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MSO Debt Leverage

Cannabis Sector Equity Research



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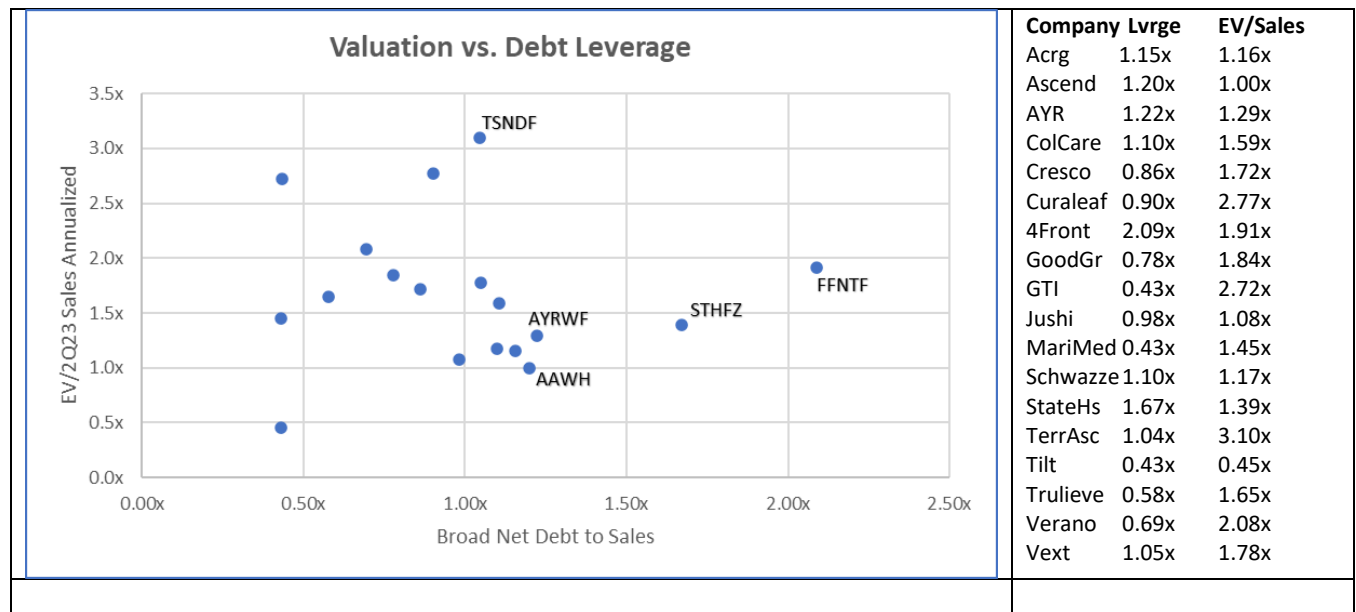
On Tue 7/18, we launched our cannabis equity research service (see [Sector Launch report](#)). We will publish thematic/macro reports during the first few months, and then begin to rollout equity stock coverage. A full list of our recent reports is shown at the end of this report.

Who Will Be Raising Equity Among MSOs?

With Canopy Growth (CGC/N) and Columbia Care (CCHWF) announcing equity raises this week, we review the debt leverage of 20 MSOs and wonder who could be next (we do so in an objective/neutral manner without giving stock opinions). That said, we realize equity offering may not be available to all, and debt restructurings may be the only alternative (although some companies already spend more than 20% of sales in interest expense). Note: Other tickers are shown at the back of this report.

We also assume valuation multiples play a factor – i.e., all else equal, of those most levered, we assume the ones with higher valuation multiples may have a better chance of successfully raising equity.

Table 1: Comparing Valuation Multiples and Debt Leverage



Source: Company reports, Z&A. Note: Planet 13 has a net cash position, so it is not included in this analysis



Financial Net Debt Metrics

Financial net debt to Sales. Trulieve (\$631Mn) and Curaleaf (\$489Mn) had the highest net debt among MSOs. But this must be seen in the context of sales, EBITDA, and operating cash flow (i.e., ability to service the debt).

- Relative to Sales, the companies with the highest net debt to sales (2Q23 annualized) were StateHouse (1.24x), Vext (0.95x), iAnthus (0.94x), Acreage (0.92x), AYR (0.81), and Schwazze (0.8x).
- Between 0.4x to 0.8x: Jushi (0.69x), TerrAscend (0.65x), 4Front (0.64x), Goodness Growth (0.61x), Columbia Care (0.56x), Trulieve (0.56x), Cresco (0.52x), Ascend (0.49x).
- Those with leverage below 0.4x include (from highest to lowest) Curaleaf (0.34x), Verano (0.34x), Tilt (0.32x), MariMed (0.26x), Green Thumb (0.14x).
- Planet13 was the only company in a net cash position.

Financial net debt to EBITDA. EBITDA margins widely across the group. At the top, we have Green Thumb (36%), Verano (35%), and Schwazze (33%). Yes, we realize EBITDA calculation methods can vary among MSOs. In 2Q23, the lowest EBITDA margins were at Planet 13 (-2%), iAnthus (-1%), StateHouse (3%), Tilt (4%), and 4Front (6%). The low margins for some, or negative margins, distort debt to EBITDA multiples. Still, we would consider companies to be over-levered with multiples north of 5x (net debt to EBITDA): iAnthus is the most levered (with negative EBITDA), StateHouse (49x), 4Front (10x), Tilt (8.6x), Vext (8.3x), and Acreage (7.8x).

Financial net debt to operating cash flow. Most companies report OCF well below EBITDA, so most companies have high net debt to OCF ratios. Some generate negative OCF. For example, for the 12 months through 2Q23, these MSOs had negative OCF: Acreage, Columbia Care, Goodness Growth, iAnthus, Jushi, Planet 13, StateHouse. Of those with financial net debt (as 2Q23) and positive OCF (last 12 months), the ratios were: 67x for AYR, Trulieve 61x, 4Front 29x, MariMed 21x, Ascend 18x, and Tilt 10x (the rest in the single digits).

We realize debt analysis must look at the maturity profile of the debt as well as the runway for sales growth, EBITDA margin expansion, and OCF improvement. But first, we should look at a broader definition of net debt.

A Broader Definition of Net Debt

Besides financial net debt, we would include ST income tax payables, gross leases, plus warrant derivative liabilities (inc. earnouts). In fact, these three items account for more than half of total broad financial net debt at 4Front (70%), Green Thumb (68%), Ascend (56%), and Verano (50%); for Columbia Care this is 49%. We could also include deferred tax liabilities but leave them out for the analysis here.



- Income tax payables (ITP): as 2Q23, Curaleaf (\$210Mn) and Verano (\$227Mn) had the highest balances. As a % of LTM sales, ITP was the highest at StateHouse (0.35x), 4Front Ventures (0.33x), and Verano (0.25x).
- Gross leases: as of 2Q23, Curaleaf (\$303Mn), Ascend (\$264Mn), and Green Thumb (\$261Mn), had the highest balances. As a % of LTM sales, gross leases were the highest at 4Front (1.13x), Ascend (0.57x), Columbia Care (0.45x), and AYR (0.32x).
- Derivative liabilities: For the most part, these balances are low. As of 2Q23, Green Thumb (\$32Mn) and Curaleaf (\$23Mn), had the highest balances. As a % of LTM sales, derivative liabilities were below 0.1x for all.

Debt ratios under our broader definition. So, taking our broader definition of net debt (financial net debt plus income tax payables plus gross leases plus derivative liabilities), the companies with the highest absolute “broad” net financial net debt were Curaleaf (\$1.24Bn), Cresco (\$692Mn), and Trulieve (\$679Mn).

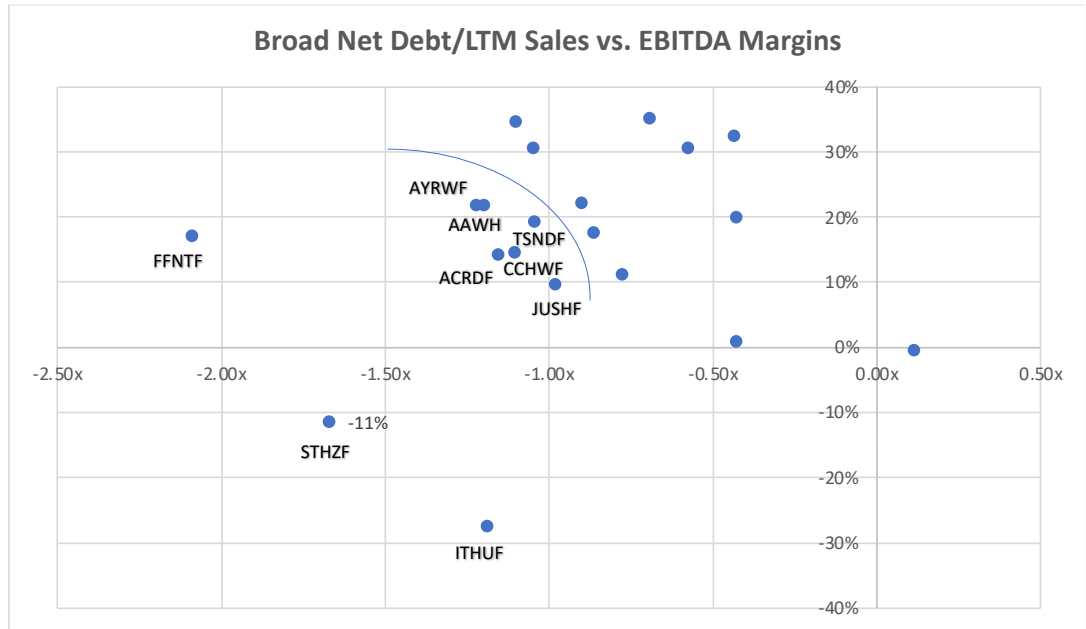
- Relative to last 12 months sales, the highest ratio was at 4Front Ventures (2.1x) and StateHouse (1.7x). But several other companies are over 1x. *Note: if we take 20% EBITDA margins as normalized margins over time, that means a 1x debt to sales ratio is equivalent to 5x EBITDA (a sign of high leverage, in our view).*
- MSOs with ratios above 1x broad net debt to sales include, besides the two mentioned before: Acreage, Ascend, AYR, and iAnthus, all at 1.2x; Schwazze and Columbia Care are at 1.1x; Jushi, TerrAscend, and Vext are at 1x.
- The next group of levered companies include: Curaleaf and Cresco at 0.9x, and Goodness Growth at 0.8x.

