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3-SIGMA VALUE

Q2 2018 In Review

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For the six months ended June 30, 2018, 3-Sigma Value, LP (the "Partnership") had an estimated gain of 6.1% with average gross exposure of 167.3% and net exposure of negative 3.4%.

	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	YTD
Gross Return	6.3%	10.1%	1.1%	-6.5%	1.6%	-5.7%	6.1%
Long Attribution	3.4%	-3.1%	-1.0%	-3.2%	0.7%	0.7%	-2.6%
Short Attribution	3.0%	13.2%	2.0%	-3.3%	0.8%	-6.3%	8.7%
Long Exposure	81.3%	70.9%	71.9%	82.3%	91.2%	93.9%	81.9%
Short Exposure	94.4%	88.5%	86.8%	82.5%	79.2%	80.7%	85.4%
Gross Exposure	175.8%	159.4%	158.7%	164.8%	170.4%	174.6%	167.3%
Net Exposure	-13.1%	-17.6%	-15.0%	-0.2%	12.1%	13.2%	-3.4%
# of Longs	18	17	16	18	18	18	
# of Shorts	18	17	18	20	20	20	

The top contributors to positive performance in the first half of 2018 were mostly on the short side; they were Gogo (GOGO), Control4 (CTRL), Universal Display (OLED), Xunlei (XNET), Roku (ROKU), Impinj (PI), and Hertz (HTZ). On the long side, we had four significant positive contributors: Shutterfly (SFLY), Criteo (CRTO), Gulfport Energy (GPOR), and Tecnoglass (TGLS).

In this mid-year report, we share a new short thesis that exemplifies the kind of work we do here at 3-Sigma Value in the area of natural resources. Occasionally we come across a hot commodity whose price level is unsustainable as a rush of new supply comes online, creating a significant imbalance between supply and demand. It doesn't matter the type of commodity – it can be solar panels, frac sand, or cannabis – the math of supply and demand is clean and straightforward. It can be measured and confirmed. Investing in natural resources is about data. Forecasting is not a guessing game. It is not magical and it doesn't require a supercomputer. There is no secret sauce. When supply or demand significantly exceeds the other, the underlying price is bound to move. The only uncertainty is timing.

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The Cannabis Bubble

Cannabis farming is a great business based on today's market prices. The two largest Canadian cannabis companies, Canopy Growth (WEED.TO / CGC) and Aurora Cannabis (ACB.TO) reported average sales prices of C$8.43 and C$7.99 per gram, respectively, in the first calendar quarter of 2018. This compares to cash costs off C$2.53[1] and C$1.80 per gram, respectively, generating gross margins of 70% and 77%. For a commodity.

On October 17, 2018, the doors to recreational cannabis dispensaries open in Canada, the buildup of which has reached gold rush proportions. The top 20 companies in terms of Canadian cannabis production are already building infrastructure to support 3x future upside case demand.

What makes this a classic gold rush is the fact that companies are building capacity without regard to what the competition is doing. Barriers to entry are low as there is no limit to the number of licenses the Canadian government will issue, and capital costs are minimal. First mover advantage. Each one of these cannabis companies strives to be a market leader in price by achieving economies of scale through rapid infrastructure growth. And while the end result is positive for consumers (lower prices), it is negative for producers as the price of the commodity inevitably falls to its marginal cost of production. Cannabis is a commodity, and like any commodity, price is determined by the intersection of supply and demand. When supply overwhelms demand, prices collapse.

In order to offset domestic over-capacitation, many of the top 20 Canadian cannabis companies have announced international expansion plans – in Germany, Denmark, Australia, South America, etc. However, the idea that Canadian farmers will become global players is a perfect example of what we refer to as a "TAM Fallacy" (Total Addressable Market) as indoor farming in Canada is uncompetitive with cheaper growers in South and Central America, and therefore cannabis production will remain localized. In fact, Canadian cannabis companies are obligated by the Canadian securities regulations to only operate in countries where the sale of marijuana is legal nationally. It therefore excludes the U.S. market where individual states make their own determinations.

