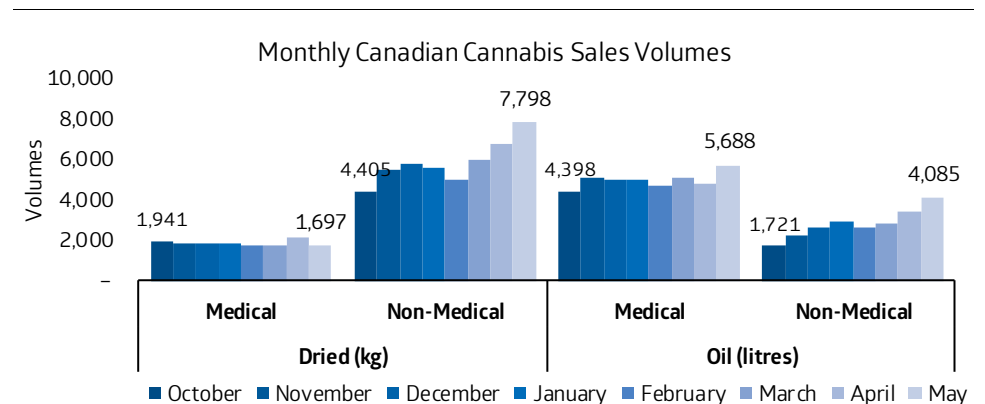


Source: Cannabis Benchmarks, a division of New Leaf Data Services and Cowen and Company

Note: Spot prices are per pound

Chart of the Week: Health Canada announced May dried cannabis volumes increased by 7.0% MoM while cannabis oil volumes increased by 19.2%. Finished inventory held by provincial and territorial distributors and retailers increased 24.0% for dried cannabis, representing 2.8x non-medical sales. By comparison, finished inventory for cannabis oil increased by 11.3%, representing 9.7x non-medical oil. *Source: Health Canada; July 25, 2019.*

Figure 2 Dried Cannabis Volumes Increased 7% MoM while Oil Volumes Increased 19%



Source: Health Canada and Cowen and Company

This report is intended for jhallam@mmjgh.com.au. Unauthorized redistribution of this report is prohibited.

Cannabis

Canada (Quebec). Quebec's Junior Health Minister Lionel Carmant announced that the province will introduce rules to ban the sale of cannabis candies and desserts, including chocolates, ahead of novel form factor introduction later this year. The regulations only target edibles that might appeal to children, while other edibles, such as cannabis-infused butter, will be allowed but will face tougher restrictions. In addition, cannabis skin, hair and nail creams will also not be allowed in Quebec. The new rules will be subject to a 45-day consultation period before they can take effect. *Source: CBC; "No Pot Brownies in Quebec as Government Clamps Down Further on Cannabis"; July 24, 2019.*

United States. House Judiciary Committee Chairman Jerry Nadler (D-NY) and Senator Kamala Harris (D-CA) introduced legislation to decriminalize cannabis at the federal level. The Marijuana Opportunity Reinvestment and Expungement Act, or the 'MORE Act', would remove cannabis from the Controlled Substances Act, allow the states to establish their own policies and expunge past cannabis convictions. The measure would also remove the 280E tax provision and install a 5% federal cannabis tax to set up grants for minorities and low-income communities. Please see our colleague Jaret Seiberg's note [here](#). *Source: CNBC; "Nadler, Harris to Introduce Bill Decriminalizing Pot, Expunge Marijuana Convictions"; July 23, 2019.*

United States. According to a Gallup poll, American adults are nearly as likely to smoke cannabis (12%) as cigarettes (15%). The data, based on past week incidence, also shows that adults between the ages of 18 and 29 are more likely to smoke cannabis (22%) than tobacco (14%). The national poll surveyed 1,525 adults, aged 18 and older. *Source: Gallup; "Marijuana Use Similar to New Lower Rate of Cigarette Smoking"; July 25, 2019.*

United States. The Senate Banking Committee met to discuss legislative fixes on banks being able to offer services to cannabis businesses that comply with state law. Chairman Mike Crapo (R-ID) acknowledged that something needed to be done but he did not commit to support the SAFE Act. Please see our colleague Jaret Seiberg's note [here](#). *Source: Marijuana Moment; "Senate Hearing Represents a Step Toward Providing Marijuana Banking Access"; July 23, 2019.*

United States. A Marist poll found that cannabis legalization has more support than a national \$15 minimum wage and free college tuition. Of the 1,346 U.S. adults surveyed, 63% of respondents said that legalizing cannabis is a "good idea", compared to 32% who expressed opposition. By comparison, we note that 56% of the respondents said a national minimum wage of \$15 is a "good idea" and 53% said free college tuition is a "good idea." *Source: Marijuana Moment; "Marijuana Legalization More Popular than Free College Tuition and \$15 Minimum Wage, Poll Finds"; July 22, 2019.*

United States (New York). New York State Senator Liz Kreuger (D) and Assembly Majority Leader Crystal Peoples-Stokes (D) intend to renew their push for cannabis legalization during the next legislative session. The state officials plan to introduce a fresh bill with some key differences to account for provisions (i.e., decriminalization) that were passed on a stand-alone basis this past year. *Source: amNewYork; "Marijuana Legalization in New York: Lawmakers Vow Renewed Push in 2020"; July 24, 2019.*



United States (California). Authorities in Mendocino destroyed more than 42,000 cannabis plants on farms operating without a permit in the northern California county. Local, state and federal law enforcement officials served 28 search warrants in “Operation Clean Sweep”. No arrests have been made yet, but cases will be submitted to prosecutors. *Source: The Hill; “California Authorities Remove More than 42,000 Marijuana Plants in Probe of Illegal Farms”; July 24, 2019.*

United States (Nevada). Nevada is launching a banking system for the state’s cannabis industry. To address public safety concerns, state officials will permit cannabis businesses to use electronic tokens and chips via a downloadable app that will allow consumers and businesses to transact digitally. The program is expected to launch in July 2020. *Source: Washington Times; “Nevada Officials to Launch Banking System for Marijuana Industry”; July 22, 2019.*