To give context to this group of levered companies, we should also take EBITDA margins into account. Two companies with the same debt load ratio but with different EBITDA margins (say 10% vs. 30%), imply a different risk profile. In this sense, in relative terms, companies (in alphabetical order) like Acreage, Ascend, AYR, Columbia Care, 4Front, iAnthus, Jushi, StateHouse, and TerrAscend (the appendix shows a table with more details), have a higher probability of needing to raise equity (if available), as we show in the next chart. Columbia Care just announced this week a \$25Mn equity raise via private placement.

Debt restructuring may be an option, but net interest cost is already high for some MSOs. We realize the equity path may not be available to all (either due to very low valuation multiples, and or lack no investor interest), and the only option may be debt restructuring. But at some of these companies, net interest expense accounts for a good chunk of sales already, so they may not have much room to maneuver. As per company filings, in 2Q23, net interest expense as % of sales was 38% at Goodness Growth, 19% at StateHouse, 15% at Acreage and Jushi, 13% at Tilt, 11% at TerrAscend, and 10% at Columbia Care, Cresco, 4Front, and iAnthus.



Table 2: Debt Load in the context of margins



Source: Company reports, Z&A

Note: We realize that in this report we do not discuss the maturity profile of the debt, although this of course matters in assessing the risk of each company.



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)

Links to Recent Zoom Panels:

[Benzinga Panel on Rescheduling](#) (9/14)



Appendix I: Debt Data



Exhibit 1: Summary of Debt Analysis

	Acreage Holdings	Ascend Wellness	AYR Strategies	Columbia Care	Cresco Labs	Curaleaf	4Front Ventures	Goodness Growth	Green Thumb	iAnthus	Jushi Holdings	Marimed	Planet 13	Schwazze	StateHouse	TerrAscend	Tilt Holdings	Trulieve	Verano Holdings	Vext Science
Financial net debt	-213.9	-241.8	-373.1	-290.4	-415.0	-705.9	-79.2	-49.5	-140.9	-145.8	-183.5	-38.1	39.6	-135.6	-109.0	-192.6	-52.9	-494.1	-317.8	-34.7
Broad financial net debt	-269.0	-552.4	-600.0	-566.3	-692.4	-1,241.6	-261.6	-60.1	-443.2	-181.4	-280.7	-60.4	11.5	-182.3	-177.8	-288.3	-72.4	-679.2	-635.2	-35.8
other /BFND	20%	56%	38%	49%	40%	43%	70%	18%	68%	20%	35%	37%	na	26%	39%	33%	27%	27%	50%	3%
BFND / LTM sales	-1.2x	-1.2x	-1.2x	-1.1x	-0.9x	-0.9x	-2.1x	-0.8x	-0.4x	-1.2x	-1.0x	-0.4x	0.1x	-1.1x	-1.7x	-1.0x	-0.4x	-0.6x	-0.7x	-1.0x
EBITDA margins																				
2Q23	12%	17%	25%	16%	20%	21%	6%	14%	36%	-1%	19%	17%	-2%	33%	3%	18%	4%	28%	35%	11%
Last 12 Months	14%	22%	22%	15%	18%	22%	17%	11%	32%	-27%	10%	20%	0%	35%	-11%	19%	1%	31%	35%	31%
Net interest expense / Sales																				
2Q23	-15%	-6%	-9%	-10%	-10%	-4%	-10%	-38%	-1%	-10%	-15%	-7%	1%	-7%	-19%	-11%	-13%	-7%	-6%	0%
CY22	-9%	-7%	-7%	-9%	-7%	-4%	-11%	-30%	-2%	-11%	-16%	-1%	0%	-11%	-18%	-14%	-8%	-6%	-12%	-1%

Source: Company reports, and Z&A estimates



Exhibit 2: Debt Data

US\$ Mn	Acreage Holdings	Ascend Wellness	AYR Strategies	Columbia Care	Cresco Labs	Curaleaf	4Front Ventures	Goodness Growth	Green Thumb	iAnthus	Jushi Holdings	Marimed	Planet 13	Schwazze	StateHouse	TerrAscend	Tilt Holdings	Trulieve	Verano Holdings	Vext Science
Debt structure																				
Financial debt, net	-213.9	-241.8	-373.1	-290.4	-415.0	-705.9	-79.2	-49.5	-140.9	-145.8	-183.5	-38.1	39.6	-135.6	-109.0	-192.6	-52.9	-494.1	-317.8	-34.7
Financial debt, gross	244.0	309.8	433.2	327.4	489.8	790.9	84.5	60.9	289.9	155.9	213.4	52.7	0.9	155.4	112.3	221.5	57.0	646.5	420.4	39.0
ST	13.8	9.0	75.9	47.8	18.3	53.7	7.9	53.9	1.0	14.7	14.8	5.7	0.9	6.6	8.1	23.9	11.5	134.9	21.4	5.8
LT	230.2	300.8	357.2	279.6	471.6	737.2	76.6	7.0	288.9	141.2	198.6	47.1	0.0	148.9	104.2	197.6	45.5	511.6	399.0	33.2
cash	30.0	68.0	60.0	37.0	74.8	85.0	5.4	11.3	149.0	10.1	29.9	14.6	40.5	19.9	3.3	28.9	4.1	152.4	102.6	4.3
Income tax payables	34.0	47.0	69.7	46.9	92.4	209.9	41.2	0.0	9.8	0.0	32.6	9.6	0.8	14.1	37.3	45.9	1.8	0.0	227.1	0.0
Deferred tax liabilities	10.6	31.6	72.4	0.0	75.2	318.2	7.6	0.0	62.6	23.8	60.5	0.0	1.5	0.2	4.1	35.6	0.0	211.9	189.3	4.1
Leases, net	2.0	133.3	-5.5	188.2	54.5	29.9	5.6	8.4	20.6	8.5	-3.8	0.6	5.6	2.9	12.4	6.7	2.5	21.1	4.0	0.1
Gross leases	21.1	263.7	157.2	228.7	176.4	302.8	141.2	10.6	260.6	35.6	61.5	12.7	27.3	26.1	31.5	39.5	17.7	182.6	88.3	1.0
Right of use assets	19.1	130.3	162.7	40.5	122.0	272.9	135.6	2.1	240.0	27.0	65.2	12.2	21.7	23.2	19.1	32.8	15.1	161.5	84.2	0.9
Warrant derivative liabilities	0.0	0.0	0.0	0.3	8.6	23.0	0.0	0.0	32.0	0.0	3.1	0.0	0.0	6.5	0.0	10.2	0.0	2.4	2.0	0.0
Financials																				
LTM metrics																				
Sales	233.0	460.5	490.4	512.7	802.2	1,377.8	125.2	77.2	1,021.4	152.4	285.9	140.6	101.2	165.7	106.4	276.0	168.6	1,179.1	914.7	34.2
adj EBITDA	33.3	100.6	107.2	75.2	141.1	306.7	21.4	8.7	331.8	-41.8	27.6	28.1	-0.3	57.5	-12.1	53.2	1.7	361.8	322.0	10.4
OCF	-35.2	13.3	5.7	-15.3	50.5	71.7	2.7	-10.4	211.7	-13.5	-4.0	1.9	-4.1	21.1	-12.6	25.4	5.3	10.3	92.7	5.4
FCF	-50.5	-40.6	-19.8	-35.4	-21.4	-46.3	-4.0	-14.5	-26.1	-17.7	-26.1	-11.2	-13.1	8.6	-12.9	-6.2	3.8	-91.0	51.8	0.5
Last qtr metrics annualized																				
Sales	232.5	492.0	466.9	517.0	791.5	1,354.3	122.8	80.8	1,009.6	154.9	265.7	146.1	103.3	169.5	101.4	288.5	166.4	1,127.2	936.5	36.7
adj EBITDA	27.3	85.3	117.8	81.3	161.9	280.1	7.9	11.4	359.6	-1.7	50.5	25.2	-2.3	55.3	2.5	51.3	6.2	314.8	325.4	4.2
OCF	-2.0	101.6	-21.1	-1.3	71.9	91.2	-8.2	6.5	73.3	4.5	-26.9	5.1	-6.2	10.7	14.6	15.4	-13.3	-93.9	100.6	12.2
FCF	-28.0	69.0	-48.1	-1.3	1.6	35.8	-33.6	-2.6	-184.3	0.7	-33.3	-17.8	-7.9	3.6	14.4	7.4	-14.1	-137.8	100.6	10.8

