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INVESTMENT ASSESSMENT

NORTH AMERICAN VAPE MARKET

An in-depth look at key impacts of the ongoing vape crisis in North America, plus the risks and opportunities for investors.

What Investors Need to Know about the U.S. Vape Crisis

Vaporizer products—for both nicotine and THC—have dominated many headlines across the United States in recent weeks, with vaping being blamed for several deaths and severe illnesses.

While the exact cause is still unclear, the impact is being felt broadly in the cannabis industry, and investors are concerned how it may impact their portfolios.

Their concerns include questions around:

- Which companies are most exposed to the vape market.
- How the crisis impacts the broader cannabis industry.
- The potential outcomes.
- Which companies might benefit.

This report takes a closer look at the vape segment of cannabis and provides a framework to assess the downside risk and upside potential of stocks with significant vape exposure.

While the headlines have been negative, not all of the news is bad for companies involved in this segment—and over the long-term, some businesses may actually benefit from the fallout.

As always, should you have any comments or questions, feel free to reach out to us at **investorintelligence@mjbizdaily.com**.

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Company Exposure

Many companies in the cannabis sector generate revenue from the vape value chain, which includes vape device manufacturing, cartridge manufacturing, cannabis/CBD oil extraction, cartridge filling, device and cartridge distribution, device and cartridge selling, and more.

There are many separate and distinct functions in the chain, and companies can be—and often are—involved in any combination of them.

For this report, we determine the company-specific impact from the vape crisis based on a combination of:

- What part(s) of the chain a company operates in.
- What percentage vape-related products and activities represent in terms of revenue and profits.
- The level of exposure to vape devices and consumables varies from nominal to as much as 80%. Here are our estimates of percentage of revenue from vape products for some of the key publicly traded companies for the segment.

The risk comes not only from current revenues but also from the inclusion of vape-related products or activities in future growth strategies. For example, several Canadian companies have announced plans to enter the market when new cannabis regulations take effect in October 2019.

Cronos is one of the most prominent companies to specifically call out the large growth opportunity of the Canadian vape market. Valens Groworks and MediPharm are also looking to capitalize on the change by leveraging their extensive extraction capabilities.

Company	Exposure	Annual Revenue*	Headquarters Location
Greenlane Holdings	80%	$181 million	Boca Raton, FL
Tilt Holdings	70%	$98 million	Boston, MA
KushCO	69%	$52 million	Cypress, CA
Sland Worldwide	50%	$5.2 million (CAD)	Toronto, ON

* Most recent fiscal year

Source: Company financials

Here are some of the most significant players in the vaporizer and vape accessories market.

TILT HOLDINGS (TILT)

Investor Intelligence estimates that Tilt Holdings generates 70% or more of its current revenue from vaping equipment and oils.

Historically, the company's revenue wasn't so heavily concentrated in these products. However, the acquisition of Jupiter Research, one of the leading vape product companies, in January 2019 changed that. Jupiter posted $77 million of revenue in 2018.

On an earnings conference call in May, Tilt's CEO said that Jupiter sales were at a $150 million run rate. Sell side analyst projections for 2019 revenue for Tilt as a whole, stand at $215 million.

Using those estimates, Jupiter's vape revenues comprise the overwhelming majority of total company revenue for Tilt.

KUSHCO HOLDINGS (KUSH)

KushCo manufactures vaporizers, packaging, papers and supplies, and energy and natural products for the cannabis industry.

According to the company's most recent investor representation, the vape segment accounts for 69% of its revenue and is growing almost 300% year-over-year.

Any lasting change in consumer behavior in response to the vaping crisis (or other catalyst) likely would have a significant impact on KushCo. It's too early to determine if current downward trends in customer spending, as seen in data from Headset on key state with legal cannabis markets (California, Colorado, Nevada and Washington state), is a permanent change in behavior. In fact, some states have seen a slight uptick in sales from the crisis low..

KushCo responded to the recent vape issue head on, outlining its position in a presentation. The company highlighted what it believes are three potential impacts from recent events:

- More consumers will be driven to the legal market because of the lack of quality and safety control in illicit products.
- Cannabis operators will migrate to premium and trusted vendors.
- More vaping regulations at all levels of government will be considered and implemented.

