



Marijuana - Bubble Index

November 15, 2016



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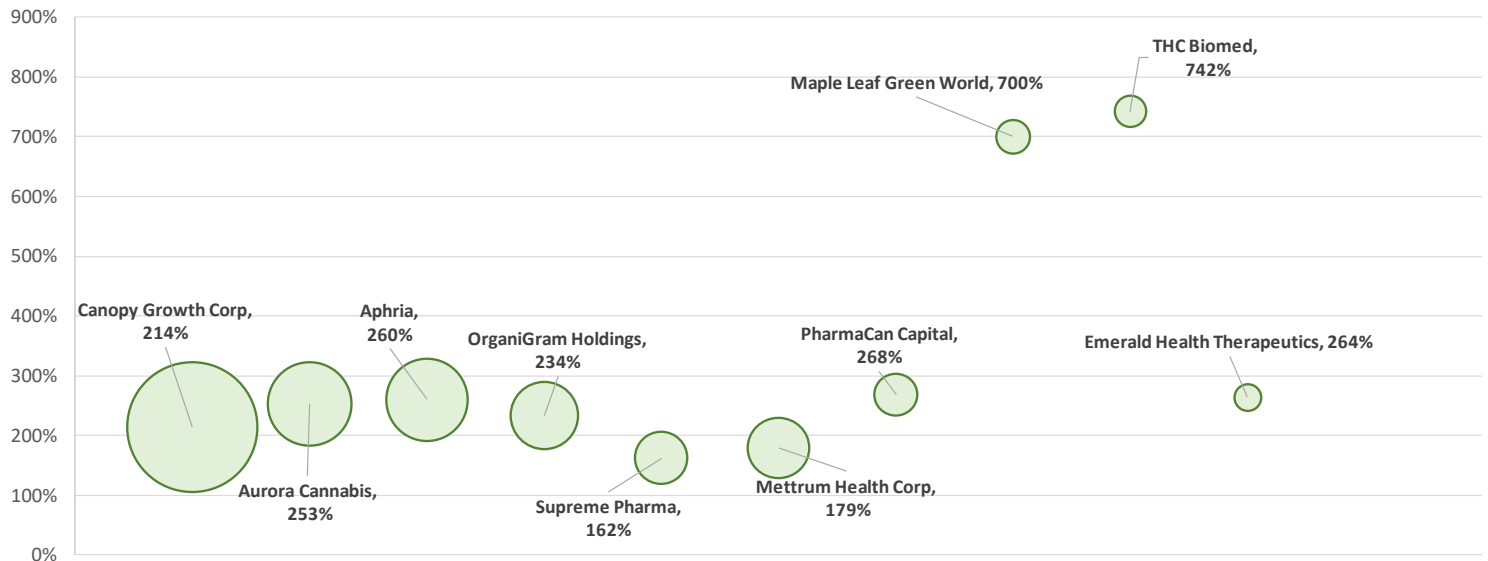
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Industry Up Over 200%, But Are Valuations Justified?

With the impending legalization of marijuana coming to Canada, and the swing in American perception of the plant, we decided it was time to bring forth a snapshot to educate investors on the marijuana industry and provide some insights and valuations on the industry players.

The marijuana stocks we have chosen for inclusion, if you were to put them into a market-cap weighted index, are up almost 200% this year and have increased about 20% since November 1st. Needless to say, investing in the right marijuana stock could provide large value to your portfolio, as we near the introduction of legislation to parliament coming next spring. That being said, beware of valuations and overvalued stocks.

Industry YTD Performance



Size of the bubbles represents relative market cap values.



Regulatory Framework for the Marijuana Industry

The marijuana industry is currently governed by the Access to Cannabis for Medical Purposes Regulations (ACMPR), which came into effect in August 2016. There were two regulatory frameworks before it, the Marijuana Medical Access Regulations (MMAR) from 2001-2014, and the Marijuana for Medical Purposes Regulations (MMPR) from 2015 to August 2016. The ACMPR effectively merged the two together, as the main difference between the previous two was that under MMPR individuals could not grow their own medicinal marijuana at home as was possible under MMAR. Due to a verdict from the case *Allard v. Canada*, it was found to be unconstitutional to not allow individuals grow at home as it restricted the ease of access, and so the ACMPR was developed.