United States (Arkansas). Arkansas True Grass, a cannabis advocacy group, filed a cannabis legalization ballot initiative with Arkansas’ Secretary of State. For the proposal to make it to the 2020 ballot, the group must gather at least 89,000 signatures and be certified by the state’s Board of Election Commissioners. A separate advocacy group in Arkansas is also seeking to legalize cannabis through a 2020 voter referendum. The two groups have differing views on the prospective regulatory framework. We note the state’s medical cannabis program was approved by voters in 2016 and is only now getting off the ground with five operational dispensaries. *Source: Arkansas Democrat Gazette; “Another Proposal Seeks Legal Recreational Use of Marijuana in Arkansas”; July 22, 2019.*

Germany. The German Free Democratic Party (FDP) has submitted a parliamentary inquiry to the federal government regarding its stance on the legality of CBD food products, which are classified as novel foods. The inquiry reflects the group’s concern that the current policy could undermine the market for CBD from irregular seizure of products to enforce the regulation. For Germany, the Federal Office of Consumer Protection and Food Safety stated its opinion that for a CBD product to be legal, it needs to have either authorization as a medicine or as novel food. According to the agency, no CBD product has authorization to be sold as food so far. *Source: Marijuana Business Daily; “German Opposition Party Seeks Government Clarification About CBD in Food”; July 25, 2019.*

Thailand. According to a policy document, developing a medical cannabis industry is one of the top policy priorities for Thailand’s new government. Prime Minister Prayuth Chan-ocha, the former junta leader who heads a civilian government following March elections, is expected to set out the policies for debate in the national assembly. The document stated, “The study and technological development of marijuana, hemp and other medicinal herbs should be sped up for the medical industry to create economic opportunity and income for the people.” As a reminder, Thailand legalized cannabis for medical use and research late last year. *Source: Reuters; “Cannabis Among Top Priorities for New Thai Government”; July 22, 2019.*

July 26, 2019

Spain. Preliminary studies suggest CBD could be a candidate for treating those addicted to cocaine, amphetamine and methamphetamine. Researchers from the University of Valencia and University of Zaragoza point to CBD's ability to block some of the rewarding effects the brain experiences when exposed to certain stimulants, and theorized that the therapeutic benefits associated with CBD may be the result of how the compound interacts with various receptors. The study, published in the journal *Molecules*, acknowledges how limited the current research is and highlights the need for more preclinical and clinical trials. *Source: Marijuana Moment; "Marijuana Compound CBD Shows Promise for Treating Cocaine and Meth Addiction, Study Suggests"; July 23, 2019.*

Aurora Cannabis (ACB). ACB and the UFC, the mixed martial arts organization, announced the launch of a joint clinical research program that will produce multiple studies under the terms of their recently announced partnership. The research will examine the use of hemp-derived CBD as an effective treatment for pain, inflammation, wound-healing, and recovery on MMA athletes. Research data will then be used to drive the development of science-backed, hemp-derived CBD topical products. *Source: Company Reports; July 24, 2019.*

Cronos (CRON) / Heritage Cannabis Holdings (CANN). CANN announced that it has entered into a contract manufacturing agreement with CRON. CANN will provide extract, fill and package vaporizer devices for CRON's Spinach and Peace Naturals brands, utilizing multiple proprietary formulations provided by CRON. The agreement has a two-year term with an option to extend upon agreement by both parties, at an annual potential contract value of ~C\$35 mm. CANN will also be responsible for the costs of cannabis biomass which is estimated to be ~C\$12 mm. *Source: Company Reports; July 25, 2019.*

Tilray Inc. (TLRY). According to CNBC, TLRY has acquired gummy maker Smith & Sinclair to create a line of CBD edibles. Smith & Sinclair is a U.K. based company which infuses alcohol into food products to create boozy twists on sweet treats. The company sells alcoholic gummies and lollipops, edible fragrances and tablets that transform a standard cocktail into a fizzy drink. TLRY will work with the company to create new CBD-infused edibles and distribute them in the U.S. and Canada. *Source: CNBC; "Tilray Acquires Boozy Candy Company Smith & Sinclair to Develop CBD Edibles"; July 25, 2019.*

Imperial Brands (IMB) / Auxly Cannabis Group (XLY). On July 25, IMB made a strategic investment in XLY, a Canadian cannabis LP. IMB will invest C\$123 in Auxly through a convertible debenture with a three year term at an interest rate of 4% per annum. At conversion, IMB would have a 19.9% ownership of XLY at a conversion price of C\$0.81 per share, an 11% premium to XLY's closing share price on July 24 and a 12% premium to the trailing 10-day VWAP. IMB will also have the right to nominate one out of five Directors and one non-voting observer to XLY's Board of Directors. For more information, please see our note [here](#). *Source: Company Reports; July 25, 2019.*

GW Pharmaceuticals (GWPH: Nadeau). GWPH announced that the European Medicines Agency's (EMA) Committee for Medicinal Products for Human Use (CHMP) has adopted a positive opinion recommending marketing authorization of Epidyolex (the European brand for Epidiolex). The opinion comes specifically for use as adjunctive therapy of seizures associated with Lennox-Gastaut syndrome (LGS) or Dravet syndrome, in conjunction with clobazam, for patients 2 years of age and older. The European Commission (EC) is expected to make a final decision on the marketing authorization application in approximately two months. Please see our colleague Phil Nadeau's note [here](#). *Source: Company Reports; July 26, 2019.*

July 26, 2019

CannTrust (CTST). CTST announced that it terminated CEO Peter Aceto with cause based on the investigation into the company's non-compliance with Health Canada regulations and ancillary matters. In addition, the company's Chairman of the Board of Directors Eric Paul resigned at the Board's request. Effective immediately, the Board appointed Special Committee Chairman Robert Marcovitch to the role of interim CEO and he will step down as a member of the Special Committee. Marcovitch was most recently the President and CEO of K2 Sports, an international developer, manufacturer, marketer, and distributor of winter sports equipment. *Source: Company Reports; July 25, 2019.*

