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Vaping & Hardware Suppliers

Cannabis Sector Equity Research



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Dear reader: On Tue 7/18, we launched our cannabis equity research service (see [Sector Launch report](#)). We will publish thematic/macro reports during the first few months, and then follow with equity stock coverage. A full list of our recent reports is shown at the end of this report.

Summary

Key highlights,

- Vape is the 2nd largest segment in US cannabis (close to a quarter of the market), and the category is growing mostly in line with the overall market (although vape outperforms in newer markets).
- Deflation and a shift to all-in-ones (from cartridges) are key trends to monitor, and these pose challenges as well as opportunities for vape part vendors. Brand fragmentation (other than a few notable exceptions) is also a structural issue to keep in mind.
- CCELL (and its leading distributors, like Tilt's Jupiter Research and Greenlane Holdings) remains the key technology in vaping (especially for MSOs), but other hardware manufacturers and distributors have gained share, most notably Advanced Vapor Devices (AVD).
- In fact, we estimate CCELL may have lost as much as half of its share over the past four years (in a growing vape market), from ~80% to ~40%, as operators have migrated to other vendors, competing on quality, reliability, and flavor (and, in some cases, on price too).

Vape Category Trends

Vape sales grew 3% yoy in 3Q23 (as per Headset). Vape is the 2nd largest category in the US, after flower (vape has 24% segment share), and 3rd largest in Canada (15% segment share, as per Hifyre). We estimate total legal cannabis sales in the US in 3Q23 reached \$7.2Bn, at retail, which would imply legal vape sales of \$1.7Bn in 3Q23 (~\$6.8Bn annualized). In the 11 states tracked by Headset (>70% of the overall market), vape sales grew 3.2% in 3Q23, slightly below the overall market pace of +4.4% (those 11 states were flat in 2Q23 and down 0.5% in 1Q23, yoy). \$ sales growth notwithstanding, price deflation is an issue in vape, as is the rise in the disposable segment. All else equal, both trends should make buyers of vape parts (i.e., processors, cannabis companies) more price sensitive. Growth of cannabis vape disposables may also trigger regulatory challenges. *Note: regarding combined market growth in 3Q23 (in the 11 states tracked by Headset), five states posted yoy growth (in order of growth magnitude: MD, MI, FL, MA, and IL), while six declined (in order of drop scale: CA, CO, NV, AZ, WA, OR).*



Vape penetration varies by state, with typically the more matured markets in the mid/high 20% (CA 26%, CO 27%, WA 27%) and “newer” markets at lower rates (MA and MI at 18%, as per Headset). PA is an outlier with 37% vape penetration, as pre-rolls and edibles are not allowed (note: Headset stopped providing data for PA at the end of 2021). Vape has gained share in western states like CO (17% in 1Q20, and now 27%), WA (14% to 27%), and OR (14% to 22), while it has always been high in CA (24% to 26%), we think due to STIIIZY. Oddly, in the case of IL and MI, vape has lost category share; between 1Q20 to 3Q23, vape penetration went from 34% to 26% in IL, and from 27% to 18% in MI (we think deflation partly explains the MI case), all as per Headset.

All-in ones (AIOs) are gaining share from cartridges. In CA, the largest cannabis vape market, all-in-one disposables have gained segment share (>23% of sales in 3Q23 vs. 15% in 3Q22 and 11% on 3Q21), and \$ sales grew 39% yoy in 3Q23 (+92% in 2-year stacked terms). Overall, 3Q23 CA vape sales amounted to \$291Mn in CA (Headset), down 10% yoy, mostly in line with the total CA market (vape is 26% of the market). But while, AIOs grew 39% yoy in 3Q23, cartridges fell 19% (-21% in 2-year stacked terms). A similar trend is seen in other states (except for IL and NV), discussed below in order of vape market size),

- MI (\$149Mn vape sales in 3Q23, +13% yoy): AIOs were 35% of vape sales in 3Q23, with sales up 80% yoy, while cartridges (65%) fell 7% yoy.
- IL (\$129Mn, -1% yoy): AIOs -5% yoy (28% of vape sales); carts +1% (72%).
- CO (\$96Mn, -4%): AIOs +9% (22%); carts -7% (78%).
- WA (\$87Mn, +17%): AIOs +198% (33%); carts -9% (67%).
- MA (\$75Mn, -3%): AIOs +29% (26%); carts -10% (74%).
- AZ (\$74Mn, -5%): AIOs +97% (24%); carts -18% (76%)
- MD (\$63Mn; yoy n/a): AIOs are 21% of vape sales and carts 79%. Comparing 3Q23 (rec + med) with 1Q23 (med only), carts grew +121% and AIOs +294% (all vape was up 144%).
- OR (\$54Mn, +9%): AIOs +264% (10%); carts +1% (90%).
- NV (\$47Mn, -9%): AIOs -16% (64%); carts +10% (36%).

Pricing trends: mostly down. Average vape price per gram fell double digits in all markets for which we have comparable data, with MA (-37%) and MI (-33%) being the worst cases. But prices in other markets also fell (-22% in IL and CO; down mid/high teens in NV, AZ, CA; and down 6-10% in OR and WA). In 2-year stacked terms, prices are down 57% in MI and 54% in MA. All that said, prices remain quite different across states. At the top are IL (\$66 per equivalent gram), MD (\$54), and MA/NV (\$49). AZ, CA, and CO are in the low/mid 30s. The very lowest prices are in MI at \$15 (WA \$20; OR \$23). Note: The price data here is in total (i.e., combined AIOs and cartridges).

Hard to distinguish true national brands. Licensing is still a new concept, and MSO penetration varies in the states discussed here. Moreover, outside the top 2-3 brands in each state, the vape



segment is rather fragmented (as is the case in other formats). Most brands are local (per state); the exceptions would be STIIIZY and Select, but more based on the number of states where they are present than based on overall penetration. True, this could change with interstate trade, some day. Brief state level highlights re brands,

- House brand penetration (brand owned by the store owner) in vape varies widely, with 29-32% share in MA/MD, 24% in AZ, and 17% in MI. But in most other states, house brand share is in the low single digits (CA 1%, 2% in OR/WA, 4% in CO).
- Market concentration also varies. The top 5 brands have a combined 44-47% share in CA, AZ, and WA; 30-40% in MI, MD, OR, and NV; 26-27% in MA and CO. But the combined share of the top two brands also falls in a wide range, and few brands (other than STIIIZY and Select) have sizeable market positions in more than one state.
- Top 1-2: In CA, STIIIZY has 24% vape share (Raw Garden is #2 with 6.6%). In AZ, STIIIZY leads with 16% (Timeless 8.6%). In WA, Mfused has 15% (MicroBar 11.2%). In NV, STIIIZY has 12.6% (Select 8.1%). In OR, Buddies has 11.9% (Select 8.7%). In MD, the vape leader (Hellavated) only has 8.6% share (#2 AiroPro 7.6%; Select #3 7.5%). In MA, Fernway leads with 7.8% (#2 Rhythm 6%). In MI, Mitten has 7.5% and Drip 7.4%. In CO, Eureka! leads with 6.7% share (#2 Spherex 5.5%). In short, most these leading brands are local.
- Of the 9 states for which we have this type of data, few companies have more than 1% segment share in more than one state. Of a total 63 brands reviewed in these nine states, only 12 operated in more than one state: Select in 6; STIIIZY in 4; Rhythm and AiroPro in 3; the other eight companies only show up in two states.