However, the current framework for individuals to grow their own under ACMPR is very restrictive as you must register the home/ designated grower with Health Canada, which is then shared with the police. There are also tight restrictions on the production and storage quantities allowed that are directly linked to a physician-authorized dose limits.

One thing to keep in mind with the marijuana industry is that no framework is set in stone yet. With the pending legalization, and Shoppers Drug Mart's recent application for the ability to sell marijuana adds new considerations that have to be included and you can be certain a new framework will be developed for when the law is created.

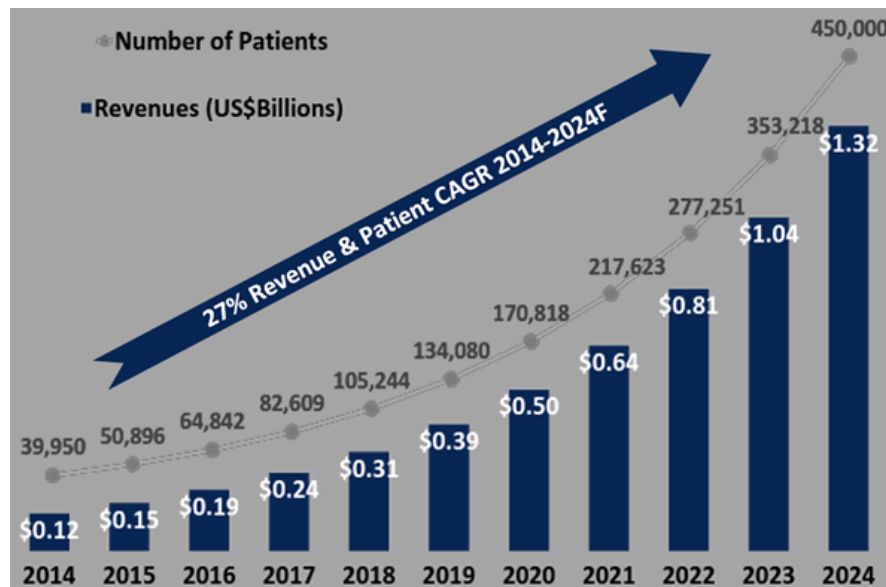
Industry Projections

Canada - Medical Marijuana

Currently there is estimated to be over 100,000 registered patients with Health Canada for access to medicinal marijuana, according to a total number of registered patients of 75,166 (Health Canada Website) as of June 30th, and applying the 33.16% compounded quarterly growth rate from the past five quarters, this represents over \$62 million in sales from publicly-traded, licensed producers over the last 12 months. As the industry takes off these numbers are expected to explode, as companies such as Aurora Cannabis are now selling more than \$1 million in marijuana per month, and will soon hit \$2 million if current growth continues.

According to Federal government projections (source), the medical marijuana industry is expected to reach over USD\$1.3 billion by 2024, as 450,000 patients become registered with Health Canada (Figure 1).

Figure 1. Health Canada - Estimated Number of Patients and Revenue in Canada (2014-2024)



Source: Health Canada

This equates to approximately 130,000kg/year of medicinal marijuana at a \$10 gram. As most of the marijuana producers are selling directly to patients, one of the largest risks to the market size is physician adoption rate. With only 2% of Canadian doctors prescribing marijuana currently, and the others asking for more in-depth studies into its effects, there may continue to be some push back until their desire for more scientific research is addressed.

Canada - Medical Marijuana

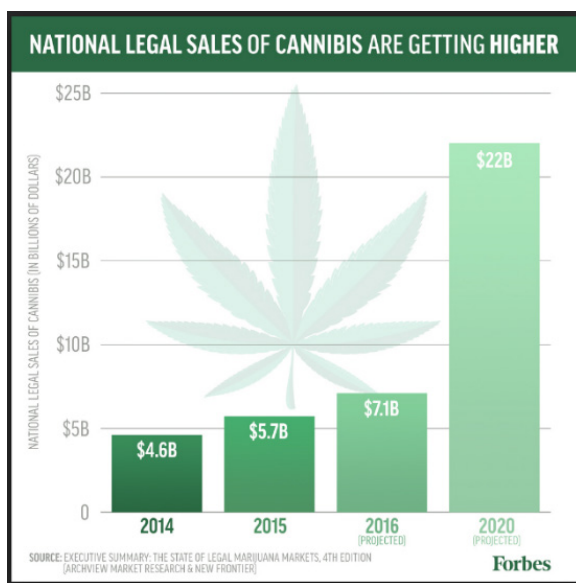
The most recent poll conducted by Forum Research found that almost one fifth of the population (18%), or 6.3 million Canadians, have used marijuana in the past year, so it comes as no surprise that the recreational marijuana industry is expected to generate extremely large revenues. In addition, 13% of individuals said they would smoke marijuana if it were legal, which if you combine both those that have smoked it in the last year and those that would, you are looking at a combined market size of more than 30% of the population.