VALENS GROWORKS (VGW)

Valens GroWorks is a leading cannabis extraction company in Canada. It also offers testing and product formulation services. The company's vape revenue exposure is de minimis today but is projected to grow significantly in the future.

Driving that projected growth is the change in Canadian cannabis regulations set to take effect in October 2019. Those regulatory changes essentially legalize cannabis vaping in the country.

Scores of companies have set in motion plans to offer vape products in Canada, and many of those companies don't have extraction ability or efficiency. As a result, they have turned to companies like Valens to produce THC oil for their products.

Any regulatory changes that delay or significantly hamper the Canadian vaping market could negatively impact the company's growth opportunity.

MEDIPHARM LABS

MediPharm is the other major Canada-based extraction company. As a leading extraction company producing cannabis oil, it is positioned to benefit from cannabis 2.0.

Over the past few months, many companies have commented on the Canadian vape opportunity. In its recent investor presentation, MediPharm management stated: "We view concentrates consumed via discrete vaporizers or 'vape pens' as the biggest potential for growth given fast onset time and predictable dosing."

On Thurs., Sept. 19, the company announced it entered into an agreement with Cronos to fill and package vaporizers for Cronos' COVE line of cannabis products.

SLANG WORLDWIDE

Slang distributes a diversified mix of products in the vape, gummy, distillate and pill segments. Even though its product portfolio is diversified, vape likely represents more than 50% of annual revenue.

CRONOS (CRON)

Cronos don't have any meaningful revenue from vape devices or consumables yet, but the company has made multiple strategic investments focused on vape devices and consumables. Cronos has decided to focus on the vape category, instead of edibles and beverages, when Canada cannabis 2.0 regulations go into effect.

In May 2019, Cronos Group established Cronos Device Labs, a global research and development center for vaporizer innovation, to develop next-generation vaporizer products designed specifically for cannabinoid use.

In July 2019, the company signed an agreement with Heritage Cannabis to manufacture, fill and package vaporizer devices for the Canadian adult-use and medical markets. Cronos estimates the contract allows it to produce up to $35 million worth of product.

Cronos also has partnered with multiple third-party producers to use its proprietary formulations for vaping products.

GREENLANE HOLDINGS

Greenlane holds itself out as the leading platform for premium vaporization and lifestyle accessories. It operates in wholesale/B2B, e-commerce, retail and supply & packaging.

In the company's March 20, 2019, S-1 filing, it stated:

"Measured by revenue, vaporizers are our largest product category. During the years ended December 31, 2018 and 2017, the vaporizers and components category, which is comprised of desktops, portables and pens, generated 80.5% and 79.9%, respectively, of our net sales."

Potential Outcomes

It is far too early to determine the long-term affect of the ongoing crisis with any certainty, but potential outcomes range from a full ban of vape product in the United States and Canada to a rapid resolution of the issue that cracks down on the illicit market and pushes more sales to the legal market.

Negative case scenarios already are developing at the state and local levels:

- **Massachusetts banned all vape sales through Jan 25, 2020.**
- The California Department of Health recommended that residents **stop vaping all substances** immediately.
- A **yearlong ban on all cannabis vaping** sales was proposed by a Los Angeles City Council member.

The near-term impact on dispensaries and cannabis retailers could be relatively limited as consumers that reduce or stop vaping can easily transition to other forms of consumption, such as flower or edibles.

Along the continuum of possibilities, there is an unlimited combination of outcomes involving more regulatory scrutiny at various, or all, steps of the vape product manufacturing, distribution and selling chain.

WHO BENEFITS?

There are other parts of the cannabis industry value chain that stand to benefit from the vape crisis. No matter the outcome of this current situation, it is likely there will be increased focus on seed-to-sale tracking (which would benefit technology firms such as Akerna and Helix TCS), tamper-proof packaging (KushCo) and lab testing for devices and/or extracts/oils (Valens GroWorks subsidiary Supra THC Services).

If regulatory focus and crackdowns center on the illicit market, there is a real argument to be made that legal market companies stand to benefit from this crisis as consumers look to trusted and tested sources for their preferred products.