The Parts Suppliers

For the purposes of this section, we divide vape parts suppliers into three groups: the CCELL distributors (TILT's Jupiter Research unit; Greenlane Holdings; 3Win Corp; CannaBrand), Advanced Vapor Devices, and ALD (supplier to industry leader STIIIZY). We recognize there are other suppliers, such as Greentank, Blinc, PAX, and others (in this group we also discuss Ispire Technology [ISPR/NC], a vape parts supplier headquartered in China, recently listed in NASDAQ).

A \$700Mn US market opportunity for vape parts suppliers. Before in this report, we estimated total annual cannabis vape sales in the US are at a run rate of \$6.8Bn. If we assume parts suppliers take about 10% of that (the balance would be retailer and producer/processor margin, plus the cannabis oil and other inputs that go inside vape products), then the combined market for the vape parts distributors (CCELL distributors, AVD, ALD, and others) would be about \$700Mn. The global market opportunity is even larger. Smoore International (owner of CCELL) estimates sales of vaping devices for "special purposes" (mostly cannabis), globally, increased from \$375Mn to \$1.2Bn in 2022 (taking ex-factory prices), with sales doubling between 2020 (\$574Mn) and 2022. *Note: Our*



\$700Mn market size estimate for vape parts does not account for Delta 8, other hemp derivatives, and the grey market.

We estimate the market for vape parts suppliers has more than doubled over the past four years. Based on data from 11 states, we calculate vape retail sales more than doubled from \$0.5Bn in 1Q20 to \$1.2Bn by 3Q23 (taking retail prices). But this is based only on 11 states (some, rather matured). In fact, with total legal sales (based on official state data and Headset estimates) having grown from \$3.5Bn in 1Q20 to \$7.2Bn in 3Q23 (up 2.1x), we believe the actual growth in vape was more than 2x during that time. On average, vape penetration went from 21% to 24% during that time in the 11 states for which we have scanner data. So, legal vape growth could have been >2.5x.

Market share trends among vape parts suppliers. Although there is no exact data available, we understand CCELL distributors have lost share to AVD, ALD, and other smaller suppliers; some estimates put the CCELL share falling to ~40% from >80% over the last four years (this, on our definition of the vape parts market). While CCELL was first to market with a ceramic heating component, others caught up over time (partly on lower prices, improved product quality, and consistency of supply) and took share from the CCELL distributors (for context, we estimate vape parts for cartridges range in price from \$1.00-2.50, and disposables from \$2.50-4.00, on average). Some may argue the switch away from CCELL has been mostly among the smaller and mid-size operators, but the reported \$ sales data also implies MSOs have diversified away from CCELL (we understand companies like AVD have benefitted).

The data from public companies also corroborates the notion of CCELL share loss. The two largest CCELL distributors in the US are Jupiter Research and Greenlane Holdings, and their part sales did not double in the past four years (as the overall vape market more than doubled). Indeed, based on public data, we see sales at Jupiter were mostly stable between 2020 and 2022, from \$120Mn to \$126Mn, and fell in 1H23 (-13% yoy), all this at a time the vape market more than doubled (and MSOs grew above the market average pace partly due to consolidation). KushCo became part of Greenlane Holdings, so we have less comparable data for them, but we estimate their performance lagged Jupiter's (Greenlane Holdings vape parts sales are at annual run rate of \$52Mn now). Still, CCELL distributors say Smoore has the resources and R&D prowess to stem the share erosion (and even regain), as it innovates and manages margins throughout the supply chain. If CCELL now has ~40% share, the 60% balance would be held by a host of companies (most of which are private), including AVD, ALD, and others, including Ispire Technology (the latter disclosed cannabis vape parts sales doubled in the fiscal year ending June'23 to \$40Mn).

Smoore Holdings and its CCELL Unit

About Smoore. China-based Smoore International Holdings Limited is the world's largest supplier of parts for vaping products (nicotine, special purpose, and others), offering a host of "atomization technology solutions". Smoore generated total sales of 5.1Bn RMB in 1H23 (down 9% yoy) and 12.1Bn RMB in CY22 (\$1.7Bn). The company estimates that the total global market for these products amounted to \$8.8Bn in 2022 (of which \$1.2Bn were for special purposes – i.e., cannabis), taking ex-factory prices, and Smoore accounted for 17% of the combined total market in 2022.



Smooore claims it leads the industry, with a strong balance sheet, advanced R&D resources, strong production capability, and reliable quality control system. *Note: Smooore is ~15x the size of recently listed Ispire Technology (another vaping products company based in China, also selling vape parts for cannabis), which disclosed revenues of \$116Mn for the year ended 6/30/23 (including \$40Mn of cannabis vaping products).*

- Smooore’s products for its corporate client business (88% of total sales) includes electronic vaping products for nicotine delivery (closed system vaping devices, vaping components); heat-not-burn devices and components for nicotine delivery; atomization vaping products for special purpose (this is the piece aimed to the cannabis industry, via Smooore’s CCELL division); and inhalation therapy.
- Smooore does not split sales by product line, but we understand the bulk of revenues still comes from nicotine delivery. The company sells these parts and components directly to manufacturers in some countries (especially to the larger tobacco companies), and it also relies on distributors in other markets. In the case of cannabis in the US it has mostly relied on distributors.
- *Note: Smooore’s products for the retail client-oriented business (12% of sales) include self-branded open system vaping devices.*

On Smooore’s CCELL business unit. According to management, the CCELL division has become one of the world’s largest vaporizer suppliers to the cannabis industry since its establishment in 2016. CCELL “revolutionized the industry by introducing the world’s first ceramic heating component and owns multiple independent research institutes and state-of-the-art production facilities”. The ceramic heating element in a CCELL cartridge replaces traditional cotton-wick heating technology that is commonly found in nicotine e-liquid vaping cartridges. The CCELL 510-threaded cartridge lineup is powered by CCELL’s patented ceramic heating elements, according to management. Since 2016, CCELL’s “revolutionary ceramic heating core set the industry standard for safe, flavorful, and innovative cannabis oil vaping technology”. The mix of scale, resources (balance sheet, staff, R&D, facilities, supply chain), and continued innovation, have enabled CCELL to “successfully upgrade the industry standard of atomization technology while others try to follow”. CCELL lists four US distributors in its corporate website: 3WIN Corp, Canna Brand Solutions, Greenlane Holdings, and Jupiter Research. In Canada, CCELL works directly with some accounts, and via its main distributor there, Hamilton Devices.

Smooore (and CCELL) is committed to product innovation across the board. Smooore doubled its total R&D budget in 2022 (to 11% of sales vs. 5% the year before), allocating 14% to “vaping products for special purpose” (74% of R&D went to electronic nicotine delivery systems). As per its filings, in respect of vaping products for special purpose, the Group has further improved the product matrix and will enter more segment markets in the future to successively launch new products for a variety of agents, further increasing the market share in such field. In the interim, 2023 report, it said, in atomization products for special purpose, it will “systematically promote more innovative products to the market so as to further enhance competitiveness in this area”. It also said, “relying on the leading technical reserves of the Group in such field, the accurate insight



of end users' needs, and the expansion of overseas sales channels", it is "confident in further increase of market share in such field and contribute more revenue to the Group.

All this said, Smoore has toned down its growth expectations for the special purpose market. In its 2021 annual report (filed in 1Q22), Smoore had projected global sales for "vaping devices for special purpose" of \$7.8Bn by 2026 (from \$574Mn in 2020 and \$1.1Bn in 2021), but then it significantly reduced this estimate in the 2022 annual report to \$2.4Bn. Notably, in the 2021 annual report it had projected segment yoy growth in 2022 of 59%, but then in the 2022 report it said segment growth was only 11%. In particular, the company will need to adapt to deflation and margin compression in the vape parts market.