A new study set to be released by Deloitte this year, estimates that the recreational marijuana market size could be anywhere between \$4.9 billion and \$8.7 billion, which means that it will be the equivalent to beer, wine and spirit sales. At \$10 per gram, that is the equivalent of between 490,000kg to 870,000kg per year. This demand is expected to hit the market once legalization occurs, however one of the major risks to this is still the black market. Those who have been going to the same supplier for years could be hesitant to switch to walking to a store front, and that could keep market share from licensed producers.

United States

A report published by Arcview Market Research estimates that the marijuana industry is expected to reach \$7.1 billion by the end of 2016. This represents a 25% increase from the previous year. With more than 20% of the population having access to recreational marijuana and 28 states currently approving the use of medicinal marijuana, the market is expected to grow to \$21.8 billion by 2020. In California alone, marijuana is expected to become a \$6.5 billion market, with approximately \$2.6 billion coming from medicinal marijuana in 2020.

Figure 2. Drill Results from the El Creston Deposit



Source: Forbes

This opens up the question as to what the Federal government will do in the coming years. As marijuana is still illegal at the Federal level, how do agencies like the FBI, or DEA, go about enforcing Federal laws in these areas? As the United States has one of the largest populations in the world, the market potential if the Federal government were to legalize marijuana is massive.

With such a large market place south of the border, many Canadian companies have seen the potential and are trying to expand their operations in recreationally legalized states. Marapharm Ventures Inc, (CSE:MDM) and Maple Leaf Green World (CVE:MGW) have operations in Nevada and California and are in the process of expanding their footprint in both states. Marapharm has all of its medicinal marijuana purchased in off-take agreements, and will be expanding capacity to benefit from the recent legalization in Nevada. Maple Leaf Green World has 20 acres of land in California, where it has two greenhouses and will look to expand capacity there by adding an addition 5-10 in the near future. In addition, Maple Leaf Green World will be purchasing a 40,000 square foot licensed facility in Nevada from BioNeva, further expanding its potential in the area.

Supply / Demand Inefficiency

In total, marijuana producers could potentially need to supply between 520,000 to 1,000,000kg of dried marijuana per year down the road. However, a majority of that demand will be coming into the market by the end of summer 2017 (expected time the marijuana bill will be given Royal Assent if it is introduced in the spring). With publicly-traded marijuana producers only having the capacity to produce approximately 60,000 kilograms per year currently, and a projected fully built out production capacity of 330,000 kilograms coming online in the next two years, there will certainly be a supply gap once legalization occurs.

In addition, it appears that the market is already being underestimated. As you can see from the Health Canada projections, they only expected to have 68,000 registered patients in 2016, yet there was already more than 75,000 patients as of June this year. As is the nature of estimates, they generally try to be more conservative, so you can bet that moving forward you'll see a steeper upward trajectory of the growth from not only the number of patients, but also the revenue the industry generates.

Industry Projections

- Voters in California, Massachusetts, Nevada and Maine legalized recreational Cannabis on November 8th, joining Alaska, Colorado, Oregon, Washington, Florida, North Dakota, and Arkansas, bringing the total number of states to 28 that have legalized medicinal marijuana. This could be the federal tipping point for the U.S., as now more than 50% of the States have legalized the medicinal use of the bud.
- In the second half of November look for the IPO of private cannabis company Emblem Corp. Emblem is a licensed producer under Canada's ACMPR located in Paris, Ontario. The Company has a 23,500 square foot facility that it commenced sales from in August 2016. With a planned expansion of the facility, they will be able to produce up to 16,000 kg of dried marijuana per year when completed. Emblem has a strong management team that has led big pharma companies and is personally invested in its success, with a combined value of \$6mm invested into the Company.
- Blockchain has made it to the Marijuana industry. Medicinal Genomics is using blockchain to provide standardized strain nomenclature so customers know what they are getting, and to help defend the Intellectual properties of producers. To do so, a grower has to purchase a plant DNA purification kit and send the material to a Medicinal Genomics partner lab for \$600 to get its genotype sequenced. It is then run through cryptographic hash algorithm and tacked to a bitcoin transaction. This provides the owner a publicly accessible, time stamped record of ownership.
- Licensed producer Mettrum voluntarily released a recall of their product on November 1st, after it found out that a foliar spray it had purchased to wash its plants contained pyrethrin, an insecticide on crops in Canada, but not approved for use on medical cannabis. Health Canada has stated that exposure to, or use of, a product that contains the chemical will not cause adverse health effects, but Mettrum chose to do so to maintain transparency and quality for its customers.