Product Share Shifts from Vape to Flower

Vape had been gaining market share from other forms of cannabis across legal markets, but this multiyear trend reversed strongly in late August with the first report of a vape-related death. Per sales data from Headset, vape share of recreational cannabis sales declined 5.1 percentage points in California and 6.2 percentage points in Colorado.

Most of the vape share (roughly 75-80%) appears to be converting to flower, which has seen its share increase by 3.8% and 5.1% in California and Colorado, respectively. Vape products now make up only 13% of sales in Colorado, the lowest level since May 2018, and 25% of sales in legal California, the lowest levels in two years.

The risk to gross margins for dispensaries is actually rather moot given that flower and vapes have nearly identical margins in California (51.6% and 50.1%, respectively), while flower actually carries much higher gross margins (67%) than vape (53%) in Colorado. The risk will be in having to discount or destroy unsold vape products and get ahead of the customer shift by reordering less vape inventory and more flower inventory—assuming consumer preferences don't revert.

However, there is a risk to the dollar-value of sales, since vape typically costs about 1.5X-3.0X per milligram of THC as flower. If consumers allocate their cannabis budgets by amount of THC, each point of share loss would hit overall sales by roughly 50 bps—so the 6% drop would hit sales by 3%, all else equal. If instead consumers merely spend the same amount and get twice the THC through flower, dispensaries will merely sell more THC.

Nevada and Washington state saw much more modest share shifts, with only a 2% and 1% shift in share, respectively, and both have seen share increase in the last week, implying a bottoming to the vape scare in those states.

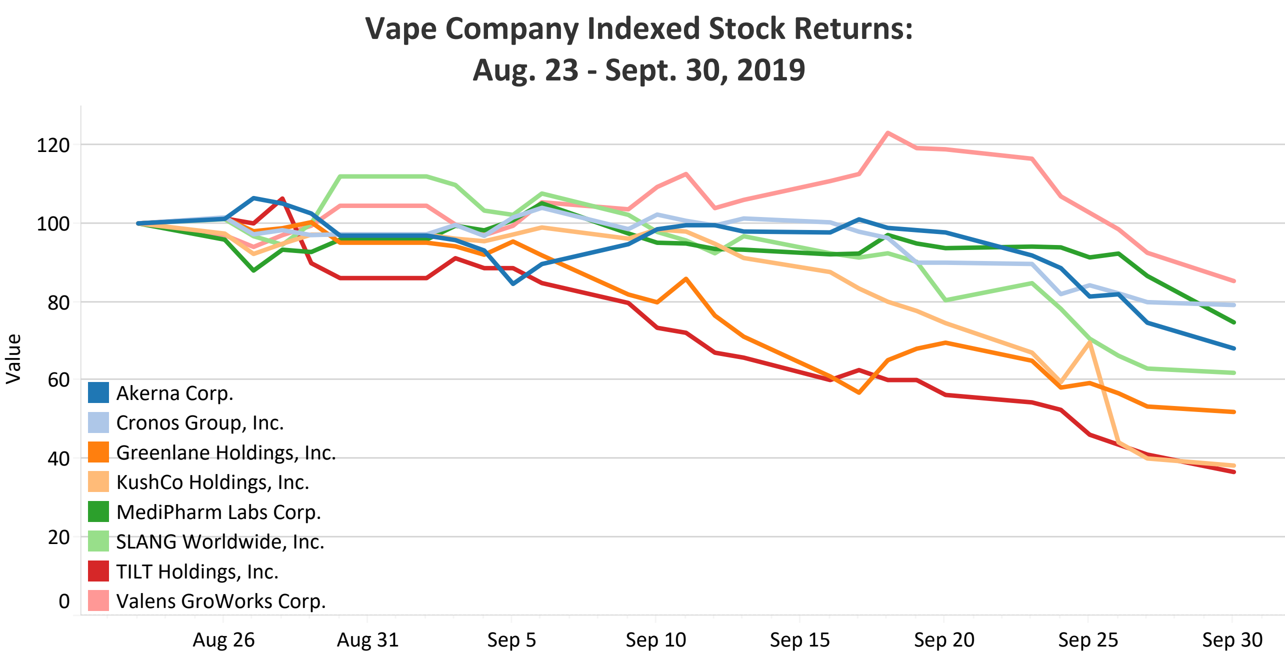
A year long ban on vaping products was recently proposed in Los Angeles; the implementation of such a ban would push the legal share of vape down for all of California—potentially to zero if the rest of the state follows suit. This would be problematic for retailers that would have to dispose of 25% of their inventory, and it is unlikely that 25% of the market would switch to flower. It is more likely that such a ban would just push consumers into the illicit market.