The Four CCELL Distributors

We estimate Jupiter has 40-50% share of the CCELL segment in the US, Greenlane has 25-30% (including its recent commission agreement with CCELL), 3WIN Corp ~15%, and CannaBrand Solutions the balance. We understand that for the most part this share split has been stable over time, as all four distributors have been impacted in similar ways by new offerings outside CCELL.

Jupiter Research: The largest of the four CCELL distributors (it reported 2Q23 sales of \$29Mn, more than 2x the 2nd CCELL distributor), Jupiter Research is fully owned by TILT Holdings. The company sells inhalation hardware in 39 states and 15 countries; in total, it supplies more than 1,000 brands across the world (the products are used in CBD, med, and rec cannabis). As per its investor deck, Jupiter supplies over 15 major public and private MSOs (we understand key customers include MSOs such as Curaleaf, Verano, and TerrAscend), and five large LPs in Canada. Management says its business scale, reputation, and long-standing relationships create a durable moat. The Curaleaf director of purchasing and procurement is quoted as saying, "Jupiter is a valued partner, providing excellent service, quality, and innovation. They continue to help us achieve an aggressive growth strategy while bringing a consistent experience to our patients and customers". With annualized sales of ~\$120Mn (\$29Mn in 2Q23), we calculate Jupiter has about 20% of the overall US cannabis vape market (which we estimate at \$700Mn. We derive this based on our assumption that Jupiter has 50% share among CCELL distributors, and CCELL overall has ~40% of the cannabis vape parts market. Note: *Besides Jupiter (a ~20% gross margin business, according to management), TILT owns a plant touching cannabis business in the US, with vertical operations (seed to sale) in MA, and growth in OH and PA (with own brands and licensing deals). Management sees significant opportunity for revenue synergies between its plant touching business and Jupiter. In fact, it has helped brand partners of Jupiter to scale up in states where TILT owns cannabis operations (MA, OH, and PA).*

Greenlane Holdings: The company acquired KushCo Holdings on 8/31/21, which was at the time (and still is) the 2nd largest distributor of CCELL hardware in the US. Greenlane disclosed \$13.6Mn in sales for its "Industrial" segment in 2Q23, which is mostly comprised by the distribution of CCELL products. The Industrial division accounted for 70% of Greenlane sales and 60% of gross profits in 2Q23. We understand key accounts include Green Thumb, Trulieve, AYR, and Jetty Extracts. As per the company's filings, Greenlane manages its business in two different, but complementary,



business segments. The first is the Consumer Goods segment, which focuses on serving consumers across wholesale, retail, and e-commerce operations—offering both its Greenlane Brands, as well as ancillary products and accessories (cannabis paraphernalia, including bongs, spoors, bubblers), from select leading third-party brands, such as Storz and Bickel, Greenco Science, PAX, Cookies and more. The Industrial Goods segment focuses on serving Cannabis Operators by “providing ancillary products essential to their daily operations and growth, such as packaging and vaporization solutions (including CCELL branded products as well its own Greenlane Brand Pollen Gear)”. To reduce the working capital load, in April 2023 Greenlane agreed to have CCELL take over part of its CCELL distribution business and started to work on a commission basis). *Note: While too early to predict, given the competitive as well as market structural challenges, we believe both, CCELL and its distributors will need to find new creative solutions to adapt.*

3WIN Corp: The company is the 3rd largest CCELL distributor in the US (“authorized wholesale distributor of CCELL vape products”). As per its website, the company offers brands, research labs and extraction facilities, and has the inventory and customization services to help customers build and expand their brands. It boasts a fully stocked inventory of CCELL hardware and customization services, including in-house laser branding and customized packaging. Located in Tempe, AZ, 3WIN Corp ships products to its clients worldwide. The company sells CCELL cartridges, disposables, batteries, and pod systems. We understand Cresco is a key account; it also supplies INSA.

CannaBrand. The company operates mostly in the US northwest. We estimate it accounts for no more than 5% of CCELL sales in the US.

Advanced Vapor Devices

Set up in 2018, this private US company (with the bulk of its supply chain in China) has become a leading direct supplier of parts to vape manufacturers. In company statements and on their website, AVD states that they partner with over 400 cannabis companies across the US and Canada, including: Trulieve, Jeeter, and Jetty in the US; and SNDL, BZAM, and Medipharm in Canada (we note Greenlane also supplies Trulieve and Jetty), amongst many others. Noteworthy, ADV recently partnered with Curaleaf for the launch of the Select BRIQ (an innovative 2g all-in-one device developed in partnership). According to Curaleaf’s CEO Matt Darin on X (formerly Twitter), this has been the most successful product launch in the history of Curaleaf. We estimate AVD to be the largest non-CCELL supplier in \$ sales; it has narrowed the \$ sales gap with the CCELL group in the past few years. AVD is private so there is no financial data publicly available – that said, we estimate the company could account for anywhere from a third to as much as half of the non CCELL market in hardware. The company has been able to gain share over time, by delivering consistently reliable products exclusively designed for cannabis extracts (according to company statements). AVD does not supply the ecig industry, focusing only on cannabis, and the company sees this as a key differentiator to peers like CCELL, ALD, and Ispire. AVD says it is one of the few non-CCELL vendors able to handle large scale orders. AVD actively promotes its new products in social media platforms, trade shows, and conferences. In their website and marketing, AVD says the following,



- “A leading vertically integrated manufacturer and distributor of cannabis vaporizer technology, recognized for best-in-class hardware designed exclusively for the cannabis extract industry”.
- “Decades of experience working with the cannabis plant informs AVD’s personalized solutions for their client partners based on a deep understanding of the nuanced interplay between extraction methods, formulation, absorption, heating, and vaporization delivery”.
- “Oil-touching parts are non-toxic, and AVD cartridges are constructed with the highest quality and safest materials available to comply with stringent heavy-metal regulations. AVD controls its entire supply chain and is the partner of choice for leading oil brands, known for producing products that do not easily leak or break”.
- More recently, the company developed “AVD No-Burn Technology”, which claims a “superior cartridge and battery technology, specifically designed for cannabis oils: vaping hardware that heats at the correct temperature, retains all of the extracts’ authentic flavors, and is consistently reliable and meets or exceeds safety standards”.

ALD Vapor

ALD is the vape parts supplier to STIIIZY, the market leader in California (24% vape share), part of the Shryne Group (seed to sale operator, with agreements now in other states too).

ALD Group Limited, founded in 2009 and headquartered in Shenzhen, is a high-tech enterprise specializing and leading in electronic atomization technology research and applications. ALD's business covers ENDS (Electronic Nicotine Delivery Systems). It boasts an R&D team of more than 200 senior engineers and are equipped with the basic research institute and high-end labs, working with top-level universities and research institutes, positioning ourselves as a leader of the field in technical and product development. ALD claims extensive achievements in electronic atomizing. By first achieving automatic production of ceramic-based thick-film heaters, its research covers a wide range of materials now. The company entered the cannabis vape parts business in 2017 via an agreement with Shryne.