Even though recreational cannabis is already legal in other parts of the world (including 9 states in the U.S.[2]), the Canadian stocks are the first group to skyrocket in value to the billions of dollars. Dozens of newly-minted cannabis companies have gone public or changed their

[1] As of the quarter ended 3/31/18, Canopy (WEED.TO / CGC) no longer reports cash cost per gram. C$2.53 was the cash cost per gram in the quarter ended 12/31/17.

[2] Colorado, Washington, Oregon, California, Nevada, Alaska, Maine, Massachusetts, Vermont.

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business models in the past few years, many of which are microcaps with little volume. Herein, we focus on 10 Canadian-based producers of cannabis (downstream), each with a market cap greater than C$500 million.

Canadian Cannabis Suppliers > C$500 million market cap

		Price			%	FD Shares	Market	Net	Minority	Enterprise	Revenue	
	in C$	6/30/2016	6/30/2017	6/28/2018	Change	Out	Cap	Debt	Interest	Value	2018	2019
1	**Canopy Growth (WEED.TO / CGC)**	3.15	7.97	40.51	1186%	212	8,600	-307	84	8,377	145	425
											57.6x	19.7x
2	**Aurora Cannabis (ACB.TO)***	0.47	2.16	9.41	1902%	566	5,322	127	11	5,460	103	296
											53.0x	18.5x
3	**Aphria (APH.TO)**	1.59	5.35	12.29	673%	232	2,851	-51	10	2,810	57	243
											49.4x	11.6x
4	**The Green Organic Dutchman (TGOD.TO) - 5/18 IPO**		NA	6.48	NA	329	2,130	-238	0	1,892	0	0
											NM	NM
5	**Cronos Group (CRON.TO / CRON)**	0.20	1.71	8.55	4175%	177	1,511	-21	0	1,490	25	118
											59.6x	12.6x
6	**Hydropothecary (HEXO.TO)**	0.60	1.32	5.09	748%	228	1,161	-249	0	912	5	106
											182.4x	8.6x
7	**Organigram Holdings (OGI.CSE)**	1.04	2.18	5.34	413%	161	860	-70	0	790	26	111
											30.4x	7.1x
8	**CannTrust (TRST.TO) - 8/17 IPO**	NA	NA	7.83	NA	104	813	-0.5	0	812	57	155
											14.3x	5.2x
9	**Emerald Health Therapeutics (EMH.CSE)**	0.18	1.32	3.70	1956%	158	584	-90	2	496	2	NA
											248.1x	NA
10	**Tilray (TLRY) - 7/18 IPO**	NA	NA	25.36	at 7/23/18	92	2,328					
										Average	**86.8x**	**11.9x**

Other publicly-owned suppliers include: **Auxly Cannabis Group (CBW.TO)** - formerly Cannabis Wheaton Income Corp, **Supreme Cannabis Co (FIRE.CSE) - 6/17 IPO**, **Newstrike (HIP.TO) - owns UP Cannabis, WeedMD (WMD.CSE), ABcann Medicinals (ABCN.CSE), Emblem Corp (EMC.CSE), Sunniva (SNN.CSE),** etc.

* May 2018 - announced acquisition of **MedRelief (LEAF.TO)** for C$3.2 billion (US$2.5B). January 2018 - announced acqusition of **Cannimed (CMED)** for C$1.1 billion.

While it is possible to differentiate cannabis at the retail/product level (upstream) – although not in Canada where regulations limit the ability to differentiate product/packaging – farming is a purely commoditized pursuit in which all participants are impacted uniformly by price. Price is determined by supply versus demand; and maximized at the intersection of marginal revenue and marginal cost. What makes the inflating of cannabis valuations over the past two years a bubble is the fundamental imbalance between supply and demand. Supply is about to explode while demand is wildly overstated.

Supply versus Demand

Let's start with demand.

Demand

In order to estimate demand, we look at the data on usage in three U.S. states – Washington, Oregon, and Colorado – and apply it to the Canadian population. While Colorado is an obvious analog, the populations in Oregon and Washington are somewhat more comparable to Canada, and we use their usage data as a Base Case. Colorado represents the Upside Case.