Flwr Corporation (FLWR). FLWR announced that it entered into a C\$43.5 mm bought deal financing to partially fund its acquisition of Hologen. FLWR will offer 10.6 mm units at a price of \$4.10 per unit. Each unit will be comprised of one common share and one-half of one purchase warrant which will be exercisable at \$5.00 per share. *Source: Company Reports; July 22, 2019.*

Alimentation Couche-Tard (ATD) / Fire & Flower Holdings (FAF). ATD announced it will invest ~C\$26 mm in FAF. The investment will be in the form of unsecured convertible debentures which would result in a 9.9% ownership interest in FAF upon conversion. In addition, ATD will concurrently receive three series of share purchase warrants, which if exercised in full, would subsequently increase ATD's ownership interest to 50.1% on a fully diluted basis. *Source: Company Reports; July 24, 2019.*

Curaleaf (CURA). The FDA issued a warning letter to CURA for marketing CBD products with unsubstantiated claims to treat cancer, Alzheimer's disease, opioid withdrawal, pain, and pet anxiety. The four CBD products mentioned in the letter are CURA's "CBD Lotion", "CBD Pain-Relief Patch", "CBD Tincture", and "CBD Disposable Vape Pen." The FDA's entire warning letter can be found [here](#). In its response letter, CURA acknowledged it has since performed an extensive review of its website and social media platforms to remove all non-compliant statements. In connection with the FDA letter, CVS Health (covered by Charles Rhyee) said it would pull some CURA products from its shelves only months after the 800-store rollout agreement was announced. *Source: Investor's Business Daily; "CVS to Pull Curaleaf Products from CBD Offerings After FDA Warning; Marijuana Stocks Fall"; July 23, 2019.*

Dixie Brands (DIXI). DIXI announced it has developed a proprietary emulsification technique and ingredient management process which shows marked improvement in uptake in cannabis-infused liquids. The company plans to incorporate the advanced technique in its new product line of flavored and unflavored additives called FUSE. The launch is expected in 4Q18. *Source: Company Reports; July 25, 2019.*

Green Retail. Retail space that belongs to Green Retail, a private Massachusetts-based cannabis company, was vandalized. While the dispensary is not yet operational, Green Retail's CEO Jordan Avery found the rented space vandalized with anti-Semitic language and racist symbolism. The storefront is based in Lynn, a northern suburb of Boston that has granted special permits to cannabis businesses in the municipality. *Source: The Boston Globe; "Lynn Marijuana Company CEO 'Speechless' After Storefront Vandalized with anti-Semitic, Racist Symbolism"; July 24, 2019.*

Tobacco

United States. The FDA announced the launch of its first e-cigarette prevention TV ads educating kids about the dangers of e-cigarette use. These new ads will run on television networks such as TeenNick, CW, ESPN, and MTV, as well as on music streaming sites, social media networks and other teen-focused media channels. The FDA also plans to provide new posters for high schools and educational materials for middle schools across the U.S. as part of "The Real Cost" Youth E-Cigarette Prevention Campaign. *Source: U.S. Food and Drug Administration; July 22, 2019.*

United States. On July 24, U.S. Representatives Rosa DeLauro (D-CT) and Kelly Armstrong (R-ND) introduced the Preventing Online Sale of E-Cigarettes to Children Act to prevent online sales of e-cigarettes to minors. The legislation seeks to ensure age verification at time of product delivery, which is currently required for cigarettes and smokeless tobacco products purchased online. The House bill is a companion bill to S. 1253 introduced in the Senate earlier this year. *Source: Convenience Store News; "NACS Commends Newly Introduced Legislation to Prevent Online E-Cigarette Sales to Minors"; July 25, 2019.*

United States. A new study from the Massachusetts General Hospital's Tobacco Research and Treatment Center found evidence demonstrating that using e-cigarettes daily helps U.S. smokers quit smoking combustible cigarettes. Using data from more than 8,000 adult smokers, the researchers measured how likely a smoker was to quit smoking and remain off combustible cigarettes. They found that smokers who used e-cigarettes every day, compared with e-cigarette non-users, were more likely to quit combustible cigarettes within one year and to stay off them for at least another year. They also found that smokers who used e-cigarettes were no more likely to relapse back to smoking combustible cigarettes than smokers not using e-cigarettes. *Source: Tobacco Reporter; "Vaping Aids Cessation"; July 24, 2019.*

United States (Kentucky). According to local news outlets, Kentucky state Representatives Jerry Miller (R) and Kim Moser (R) proposed a bill to place a 27.5% excise tax on all e-cigarettes. The amount equals the \$1.10 excise tax on a pack of cigarettes. According to Miller, the bill benefits the health of Kentuckians and predicts it would generate \$35 mm a year for the state's General Fund. The bill's effective date is currently not available. *Source: Tobacco Manufacturers Association; July 24, 2019.*

Philippines. Philippines President Rodrigo Duterte signed a bill into law that will raise the excise tax on tobacco products to support the government's health care program. The law will increase the excise tax on cigarettes from P35 to P45 per pack next year. The tax will be raised to P50 per pack in 2021, P55 per pack in 2022 and P60 per pack in 2023. Although previously excluded from excise taxes, heated tobacco products or e-cigarettes will be levied P10 per pack beginning next year and will increase by 5% every year effective January 1, 2021. *Source: The Philippines Star; "Duterte Signs Tobacco Excise Tax Bill into Law"; July 25, 2019.*

Philip Morris (PM). On July 24, PM officially launched the iQos 3 and iQos 3 Multi heated-tobacco products in the UAE. Both products were made available in Dubai Duty Free earlier this year and will now be available from retailers across the country. The UAE is the first state in the GCC to welcome sales of the company's iQos products. *Source: Company Reports; July 24, 2019.*

July 26, 2019

JUUL Labs (JUUL). Schlesinger Law Office in Fort Lauderdale, Florida has filed a motion for a preliminary injunction asking a U.S. federal court in Florida to ban the sale of JUUL electronic cigarettes across the U.S. The firm cites the company's lack of a PMTA from the FDA, although we note that the deadline for PMTA submission is May 2020. In April, Schlesinger filed a class-action lawsuit on behalf of a Sarasota County teenager and her parents against JUUL and MO, which claims in part that the plaintiff is addicted to the nicotine in JUUL e-cigarettes. *Source: Tobacco Reporter; "JUUL Ban Sought"; July 26, 2019.*