Set up in 2017, Shryne Group is the largest seed to sale operator in California (in \$ sales), with 29 stores (and 19 in development), cultivation (Lompoc, Los Angeles, Oakland), manufacturing, and distribution. The company has also entered other states (mostly via licensing). The STIIIZY brand has now branched out from vape to other formats (the stores operate under the STIIIZY banner). ALD entered the cannabis vape parts business by supplying parts to STIIIZY (which sells a close pod system, not unlike Juul in nicotine delivery), when Shryne launched its STIIIZY vape battery and OG pod line (“which fundamentally altered the game”, according to management). Now, STIIIZY is the top leading THC delivery system available on the cannabis market. Besides the standard battery, STIIIZY also sells the BIIIG battery (longer lasting) and LIIL (disposable), all of which are supplied by Shryne.



Ispire Technology

The company is engaged in the R&D, design, commercialization, sales, marketing and distribution of branded e-cigarettes and cannabis vaping products. It generated sales of \$116Mn for the FY ending June 2023 (65% ecigs, 35% cannabis vaping). The cannabis vape line was only introduced in Dec 2020 and sales doubled to \$40Mn for the year ending June 2023 (with gross margins of 22.9% vs. 13.5% the prior year). Management expects the total global cannabis vape market to represent \$14Bn in sales by 2025 (taking retail prices for finished products).

- Ispire Technology sells its tobacco products worldwide (in 30 countries, mainly in Europe and Asia Pacific, via 150 distributors) except for the People’s Republic of China, the United States, and Russia. The tobacco products are marketed under the Aspire brand name and are sold primarily through its distribution network.
- The company sell its cannabis vaping hardware only in the United States (AIOs, cartridges, batteries, dab devices), and recently began marketing activities in Canada and Europe (all its cannabis products are only vaping hardware). The company’s cannabis products are marketed under the Ispire brand name, primarily on an ODM basis to other cannabis vapor companies. ODM generally involves the design and customization of core products to meet each brand’s unique image and needs, and Ispire products are sold by the company’s customers under their own brand names although they may also include the Ispire brand name on the products. Ispire supplies companies such as Eureka Vapor, Evergreen Extracts, VapeWellness, 710 Pipes, CaliLove & Blaze, and Old Glory.

On Technology, Innovation, and Patent Disputes

On CCELL’s ceramic heating technology, as per company management (including its Calyx Labs unit). The ceramic heating technology used by CCELL allows thick cannabis oils to be vaporized into dense and flavorful clouds without burning or leaking. The CCELL trademark looks to be viewed within the cannabis industry in the same way Intel is viewed by the computer industry. The CCELL logo on vaping devices is “a promise that the device contains cutting edge technology and is backed by the best research and development in the world”.

- The oil permeability of CCELL’s ceramic core is the result of numerous nano-scale pores on the ceramic heating element, resulting in a greater permeability rate than competing products. Even the thickest oils can be quickly absorbed, stably stored, and atomized without any waste. All of the CCELL 510-threaded carts use the same basic construction. The main parts of a CCELL cart are the mouthpiece, window, center post, ceramic core, and the 510-base. The “real magic is made in the ceramic core (a.k.a. The atomizer) where your oils are delicately and evenly vaporized”.
- The medical-grade 316L stainless steel used in the center post and base is widely regarded as one of the most corrosion-resistant metals on the planet. This type of steel is common in medical equipment and other industries where health and safety are of the utmost priority. Your company can also choose between glass windows and high-quality



temperature-proof polymer. Mouthpiece customization also lets companies create custom carts that fit their brand's aesthetic guidelines.

- Regarding the cartridge battery, management says “one of the coolest things about 510-threaded carts is their universality. A CCELL cart can be used with any 510-battery, but management believes they work best with CCELL batteries. There should be no surprises when consumers use a CCELL combo, and they can expect high-quality vapor production straight out of the box.
- CCELL has always pushed the battery game to new levels. A few years ago they released their popular PALM and SILO batteries, with 2022 seeing the introduction of the M3 Plus and the Rizo battery. These new batteries both have a variable temperature option which is “fantastic for new live resin concentrates that have been taking the market by storm. These thicker resins benefit from a slightly higher heat setting and the Rizo and M3 Plus deliver”, as per CCELL management.
- In order of price, the company offers three cartridges platform: TH2, M6T, and ZICO. Recent product innovation, as per the CCELL company website,
 - July 2023: CCELL announces Launch of E-Commerce Platform, 7/10 Sale, and Unveils New Cutting-Edge Vape Battery: Sandwave.
 - Nov 2022: launched its new technology and products, including CCELL EVO, Rizo, and Palm Pro.
 - Nov 2022: CCELL Launches New Heating Technology, CCELL EVO.
 - May 2022: CCELL Launches Rizo, a New Interactive Vaporizer Battery.
 - May 2022: CCELL Promotes New Bottom Fill Cartridge ZICO.

Patent dispute... CCELL filed a “Vape Intellectual Property Infringements Complaint” in October 2021 with the US International Trade Commission. The company argued that “CCELL is an innovator and pioneer in vaporizing technology with expertise in designing and manufacturing premium vape hardware. CCELL’s vape cartridges, produced in GMP and ISO-certified facilities, have contributed to the growth of the market. In recent years, some vape brands, importers and retailers in the U.S. have distributed products that infringe upon CCELL’s patent and trademark rights. To defend its intellectual property, CCELL has taken legal action that seeks to stop the import and sales of infringing products into the U.S. market. CCELL is committed to pushing the boundaries of vaporizing technology and helping the industry thrive in a sustainable way. We hold consumers at heart, and we are proud to continue providing a safe and enjoyable experience. By filing the complaint with the ITC, we aim at protecting the industry, the market and the consumers from low-quality infringing products that do not meet CCELL's exacting standards.”

... and resolution. In late April 2023, the US International Trade Commission ruled in favor of AVD. As per a press release issued by AVD (hence the tone here), the Commission affirmed an administrative law judge's February 2023 finding of “no violation of CCELL’s outmoded e-cigarette



patents". Under the ruling, "there is no violation by AVD's cartridges, components, or products". As per AVD Co-Founder and CEO Alex Kwon, "AVD's disruptive technology, reliability, and exceptional service will enable us to safeguard our rights and innovate for our clients' benefit".

What is next. The fact that CCELL has been able to maintain most of its MSO client base (although if we go by \$ sales growth of MSOs vs. CCELL distributors like Jupiter and Greenlane, its slice of the MSO business has declined), speaks well about the quality, reliability, cost competitiveness, and customer service, offered by the CCELL ecosystem. Still, we believe that CCELL and its distributors will need to adapt (cost wise, price and margin wise, and in terms of capital commitment) to compete. By the same token, vape market trends (larger containers, such as 1-2ml vs. the more traditional 0.5ml), the rise in AIOs, new segments (live resin and rosin), create challenges and opportunities. Given its scale, B/S, and R&D budget, we would assume Smoore/CCELL will be able to respond and start regaining market share.