Source: Company reports, and Z&A estimates



Exhibit 3: Ratios

US\$ Mn	Acreage Holdings	Ascend Wellness	AYR Strategies	Columbia Care	Cresco Labs	Curaleaf	4Front Ventures	Goodness Growth	Green Thumb	iAnthus	Jushi Holdings	Marimed	Planet 13	Schwazze	StateHouse	TerrAscend	Tilt Holdings	Trulieve	Verano Holdings	Vext Science	
Ratios under various debt definitions																					
Net financial (debt) trailing last 12 months	-213.9	-241.8	-373.1	-290.4	-415.0	-705.9	-79.2	-49.5	-140.9	-145.8	-183.5	-38.1	39.6	-135.6	-109.0	-192.6	-52.9	-494.1	-317.8	-34.7	
to sales	-0.9x	-0.5x	-0.8x	-0.6x	-0.5x	-0.5x	-0.6x	-0.6x	-0.1x	-1.0x	-0.6x	-0.3x	0.4x	-0.8x	-1.0x	-0.7x	-0.3x	-0.4x	-0.3x	-1.0x	
to adj EBITDA	-6.4x	-2.4x	-3.5x	-3.9x	-2.9x	-2.3x	-3.7x	-5.7x	-0.4x	na	-6.6x	-1.4x	na	-2.4x	na	-3.6x	-31.5x	-1.4x	-1.0x	-3.3x	
to OCF	na	-18.1x	-65.6x	na	-8.2x	-9.8x	-29.1x	na	-0.7x	na	na	-20.5x	na	-6.4x	na	-7.6x	-10.0x	-47.9x	-3.4x	-6.5x	
to FCF	na	na	na	na	na	na	na	na	na	na	na	na	na	-15.7x	na	na	-13.9x	na	-6.1x	-71.3x	
last qtr annualized																					
to sales	-0.9x	-0.5x	-0.8x	-0.6x	-0.5x	-0.5x	-0.6x	-0.6x	-0.1x	-0.9x	-0.7x	-0.3x	0.4x	-0.8x	-1.1x	-0.7x	-0.3x	-0.4x	-0.3x	-0.9x	
to adj EBITDA	-7.8x	-2.8x	-3.2x	-3.6x	-2.6x	-2.5x	-10.0x	-4.4x	-0.4x	na	-3.6x	-1.5x	na	-2.5x	-42.9x	-3.8x	-8.6x	-1.6x	-1.0x	-8.3x	
to OCF	na	-2.4x	na	na	-5.8x	-7.7x	na	-7.6x	-1.9x	-32.2x	na	-7.5x	na	-12.6x	-7.5x	-12.5x	na	na	-3.2x	-2.8x	
to FCF	na	-3.5x	na	na	-256.2x	-19.7x	na	na	na	-194.9x	na	na	na	-38.0x	-7.6x	-26.1x	na	na	-3.2x	-3.2x	
Net financial (debt) + gross leases + ST tax trailing last 12 months	-269.0	-552.4	-600.0	-566.0	-683.9	-1,218.6	-261.6	-60.1	-411.2	-181.4	-277.6	-60.4	11.5	-175.8	-177.8	-278.1	-72.4	-676.7	-633.2	-35.8	
to sales	-1.2x	-1.2x	-1.2x	-1.1x	-0.9x	-0.9x	-2.1x	-0.8x	-0.4x	-1.2x	-1.0x	-0.4x	0.1x	-1.1x	-1.7x	-1.0x	-0.4x	-0.6x	-0.7x	-1.0x	
to adj EBITDA	-8.1x	-5.5x	-5.6x	-7.5x	-4.8x	-4.0x	-12.2x	-6.9x	-1.2x	na	-10.0x	-2.2x	na	-3.1x	na	-5.2x	-43.1x	-1.9x	-2.0x	-3.4x	
to OCF	na	-41.5x	-105.4x	na	-13.5x	-17.0x	-96.1x	na	-1.9x	na	na	-32.5x	na	-8.3x	na	-10.9x	-13.7x	-65.6x	-6.8x	-6.7x	
to FCF	na	na	na	na	na	na	na	na	na	na	na	na	na	-20.4x	na	na	-19.1x	na	-12.2x	-73.4x	
last qtr annualized																					
to sales	-1.2x	-1.1x	-1.3x	-1.1x	-0.9x	-0.9x	-2.1x	-0.7x	-0.4x	-1.2x	-1.0x	-0.4x	0.1x	-1.0x	-1.8x	-1.0x	-0.4x	-0.6x	-0.7x	-1.0x	
to adj EBITDA	-9.8x	-6.5x	-5.1x	-7.0x	-4.2x	-4.4x	-32.9x	-5.3x	-1.1x	na	-5.5x	-2.4x	na	-3.2x	-70.0x	-5.4x	-11.8x	-2.1x	-1.9x	-8.5x	
to OCF	na	-5.4x	na	na	-9.5x	-13.4x	na	-9.2x	-5.6x	-40.1x	na	-11.9x	na	-16.4x	-12.2x	-18.1x	na	na	-6.3x	-2.9x	
to FCF	na	-8.0x	na	na	-422.1x	-34.0x	na	na	na	-242.5x	na	na	na	-49.2x	-12.4x	-37.7x	na	na	-6.3x	-3.3x	
<i>Note: "na" if EBITDA, OCF, and/or FCF negative</i>																					
Other key ratios																					
Broader net debt (FND+TP+GL+DL)	-269.0	-552.4	-600.0	-566.3	-692.4	-1,241.6	-261.6	-60.1	-443.2	-181.4	-280.7	-60.4	11.5	-182.3	-177.8	-288.3	-72.4	-679.2	-635.2	-35.8	
Broader net debt / LTM Sales	-1.2x	-1.2x	-1.2x	-1.1x	-0.9x	-0.9x	-2.1x	-0.8x	-0.4x	-1.2x	-1.0x	-0.4x	0.1x	-1.1x	-1.7x	-1.0x	-0.4x	-0.6x	-0.7x	-1.0x	
Income Tax Payables / LTM Sales	0.1x	0.1x	0.1x	0.1x	0.1x	0.2x	0.3x	0.0x	0.0x	0.0x	0.1x	0.1x	0.0x	0.1x	0.4x	0.2x	0.0x	0.0x	0.2x	0.0x	
Gross leases / LTM Sales	0.1x	0.6x	0.3x	0.4x	0.2x	0.2x	1.1x	0.1x	0.3x	0.2x	0.2x	0.1x	0.3x	0.2x	0.3x	0.1x	0.1x	0.2x	0.1x	0.0x	
Derivative Liabilities / LTM Sales	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	

Source: Company reports, and Z&A estimates



Appendix II: Company Data

Exhibit 4: Sales (\$Mn)

	CY20	1Q21	2Q21	3Q21	4Q21	CY21	1Q22	2Q22	3Q22	4Q22	CY22	1Q23	2Q23
SALES (\$Mn)													
Acreage	114.5	38.4	44.2	48.2	58.1	188.9	56.9	61.4	61.4	57.5	237.1	56.0	58.1
Ascend	143.7	66.1	83.4	94.4	88.5	332.4	85.1	97.5	111.2	112.1	405.9	114.2	123.0
AYR	155.1	58.4	91.3	96.2	111.8	357.6	99.5	110.1	119.6	136.3	465.6	117.7	116.7
Columbia Care	179.5	86.1	102.4	132.3	139.3	460.1	123.1	129.6	132.7	126.2	511.6	124.5	129.2
Cresco	476.3	178.4	210.0	215.5	217.8	821.7	214.4	218.2	210.5	199.6	842.7	194.2	197.9
Curaleaf	626.6	260.3	312.2	317.1	306.3	1,196.0	296.1	337.6	339.7	363.0	1,336.3	336.5	338.6
4Front	57.6	23.0	27.1	25.9	28.5	104.6	26.0	28.4	32.5	31.6	118.6	30.4	30.7
Goodness Growth	49.2	13.2	14.2	13.4	13.7	54.4	15.6	21.1	18.9	19.0	74.6	19.1	20.2
Green Thumb	556.6	194.4	221.9	233.7	243.6	893.6	242.6	254.3	261.2	259.3	1,017.4	248.5	252.4
iAnthus	151.7	51.8	54.2	49.3	47.7	203.0	42.8	43.5	39.4	37.6	163.2	36.8	38.7
Jushi	80.8	41.7	47.7	54.0	65.9	209.3	61.9	72.8	72.8	76.8	284.3	69.9	66.4
Marimed	50.9	24.6	32.6	33.2	31.0	121.5	31.3	33.0	33.9	35.8	134.0	34.4	36.5
Planet13	70.5	23.8	32.8	33.0	29.9	119.5	25.7	28.4	25.6	24.8	104.6	24.9	25.8
Schwazze	24.0	19.3	30.7	31.8	26.5	108.4	31.8	44.3	43.2	40.1	159.4	40.0	42.4
StateHouse	60.0	12.4	15.4	17.4	15.1	60.3	17.3	34.6	30.8	25.5	108.2	24.7	25.3
TerrAscend	148.0	53.4	58.7	49.1	33.0	194.2	48.6	64.8	67.0	67.4	247.8	69.4	72.1
Tilt	158.4	46.8	48.5	53.4	54.1	202.7	42.4	47.1	40.5	44.3	174.2	42.3	41.6
Trulieve	521.5	193.8	215.6	224.1	304.9	938.4	317.7	313.8	300.8	307.4	1,239.8	289.1	281.8
Verano	228.5	120.9	198.7	206.8	211.4	737.9	202.2	223.7	227.6	225.9	879.4	227.1	234.1
Vext	25.2	9.2	9.4	9.4	9.3	37.2	10.8	8.8	7.7	8.2	35.4	9.1	9.2