Demand Analysis	Oregon	Washington	Colorado
2017	Year 2	Year 4	Year 4
Total Retail Cannabis Sales (US$)	462,000,000	927,000,000	1,500,000,000
Implied Grams of Demand (@ $10/g)	46,200,000	92,700,000	150,000,000
Est. Population Ages 21+	2,952,000	5,279,112	4,328,723
Grams Consumed per Person	15.7	17.6	34.7
Est. Canada Population 19+	29,597,060	29,597,060	29,597,060
Implied Grams of Demand	463,206,020	519,717,608	1,025,604,807
Implied Kilograms of Demand	**463,206**	**519,718**	**1,025,605**
Total Retail Cannabis Sales ~C$10/g	**4,632,060,203**	**5,197,176,082**	**10,256,048,065**
Total Retail Cannabis Sales ~C$5/g	**2,316,030,102**	**2,598,588,041**	**5,128,024,033**

Annual retail demand in Canada would range between ~C$5 billion to ~C$10 billion **if** pricing were to sustain at C$10 per gram. However, given the coming supply glut, retail prices will fall to C$4.50 per gram (or less), which is approximately the current price level in Colorado.

Canada legalized cannabis for medicinal purposes in 2001, and since then a mature market has developed with black-market supply that exceeds demand and is readily available. Studies show that 37% of heavy cannabis users wouldn't participate in the legal market at a $1 per gram legal premium. Therefore, in order for legal supply to take share, it will have to compete on the basis of price.

The Canadian Statistical Service estimates there are 4.9 million medical and recreational cannabis users. If we assume usage in Canada approximates usage in Colorado (0.5 grams per day for the average user) and apply it to the 5 million users in Canada then total market demand will be around 1 million kilos per year. Unfortunately for the gold rushers, the black market isn't going away.

Finally, many of the major Canadian cannabis growers have turned to foreign markets to boost their total addressable market (TAM), announcing joint ventures in Germany, Denmark, Australia, and South America. However, production will remain mainly localized, limiting the export potential for excess Canadian production.

Supply

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3-Sigma Value identifies 14 Canadian companies that have announced 100,000 or more kilograms of annual cannabis[3] production capacity, and total supply in excess of 3 million kilos. This is 3x the high end of projected demand.

Cannabis Capacity in Canada (kilos) *

		12/31/2017	Planned
1	**Canopy Growth (WEED.TO / CGC)**	71,293	**500,000**
2	**Aurora Cannabis (ACB.TO) - 1/18 acquired Cannimed (CMED)**	15,800	**430,000**
3	**+ MedRelief (LEAF.TO) - 5/18 acquired by Aurora (ACB.TO)**	12,600	**140,000**
	= Pro Forma Combined	28,400	**570,000**
4	**Aphria (APH.TO)**	11,400	**255,000**
5	**Tilray (TLRY) - Privateer Holdings - July 2018 IPO**	8,000	**215,000**
6	**The Green Organic Dutchman (TGOD.TO) - May 2018 IPO**	0	**195,000**
7	**Organigram Holdings (OGI.CSE)**	16,000	**113,000**
8	**Hydropothecary (HEXO.TO)**	4,000	**108,000**
9	**Maricann Group (MARI.CSE)**	NM	**105,000**
10	**CannTrust (TRST.TO)**	30,563	**100,000**
11	**Emerald Health Therapeutics (EMH.CSE)**	851	**100,000**
12	**Sunniva (SNN.CSE)**	NM	**100,000**
13	**FSD Pharma (HUGE.CSE) d.b.a. FV Pharma ***	4,000	**100,000**
14	**Sundial Growers (private)**	2,100	**98,100**
15	**WeedMD (WMD.CSE)**	1,500	**73,000**
16	**Supreme Cannabis Co (FIRE.CSE)**	5,000	**55,000**
17	**Cronos Group (CRON.TO / CRON)**	5,150	**47,150**
18	**Newstrike (HIP.CSE) - owns UP Cannabis**	15,000	**32,500**
19	**ABcann Medicinals (ABCN.CSE)**	1,000	**32,500**
20	**Emblem Corp (EMC.CSE)**	2,800	**19,800**
	Top 20 Producers		**2,819,050**
	+ 30 More Producers		200,000
	Total Supply in Canada		**3,019,050**

* **Auxley Cannabis Group (V.TO)** f.k.a. Cannabis Wheaton Income Corp (CBW.TO) is a royalty partner of FV Pharma receiving 49.9% of all cannabis (or cannabis-derived products) produced.