Links to our recent publications:

- Roadmap to Dec 2024 (July 18)
- 2Q23 US MSO Trends (July 21)
- Canadian LP Dynamics (Jul 25)
- On the Rescheduling Question (July 28)
- Canada Pre-Rolls: Deep Dive (Aug 7)
- Med Sales Impact from Rec Start (Aug 16)
- Canada Flower Prices and Share Trends (Aug 28)
- HHS Rescheduling Recommendation (Aug 31)
- Canada's Leading Exporters (9/5)
- Maryland Wholesale Share Trends (9/13)
- VidaCann Deal and FL Update (9/15)
- A Detailed SAFE Roadmap (9/19)
- MSO Debt Leverage and Potential Equity Raises (9/21)
- California Retailer Trends (10/3)
- 3Q23 Canada LP and Market Update (10/6)

Links to Recent Zoom Panels (that Z&A joined):

- Benzinga Panel on Cannabis Rescheduling (9/14)
- Benzinga Chicago Panel on Institutional Flows (9/27)



Publicly listed stocks discussed in this report:

Name	US	
	Ticker	Rating
4Front Ventures	FFNTF	Not rated
Acreage Holdings	ACRDF	Not rated
Ascend Wellness	AAWH	Not rated
AYR Wellness	AYRWF	Not rated
Columbia Care	CCHWF	Not rated
Cresco Labs	CRLBF	Not rated
Curaleaf Holdings	CURLF	Not rated
Greenlane Holdings	GNLN	Not rated
Green Thumb Industries	GTBIF	Not rated
Ispire Technology	ISPR	Not rated
Jushi Holdings	JUSHF	Not rated
MariMed Inc	MRMD	Not rated
Planet 13 Holdings	PLNHF	Not rated
Schwazze	SHWZ	Not rated
StateHouse Holdings Inc	STHZF	Not rated
TerrAscend Corp.	TSNDF	Not rated
TILT Holdings, Inc.	TLLTF	Not rated
Trulieve Cannabis	TCNNF	Not rated
Verano Holdings	VRNOF	Not rated
Vext Science, Inc.	VEXTF	Not rated



Appendix I: Vape Market Data



Exhibit 1: Vape Sales Trends

\$Mn	1Q20	2Q20	3Q20	4Q20	CY20	1Q21	2Q21	3Q21	4Q21	CY21	1Q22	2Q22	3Q22	4Q22	CY22	1Q23	2Q23	3Q23
Vape Sales	514	596	690	700	2,499	801	931	1,052	1,100	3,717	1,068	1,131	1,145	1,143	4,487	1,108	1,136	1,182
Arizona						62	77	81	83	304	89	85	78	83	335	83	75	74
California	216	249	266	275	1,006	271	313	316	324	1,223	316	326	323	327	1,291	315	310	291
Colorado	58	66	86	74	285	79	84	98	89	350	88	93	100	89	370	85	89	96
Florida								63	105		104	112	102	105	423	101	114	118
Illinois	65	77	83	87	311	94	114	121	124	452	115	126	130	134	505	124	128	129
Massachusetts	20	11	37	40	108	46	58	71	74	248	68	73	76	75	292	69	71	75
Maryland	18	22	25	27	92	29	31	31	31	122	30	30	29	27	117	26	28	63
Michigan	35	55	59	58	206	73	93	108	109	384	100	118	133	130	481	132	143	149
Nevada	28	26	31	35	120	39	44	47	47	176	46	48	51	51	196	49	48	47
Oregon	31	38	43	43	156	45	50	51	49	195	46	49	49	48	192	50	52	54
Washington	43	52	59	61	215	63	67	66	66	262	66	73	74	72	285	73	78	87
YoY ch %																3.7%	0.4%	3.2%
Arizona											43%	10%	-4%	0%	10%	-6.5%	-11.3%	-4.8%
California						25%	26%	19%	18%	22%	17%	4%	2%	1%	6%	-0.2%	-4.7%	-9.9%
Colorado						36%	28%	13%	21%	23%	11%	10%	2%	0%	5%	-2.9%	-4.6%	-3.9%
Florida																-2.2%	2.1%	15.3%
Illinois						45%	48%	45%	43%	45%	23%	11%	8%	8%	12%	7.3%	1.3%	-0.7%
Massachusetts						128%	408%	94%	85%	130%	48%	27%	7%	2%	18%	1.6%	-2.6%	-2.6%
Maryland						64%	41%	25%	14%	33%	4%	-3%	-6%	-11%	-4%	-13.7%	-8.5%	118.1%
Michigan						109%	70%	84%	89%	86%	37%	26%	23%	19%	25%	31.3%	21.5%	12.5%
Nevada						38%	69%	50%	35%	47%	18%	10%	10%	8%	11%	8.3%	-0.1%	-8.6%
Oregon						44%	31%	18%	13%	25%	2%	-3%	-3%	0%	-1%	7.9%	7.7%	9.4%
Washington						48%	29%	12%	7%	22%	4%	9%	11%	9%	9%	10.3%	7.6%	17.5%

Source: Headset; Z&A



Exhibit 2: Vape as % of Overall Market

\$Mn	1Q20	2Q20	3Q20	4Q20	CY20	1Q21	2Q21	3Q21	4Q21	CY21	1Q22	2Q22	3Q22	4Q22	CY22	1Q23	2Q23	3Q23
Vape as % Market	21%	20%	19%	19%	20%	20%	20%	23%	25%	21%	23%	23%	24%	24%	23%	24%	24%	24%
Arizona						21%	21%	22%	22%	22%	23%	24%	24%	24%	24%	25%	23%	24%
California	24%	22%	20%	22%	22%	22%	22%	23%	24%	22%	24%	25%	26%	26%	25%	26%	26%	26%
Colorado	17%	16%	16%	16%	16%	18%	18%	20%	21%	19%	22%	24%	25%	25%	24%	25%	26%	27%
Florida											24%	25%	25%	23%	24%	23%	24%	24%
Illinois	34%	35%	29%	26%	30%	25%	25%	26%	26%	25%	26%	26%	27%	27%	27%	27%	26%	26%
Massachusetts	13%	17%	16%	16%	15%	17%	18%	19%	20%	19%	20%	20%	20%	20%	20%	19%	18%	18%
Maryland	20%	20%	20%	21%	20%	21%	22%	23%	23%	22%	23%	23%	23%	23%	23%	22%	23%	24%
Michigan	27%	23%	18%	19%	21%	20%	21%	22%	23%	21%	21%	21%	21%	21%	21%	20%	19%	18%
Nevada	18%	17%	15%	16%	16%	17%	17%	20%	22%	19%	22%	24%	24%	24%	23%	24%	23%	24%
Oregon	14%	13%	14%	15%	14%	15%	16%	17%	18%	16%	18%	19%	20%	21%	19%	22%	22%	22%
Washington	14%	14%	16%	17%	15%	17%	18%	18%	19%	18%	20%	22%	23%	23%	22%	24%	25%	27%

Source: Headset; Z&A



Exhibit 3: Vape Prices (\$/gram equivalent)