Source: Company reports, and Z&A estimates

Exhibit 5: Gross Margins

	CY20	1Q21	2Q21	3Q21	4Q21	CY21	1Q22	2Q22	3Q22	4Q22	CY22	1Q23	2Q23
GROSS MARGIN %													
Acreage	43%	54%	54%	49%	47%	51%	52%	50%	35%	35%	43%	48%	36%
Ascend	42%	45%	41%	43%	35%	41%	28%	34%	33%	37%	33%	31%	23%
AYR	57%	42%	24%	42%	46%	39%	41%	37%	41%	44%	41%	41%	49%
Columbia Care	35%	39%	53%	55%	25%	42%	46%	39%	39%	33%	39%	38%	40%
Cresco	43%	49%	48%	50%	51%	49%	50%	52%	47%	44%	48%	44%	44%
Curaleaf	50%	49%	50%	46%	46%	48%	54%	52%	49%	21%	43%	48%	43%
4Front	63%	60%	60%	60%	-1%	47%	52%	43%	46%	1%	35%	36%	31%
Goodness Growth	35%	43%	49%	38%	16%	36%	16%	49%	51%	45%	41%	50%	46%
Green Thumb	55%	57%	55%	55%	53%	55%	51%	49%	50%	48%	50%	50%	50%
iAnthus	54%	57%	58%	53%	47%	54%	53%	45%	41%	43%	46%	42%	48%
Jushi	47%	45%	48%	43%	28%	40%	31%	37%	38%	29%	34%	43%	46%
Marimedia	62%	54%	60%	55%	50%	55%	54%	45%	48%	44%	48%	45%	45%
Planet13	49%	54%	57%	53%	57%	55%	50%	49%	41%	43%	46%	44%	46%
Schwazze	28%	38%	48%	47%	46%	46%	34%	57%	60%	57%	53%	58%	58%
StateHouse	47%	47%	46%	48%	32%	43%	32%	43%	36%	42%	39%	44%	49%
TerrAscend	55%	65%	59%	44%	64%	58%	32%	35%	36%	57%	41%	49%	50%
Tilt	37%	32%	27%	24%	18%	25%	22%	23%	24%	19%	22%	21%	10%
Trulieve	74%	70%	67%	69%	43%	60%	57%	56%	56%	51%	55%	52%	50%
Verano	59%	45%	50%	64%	20%	45%	49%	44%	54%	45%	48%	48%	49%
Vext	39%	45%	45%	44%	42%	44%	75%	65%	60%	32%	59%	51%	30%

Source: Company reports, and Z&A estimates



Exhibit 6: Adj EBITDA Margins

	CY20	1Q21	2Q21	3Q21	4Q21	CY21	1Q22	2Q22	3Q22	4Q22	CY22	1Q23	2Q23
EBITDA MARGIN													
Acreage	-26%	4%	18%	13%	15%	13%	15%	17%	14%	12%	15%	19%	12%
Ascend	21%	24%	24%	25%	22%	24%	19%	21%	25%	25%	23%	20%	17%
AYR	32%	32%	30%	27%	23%	27%	16%	18%	18%	22%	19%	22%	25%
Columbia Care	-11%	4%	11%	23%	-47%	13%	14%	9%	16%	14%	13%	13%	16%
Cresco	13%	20%	22%	26%	26%	24%	24%	23%	20%	15%	20%	15%	20%
Curaleaf	23%	24%	21%	23%	21%	22%	28%	26%	26%	21%	23%	22%	21%
4Front	28%	19%	28%	29%	38%	32%	28%	32%	29%	21%	23%	12%	6%
Goodness Growth	-11%	-14%	-7%	-14%	-32%	-17%	-17%	11%	10%	13%	6%	8%	14%
Green Thumb	32%	37%	36%	35%	31%	34%	28%	31%	32%	31%	31%	31%	36%
iAnthus	70%	10%	15%	6%	-22%	3%	23%	-816%	-13%	-98%	-237%	2%	-1%
Jushi	5%	11%	17%	11%	-7%	7%	-1%	1%	1%	9%	2%	11%	19%
Marimed	32%	33%	43%	38%	6%	35%	33%	27%	25%	17%	24%	21%	17%
Planet13	12%	25%	19%	8%	6%	14%	10%	5%	2%	-3%	3%	3%	-2%
Schwazze	-32%	30%	33%	28%	28%	30%	25%	34%	37%	33%	33%	36%	33%
StateHouse	12%	8%	23%	16%	-43%	1%	-21%	-14%	-18%	-19%	-17%	-10%	3%
TerrAscend	32%	40%	40%	19%	47%	36%	10%	9%	17%	25%	16%	18%	18%
Tilt	-5%	12%	15%	9%	8%	11%	4%	2%	1%	-1%	2%	0%	4%
Trulieve	50%	47%	44%	44%	33%	41%	33%	33%	33%	35%	32%	27%	28%
Verano	77%	50%	41%	54%	41%	46%	43%	34%	36%	35%	37%	35%	35%
Vext	27%	33%	37%	38%	36%	36%	35%	55%	43%	39%	43%	32%	11%

Source: Company reports, and Z&A estimates

Exhibit 7: Reported Operating Cash Flow

	CY20	1Q21	2Q21	3Q21	4Q21	CY21	1Q22	2Q22	3Q22	4Q22	CY22	1Q23	2Q23
OPERATING CASH FLOW													
Acreage	-67.7	-1.6	-19.4	2.7	-22.2	-40.5	-5.4	-18.1	-7.0	-19.6	-50.1	-8.1	-0.5
Ascend	-6.0	-7.8	-4.2	-10.2	-19.4	-41.7	-10.2	-10.3	-1.8	-16.1	-38.4	5.8	25.4
AYR	36.5	-19.9	-2.5	0.2	-5.6	-27.8	-21.2	-13.7	0.2	0.5	-34.2	10.3	-5.3
Columbia Care	-49.7	-3.5	-15.6	23.4	-4.8	-0.5	-27.8	-72.0	-16.8	5.2	-111.4	-3.4	-0.3
Cresco	-7.8	13.0	-43.2	7.1	37.7	14.5	-3.4	-7.1	25.6	3.6	18.7	3.3	18.0
Curaleaf	12.4	-6.0	-73.1	51.7	-30.8	-58.3	45.6	-34.0	59.9	-25.1	46.4	14.2	22.8
4Front	-14.0	2.8	1.5	-0.3	1.8	5.8	-2.4	-0.5	0.9	10.7	8.8	-6.9	-2.0
Goodness Growth	-10.9	-5.0	-12.5	-5.2	-7.8	-30.5	-6.8	-3.1	-2.1	-6.1	-18.1	-3.8	1.6
Green Thumb	95.9	39.7	8.6	34.5	49.3	132.0	55.4	-15.5	48.3	70.3	158.6	74.7	18.3
iAnthus	-9.8	5.5	6.9	7.5	-3.7	16.1	1.8	-7.4	-8.5	-5.4	-19.5	-0.8	1.1
Jushi	-12.4	0.5	-13.6	-1.4	0.2	-14.3	-13.8	-13.9	1.5	4.8	-21.4	-3.6	-6.7
Marimed	3.4	6.8	10.8	10.7	7.6	35.9	8.5	-6.3	3.3	1.7	7.3	-4.5	1.3
Planet13	-0.9	4.3	-0.2	-1.9	-2.6	-0.4	3.0	-1.8	1.1	1.5	3.8	-5.2	-1.6
Schwazze	-9.8	1.7	-0.3	3.4	3.6	8.4	3.6	-11.6	4.0	15.3	11.4	-0.9	2.7
StateHouse	-0.6	-0.9	-5.4	-4.7	-4.3	-15.3	-0.3	-21.8	-10.7	-4.2	-37.1	-1.4	3.7
TerrAscend	-27.9	6.2	-16.3	-17.9	3.9	-24.2	-18.8	-16.1	1.5	11.6	-21.8	8.4	3.9
Tilt	16.7	2.6	0.0	-6.6	-4.7	-8.6	4.2	-0.4	4.5	0.3	8.6	3.8	-3.3
Trulieve	99.6	59.6	-10.4	25.9	-62.2	12.9	45.1	-55.4	-21.6	55.0	23.1	0.4	-23.5
Verano	71.6	24.8	32.0	74.7	51.3	182.9	34.5	9.2	21.7	29.0	94.3	16.9	25.1
Vext	3.1	2.3	2.2	2.2	4.5	11.3	3.1	0.9	-1.0	2.9	5.9	0.4	3.1