JUUL Labs (JUUL). The U.S. House of Representatives Oversight and Reform committee held a two day hearing on "Examining JUUL's Role in the Youth Nicotine Epidemic." During the hearing, witnesses and congressional leaders addressed that JUUL had sponsored several youth programs since its launch and questioned the company's marketing and recruiting methods. Specifically, on July 24, two teenagers testified that a JUUL representative visited the Dwight School in New York City to meet with students, with no teachers present, and told them the company's e-cigarettes were "totally safe." In addition, the committee questioned JUUL co-founder James Monsees about the similarities in branding between JUUL and Marlboro cigarettes to which Monsees indicated that JUUL did not intentionally aim to mimic big tobacco. Monsees focused his testimony on JUUL's proactive stance to support Tobacco 21 regulation, pull flavors off the market and enhance its online verification process as well as its focus on converting adult smokers. In addition, Monsees on several occasions referenced longitudinal studies on the improved efficacy of its products, citing 54% of users in a recent study had quit smoking cigarettes for 30 days after 90 days of using JUUL. *Source: U.S. House of Representatives Hearing; July 24, 2019.*

22nd Century Group (XXII). On July 19, XXII announced that the FDA accepted and filed for substantive scientific review the company's MRTP application for its Very Low Nicotine Content (VLNC) cigarettes. The products will be marketed under the proposed brand name of VLNTM. *Source: Tobacco Manufactures Association; July 19, 2019.*

Facebook (FB: Blackledge). FB announced a new policy restricting sales and limiting content related to alcohol and tobacco products, including e-cigarettes. The policy will prohibit all private sales (including trades, transfers and gifts) of alcohol and tobacco on both the Facebook and Instagram platforms. Brands must restrict any content related to cigarettes and vape products to users 18 and older, meaning influencers are still free to post paid advertisements as long as content is restricted. *Source: CNN, "Facebook and Instagram to Restrict Content Related to Alcohol, Tobacco and E-Cigarettes"; July 24, 2019.*

Appendix

Figure 1 State Medical Cannabis Tracker

KEY	2018 Medical Cannabis Legal		Year Effective	Status	% of Population	Effective Date
	State	Status				
Approved	Alabama	Illegal	NA	Passed Senate	1.5%	
Passed Senate and/or House	Alaska	Legal	1998		0.2%	
Passed Committee	Arizona	Legal	2011		2.2%	
Proposed	Arkansas	Legal	2016		0.9%	
Failed Proposal	California	Legal	1996		12.1%	
	Colorado	Legal	2001		1.7%	
	Connecticut	Legal	2012		1.1%	
	Delaware	Legal	2011		0.3%	
	District of Columbia	Legal	2013		0.2%	
	Florida	Legal	2017		6.4%	
	Georgia	Illegal	NA		3.2%	
	Hawaii	Legal	2000		0.4%	
	Idaho	Illegal	NA		0.5%	
	Illinois	Legal	2014		3.9%	
	Indiana	Illegal	NA		2.0%	
	Iowa	Illegal	NA		1.0%	
	Kansas	Illegal	NA	Proposed	0.9%	
	Kentucky	Illegal	NA	Passed Committee	1.4%	
	Louisiana	Legal	2018		1.4%	
	Maine	Legal	1999		0.4%	
	Maryland	Legal	2014		1.9%	
	Massachusetts	Legal	2013		2.1%	
	Michigan	Legal	2008		3.1%	
	Minnesota	Legal	2014		1.7%	
	Mississippi	Illegal	NA		0.9%	
	Missouri	Legal	2018		1.9%	
	Montana	Legal	2004		0.3%	
	Nebraska	Illegal	NA	Passed Committee	0.6%	
	Nevada	Legal	2001		0.9%	
	New Hampshire	Legal	2013		0.4%	
	New Jersey	Legal	2010		2.8%	
	New Mexico	Legal	2007		0.6%	
	New York	Legal	2014		6.1%	
	North Carolina	Illegal	NA		3.2%	
	North Dakota	Legal	2016		0.2%	
	Ohio	Legal	2016		3.6%	
	Oklahoma	Legal	2018		1.2%	
	Oregon	Legal	1998		1.3%	
	Pennsylvania	Legal	2016		3.9%	
	Rhode Island	Legal	2006		0.3%	
	South Carolina	Illegal	NA	Passed Committee	1.5%	
	South Dakota	Illegal	NA		0.3%	
	Tennessee	Illegal	NA		2.1%	
	Texas	Illegal	NA	Passed House	8.7%	
	Utah	Legal	2018		1.0%	
	Vermont	Legal	2004		0.2%	
	Virginia	Illegal	2018	Approved	2.6%	Jul-19
	Washington	Legal	1998		2.3%	
	West Virginia	Legal	2019		0.6%	
	Wisconsin	Illegal	NA	Failed Proposal	1.8%	
	Wyoming	Illegal	NA	Proposed	0.2%	