\$/GRAM					avg					avg					avg					
	1Q20	2Q20	3Q20	4Q20	CY20	1Q21	2Q21	3Q21	4Q21	CY21	1Q22	2Q22	3Q22	4Q22	CY22	1Q23	2Q23	3Q23		
Avg Equiv Price																				
Arizona						54.65	54.38	51.96	48.95	52.48	47.03	45.19	43.90	41.95	44.52	40.70	37.34	35.50		
California	53.07	50.49	49.21	46.59	49.84	45.57	44.24	42.18	40.92	43.23	40.54	38.51	36.93	35.46	37.86	33.10	31.29	30.45		
Colorado	46.03	43.16	45.16	44.26	44.65	44.08	43.77	43.99	41.68	43.38	41.53	40.05	38.53	37.17	39.32	35.42	31.41	30.06		
Florida																				
Illinois	120.49	118.16	115.68	110.49	116.20	108.15	105.58	104.35	98.60	104.17	93.94	88.40	85.47	79.52	86.83	76.20	69.29	66.08		
Massachusetts	116.80	103.43	111.61	112.16	111.00	112.32	110.65	105.72	101.10	107.45	94.27	87.15	77.49	69.47	82.10	62.90	54.63	48.77		
Maryland															48.12	47.02	54.45			
Michigan	45.65	48.23	46.45	49.73	47.51	40.78	38.31	36.06	31.03	36.55	27.18	23.55	19.87	16.97	21.89	15.25	15.71	15.37		
Nevada	74.35	69.37	68.36	60.97	68.26	63.47	64.11	63.21	62.29	63.27	60.47	56.90	52.57	51.57	55.38	49.93	48.51	49.25		
Oregon	29.40	27.33	27.64	26.88	27.81	27.14	26.31	26.40	25.35	26.30	25.28	23.96	23.66	22.93	23.96	22.93	22.60	23.06		
Washington	25.66	24.89	24.98	24.58	25.03	24.35	23.97	23.54	23.23	23.77	22.80	21.98	21.20	20.42	21.60	20.25	19.81	19.61		
YoY ch %						1y	2y	3y												
Arizona											-14%	-17%	-16%	-14%	-15%	-13%	-17%	-19%	-32%	na
California						-14%	-12%	-14%	-12%	-13%	-11%	-13%	-12%	-13%	-12%	-18%	-19%	-18%	-28%	-38%
Colorado						-4%	1%	-3%	-6%	-3%	-6%	-9%	-12%	-11%	-9%	-15%	-22%	-22%	-32%	-33%
Florida																				
Illinois						-10%	-11%	-10%	-11%	-10%	-13%	-16%	-18%	-19%	-17%	-19%	-22%	-23%	-37%	-43%
Massachusetts						-4%	7%	-5%	-10%	-3%	-16%	-21%	-27%	-31%	-24%	-33%	-37%	-37%	-54%	-56%
Maryland																				
Michigan						-11%	-21%	-22%	-38%	-23%	-33%	-39%	-45%	-45%	-40%	-44%	-33%	-23%	-57%	-67%
Nevada						-15%	-8%	-8%	2%	-7%	-5%	-11%	-17%	-17%	-12%	-17%	-15%	-6%	-22%	-28%
Oregon						-8%	-4%	-5%	-6%	-5%	-7%	-9%	-10%	-10%	-9%	-9%	-6%	-3%	-13%	-17%
Washington						-5%	-4%	-6%	-5%	-5%	-6%	-8%	-10%	-12%	-9%	-11%	-10%	-8%	-17%	-22%

Source: Headset; Z&A



Exhibit 4: Total cannabis sales as per Headset

\$Mn	1Q20	2Q20	3Q20	4Q20	CY20	1Q21	2Q21	3Q21	4Q21	CY21	1Q22	2Q22	3Q22	4Q22	CY22	1Q23	2Q23	3Q23
Total sales	2,497	3,005	3,693	3,595	12,790	4,046	4,603	4,616	4,437	17,703	4,692	4,822	4,797	4,785	19,096	4,669	4,825	5,007
Arizona						300	367	363	370	1,400	379	352	323	343	1,397	335	322	304
California	894	1,134	1,303	1,269	4,600	1,256	1,444	1,393	1,346	5,438	1,291	1,304	1,253	1,237	5,085	1,194	1,190	1,121
Colorado	352	419	526	451	1,748	453	476	477	418	1,824	394	386	396	361	1,537	345	342	356
Florida											428	446	413	450	1,737	437	471	488
Illinois	188	222	289	336	1,035	377	448	471	481	1,776	452	479	482	494	1,907	467	484	492
Massachusetts	157	68	232	244	702	269	327	372	363	1,330	343	366	391	382	1,482	364	387	408
Maryland	91	110	122	130	453	138	140	137	136	550	134	132	125	120	510	116	121	266
Michigan	128	236	322	296	982	359	452	498	484	1,793	487	569	630	635	2,320	673	753	816
Nevada	157	150	210	215	732	227	254	238	217	936	203	204	214	213	833	206	208	196
Oregon	224	293	308	285	1,109	298	315	299	269	1,181	253	257	248	235	992	230	239	243
Washington	307	372	381	369	1,429	371	381	368	354	1,473	328	327	323	316	1,294	304	309	316
YoY ch %																-0.5%	0.1%	4.4%
Arizona											26%	-4%	-11%	-7%	0%	-11.5%	-8.6%	-6.0%
California						41%	27%	7%	6%	18%	3%	-10%	-10%	-8%	-6%	-7.5%	-8.7%	-10.6%
Colorado						29%	14%	-9%	-7%	4%	-13%	-19%	-17%	-14%	-16%	-12.6%	-11.2%	-10.1%
Florida																2.1%	5.5%	18.3%
Illinois						100%	102%	63%	43%	72%	20%	7%	2%	3%	7%	3.2%	1.0%	2.1%
Massachusetts						71%	378%	60%	49%	90%	28%	12%	5%	5%	11%	6.2%	5.5%	4.4%
Maryland						51%	27%	13%	4%	21%	-3%	-6%	-9%	-12%	-7%	-13.3%	-8.3%	113.3%
Michigan						181%	91%	55%	64%	83%	36%	26%	26%	31%	29%	38.2%	32.3%	29.6%
Nevada						44%	69%	14%	1%	28%	-10%	-20%	-10%	-2%	-11%	1.3%	2.0%	-8.3%
Oregon						33%	7%	-3%	-5%	6%	-15%	-18%	-17%	-13%	-16%	-9.2%	-6.8%	-1.9%
Washington						21%	2%	-3%	-4%	3%	-12%	-14%	-12%	-11%	-12%	-7.4%	-5.6%	-2.2%

Source: Headset; Z&A



Appendix II: Valuation Comps



Exhibit 5: Valuation Comps – Part I

US\$Mn	Company name	Ticker	Listing	10/10/2023	Mkt			Last Qtr Annualized		1yr Forward Consensus		Consensus		Cons	Net debt	
				Price	Cap	(mn)	Net	Ent	EV/Sales	EV/EBITDA	EV/Sales	EV/EBITDA	1yF Estimates (US\$Mn)		EBITDA	to Cons
				US\$	US\$MN	Shares	(Debt)	Value					Sales	EBITDA	mgn %	1yF EBITDA
Canada																
	Aurora Cannabis Inc.	ACB	NASDAQ	0.57	224	394.7	36	188	0.8x	29x	0.9x	11.2x	208	17	8%	2.1x
	Auxly Cannabis Group Inc.	CBWTF	US OTC	0.01	15	1,265.9	-134	149	2.0x	52x	1.4x	-94.9x	107	-2	-1%	85.2x
	Avant Brands Inc	AVTBF	US OTC	0.14	35	260.8	-6	42	1.8x	8.3x	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	BZAM Ltd	BZAMF	US OTC	0.11	19	181.0	-25	45	0.8x	-2.5x	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Canopy Growth Corporation	CGC	NASDAQ	0.75	539	718.9	-352	891	2.8x	-5.2x	3.0x	-11.4x	298	-78	-26%	4.5x
	Cronos Group Inc	CRON	NASDAQ	2.02	786	388.9	839	-53	-0.7x	0.8x	-0.6x	1.7x	95	-32	-33%	-26.5x
	Decibel Cannabis Company I	DBCCF	US OTC	0.12	50	409.0	-29	79	0.9x	3.6x	0.6x	2.2x	137	36	26%	-0.8x
	Entourage Health Corp	ETRGF	US OTC	0.01	4	306.7	-91	95	na	na	na	na	na	na	na	na
	High Tide, Inc.	HITI	NASDAQ	1.51	116	76.9	-9	125	1.4x	39.7x	0.2x	3.5x	544	36	7%	-0.3x
	Nova Cannabis Inc	NVACF	US OTC	0.45	26	57.2	-5	31	0.2x	1.9x	na	na	na	na	na	na
	OrganiGram Holdings Inc	OGI	NASDAQ	1.25	102	81.7	39	63	0.6x	-7.3x	0.5x	5.6x	127	11	9%	3.5x
	Rubicon Organics, Inc.	ROMJF	US OTC	0.34	22	63.1	59	-37	-1.1x	-7.1x	-0.7x	-3.7x	52	10	19%	5.9x
	SNDL Inc.	SNDL	NASDAQ	1.67	416	248.8	162	253	0.3x	38.9x	0.4x	12.1x	710	21	3%	7.7x
	Tilray Brands, Inc.	TLRY	NASDAQ	2.14	1,503	703.3	-131	1,635	8.9x	73.5x	2.0x	21.0x	808	78	10%	-1.7x
	Village Farms International, I	VFF	NASDAQ	0.78	86	110.2	-23	109	0.4x	6.1x	0.4x	10.8x	292	10	3%	-2.3x