Source: Company reports, and Z&A estimates

Exhibit 8: Financial Net Debt

	CY20	1Q21	2Q21	3Q21	4Q21	CY21	1Q22	2Q22	3Q22	4Q22	CY22	1Q23	2Q23
FINANCIAL NET DEBT													
Acreage	-125.8	-134.6	-104.7	-113.6	-126.5	-126.5	-143.9	-172.2	-175.5	-191.0	-191.0	-202.7	-213.9
Ascend	-153.5	-185.9	-48.2	-51.1	-103.3	-103.3	-89.9	-152.7	-219.0	-256.5	-256.5	-250.8	-241.8
AYR	-38.6	-1.9	-64.0	-124.8	-228.4	-228.4	-353.0	-370.7	-405.1	-352.0	-352.0	-341.3	-378.8
Columbia Care	-23.4	88.9	7.6	-23.1	-78.7	-78.7	-139.7	-244.2	-277.2	-280.9	-280.9	-290.6	-290.4
Cresco	-140.6	-27.4	-157.1	-224.5	-258.9	-258.9	-313.4	-394.1	-364.6	-366.4	-366.4	-408.6	-415.0
Curaleaf	-218.0	-24.9	-4.4	-24.8	-160.6	-160.6	-341.4	-399.9	-401.4	-459.5	-459.5	-478.0	-489.1
4Front	-48.1	-47.2	-43.6	-47.7	-48.2	-48.2	-62.0	-76.9	-79.2	-69.0	-69.0	-78.9	-79.2
Goodness Growth	25.1	20.9	1.2	-12.2	-12.2	-12.2	-22.6	-28.9	-33.8	-42.9	-42.9	-47.9	-49.5
Green Thumb	-15.3	175.8	161.6	31.8	-9.5	-9.5	-69.7	-108.2	-108.3	-98.0	-98.0	-92.5	-140.9
iAnthus	-159.7	-164.9	-166.5	-168.2	-176.8	-176.8	-178.2	-107.9	-120.2	-132.9	-132.9	-139.2	-145.8
Jushi	40.1	115.8	68.9	-8.1	-31.0	-31.0	-65.2	-142.8	-168.8	-163.1	-163.1	-174.9	-183.5
Marimed	-33.7	-6.9	-0.5	6.3	11.0	11.0	15.4	-15.5	-14.8	-20.0	-20.0	-31.9	-38.1
Planet13	78.1	140.2	135.4	127.8	60.7	60.7	61.3	51.7	50.0	51.5	51.5	41.8	39.6
Schwazze	-17.7	-31.3	-33.1	-38.2	8.8	8.8	-70.3	-87.2	-85.7	-88.8	-88.8	-96.0	-135.6
StateHouse	-38.5	-19.2	-24.3	-31.7	-39.1	-27.3	-66.8	-110.9	-124.1	-130.9	-130.9	-131.6	-125.6
TerrAscend	-129.4	51.9	-40.3	-90.2	-99.8	-99.8	-168.4	-202.8	-224.7	-179.2	-179.2	-175.6	-186.2
Tilt	-64.3	-63.7	-64.4	-73.5	-79.7	-79.7	-78.7	-95.4	-54.4	-56.2	-56.2	-43.7	-52.9
Trulieve	58.7	70.0	193.0	-3.9	-421.0	-421.0	-460.3	-552.6	-620.9	-578.3	-578.3	-640.6	-631.1
Verano	-23.8	71.9	15.9	-105.8	-190.8	-190.8	-244.6	-309.8	-315.7	-328.2	-328.2	-320.2	-317.8
Vext	-8.9	6.0	-6.4	-7.4	-7.4	-7.4	-8.7	-11.1	-16.2	-31.3	-31.3	-35.3	-34.7

Source: Company reports, and Z&A estimates

Exhibit 9: Net Interest Expense to Sales

	CY20	1Q21	2Q21	3Q21	4Q21	CY21	1Q22	2Q22	3Q22	4Q22	CY22	1Q23	2Q23
NET INTEREST / SALES													
Acreage	-8%	-9%	-9%	-5%	-9%	-8%	-8%	-8%	-8%	-13%	-9%	-14%	-15%
Ascend	-17%	-11%	-9%	-8%	-8%	-9%	-7%	-7%	-7%	-7%	-7%	-8%	-6%
AYR	-2%	-5%	-4%	-4%	-5%	-5%	-6%	-7%	-7%	-6%	-7%	-6%	-9%
Columbia Care	-3%	-4%	-4%	-3%	-9%	-5%	-9%	-9%	-10%	-10%	-9%	-10%	-10%
Cresco	-7%	-6%	-5%	-6%	-7%	-6%	-7%	-6%	-7%	-8%	-7%	-8%	-10%
Curaleaf	-7%	-5%	-4%	-2%	-7%	-4%	-4%	-4%	-4%	-6%	-4%	-4%	-4%
4Front	-12%	-11%	-11%	-10%	-20%	-13%	-10%	-12%	-13%	-8%	-11%	-10%	-10%
Goodness Growth	-10%	-8%	-19%	-17%	-33%	-19%	-29%	-25%	-30%	-37%	-30%	-37%	-38%
Green Thumb	-3%	-2%	-2%	-3%	-2%	-2%	-2%	-2%	-1%	-1%	-2%	-1%	-1%
iAnthus	-16%	-11%	-11%	-12%	-12%	-11%	-14%	-13%	-9%	-9%	-11%	-10%	-10%
Jushi	-19%	-16%	-14%	-15%	-14%	-15%	-16%	-15%	-18%	-15%	-16%	-12%	-15%
Marimed	-19%	-6%	-1%	-1%	-1%	-2%	0%	0%	-1%	-1%	-1%	-7%	-7%
Planet13	-3%	-2%	-1%	-2%	5%	0%	0%	0%	0%	1%	0%	1%	1%
Schwazze	-96%	-13%	9%	6%	4%	3%	-38%	3%	6%	-23%	-11%	-5%	-7%
StateHouse	-7%	-5%	-8%	-2%	-6%	-5%	-8%	-20%	-18%	-22%	-18%	-17%	-19%
TerrAscend	-7%	-12%	-15%	-14%	-17%	-14%	-14%	-21%	-14%	-9%	-14%	-15%	-11%
Tilt	-4%	-4%	-5%	-5%	-5%	-5%	-7%	-8%	-10%	-8%	-8%	-10%	-13%
Trulieve	-4%	-4%	-3%	-3%	-5%	-4%	-6%	-6%	-6%	-7%	-6%	-8%	-7%
Verano	-2%	-1%	-3%	-4%	-10%	-5%	-5%	-5%	-5%	-31%	-12%	-7%	-6%
Vext	-2%	-3%	-1%	0%	-15%	-5%	-2%	-2%	-1%	-1%	-1%	-1%	0%

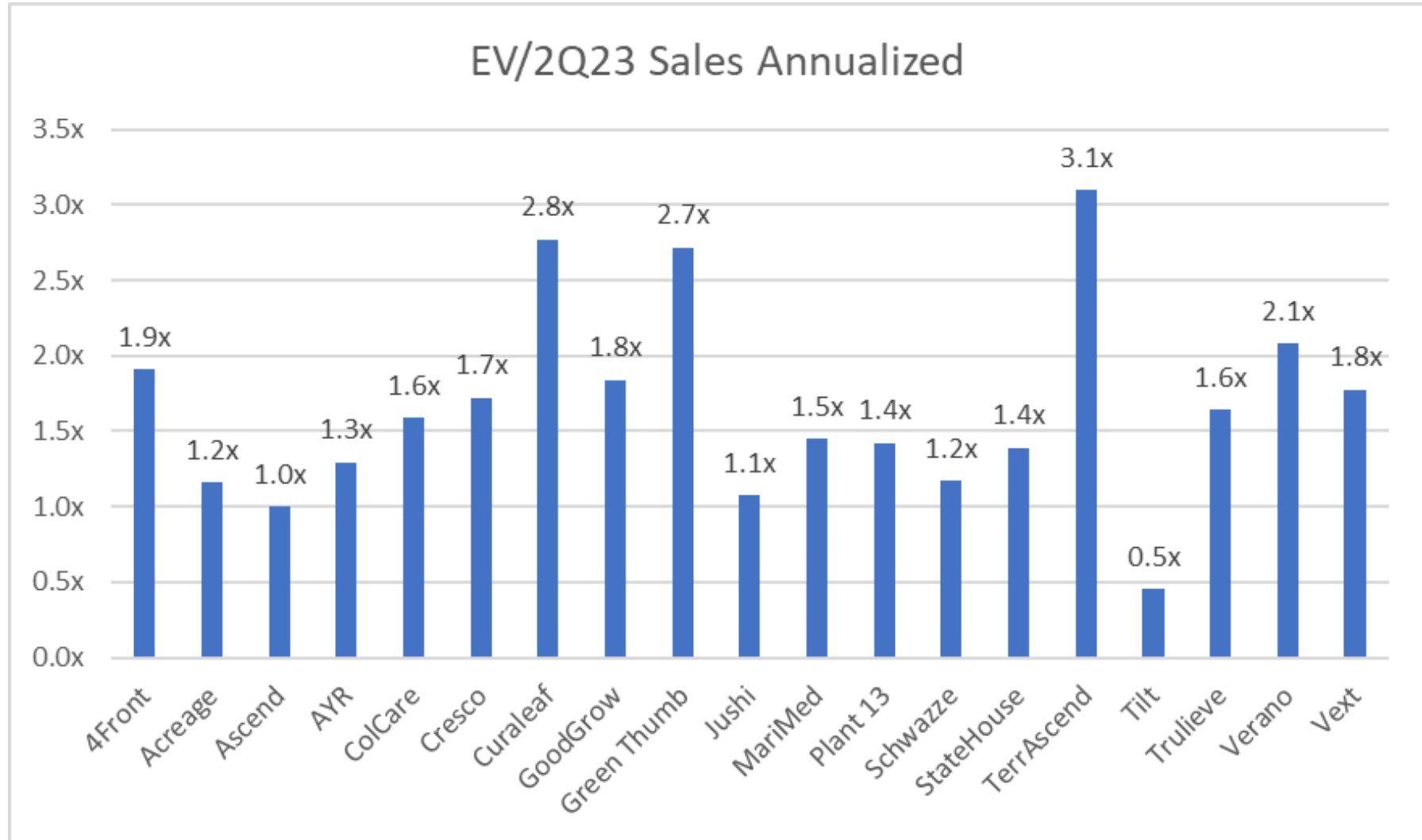
Source: Company reports, and Z&A estimates