	Aug 19 2019	Aug 19 2019	% Pt Chg
CA Vape Market Share	30.5%	25.4%	-5.1%
CA Flower Market Share	37.9%	41.7%	3.8%
CA Other Product Share	31.6%	32.9%	1.3%
CO Vape Market Share	19.2%	13.0%	-6.2%
CO Flower Market Share	44.7%	49.8%	5.1%
CO Other Product Share	36.1%	37.2%	1.1%

More Negative Catalysts Expected

While the vape-related stocks have fallen significantly since the vape crisis began, declining an average of 56% since August 23, more negative news is likely until the crisis finally passes. As long as vaping is not permanently banned outright everywhere (which we view as unlikely), we expect longer-term value for patient investors that can ride out the storm.

Vape Company Indexed Stock Returns



Note: Stock prices have been indexed to clearly demonstrate percentage change over time. For the index, the Aug. 23, 2019 stock price has been set to 100 for each company.
Source: FactSet, company filings

KushCo was down 25% until Sept. 26 when it **announced a $30 million equity raise for units** with one share and half a warrant for $1.75 each, sending the stock down another 40% to $1.45 per share on Sept. 30. This capital raise should give the company $18 million of net cash, though it has a $20 million bond due on Oct. 30, 2020, with an 18% coupon (for another $3.6 million of interest). Consensus has a $12.4 million EBITDA loss for fiscal 2020, turning positive in the fourth quarter. As long as KushCo **can tap the $50 million line of credit from Monroe Capital**, which the company confirmed it can, then it should be able to refinance the high-rate debt.

The company has stated that an equity raise in the fall had been planned before the vape crisis began, but it could not have come at a worse time for the stock price. Of course, the company selling equity at $1.75 is better than selling at even lower prices—for the company and for very long-term shareholders.

With the warrants and options, KushCo had 90.1 million shares and just issued another 17.1 million shares and warrants for 8.6 million with a strike of $2.25. KushCo will now have 107.3 million shares outstanding with the stock below the warrant strikes.

While the **company reiterated guidance for the year end August 2019** (which would not have been impacted by the vape crisis anyway due to timing), it has yet to provide guidance for fiscal 2020. Estimates for fiscal 2020 and 2021 end August are coming down with the prospect of bans and a consumer shift away from vaping, but so far they have only dropped 4% overall.

Only three of the seven analysts following KushCo have updated their estimates since the vape crisis, cutting revenue estimates by 10%. The overall consensus number will likely continue to drop providing more negative catalysts for the stock in the very near term. The four outstanding analyst estimates merely matching the three early estimates would be another 7% drop.

Potential Upside Greater than Cap on Equity Losses

Because of limited liability, equity holders can lose at most their total investment—100%. Such a scenario would require outright banning of vape or a liquidity crisis such that the equity does not survive to realize the eventual turn in the vape market. One would need more than 100% upside to offset a possible risk that the products are banned.

For KushCo, assuming the three early analysts are correct and the vape crisis doesn't worsen from here, there is substantial value. Using the consensus of the three analysts that have cut estimates of $214 million in revenue for 2020 and $295 million for 2021, if KushCo it gets back to the 1.49X 2020 and 1.09X 2021 sales estimates, it will increase 128% to $3.25 per share.

Share count rises as the stock price rises given the 8.6 million warrants at $2.25, the 14.7 million warrants that strike at $4.89, and 8.1 million at $5.82. KushCo needs to return to 2.0X 2020 and 1.4X 2021 sales to fully convert the warrants, which would also add $135 million of additional cash to the balance sheet.