[3] Or cannabis equivalent.

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The Canadian government has no limit on the number of cannabis licenses, with a waiting list in excess of 1,000 applicants making their way through the approval process.

Marginal Revenue = Marginal Cost

The cash costs of production are divided into 3 stages: (1) Harvest – the cash cost to harvest (from cloning to harvest) includes raw materials, nutrients, utilities, rent, and allocated overheads. (2) Post-harvest – cash costs related to the production of value-added products include oil and soft gel capsules. Also includes cash costs of trimming, milling, drying, lab testing, and allocated overheads. (3) Shipping and fulfillment – cash costs related to delivery, royalties under licensing agreements (i.e. Canopy pays Snoop Dogg), packaging and materials.

On Canopy's (WEED.TO / CGC) June 27, 2018 fiscal year end 2018 conference call, management announced it will no longer provide data on cost per gram, claiming a lack of standardized definition among producers is misleading for investors. Prior to this quarter, Canopy reported an all-in cash cost per gram of C$2.53, and ex-shipping the cash cost was C$1.03. In general, the cash cost to harvest cannabis (dried) is below $1.00 per gram for most of the industry, and therefore Canopy is not one of the lower cost producers[4]. Meanwhile, post-harvest, shipping and fulfillment costs can vary widely leading to all-in cash costs between C$1.50 and C$3.00 per gram.

According to Cannabis Benchmarks' weekly report dated June 29, 2018, the U.S. Cannabis Spot Index is down to $1,160 per pound[5], equivalent to $2.56 per gram (C$3.38). Meanwhile, wholesale prices in Colorado, Oregon, and Washington are all below $2 per gram (C$2.64). While pricing varies depending on where the product is grown, in all states where cannabis has been legalized prices have collapsed. It has been reported that the Canadian provinces are negotiating to pay licensed producers C$4.50 per gram or less, a level that implies a C$2.25 per gram wholesale price (100% retailer mark-up is industry standard).

Because the amount of cannabis supply will exceed 3x the high end of projected cannabis demand, the price of cannabis (marginal revenue) will approach its marginal cost of production. This means we expect retail cannabis to ultimately price below the C$4.50 that the Canadian government seeks, and as low as C$3 per gram, with corresponding wholesale pricing as low as C$1.50.

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[4] Canopy's decision to stop disclosing cost per gram data may prove telling.

[5] Indoor = $1,455 per pound / Greenhouse = $958 per pound / Outdoor = $715 per pound.

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Company-Specific Commentary (10 companies)

Canopy Growth (WEED.TO / CGC) is the largest cannabis company in Canada in terms of planned capacity (500,000 kilos per year) and market cap (C$8.6 billion). Canopy has the most registered medical customers (74,000 at 3/31/18) and the most revenue (C$22.8 million in the quarter ended 3/31/18). Snoop Dog is a partner. And Constellation Brands (STZ), a global leader in beer, wine and spirits, invested $245 million with a goal of becoming the leader in cannabis-infused beverages. In short, if we were so inclined to own a vertically-integrated cannabis stock without regard to valuation, Canopy appears a valid choice.

However, given our view that retail pricing will fall to C$4.50 per gram, Canopy would generate $594 million of revenue in its fiscal year ended 3/31/21.