Appendix III: Valuation Comps



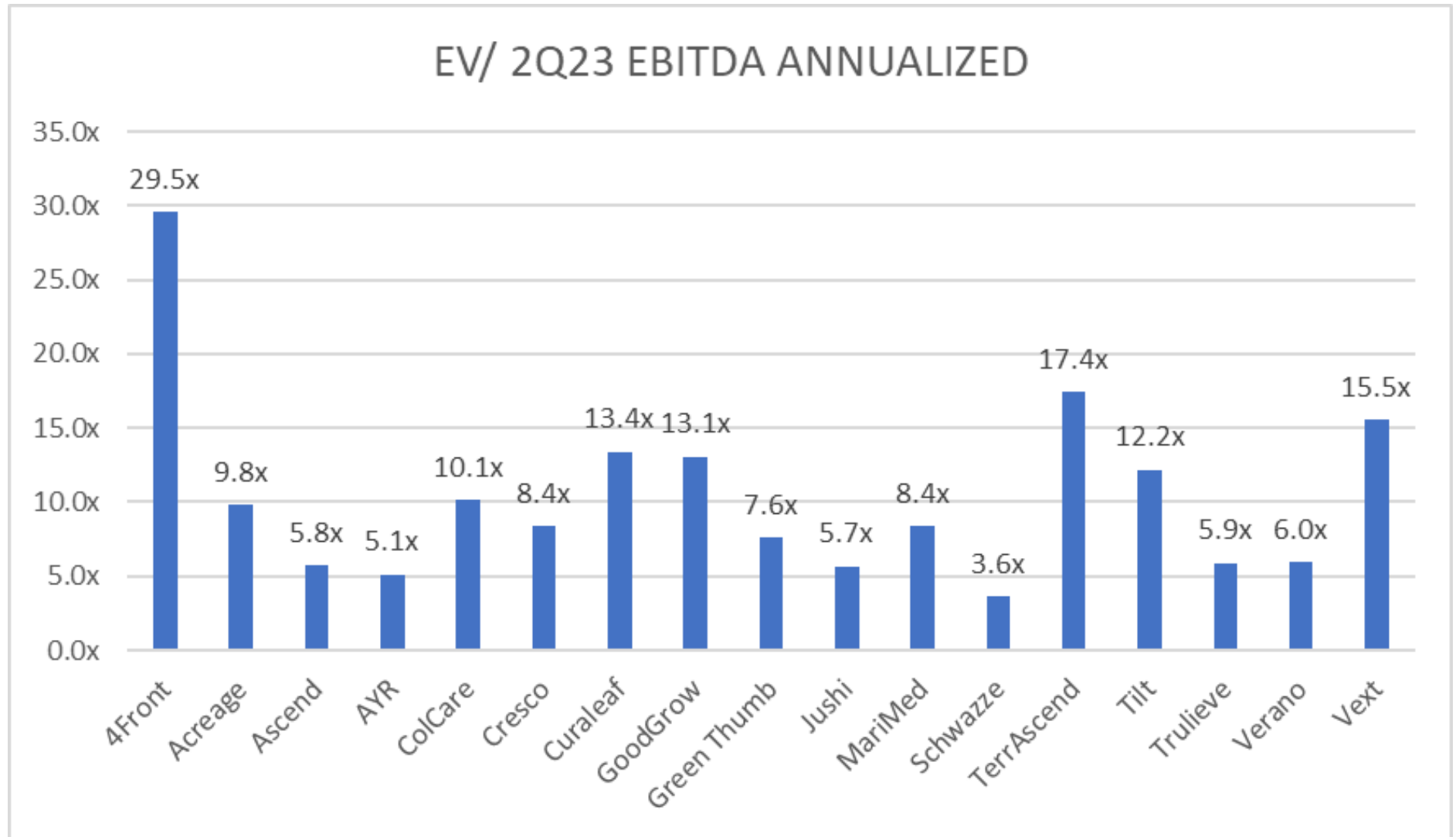
Exhibit 10: MSO EV/Sales



Source: FactSet, company reports, and Z&A estimates



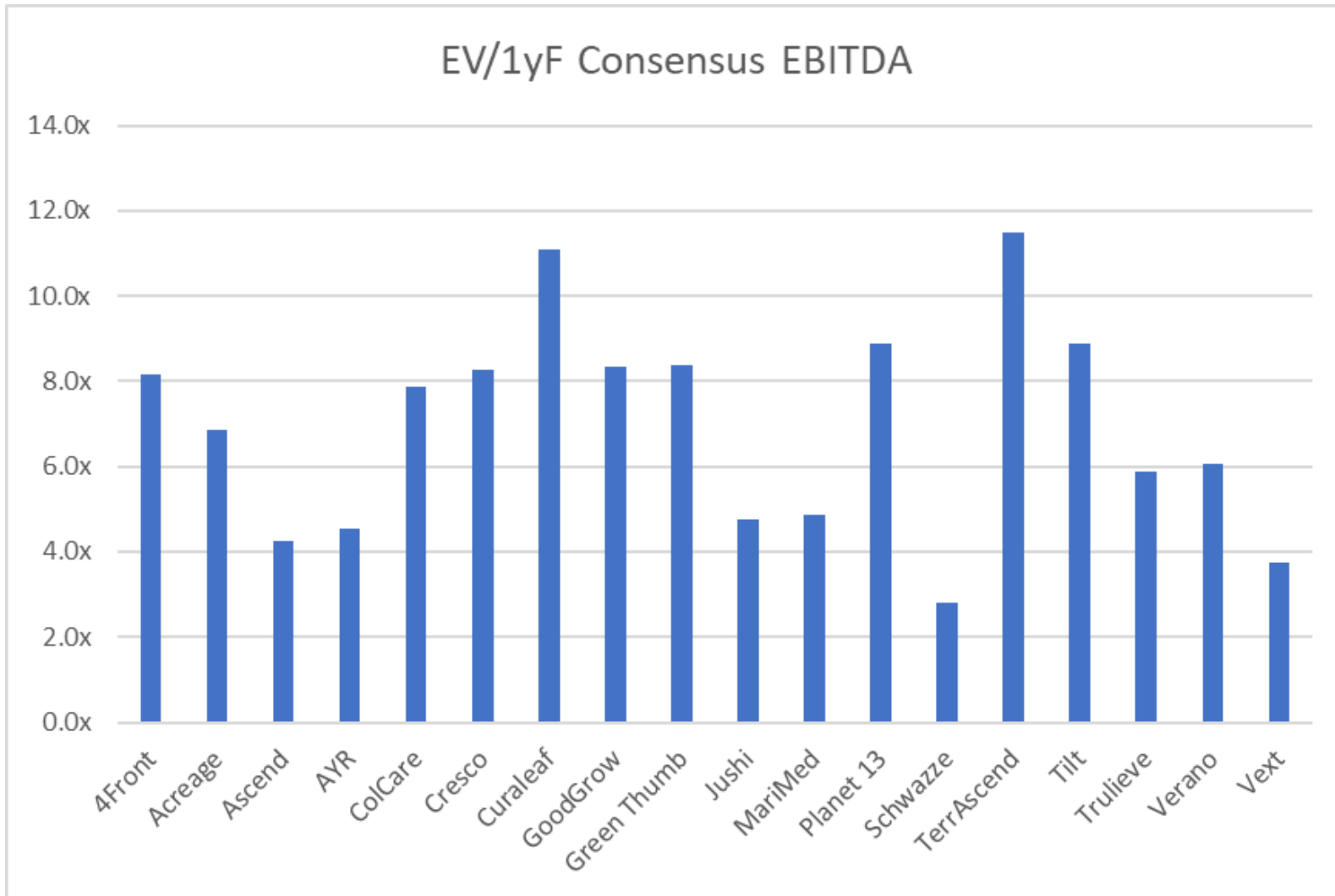
Exhibit 11: MSO EV/EBITDA



Source: FactSet, company reports, and Z&A estimates



Exhibit 12: MSO EV/Projected EBITDA



Source: FactSet, company reports, and Z&A estimates



Exhibit 13: Valuation Comps – Part I

US\$Mn	Company name	Ticker	Listing	9/20/2023	Mkt	Net	Ent	Last Qtr Annualized		1yr Forward Consensus		Consensus		Cons	Net debt	
				Price	Cap			(mn)	(Debt)	Value	EV/Sales	EV/EBITDA	EV/Sales	EV/EBITDA	1yF Estimates (US\$Mn)	
				US\$	US\$MN	Shares						Sales	EBITDA	mgn %	1yF EBITDA	
US MSOs																
	4Front Ventures Corp.	FFNTF	US OTC	0.24	156	648.6	-79	235	1.9x	29.5x	1.8x	8.2x	133	29	22%	-2.8x
	Acreage Holdings, Inc. Class I	ACRDF	US OTC	0.40	55	138.1	-214	269	1.2x	9.8x	1.1x	6.9x	235	39	17%	-5.4x
	Ascend Wellness Holdings LL	AAWH	US OTC	1.17	249	212.9	-242	491	1.0x	5.8x	0.9x	4.2x	546	116	21%	-2.1x
	Ayr Wellness, Inc.	AYRWF	US OTC	2.92	225	77.2	-379	604	1.3x	5.1x	1.2x	4.6x	522	133	25%	-2.9x
	Columbia Care, Inc.	CCHWF	US OTC	1.27	532	419.3	-290	823	1.6x	10.1x	1.5x	7.9x	556	104	19%	-2.8x
	Cresco Labs, Inc.	CRLBF	US OTC	2.17	947	436.5	-415	1,362	1.7x	8.4x	1.8x	8.3x	770	165	21%	-2.5x
	Curaleaf Holdings, Inc.	CURLF	US OTC	4.54	3,263	718.7	-489	3,752	2.8x	13.4x	2.7x	11.1x	1,411	339	24%	-1.4x
	Glass House Brands Inc	GLASF	US OTC	4.21	0	0.0	-44	44	na	na	0.3x	1.5x	168	29	17%	-1.5x
	Goodness Growth Holdings, I	GDNSF	US OTC	0.17	24	143.1	-124	149	1.8x	13.1x	1.6x	8.3x	96	18	19%	-7.0x
	Green Thumb Industries Inc.	GTBIF	US OTC	10.90	2,602	238.8	-141	2,743	2.7x	7.6x	2.5x	8.4x	1,079	328	30%	-0.4x
	Jushi Holdings Inc Class B	JUSHF	US OTC	0.74	146	196.6	-141	287	1.1x	5.7x	1.0x	4.8x	298	60	20%	-2.3x
	MariMed Inc	MRMD	US OTC	0.47	174	371.6	-38	212	1.5x	8.4x	1.3x	4.9x	168	43	26%	-0.9x
	Planet 13 Holdings, Inc.	PLNHF	US OTC	0.84	187	222.2	40	147	1.4x	-62.9x	1.0x	8.9x	145	17	11%	2.4x
	Schwazze	SHWZ	US OTC	0.90	64	70.6	-136	199	1.2x	3.6x	0.9x	2.8x	211	71	34%	-1.9x
	StateHouse Holdings Inc	STHZF	US OTC	0.06	15	256.3	-126	141	1.4x	55.4x	na	na	na	na	na	na
	TerrAscend Corp.	TSNDF	US OTC	2.02	707	350.5	-186	893	3.1x	17.4x	2.6x	11.5x	348	78	22%	-2.4x