Summary Statistics

Medical Cannabis Law Status	# States
As of January 1	35
Passed	1
Proposed	8

Population With Medical Cannabis	
Total	220,581,240
% of U.S.	68%

Source: Cowen & Company

Source: National Conference of State Legislatures and Cowen and Company

Figure 2 Potential Cigarette SET Impact Summary by State

KEY	State	2018 SET (in cents)	New SET (in cents)	Absolute Increase	% Increase	% U.S. Cigarette Volumes (2015)	Proposed Effective Date
Proposed SET Hike	Alabama	67.5	67.5	-	0.0%	2.3%	
Passed SET Hike	Alaska	200	200	-	0.0%	0.2%	
Failed SET Hike	Arizona	200	350	150.0	75.0%	1.2%	July 1, 2019
	Arkansas	165	165	-	0.0%	1.2%	
	California	287	287	-	0.0%	6.7%	
	Colorado	84	259	175.0	208.3%	1.5%	January 1, 2020
	Connecticut	390	390	-	0.0%	0.8%	
	Delaware	210	210	-	0.0%	0.5%	
	District of Columbia	494	494	-	0.0%	0.1%	
	Florida	134	134	-	0.0%	6.5%	
	Georgia	37	187	150.0	405.4%	3.7%	
	Hawaii	320	420	100.0	31.3%	0.3%	July 1, 2019
	Idaho	57	57	-	0.0%	0.5%	
	Illinois	198	198	-	0.0%	3.3%	
	Indiana	100	100	-	0.0%	3.2%	
	Iowa	136	286	150.0	110.3%	1.1%	NA
	Kansas	129	129	-	0.0%	0.9%	
	Kentucky	110	110	-	0.0%	2.9%	
	Louisiana	108	108	-	0.0%	2.7%	
	Maine	200	350	150.0	75.0%	0.5%	November 1, 2019
	Maryland	200	200	-	0.0%	1.4%	
	Massachusetts	351	351	-	0.0%	1.4%	
	Michigan	200	200	-	0.0%	3.4%	
	Minnesota	304	326	22.0	7.2%	1.3%	July 1, 2019
	Mississippi	68	118	50.0	73.5%	1.5%	July 1, 2019
	Missouri	17	17	-	0.0%	3.8%	
	Montana	370	370	-	0.0%	0.3%	
	Nebraska	64	214	150.0	234.4%	0.7%	July 1, 2019
	Nevada	180	180	-	0.0%	1.0%	
	New Hampshire	178	178	-	0.0%	0.9%	
	New Jersey	270	270	-	0.0%	2.0%	
	New Mexico	166	166	-	0.0%	0.4%	
	New York	435	435	-	0.0%	2.2%	
	North Carolina	45	45	-	0.0%	4.2%	
	North Dakota (1)	44	28.0%	NA	NA	0.4%	July 1, 2019
	Ohio	160	160	-	0.0%	4.7%	
	Oklahoma	203	203	-	0.0%	1.9%	
	Oregon	133	333	200.0	150.4%	1.2%	January 1, 2021
	Pennsylvania	260	260	-	0.0%	4.8%	
	Rhode Island	450	450	-	0.0%	0.3%	
	South Carolina	57	157	100.0	175.4%	2.1%	July 1, 2019
	South Dakota	153	153	-	0.0%	0.3%	
	Tennessee	62	169	107.0	172.6%	3.2%	July 1, 2019
	Texas	141	165	24.0	17.0%	7.1%	September 1, 2019
	Utah	170	170	-	0.0%	0.5%	
	Vermont	308	433	125.0	40.6%	0.2%	July 1, 2019
	Virginia	30	30	-	0.0%	4.3%	
	Washington	302.5	377.5	75.0	24.8%	1.0%	
	West Virginia	120	120	-	0.0%	1.4%	
	Wisconsin	252	252	-	0.0%	1.8%	
	Wyoming	60	160	100.0	166.7%	0.3%	July 1, 2019

Potential SET % Change Summary

	2019 SET If All		% Change
	2018 SET	Passed	Jan. 1, 2019 Vs 2018
Simple Average	183.92	218.91	19%
Weighted Average	157.70	183.19	16%

Note: States with multiple bills default to the highest proposed increase and earliest effective date

Note 1: North Dakota's proposed change would tax cigarettes at 28% of wholesale price vs. current regulations of 44 cents per pack.

Sources: TMA.org, NATO and Cowen and Company

This report is intended for jhallam@mmjgh.com.au. Unauthorized redistribution of this report is prohibited.

Figure 3 Countries That Have Passed Plain Packaging Measures

Country	Passed	Implementation Date	Grace Period End	Products Covered
Australia	Dec-11	Dec-12	NA	All tobacco
United Kingdom	Mar-15	Mar-16	May-17	Cigarettes and hand-roll-tobacco
Ireland	Mar-15	Sep-17	Sep-18	All tobacco
France	Nov-15	May-16	Jan-17	Cigarettes and hand-roll-tobacco
Hungary	Aug-16	Jan-22	NA	Cigarettes and hand-roll-tobacco
New Zealand	Sep-16	Mar-18	Jun-18	NA
Norway	Dec-16	Jul-17	Jul-18	All tobacco
Slovenia	Feb-17	2020	NA	All tobacco
Canada	May-18	Nov-19	Feb-20	All tobacco
Thailand	Nov-18	Sep-19	Dec-19	All tobacco
Uruguay	Dec-18	Dec-19	Dec-19	All tobacco
Turkey	Dec-18	Jul-19	NA	All tobacco
Saudi Arabia	Dec-18	May-19	NA	All tobacco
Israel	Jan-19	Jan-20	Jan-20	All tobacco
Belgium	May-19	Jan-20	Dec-20	Cigarettes, hand-roll, pipe tobacco
South Korea	May-19	NA	NA	All tobacco
Singapore	Jul-19	Jul-20	NA	All tobacco

Sources: Tobaccofreekids.org, Company Reports and Cowen and Company

Figure 4 Countries Considering Plain Packaging Measures

Country	Date of Last	
	Action	Last Action Taken
Mauritius	Nov-18	Cabinet approved a proposal to introduce PP
South Africa	Apr-18	Cabinet approved PP bill for public comment
Sri Lanka	Apr-18	Cabinet approved a proposal to introduce PP
Chile	Oct-17	A bill passed the Senate, scheduled for further debate in Agriculture Commission
Jersey	Jul-17	A ministerial decision is signed to draft regulations mandating cigarette PP
Nepal	May-17	Health Minister announces intention to introduce PP by 2017
Georgia	May-17	President signed law to include PP provisions, regulations not yet introduced
Romania	Oct-16	Parliament passed law to implement EU TPD and allow Health Minister to introduce PP laws
Kenya	May-16	Cabinet Secretary for Health announced plan to implement PP
Brazil	May-16	PP bill introduced in the Senate
Sweden	Mar-16	Committee reports that PP would require a change in the Swedish Constitution
Malaysia	Feb-16	Health Minister says country will introduce PP
Finland	Jun-14	Government National Action Plan included PP

Sources: Tobaccofreekids.org, Company Reports and Cowen and Company

This report is intended for jhallam@mmjgh.com.au. Unauthorized redistribution of this report is prohibited.