Canopy Growth (WEED.TO / CGC) - Base Case Operating Scenario 1						
	3/31/2017	3/31/2018	3/31/2019	3/31/2020	3/31/2021	
FYE 3/31	FY2017	FY2018	FY2019	FY2020	FY2021	
Medical Cannabis						
Active Registered Patients - End of Period		74,000	94,000	114,000	134,000	
Net Change			20,000	20,000	20,000	LQA
Active Registered Patients - Average			84,000	104,000	124,000	
Kilos per Patient			0.122	0.137	0.137	LQA
Grams per Patient			122	137	137	
Kilos Sold	5,139	8,708	11,478	14,211	16,944	
ASP per Gram			6.47	4.50	4.50	Converges with recreational price.
% Change - Sequential			-23.2%	-30.5%	0.0%	
Revenue - Medical			**74,288**	**63,952**	**76,250**	
Recerational Cannabis (8 Provinces in Canada)	FY2017	FY2018	FY2019	FY2020	FY2021	
Kilos by Province:						
Quebec - 1 of 6 suppliers			5,000	12,000	12,000	Pop 8.4;
Newfoundland - sole supplier			3,333	8,000	8,000	Pop 0.5;
Saskachewan			2,500	6,000	6,000	Pop 1.2
Manitoba			2,083	5,000	5,000	Pop 1.3;
New Brunswick			1,667	4,000	4,000	Pop 0.8;
Prince Edward Island			417	1,000	1,000	pop 0.15
Alberta			6,250	15,000	15,000	Pop 4.3; 15% mkt share rule limits upside
British Columbia (31 suppliers granted licenses)			2,375	5,700	5,700	Pop 4.8; owns BC Tweed, which is local
Ontario - TBD			8,452	20,286	20,286	Pop 14.2; assume same proportion as Quebec
Total Kilos - Canada			**32,077**	**76,986**	**76,986**	
ASP per Gram			**4.50**	**4.50**	**4.50**	Provinces paying no more than C$4.50
Revenue - Canada			**144,348**	**346,436**	**346,436**	
Wholesale (incl. International)			**10,957**	**90,895**	**170,832**	Ties to 34% utilization assumption.
Total Revenue	**39,895**	**77,948**	**229,594**	**501,282**	**593,518**	
% Change - Sequential		**95.4%**	**194.5%**	**118.3%**	**18.4%**	
EV / Revenue		**107.5x**	**36.5x**	**16.7x**	**14.1x**	

What is Canopy worth? Commodity producers trade at 5-6x EBITDA, while consumer discretionary trades at 10-20x EBITDA. Meanwhile, Canopy is trading at 14x revenue three years out.

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In terms of profit, Canopy will not generate operating or net income, or any EBITDA, when the price of cannabis falls to C$4.50. However, it will generate positive free cash flow before debt (excluding growth capex) of ~C$60 million. Potentially, that's worth 20x or C$1.2 billion (equal to C$6 per share).

Aurora Cannabis (ACB.TO) is the #2 player in Canada, a roll-up and investor in other cannabis companies including The Green Organic Dutchman (TGOD) in which it owns a 17.5% stake. In May 2018, Aurora closed its C$1.1 billion acquisition of CanniMed (CMED.TO) and then turned around and later that month announced the C$3.2 billion acquisition of MedRelief (LEAF.TO). Once closed, Aurora will surpass Canopy as the leader in planned capacity with 570,000 kilos per year. Based on consensus estimates, Aurora is paying 25x FY 2019 revenue for MedRelief. Using a C$4.50/C$2.25 retail/wholesale price assumption, Aurora is trading at 9.5x the C$572 million of revenue it would generate in its fiscal year ended 6/30/2021. And using the same 20x FCF valuation assumption that we used when valuing Canopy, Aurora is worth ~C$1.1 billion (equal to C$2 per share).

Aphria (APH.TO) is the #3 cannabis company in Canada. What stands out about Aphria is its acquisition of Nuverra, a newly-formed company with no experience in the cannabis industry[6]. In January 2018, Nuuvera went public via a reverse merger into a shell corporation listed on the TSX Venture Exchange. Less than 3 weeks later, Aphria announced an offer of C$826 million in cash and stock. The deal closed in March 2018 at a re-negotiated C$425 million (comprised of C$50 million in cash and $375 million in Aphria shares). Nuuvera remains a subsidiary of Aphria now renamed Aphria International[7]. According to the company, the rationale for the deal was to jump start Aphria's international expansion; however, it later came out that four executives and three other directors at Aphria owned shares in Nuuvera at the time of the deal but did not disclose that information to shareholders. This is a shady operation. Nevertheless, even if management proves capable, Aphria will generate C$401 million of revenue (7x) in its fiscal year ended 5/31/2021 using the C$4.50/C$2.25 retail/wholesale price assumption. And using the same 20x FCF valuation assumption that we used when valuing Canopy and Aurora, Aphria is worth ~C$800 million (equal to C$3.46 per share).