	TILT Holdings, Inc.	TLTTF	US OTC	0.06	22	378.5	-53	75	0.5x	12.2x	0.4x	8.9x	181	8	5%	-6.3x
	Trulieve Cannabis Corp.	TCNNF	US OTC	6.58	1,224	186.0	-631	1,855	1.6x	5.9x	1.6x	5.9x	1,130	316	28%	-2.0x
	Verano Holdings Corp. Class	VRNOF	US OTC	4.75	1,632	343.4	-318	1,950	2.1x	6.0x	1.9x	6.0x	1,012	323	32%	-1.0x
	Vext Science, Inc.	VEXTF	US OTC	0.20	30	151.1	-35	65	1.8x	15.5x	1.2x	3.7x	55	17	32%	-2.0x

Source: FactSet, company reports, and Z&A estimate

Exhibit 14: Valuation Comps – Part II

US\$Mn	Company name	Ticker	Listing	9/20/2023	Mkt	Net	Ent	Last Qtr Annualized		1yr Forward Consensus		Consensus		Cons	Net debt	
				Price	Cap			(mn)	(Debt)	Value	EV/Sales	EV/EBITDA	EV/Sales	EV/EBITDA	1yF Estimates (US\$Mn)	EBITDA
				US\$	US\$Mn	Shares						Sales	EBITDA		1yF EBITDA	
Canada																
	Aleafia Health, Inc.	ALEAF	US OTC	0.02	6	403.2	-32	38	0.3x	57x	#N/A	#N/A	#N/A	#N/A	#N/A	
	Aurora Cannabis Inc.	ACB	NASDAQ	0.80	316	394.7	36	280	1.3x	44x	1.4x	17.8x	206	16	8%	2.3x
	Auxly Cannabis Group Inc.	CBWTF	US OTC	0.01	15	1,265.9	-133	148	2.0x	52x	1.4x	-76.1x	106	-2	-2%	68.2x
	Avant Brands Inc	AVTBF	US OTC	0.14	36	260.8	-6	42	1.8x	8.5x	#N/A	#N/A	#N/A	#N/A	#N/A	
	BZAM Ltd	BZAMF	US OTC	0.13	24	181.0	-25	49	0.9x	-2.7x	#N/A	#N/A	#N/A	#N/A	#N/A	
	Canopy Growth Corporation	CGC	NASDAQ	0.87	627	718.9	-350	977	3.0x	-5.7x	3.2x	-10.0x	307	-97	-32%	3.6x
	Cronos Group Inc	CRON	NASDAQ	2.18	848	388.9	835	13	0.2x	-0.2x	0.1x	-0.4x	94	-33	-35%	-25.1x
	Decibel Cannabis Company I	DBCCF	US OTC	0.11	46	409.0	-29	74	0.8x	3.4x	0.5x	2.1x	136	36	26%	-0.8x
	Entourage Health Corp	ETRGF	US OTC	0.02	5	306.7	-91	96	na	na	na	na	na	na	na	
	High Tide, Inc.	HITI	NASDAQ	1.85	142	76.9	-9	151	1.6x	48.2x	0.3x	4.4x	538	35	6%	-0.3x
	Nova Cannabis Inc	NVACF	US OTC	0.52	30	57.2	-5	35	0.2x	2.1x	na	na	na	na	na	
	OrganiGram Holdings Inc	OGI	NASDAQ	1.58	129	81.7	39	90	0.9x	-10.5x	0.7x	9.3x	125	10	8%	4.0x
	Rubicon Organics, Inc.	ROMJF	US OTC	0.39	25	63.1	59	-34	-1.0x	-6.5x	-0.7x	-3.5x	51	10	19%	6.0x
	SNDL Inc.	SNDL	NASDAQ	1.98	493	248.8	161	331	0.5x	51.1x	0.5x	15.6x	722	21	3%	7.6x
	Tilray Brands, Inc.	TLRY	NASDAQ	2.47	1,737	703.3	-131	1,868	10.1x	84.1x	2.5x	24.4x	758	77	10%	-1.7x
	Village Farms International, I	VFF	NASDAQ	0.92	101	110.2	-23	124	0.4x	7.0x	0.4x	15.2x	290	8	3%	-2.8x