Figure 5 Current and Proposed Tobacco Age Laws by State

KEY	State	2018 Purchase Age	New Purchase Age	% U.S. Cigarette Volumes (2015)	Proposed Effective Date	% of State Pop. in 21+ Municipalities (as of 1/1/2018)
Proposed Age Hike	Alabama	19		2.3%		
Passed Age Hike	Alaska	18		0.2%		
Failed Age Hike	Arizona	18	21	3.3%	July 1, 2019	0.4%
	Arkansas	18	21	1.4%	May 1, 2019	0.4%
	California	21		6.7%		100.0%
	Colorado	18		1.5%		0.1%
	Connecticut	18	21	0.8%	October 1, 2019	
	Delaware	18	21	0.5%	July 17, 2019	
	District of Columbia	18		0.1%		100.0%
	Florida	18	21	6.5%	October 1, 2019	
	Georgia	18		3.7%		
	Hawaii	21	100	0.3%	NA	100.0%
	Idaho	18		0.5%		
	Illinois	18	21	3.3%	July 1, 2019	26.1%
	Indiana	18		3.2%	NA	
	Iowa	18	21	1.1%	NA	
	Kansas	18		0.9%		30.8%
	Kentucky	18	21	1.4%	NA	
	Louisiana	18	21	2.7%	NA	
	Maine	21		0.5%		5.0%
	Maryland	18	21	1.4%	October 1, 2019	
	Massachusetts	21		1.4%		66.3%
	<i>Boston</i>	21				
	Michigan	18	21	3.4%	180 days after approval	5.3%
	Minnesota	18	21	1.3%	NA	4.7%
	Mississippi	18	21	1.5%	July 1, 2019	0.5%
	Missouri	18		3.8%		37.3%
	<i>Kansas City</i>	21				
	<i>St. Louis</i>	21				
	Montana	18		0.3%		
	Nebraska	18	19	0.7%	January 1, 2020	
	Nevada	18		1.0%		
	New Hampshire	18	21	0.9%	January 1, 2020	
	New Jersey	21		2.0%		100.0%
	New Mexico	18		0.4%		
	New York	18	21	2.2%	120 days after approval	58.8%
	<i>New York City</i>	21				
	North Carolina	18		4.2%		
	North Dakota	18	21	0.4%	NA	
	Ohio	18	21	4.7%	July 18, 2019	17.5%
	<i>Columbus</i>	21				
	Oklahoma	18	21	1.9%	November 1, 2019	
	Oregon	21		1.2%		100.0%
	Pennsylvania	18	21	4.8%	60 days after approval	
	Rhode Island	18	21	0.3%	January 1, 2020	3.4%
	South Carolina	18	21	2.1%	Upon Approval	
	South Dakota	18		0.3%		
	Tennessee	18	21	3.2%	July 1, 2019	
	Texas	18	21	7.1%	September 1, 2019	
	<i>San Antonio</i>	21				
	Utah (1)	19	21	0.5%	July 1, 2021	
	Vermont	18	21	0.2%	September 1, 2019	
	Virginia	18	21	4.3%	July 1, 2019	
	Washington	18	21	1.0%	January 1, 2020	
	West Virginia	18	21	1.4%	NA	
	Wisconsin	18		1.8%		
	Wyoming	18		0.3%		

Summary Statistics

Age 21 Law Status		# States	Population Covered By Age 21 Laws	
In Effect		6	Total	131,674,074
Passed		12	% of U.S.	>50%
Proposed		17	Source: Tobacco 21	

Note: States with multiple bills default to the highest proposed age increase and earliest effective date

Note 1: Utah to phase in increase over 2 year period, raising to age 20 effective July 1, 2020 and to age 21 effective July 1, 2021

Sources: TMA.org, Tobacco21.org and Cowen and Company

Figure 6 Potential Vapor Product SET Impact Summary by State

KEY	State	2018 SET			New SET			Absolute Increase	% Increase	% U.S. Cigarette Volumes (2015)	Proposed Effective Date
		Cents per ml	% of Wholesale	% of Retail	Cents per ml	% of Wholesale	% of Retail				
Proposed SET Hike	Alabama								2.3%		
Passed SET Hike	Alaska					75%			0.2%	January 1, 2021	
Failed SET Hike	Arizona					43%			1.2%	NA	
	Arkansas								1.2%		
	California		65%						6.7%		
	Colorado					62%			1.5%	January 1, 2020	
	Connecticut					50%			0.8%	NA	
	Delaware	5							0.5%		
	District of Columbia			70%					0.1%		
	Florida								6.5%		
	Georgia								3.7%		
	Hawaii					70%			0.3%	July 1, 2019	
	Idaho								0.5%		
	Illinois					36%			0.3%	July 1, 2019	
	Indiana				8				3.2%	July 1, 2019	
	Iowa								1.1%		
	Kansas	5							0.9%		
	Kentucky						28%		2.9%	NA	
	Louisiana	5							2.7%		
	Maine		20%			43%			0.5%	January 1, 2020	
	Maryland								1.4%		
	Massachusetts								1.4%		
	Michigan								3.4%		
	Minnesota*		95%						1.3%		
	Mississippi				5				1.5%	July 1, 2019	
	Missouri								3.8%		
	Montana					50%			0.3%	May 1, 2019	
	Nebraska					65%			0.7%	July 1, 2019	
	Nevada					30%			1.0%	January 1, 2020	
	New Hampshire								0.9%		
	New Jersey	10							2.0%		
	New Mexico								0.4%		
	New York					75%			2.2%	180 days after approval	
	North Carolina	5							4.2%		
	North Dakota					28%			0.4%		
	Ohio								4.7%		
	Oklahoma								1.9%		
	Oregon					65%			1.2%	January 1, 2021	
	Pennsylvania			40%					4.8%		
	Rhode Island								0.3%		
	South Carolina								2.1%		
	South Dakota								0.3%		
	Tennessee								3.2%		
	Texas				5				7.1%	September 1, 2019	
	Utah								0.5%		
	Vermont					92%			0.2%	July 1, 2019	
	Virginia					40%			4.3%	NA	
	Washington						95%		4.3%	NA	
	West Virginia	7.5			15				1.4%	July 1, 2019	
	Wisconsin				5				1.8%	October 1, 2019	
	Wyoming					20%			0.3%	July 1, 2019	

Note: States with multiple bills default to the highest proposed tax and earliest effective date

Sources: TMA.org and Cowen and Company

This report is intended for jhallam@mmjgh.com.au. Unauthorized redistribution of this report is prohibited.