Source: FactSet and company reports



Exhibit 6: Valuation Comps – Part II

			10/10/2023	Mkt				Consensus				Cons	Net debt		
US\$Mn			Price	Cap	(mn)	Net	Ent	Last Qtr Annualized		1yr Forward Consensus		1yF Estimates (US\$Mn)		EBITDA	to Cons
Company name	Ticker	Listing	US\$	US\$MN	Shares	(Debt)	Value	EV/Sales	EV/EBITDA	EV/Sales	EV/EBITDA	Sales	EBITDA	mgn %	1yF EBITDA
US MSOs															
4Front Ventures Corp.	FFNTF	US OTC	0.24	154	648.6	-79	233	1.9x	29.3x	1.8x	7.8x	133	30	22%	-2.7x
Acreage Holdings, Inc. Class I	ACRDF	US OTC	0.33	46	138.1	-214	260	1.1x	9.5x	1.1x	6.6x	235	39	17%	-5.4x
Ascend Wellness Holdings LL	AAWH	US OTC	0.89	190	212.9	-242	431	0.9x	5.1x	0.8x	3.7x	550	117	21%	-2.1x
Ayr Wellness, Inc.	AYRWF	US OTC	1.78	137	77.2	-379	516	1.1x	4.4x	1.0x	3.9x	526	134	25%	-2.8x
Cannabist Company Holding	CCHWF	US OTC	0.79	332	419.3	-290	623	1.2x	7.7x	1.1x	5.9x	559	106	19%	-2.7x
Cresco Labs, Inc.	CRLBF	US OTC	1.65	720	436.5	-415	1,135	1.4x	7.0x	1.5x	6.8x	772	167	22%	-2.5x
Curaleaf Holdings, Inc.	CURLF	US OTC	4.30	3,090	718.7	-489	3,579	2.6x	12.8x	2.5x	10.4x	1,418	345	24%	-1.4x
Glass House Brands Inc	GLASF	US OTC	4.39	-4	-1.0	-44	40	na	na	0.2x	1.4x	168	29	17%	-1.5x
Gold Flora Corporation	GRAMF	US OTC	0.15	42	288.4	14	28	0.2x	na	na	na	na	na	na	na
Goodness Growth Holdings, I	GDNSF	US OTC	0.16	23	143.1	-124	147	1.8x	12.9x	1.5x	8.1x	97	18	19%	-6.9x
Green Thumb Industries Inc.	GTBIF	US OTC	10.13	2,419	238.8	-141	2,560	2.5x	7.1x	2.4x	7.8x	1,079	328	30%	-0.4x
Jushi Holdings Inc Class B	JUSHF	US OTC	0.73	144	196.6	-141	285	1.1x	5.6x	0.9x	4.7x	300	61	20%	-2.3x
MariMed Inc	MRMD	US OTC	0.39	144	371.6	-38	183	1.2x	7.2x	1.1x	4.1x	169	44	26%	-0.9x
Planet 13 Holdings Inc	PLNHF	US OTC	0.76	169	222.2	40	129	1.3x	-55.3x	0.9x	7.5x	148	17	12%	2.3x
Schwazze	SHWZ	US OTC	0.73	51	70.6	-136	187	1.1x	3.4x	0.9x	2.6x	214	72	34%	-1.9x
StateHouse Holdings Inc	STHZF	US OTC	0.06	15	256.3	-126	141	1.4x	55.5x	na	na	na	na	na	na
TerrAscend Corp.	TSNDF	US OTC	1.87	656	350.5	-186	842	2.9x	16.4x	2.4x	10.8x	351	78	22%	-2.4x
TILT Holdings, Inc.	TLLTF	US OTC	0.05	18	378.5	-53	71	0.4x	11.5x	0.4x	8.2x	182	9	5%	-6.1x
Trulieve Cannabis Corp.	TCNNF	US OTC	5.11	951	186.0	-631	1,582	1.4x	5.0x	1.4x	4.9x	1,136	322	28%	-2.0x
Verano Holdings Corp. Class	VRNOF	US OTC	4.04	1,387	343.4	-318	1,705	1.8x	5.2x	1.7x	5.3x	1,017	325	32%	-1.0x
Vext Science, Inc.	VEXTF	US OTC	0.22	33	151.1	-35	67	1.8x	16.1x	1.1x	3.7x	61	18	30%	-1.9x