In the ideal scenario of full normalization, KushCo would perform similarly to Graphic Packaging (NYSE: **GPK**) and Ball Corp. (NYSE: **BLL**), which make consumer packaging. GPK trades at 1.30X forward sales which would yield $2.89 for KSHB, or a 104% return. Ball's higher 2.63X sales estimate would yield $6.13 per KSHB share or a 332% return.

The bull case for the sector comes down to the crisis passing and logical regulations that outlaw illicit vapes and regulate nonpoisonous

Date	8/23/2019	9/30 Consensus	Post-Crisis Cons.	At Aug. Mult	At GPK Mult.	At Ball Mult.	Fully Diluted
KSHB Price	$3.86	$1.48	$1.48	$3.24	$2.89	$6.13	$5.33
Return from current price of $1.42	172%	0%	0%	119%	95%	314%	260%
Shares	90.1	107.3	107.3	115.9	115.9	138.8	138.8
Market Capitalization	$348	$159	$159	$375	$335	$851	$740
Net Debt (Cash)	$10	$(18)	$(18)	$(37)	$(37)	$(153)	$(153)
(Cash) from Warrants & Options	$–	$–	$–	$(19)	$(19)	$(135)	$(135)
Enterprise Value	$357	$141	$141	$319	$278	$563	$452
SALES ESTIMATES END AUGUST							
2019	$148	$148	$148	$148	$148	$148	$148
2020	$239	$230	$214	$214	$214	$214	$214
2021	$328	$317	$295	$295	$295	$295	$295
EV/SALES							
2019	2.42	0.95	0.91	2.15	1.88	3.80	3.05
2020	1.49	0.61	0.63	1.49	1.30	2.63	2.11
2021	1.09	0.44	0.46	1.08	0.94	1.91	1.53

Canada's Cannabis 2.0

Valens GroWorks' shares have largely escaped a negative impact from the vape crisis, down only 14% since Aug. 23. As noted above, Valens' growth strategy is driven by providing vape products with the launch of Canada Cannabis 2.0, which is expected to start in October 2019 with the main effect expected in 2020.

The key question: Will the vape crisis in the United States will have any impact on the timing, magnitude or consumer uptake of legal vapes in Canada with the launch of Cannabis 2.0?

Canada has not said anything altering the rollout of vapes yet, and we are merely speculating on the potential risk here. Consensus estimates for Valens basically have remained unchanged through the crisis, and the multiple has contracted slightly.

It is theoretically possible that Canada could delay or alter the regulations on vapes, and it is possible that Canadian consumers could shift away from vapes to flower as seen in California and Colorado. Such a scenario would cause a reduction in the consensus estimates for Valens and likely stock declines. A 10% hit to estimates and multiple compression to 1.0X sales would yield a 14% decline in the equity to about CA$2.44 per share (US$1.85).

Given that Canada has a thriving illicit market for vapes currently, it is also possible that legal vapes could see a larger than expected uptick in demand as consumers shy away from the illicit market or in government support for the legal industry, either of which would benefit companies like Valens. A 10% rise to estimates and return to 1.45X sales from August would yield a 25% return to the equity to CA$3.56 (US$2.70)

Date	8/23/2019	9/30/2019	At Aug Mult.	10% hit to Est	10% Rise to Est
VGW Price in USD	$2.51	$2.15	$2.52	$1.85	$2.70
Return from current price of $2.15	17%	0%	17%	-14%	25%
Shares	99.8	99.8	99.8	99.8	99.8
Market Capitalization	$251	$215	$252	$185	$269
Net Debt (Cash)	$(66)	$(66)	$(66)	$(66)	$(66)
(Cash) from Warrants & Options	$(8)	$(8)	$(8)	$(8)	$(8)
Enterprise Value	$177	$141	$177	$111	$195
SALES ESTIMATES END AUGUST					
2019	$38	$38	$38	$38	$38
2020	$122	$123	$123	$111	$135
2021	$164	$165	$165	$148	$181
EV/SALES					
2019	4.68	3.66	4.61	2.87	5.08
2020	1.45	1.15	1.44	1.00	1.45
2021	1.08	.85	1.08	.75	1.08