VALUATION METHODOLOGY AND RISKS

Valuation Methodology

Cannabis: Our valuation methodology is primarily based on Relative EV-to-Sales (EV-to-Sales divided by Sales-Growth), followed by EV-to-Sales.

Tobacco:

Our valuation methodology is primarily based on Price-to-Earnings (P/E), followed by Relative Price-to-Earnings (vs. the respective relative index) as well as Enterprise Value to EBITDA (EV/EBITDA). In cases where GAAP net income includes large, non-cash items (e.g., restructuring charges or the resolution of disputed MSA), we may use non-GAAP EPS.

Investment Risks

Cannabis: Cannabis is an emerging industry and is subject to regulatory headwinds. While over 50% of the population is in favor of legalization, only a few states have thus far legalized cannabis for recreational use and the product remains illegal at the federal level. Looking forward, much work and change still needs to occur in order for this industry to realize its full potential.

Risks Pertaining to U.S. Cannabis-Related Companies: If you are considering investing in a U.S. company that is connected to the cannabis industry, be aware that cannabis-related companies may be at risk of federal and/or state criminal prosecution. The Department of Treasury has issued guidance that The Controlled Substances Act ("CSA") makes it illegal under U.S. federal law to manufacture, distribute, or dispense cannabis and cannabis-related products. Many states impose and enforce similar prohibitions. Notwithstanding the federal ban, however, many U.S. states and the District of Columbia have legalized certain cannabis-related activities.

Risks Pertaining to Canadian Cannabis-Related Companies: In Canada, cannabis is an emerging industry and is subject to regulatory headwinds. While both medical and adult-use cannabis is legal in Canada, the category will be subject a number of potential headwinds, including taxes and restrictions on form factors and packaging.

Tobacco: Global tobacco demand is subject to a number of potential headwinds. Most notably, increased awareness of the risks associated with traditional tobacco use, and resultant regulatory actions (e.g., indoor smoking bans, enlarged textual or graphic warnings, and / or plain packaging) can negatively impact smoking incidence and/or per capita consumption, and thus industry volumes. What is more, the industry is also subject to risk from disruptive tax increases, which result in higher prices, and can also depress consumption. Further, while diminished, litigation risk also exists.

ADDENDUM

Analyst Certification

Each author of this research report hereby certifies that (i) the views expressed in the research report accurately reflect his or her personal views about any and all of the subject securities or issuers, and (ii) no part of his or her compensation was, is, or will be related, directly or indirectly, to the specific recommendations or views expressed in this report.

Important Disclosures

Cowen and Company, LLC compensates research analysts for activities and services intended to benefit the firm's investor clients. Individual compensation determinations for research analysts, including the author(s) of this report, are based on a variety of factors, including the overall profitability of the firm and the total revenue derived from all sources, including revenues from investment banking, sales and trading or principal trading revenues. Cowen and Company, LLC does not compensate research analysts based on specific investment banking transactions or specific sales and trading or principal trading revenues.

The Nielsen material contained in this report represent Nielsen's estimates and do not represent facts. Nielsen has neither reviewed nor approved this report and/or any of the statements made herein.

Disclaimer

Our research reports are simultaneously available to all clients on our client website. Research reports are for our clients only. Not all research reports are disseminated, e-mailed or made available to third-party aggregators. Cowen and Company, LLC is not responsible for the redistribution of research by third party aggregators. Selected research reports are available in printed form in addition to an electronic form. All published research reports can be obtained on the firm's client website, <https://cowenlibrary.bluematrix.com/client/library.jsp>.

The information, opinions, estimates and forecasts are as of the date of this report and subject to change without prior notification. We seek to update our research as appropriate, but various regulations may prevent us from doing so. Research reports are published at irregular intervals as appropriate in the analyst's judgement.

Further information on subject securities may be obtained from our offices. This research report is published solely for information purposes, and is not to be construed as an offer to sell or the solicitation of an offer to buy any security in any state where such an offer or solicitation would be illegal. Other than disclosures relating to Cowen and Company, LLC, the information herein is based on sources we believe to be reliable but is not guaranteed by us and does not purport to be a complete statement or summary of the available data. Any opinions expressed herein are statements of our judgment on this date and are subject to change without notice. The opinions and recommendations herein do not take into account individual client circumstances, objectives or needs and are not intended as recommendations of investment strategy. The recipients of this report must make their own independent decisions regarding any securities subject to this research report. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. To the extent that this report discusses any legal proceedings or issues, it has not been prepared to express or intended to express any legal conclusion, opinion or advice. Our salespeople, traders and other professionals may provide oral or written market commentary or trading strategies to our clients that reflect opinions that are contrary to the opinions expressed in our research. Our principal trading area and investing businesses may make investment decisions that are inconsistent with recommendations or views expressed in our research. Cowen and Company, LLC maintains physical, electronic and procedural information barriers to address the flow of information between and among departments within Cowen and Company, LLC in order to prevent and avoid conflicts of interest with respect to analyst recommendations.

For important disclosures regarding the companies that are the subject of this research report, please contact Compliance Department, Cowen and Company, LLC, 599 Lexington Avenue, 20th Floor, New York, NY 10022. In addition, the same important disclosures, with the exception of the valuation methods and risks, are available on the Firm's disclosure website at <https://cowen.bluematrix.com/sellside/Disclosures.action>.