Source: FactSet and company reports



Exhibit 7: Valuation Comps – Part III

US\$Mn	Company name	Ticker	Listing	10/10/2023	Mkt	Net	Ent	1yr Forward	Consensus	Consensus		Cons	Net debt	
				Price	Cap					(mn)	(Debt)	Value	EV/Sales	EV/EBITDA
				US\$	US\$MN	Shares				Sales	EBITDA	mgn %	1yF EBITDA	
Service Providers														
	AFC Gamma, Inc.	AFCG	NASDAQ	11.58	236	20.4	-17	253	3.6x	#N/A	69	#N/A	#N/A	#N/A
	Chicago Atlantic Real Estate Finance, Inc.	REFI	NASDAQ	14.86	264	17.8	-52	316	5.2x	#N/A	61	#N/A	#N/A	#N/A
	Greenlane Holdings, Inc. Class A	GNLN	NASDAQ	0.61	1	1.6	-8	9	0.1x	-13.1x	103	-1	-1%	11.6x
	GrowGeneration Corp.	GRWG	NASDAQ	2.81	171	61.0	23	148	0.6x	-43.1x	229	-3	-1%	-6.7x
	Hydrofarm Holdings Group, Inc.	HYFM	NASDAQ	1.12	51	45.2	-165	215	0.9x	22.2x	240	10	4%	-17.0x
	Innovative Industrial Properties Inc	IIPR	NYSE	75.61	2,115	28.0	-14	2,129	6.9x	8.6x	307	246	80%	-0.1x
	Leafly Holdings, Inc.	LFLY	NASDAQ	6.99	15	2.2	-4	19	0.4x	-9.5x	46	-2	-4%	1.8x
	NewLake Capital Partners, Inc.	NLCP	US OTC	12.92	277	21.4	42	235	5.1x	#N/A	46	#N/A	#N/A	#N/A
	RiverNorth Opportunities Fund, Inc.	RIV	NYSE	10.66	229	21.5	34	194	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	SHF Holdings Inc Class A	SHFS	NASDAQ	0.74	18	23.7	7	10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Scotts Miracle-Gro Company Class A	SMG	NYSE	48.30	2,681	55.5	-3,183	5,864	1.6x	11.2x	3,580	524	15%	-6.1x
	Silver Spike Investment Corp.	SSIC	NASDAQ	9.58	60	6.2	85	-25	-1.6x	#N/A	15	#N/A	#N/A	#N/A
	SpringBig Holdings, Inc.	SBIG	US OTC	0.15	4	26.7	-6	9	0.3x	5.2x	34	2	5%	-3.1x
	urban-gro Inc	UGRO	NASDAQ	1.24	13	10.8	6	8	0.1x	-11.0x	110	-1	-1%	-7.8x
	WM Technology, Inc. Class A	MAPS	NASDAQ	1.25	205	163.7	25	180	0.9x	6.7x	203	27	13%	0.9x
CBD, CPG, Pharma, International														
	Charlotte's Web Holdings, Inc.	CWBHF	US OTC	0.27	41	152.1	9	32	0.4x	-4.2x	80	-8	-10%	-1.2x
	Clever Leaves Holdings, Inc.	CLVR	NASDAQ	3.01	4	1.5	4	1	0.0x	-0.1x	28	-6	-22%	-0.6x
	CV Sciences, Inc.	CVSI	US OTC	0.04	6	152.1	-1	7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	IM Cannabis Corp	IMCC	NASDAQ	0.70	5	7.6	-7	12	0.3x	4.7x	44	3	6%	-2.6x
	InterCure Ltd.	INCR	NASDAQ	1.40	64	45.6	-2	66	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Ispire Technology, Inc.	ISPR	NASDAQ	9.26	502	54.2	45	457	1.9x	14.7x	236	31	13%	1.4x
	Jazz Pharmaceuticals Public Limited Comp	JAZZ	NASDAQ	129.67	8,197	63.2	-4,936	13,133	3.3x	6.9x	4,002	1,897	47%	-2.6x
	Little Green Pharma Ltd.	LGPPF	US OTC	#N/A	#N/A	297.9	0	#N/A	#N/A	#N/A	41	4	10%	0.0x
	PharmaCielo Ltd.	PCLOF	US OTC	0.15	23	155.0	-9	32	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Turning Point Brands Inc	TPB	NYSE	22.87	400	17.5	-314	714	1.7x	7.7x	421	93	22%	-3.4x

Source: FactSet and company reports

Exhibit 8: Stock Performance

10/10/23	Stock Performance		
	Last	Last	Last
Ticker	30d	90d	12mo
US MSOs			
FFNTF	-7%	42%	-39%
ACRDF	-6%	72%	-76%
AAWH	-20%	16%	-59%
AYRWF	-36%	67%	-51%
CXXIF	-15%	-3%	27%
CCHWF	-31%	80%	-57%
CRLBF	-34%	-13%	-52%
CURLF	-9%	17%	-28%
GLASF	-13%	38%	30%
GNRS	-98%	-100%	-100%
GRAMF	-7%	-7%	-70%
GDNSF	-18%	-15%	-87%
GTBIF	-7%	24%	-24%
GRUSF	8%	69%	399%
JUSHF	3%	64%	-60%
LOWLF	-3%	-8%	-83%
MRMD	-19%	-5%	-40%
PLNHF	-23%	31%	-39%
RWBYF	33%	nm	-60%
SHWZ	-31%	-29%	-49%
STHZF	52%	41%	-63%
TSNDF	-15%	8%	13%
TLLTF	-19%	27%	-65%
TCNNF	-20%	5%	-58%
VRNOF	-21%	24%	-24%
VEXTF	18%	13%	-5%

	Stock Performance		
	Last	Last	Last
Ticker	30d	90d	12mo
Canada			
ALEAF	#N/A	-21%	-61%
ACB	8%	-1%	-51%
CBWTF	-9%	-1%	-69%
AVTBF	-5%	26%	-15%
BZAMF	-3%	-28%	-80%
CGC	-19%	37%	-73%
CRON	-8%	1%	-28%
DBCCF	-3%	22%	107%
ETRGF	32%	-5%	-47%
HITI	-3%	22%	6%
NVACF	7%	4%	-20%
OGI	-20%	-26%	-67%
ROMJF	-1%	-1%	-34%
SNDL	-14%	14%	-23%
TLRY	-29%	21%	-32%
VFF	-14%	17%	-62%

CBD, CPG, Pharma, International			
CBDHF	na	900%	-100%
CRDL	-14%	-5%	-4%
CLVR	-8%	-57%	-83%
CVSI	-17%	-19%	5%
CWBHF	-29%	31%	-56%
GNLN	-32%	-37%	-97%
IMCC	-8%	-28%	-84%

	Stock Performance		
	Last	Last	Last
Ticker	30d	90d	12mo
Service Providers			
AFCG	-12%	-10%	-26%
AGFY	-17%	-25%	-97%
CXXIF	-15%	-3%	27%
REFI	-3%	-3%	0%
GRWG	-19%	-25%	-30%
HYFM	-6%	21%	-52%
IIPR	-15%	0%	-17%
LFly	-52%	22%	-51%
NLCP	-5%	-7%	-8%
PW	-58%	-50%	-93%
RIV	-5%	-7%	-17%
SMG	-9%	-33%	18%
SSIC	-7%	14%	-8%
SBIG	-3%	-64%	-84%
UGRO	-9%	-28%	-65%
MAPS	-19%	26%	-40%

CBD, CPG, Pharma, International			
INCR	-17%	-19%	-71%
ISPR	-1%	-2%	na
JAZZ	-5%	2%	-5%
LGPPF	na	na	na
PCLOF	9%	12%	-53%
TPB	-2%	-8%	8%
YCBD	-26%	-33%	-91%

Source: FactSet and company reports



Appendix III: Bio and Disclaimers



Analyst Bio

Pablo Zuanic is a well-known and highly rated equity analyst following the cannabis and psychedelics sector. Over the past four years he launched coverage of over 35 companies (MSOs, LPs, CBD, ancillary, psychedelics), kept close track of sectoral trends, and followed the reform process in the US and elsewhere. His firm Zuanic & Associates, set up in 2023, publishes equity research on the cannabis and psychedelics sectors, both from a macro/sectoral level in a thematic manner, as well as specific reports on listed stocks. The research service is aimed at institutional investors and corporations. The firm is also available for short term consulting and research advisory projects (www.zuanicassociates.com). At various points in his career, Pablo was II ranked and called as expert witness in industry investigations. He has a deep global background having covered stocks over the past 20 years in the US, Europe, Latin America, and Asia, across consumer sub sectors. Prior employers include JP Morgan, Barings, and Cantor Fitzgerald. An MBA graduate of Harvard Business School, he started his career as a management consultant, which brings a strategic mindset to his approach to equity research. Pablo can be contacted at pablo.zuanic@zuanicgroup.com.



Disclosures and Disclaimers

About the firm: Zuanic & Associates is a domestic limited liability company (LLC) registered in the state of New Jersey. The company's registered address is Five Greentree Centre, 525 Route 73, N Suite 104, Marlton, New Jersey 08053, USA. Pablo Zuanic is the registered agent. The firm publishes equity research on selected stocks in the cannabis and psychedelics sector, as well as thematic macro industry notes. The firm also provides consulting and advisory services. Potential conflicts of interest are duly reflected in the respective specific company reports.

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