[6] Nuuvera management were reportedly experienced in the pharmaceutical and online gaming industries.

[7] On July 17, 2018 Aphria acquired production, distribution, and sales assets spread throughout Jamaica, Argentina, Colombia, and potentially Brazil, for C$194 million, equal to 18x current annualized revenue. This follows Canopy's acquisition of a Colombian licensed producer for C$127 million.

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The Green Organic Dutchman (TGOD.TO) went public on May 2, 2018 @ C$3.65, and traded lower before jumping to a high of C$8.28 on May 29 when it announced an exclusive agreement with Stillwater Brands to license RIPPLE Soluble Cannabinoids technology for cannabis-infused beverages. TGOD has 2 facilities under construction with planned capacity of 195,000 kilos per year. Because TGOD is not market-ready and effectively a start-up, the company is missing out on the opportunity to supply the provinces, making retail penetration more difficult given the commodity nature of the product. Instead, TGOD will have to rely on wholesale agreements with other growers (B2B sales), such as its agreement with Aurora for 20% of annual production. In addition to the supply agreement, Aurora's owns 17% of TGOD with warrants to increase its stake to 51% pending the completion of the capacity buildout. While a take-out by Aurora represents a possible upside case scenario, the ~C$700 million increase in market value upon announcement of the RIPPLE deal is bonkers. Barriers to entry are thinner than management must realize as infusion technologies are widespread, evidenced by Constellation Brands (STZ) investment in Canopy. Furthermore, no deal terms were disclosed, the license excludes the U.S. and other select markets, and near-term revenue from cannabis beverages will be slow to build.

To estimate fair value for TGOD, we utilize our projections for supply (~3 million kilos) versus demand (1 million kilos), and apply a pro rate market share (34%) to TGOD's planned capacity. Since TGOD is a B2B (wholesale) provider, we use a wholesale price of C$2.25 to estimate future revenue of $150 million (EV/revenue = 12.7x), then assume a potential steady-state 10% free cash flow margin to estimate future value ~C$300 million (equal to C$0.91 per share).

Cronos (CRON.TO / CRON) stock has risen the most of any stock on our list, up 4,175% over the past two years, despite having a much smaller capacity expansion plan compared to the other billion dollar plus market cap cannabis producers. With no retail licenses, if CRON were to sell its entire 47,150 kilos of planned capacity at a wholesale price of C$2.25 (C$4.50 retail price) then it would generate C$106 million of revenue (14x EV/revenue). Moreover, CRON is a high cost operator of indoor facilities with a cash cost of production of C$2.18 (vs. C$1.03 for Canopy). While the expansion will lower costs substantially, CRON does not intend to become a low-cost producer. So why the C$1.5 billion dollar valuation? In part because CRON listed on Nasdaq, in part because of the perceived value of signing international joint ventures, and in part because earlier this year, CRON announced a joint venture with MedMen, the Los Angeles-based self-proclaimed "Apple of Cannabis". MedMen Canada will develop branded products and open stores across Canada, "blending MedMen's class-defining retail experience with Cronos' Canadian reach and expertise." While MedMen may or may not prove to be a global player, mere affiliation does not warrant an extra C$1 billion plus of market value. If we assume 100% capacity utilization, all sold at a wholesale (B2B) price of C$2.25, then CRON

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would generate C$106 million of revenue. This is worth ~C$200 million (equal to C$1.20 per share).

Organigram (OGI.CSE) is a potential take-out target. With over 14,000 registered medical customers[8], OGI has a track record of success in the medical market. Leveraging that success, OGI is building capacity for 113,000 kilos per year out of a single location in New Brunswick. The single location strategy simplifies operations, lowers costs, and improves efficiencies. Supply agreements with New Brunswick (5,000 kg per year) and Prince Edward Island (1,000 kg per year) at C$4.50 retail will generate C$27 million of revenue per year on top of the C$13 million of annualized medical revenue as of 2Q 2018 (average sales price unsustainable at C$7 per gram). If OGI were then able to sell its pro rate share (34%) of 113,000 kilos of planned capacity at a wholesale price of C$2.25, total revenue would reach C$126 million (6x EV/revenue). In summary, OGI is a less-compelling short than Canopy, Aurora, Aphria, TGOD, and Cronos.