Equity Research Price Targets: Cowen and Company, LLC assigns price targets on all companies covered in equity research unless noted otherwise. The equity research price target for an issuer's stock represents the value that the analyst reasonably expects the stock to reach over a performance period of twelve months. Any price targets in equity securities in this report should be considered in the context of all prior published Cowen and Company, LLC equity research reports (including the disclosures in any such equity report or on the Firm's disclosure website), which may or may not include equity research price targets, as well as developments relating to the issuer, its industry and the financial markets. For equity research price target valuation methodology and risks associated with the achievement of any given equity research price target, please see the analyst's equity research report publishing such targets.

Cowen Cross-Asset Research: Due to the nature of the fixed income market, the issuers or debt securities of the issuers discussed in "Cowen Cross-Asset Research" reports do not assign ratings and price targets and may not be continuously followed. Accordingly, investors must regard such branded reports as providing stand-alone analysis and reflecting the analyst's opinion as of the date of the report and should not expect continuing analysis or additional reports relating to such issuers or debt securities of the issuers.

From time to time "Cowen Cross-Asset Research" analysts provide investment recommendations on securities that are the subject of this report. These recommendations are intended only as of the time and date of publication and only within the parameters specified in each individual report. "Cowen Cross-Asset Research" investment recommendations are made strictly on a case-by-case basis, and no recommendation is provided as part of an overarching rating system or other set of consistently applied benchmarks. The views expressed in "Cross-Asset Research" report may differ from the views offered in the firm's equity research reports prepared for our clients.

Notice to UK Investors: This publication is produced by Cowen and Company, LLC which is regulated in the United States by FINRA. It is to be communicated only to persons of a kind described in Articles 19 and 49 of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005. It must not be further transmitted to any other person without our consent.

Notice to European Union Investors: Individuals producing recommendations are required to obtain certain licenses by the Financial Regulatory Authority (FINRA). You can review the author's current licensing status and history, employment history and, if any, reported regulatory, customer dispute, criminal and other matters via "Brokercheck by FINRA" at <http://brokercheck.finra.org/>. An individual's licensing status with FINRA should not be construed as an endorsement by FINRA. General biographical information is also available for each Research Analyst at www.cowen.com.

Additionally, the complete preceding 12-month recommendations history related to recommendation in this research report is available at <https://cowen.bluematrix.com/sellside/Disclosures.action>

The recommendation contained in this report was produced at July 26, 2019, 14:00 ET. and disseminated at July 26, 2019, 14:00 ET.

Copyright, User Agreement and other general information related to this report

© 2019 Cowen and Company, LLC. All rights reserved. Member NYSE, FINRA and SIPC. This research report is prepared for the exclusive use of Cowen clients and may not be reproduced, displayed, modified, distributed, transmitted or disclosed, in whole or in part, or in any form or manner, to others outside your organization without the express prior written consent of Cowen. Cowen research reports are distributed simultaneously to all clients eligible to receive such research reports. Any unauthorized use or disclosure is

prohibited. Receipt and/or review of this research constitutes your agreement not to reproduce, display, modify, distribute, transmit, or disclose to others outside your organization. All Cowen trademarks displayed in this report are owned by Cowen and may not be used without its prior written consent.

Cowen and Company, LLC. New York 646 562 1010 **Boston** 617 946 3700 **San Francisco** 415 646 7200 **Chicago** 312 577 2240 **Cleveland** 440 331 3531 **Atlanta** 866 544 7009 **Stamford** 646 616 3000 **Washington, D.C.** 202 868 5300 **London** (affiliate) 44 207 071 7500

COWEN AND COMPANY EQUITY RESEARCH RATING DEFINITIONS

Outperform (1): The stock is expected to achieve a total positive return of at least 15% over the next 12 months

Market Perform (2): The stock is expected to have a total return that falls between the parameters of an Outperform and Underperform over the next 12 months

Underperform (3): Stock is expected to achieve a total negative return of at least 10% over the next 12 months

Assumption: The expected total return calculation includes anticipated dividend yield

Cowen and Company Equity Research Rating Distribution

Distribution of Ratings/Investment Banking Services (IB) as of 06/30/19

Rating	Count	Ratings Distribution	Count	IB Services/Past 12 Months
Buy (a)	495	63.38%	114	23.03%
Hold (b)	279	35.72%	14	5.02%
Sell (c)	7	0.90%	0	0.00%

(a) Corresponds to "Outperform" rated stocks as defined in Cowen and Company, LLC's equity research rating definitions. (b) Corresponds to "Market Perform" as defined in Cowen and Company, LLC's equity research ratings definitions. (c) Corresponds to "Underperform" as defined in Cowen and Company, LLC's equity research ratings definitions. Cowen and Company Equity Research Rating Distribution Table does not include any company for which the equity research rating is currently suspended or any debt security followed by Cowen Credit Research and Trading.

Note: "Buy", "Hold" and "Sell" are not terms that Cowen and Company, LLC uses in its ratings system and should not be construed as investment options. Rather, these ratings terms are used illustratively to comply with FINRA regulation.

This report is intended for jhallam@mmjgh.com.au. Unauthorized redistribution of this report is prohibited.

POINTS OF CONTACT

Reaching Cowen

Main U.S. Locations

New York

599 Lexington Avenue
New York, NY 10022
646 562 1010
800 221 5616

Boston

Two International Place
Boston, MA 02110
617 946 3700
800 343 7068

Cleveland

20006 Detroit Road
Suite 100
Rocky River, OH 44116
440 331 3531

San Francisco

One Maritime Plaza, 9th Floor
San Francisco, CA 94111
415 646 7200
800 858 9316

Atlanta

3399 Peachtree Road NE
Suite 417
Atlanta, GA 30326
866 544 7009

Chicago

181 West Madison Street
Suite 3135
Chicago, IL 60602
312 577 2240

Stamford

262 Harbor Drive
Stamford, CT 06902
646 616 3000

Washington, D.C.

2900 K Street, NW
Suite 520
Washington, DC 20007
202 868 5300

International Location

Cowen International Limited

London

1 Snowden Street - 11th Floor
London EC2A 2DQ
United Kingdom
44 20 7071 7500