Source: FactSet, company reports, and Z&A estimates

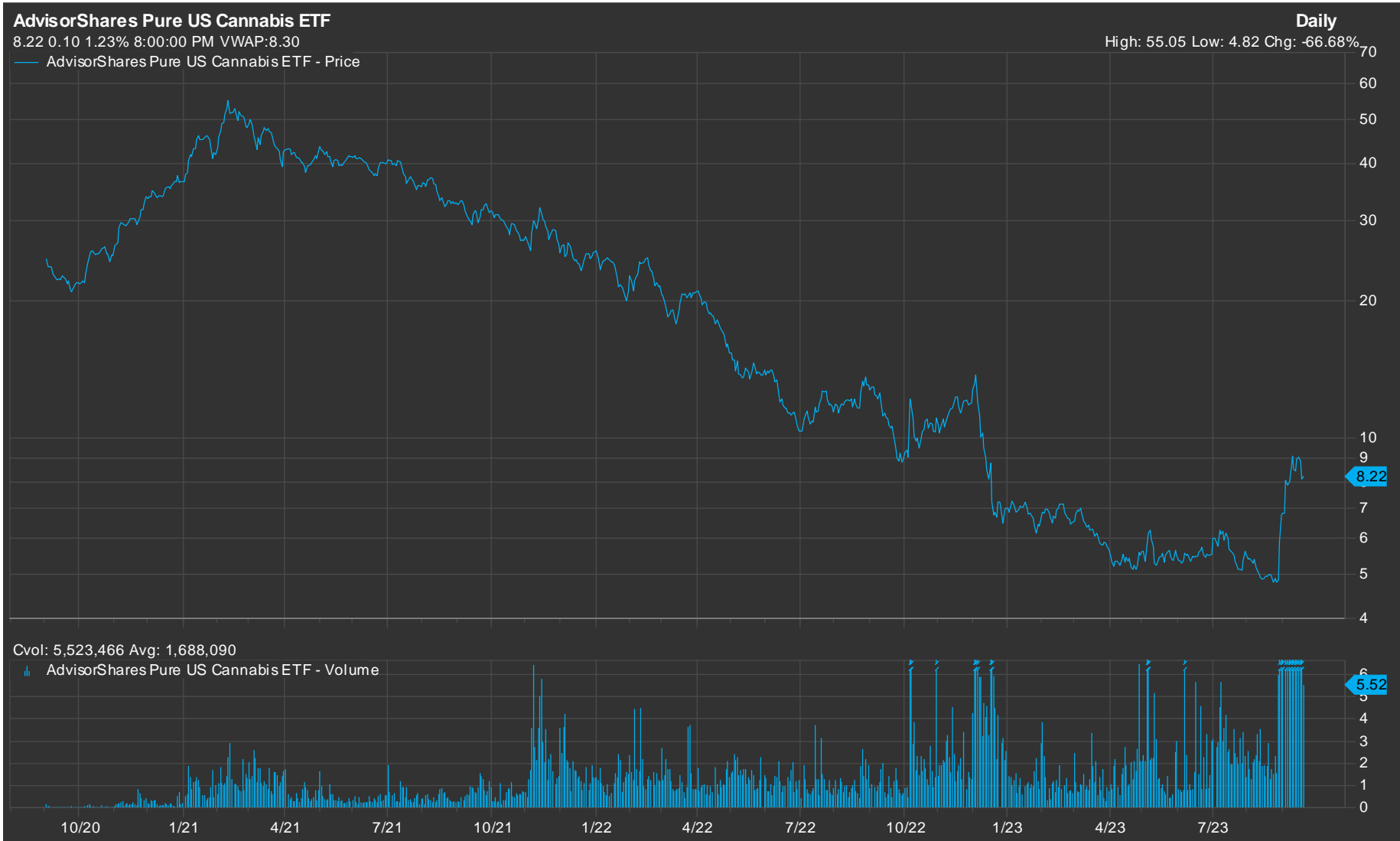
Exhibit 15: Valuation Comps – Part III

US\$Mn	Company name	Ticker	Listing	9/20/2023	Mkt	Net	Ent	1yr Forward	Consensus	Consensus		Cons	Net debt	
				Price	Cap					(mn)	(Debt)			Value
			US\$	US\$MN	Shares			EV/Sales	EV/EBITDA	Sales	EBITDA	mgn %	1yF EBITDA	
Service Providers														
	AFC Gamma, Inc.	AFCG	NASDAQ	12.82	261	20.4	-17	278	4.0x	#N/A	69	#N/A	#N/A	#N/A
	Chicago Atlantic Real Estate I	REFI	NASDAQ	15.61	277	17.8	-52	330	5.4x	#N/A	61	#N/A	#N/A	#N/A
	GrowGeneration Corp.	GRWG	NASDAQ	3.16	193	61.0	23	170	0.7x	-46.8x	229	-4	-2%	-6.4x
	Hydrofarm Holdings Group, I	HYFM	NASDAQ	1.34	61	45.2	-165	225	0.9x	25.0x	240	9	4%	-18.3x
	Innovative Industrial Propert	IIPR	NYSE	84.76	2,371	28.0	-14	2,385	7.7x	9.6x	308	248	80%	-0.1x
	Leafly Holdings, Inc.	LFLY	NASDAQ	9.43	20	2.2	-4	24	0.5x	-11.1x	46	-2	-5%	1.7x
	NewLake Capital Partners, In	NLCP	US OTC	13.80	295	21.4	42	253	5.5x	#N/A	46	#N/A	#N/A	#N/A
	RiverNorth Opportunities Fu	RIV	NYSE	10.83	200	18.5	18	182	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	SHF Holdings Inc Class A	SHFS	NASDAQ	0.72	17	23.7	7	10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Scotts Miracle-Gro Company	SMG	NYSE	52.26	2,900	55.5	-3,183	6,084	1.7x	11.7x	3,576	518	14%	-6.1x
	Silver Spike Investment Corp	SSIC	NASDAQ	9.79	61	6.2	85	-24	-1.6x	#N/A	15	#N/A	#N/A	#N/A
	SpringBig Holdings, Inc.	SBIG	US OTC	0.13	4	26.7	-6	9	0.3x	6.1x	34	1	4%	-3.7x
	urban-gro Inc	UGRO	NASDAQ	1.32	14	10.8	6	9	0.1x	-8.8x	109	-1	-1%	-5.6x
	WM Technology, Inc. Class A	MAPS	NASDAQ	1.50	246	163.7	25	221	1.1x	8.5x	204	26	13%	0.9x
CBD, CPG, Pharma, International														
	Cardiol Therapeutics Inc. Cla:	CRDL	NASDAQ	0.99	63	64.0	44	20	#DIV/O!	-1.1x	0	-17	#DIV/O!	-2.5x
	Charlotte's Web Holdings, In	CWBHF	US OTC	0.47	71	152.1	9	62	0.8x	-7.6x	79	-8	-10%	-1.1x
	Clever Leaves Holdings, Inc.	CLVR	NASDAQ	3.35	5	1.5	4	1	0.0x	-0.2x	27	-6	-23%	-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
	Hempfusion Wellness, Inc.	CBDHF	US OTC	0.00	0	99.7	0	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	IM Cannabis Corp	IMCC	NASDAQ	0.59	4	7.6	-7	11	0.3x	4.8x	44	2	5%	-2.9x
	InterCure Ltd.	INCR	NASDAQ	1.65	75	45.6	-2	78	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Jazz Pharmaceuticals Public I	JAZZ	NASDAQ	133.73	8,454	63.2	-4,936	13,389	3.4x	7.1x	3,994	1,890	47%	-2.6x
	Little Green Pharma Ltd.	LGPPF	US OTC	#N/A	#N/A	297.9	0	#N/A	#N/A	#N/A	40	4	9%	0.0x
	PharmaCielo Ltd.	PCLOF	US OTC	0.17	27	155.0	-9	36	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Turning Point Brands Inc	TPB	NYSE	23.98	419	17.5	-314	733	1.7x	7.9x	420	93	22%	-3.4x

Source: FactSet, company reports, and Z&A estimates



Exhibit 16: MSOS ETF since July 2020



Source: FactSet



Exhibit 17: MSOS ETF Last 3 Months



Source: FactSet

Exhibit 18: Stock Performance

Stock Performance			
Ticker	Last 30d	Last 90d	Last 12mo
US MSOs			
FFNTF	134%	74%	-43%
ACRDF	78%	5%	-60%
AAWH	105%	81%	-38%
AYRWF	244%	228%	-17%
CXXIF	35%	9%	45%
CCHWF	210%	167%	-21%
CRLBF	111%	29%	-31%
CURLF	63%	46%	-22%
GLASF	9%	6%	73%
GNRS	6%	-91%	-99%
GRAMF	-16%	-27%	-83%
GDNSF	55%	9%	-85%
GTBIF	60%	40%	-1%
GRUSF	18%	39%	475%
JUSHF	76%	47%	-50%
LOWLF	49%	6%	-78%
MRMD	65%	20%	-6%
PLNHF	73%	44%	-33%
RWBYF	10%	nm	-61%
SHWZ	19%	-16%	-15%
STHZF	127%	31%	-74%
TSNDF	17%	19%	29%
TLLTF	96%	56%	-56%
TCNNF	70%	64%	-39%
VRNOF	73%	64%	-10%
VEXTF	25%	0%	-15%

Stock Performance			
Ticker	Last 30d	Last 90d	Last 12mo
Canada			
ALEAF	#N/A	1%	-67%
ACB	57%	42%	-46%
CBWTF	-6%	5%	-67%
AVTBF	-4%	29%	-13%
BZAMF	12%	-21%	-71%
CGC	89%	45%	-73%
CRON	17%	19%	-29%
DBCCF	8%	4%	57%
ETRGF	18%	6%	-44%
HITI	39%	47%	26%
NVACF	42%	33%	-30%
OGI	1%	-4%	-61%
ROMJF	9%	9%	-15%
SNDL	9%	45%	-24%
TLRY	-6%	56%	-23%
VFF	-3%	35%	-60%
CBD, CPG, Pharma, International			
CBDHF	na	9900%	-100%
CRDL	5%	18%	-18%
CLVR	-53%	-54%	-85%
CVSI	13%	0%	-14%
CWBHF	110%	159%	7%
GNLN	-4%	-64%	-96%
IMCC	-29%	-33%	-87%

Stock Performance			
Ticker	Last 30d	Last 90d	Last 12mo
Service Providers			
AFCG	5%	-3%	-23%
AGFY	30%	-27%	-97%
CXXIF	35%	9%	45%
REFI	4%	-2%	2%
GRWG	14%	-5%	-26%
HYFM	18%	40%	-50%
IIPR	11%	14%	-17%
LFY	35%	57%	-58%
NLCP	9%	9%	-10%
PW	-14%	-37%	-91%
RIV	-4%	-2%	-17%
SMG	5%	-11%	-3%
SSIC	2%	19%	-4%
SBIG	-34%	-73%	-87%
UGRO	15%	-2%	-56%
MAPS	38%	80%	-30%
CBD, CPG, Pharma, International			
INCR	16%	-16%	-64%
JAZZ	-3%	4%	-10%
LGPPF	na	na	na
PCLOF	99%	5%	-42%
TPB	-3%	1%	6%
YCBD	-3%	-33%	-90%

Source: FactSet



Appendix IV: 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 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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