Hydropothecary (HEXO.TO) secured the largest share of the legal market in Quebec with a 20,000 kg commitment from the government (compared to 13,000 kg combined Aurora/MedRelief, 12,000 kg for Canopy, 12,000 kg for Aphria, and 5,000 kg for Tilray), and 200,000 kg over a 5-year term. That is 40% of capacity utilized – a great start compared to the competition. HEXO is also a low-cost producer, reporting C$0.88 average cash cost per gram. If we were forced to own a cannabis stock, it would be HEXO. In fact, while doing this research, 3-Sigma Value was briefly long HEXO as a partial hedge; however, in the face of overwhelming evidence of a massive supply glut, no commodity producer is immune from the laws of supply and demand.

CannTrust (TRST.TO) is another take-out target building capacity in excess of 100,000 kilos per year. It has 40,000 medicinal customers and recreational supply agreements with British Columbia, Alberta and Manitoba, totaling 17,000 kilos per year. Cannabis extracts were 60% of sales in the first quarter, evidence of success in value-added products. On a relative basis, CannTrust is cheap at 14x revenue this year (~C$60 million in 2018) compared to its peers at 90x.

Emerald Health Therapeutics (EMH.TO) does not have a track record in the medicinal market, adding operational risk compared to many of its peers. Multiple grow facilities add

[8] In comparison, Canopy, Aurora, and Aphria have 69,000, 45,000, and 40,000 registered respectively.

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complexity and impact economies of scale. Management is inexperienced. In January 2018, Emerald signed an LOI with DMG Blockchain to develop a blockchain-based supply chain management system and e-commerce marketplace. Jumping on the blockchain bandwagon is a bright red flag, especially given the early-stage nature of this operation. Revenue was only C$373 thousand in the quarter ended 3/31/18, and Emerald has not secured a single provincial supply deal. British Columbia (BC) recently issued 31 licenses and Emerald didn't make the cut. What makes this result particularly discouraging is the fact that Emerald is based in New Brunswick (12 of the 31 winners are BC companies). If we assume Emerald wins its pro rate market share (34% of 100,000 kilos of planned capacity sold at a wholesale price of C$2.25 per gram) then it will generate C$76 million of revenue (6.5x EV/revenue), worth C$153 million (equal to C$0.97).

Tilray (TLRY), controlled by Privateer Holdings, a Seattle-based private firm with a cannabis focus, is slated to go public in mid-July 2018. Tilray is based in British Columbia, Canada, but incorporated in Delaware. It sells cannabis in Canada and other countries but not the U.S. We await listing before rendering judgment.

Portfolio Construction

3-Sigma Value's Cannabis Bubble Portfolio is comprised of 6 growers, each with daily trading volume in excess of C$1 million.

3-Sigma Value's Cannabis Bubble Portfolio

	C$ in millions, except per share data	Price at 6/28/2018	Shares Out	Market Cap	Enterprise Value	2018 Revenue	2018 Multiple	Target Price	% Upside/ Downside
1	**Canopy Growth (WEED.TO / CGC)**	40.51	212	8,600	8,377	145	57.6x	6.07	-85.0%
2	**Aurora Cannabis (ACB.TO)***	9.41	566	5,322	5,460	103	53.0x	2.02	-78.5%
3	**Aphria (APH.TO)**	12.29	232	2,851	2,810	57	49.4x	3.46	-71.9%
4	**The Green Organic Dutchman (TGOD.TO)**	6.48	329	2,130	1,892	0	NM	0.91	-86.0%
5	**Cronos Group (CRON.TO / CRON)**	8.55	177	1,511	1,490	25	59.6x	1.20	-86.0%
6	**Emerald Health Therapeutics (EMH.CSE)**	3.70	158	584	496	2	248.1x	0.97	-73.8%
						Average	**93.5x**		

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Conclusion

Retail and wholesale prices for cannabis in Canada will decline after legalization in October 2018, and decline more significantly than is implied by the stock prices of the leading Canadian cannabis growers. Barriers to entry are minimal, capital costs are minimal, the product is a commodity and differentiation is limited. This is a textbook bubble.

Please contact me with any comments or questions.

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