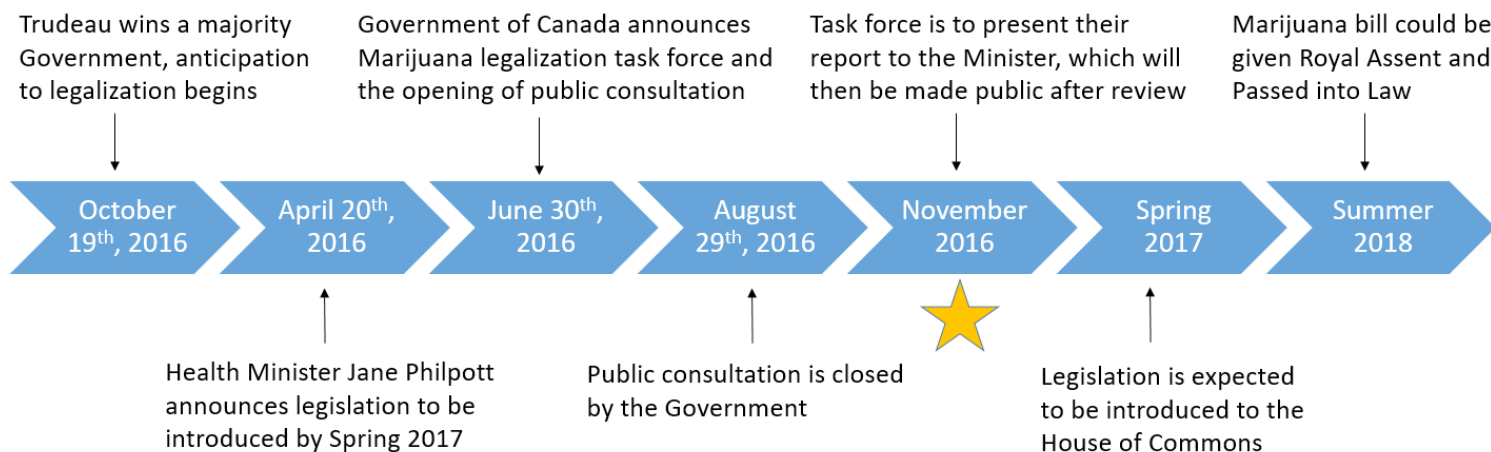
Industry Insights:

- If you are investing in marijuana stocks and have been using Enterprise value to licensed sales capacity you should probably reconsider. After speaking with a number of individuals within the industry, it has been revealed that this metric mean nothing and can give you a false reading of a company's valuation. If a producer is in good standing with Health Canada it is a very easy procedure for the company to ask for an extension of its license to be able to sell or produce more. A more appropriate measure would be to use EV to Production Capacity, expressing capacity as the expected yield from a fully built out production facility.
- As one of the biggest burners of marijuana company's profits is wasted bud due to mold, look for auxiliary companies who have developed dehydrating technology to benefit from the industry's proliferation. We found that EnWave Corporation, a dehydration technology company that currently provides vacuum dehydration units to the biopharmaceutical industry, could be one of those auxiliary companies that benefits from the marijuana industry's recent rise. Their technology would significantly decrease inventory spoilage and drying times, thus increasing the throughput and profitability of marijuana producers.
- Of all marijuana producers, Aphria Inc. stands apart as the only company to be turning a profit from the production and sale of medical marijuana. This is partly due to them being the most cost effective producer in the industry with an "all-in" cost of \$1.80/ gram. This makes you wonder just how low prices will go when the marijuana industry shifts to a wholesale distribution model. Readers should note that LPs have been selling marijuana at about \$8.00/g.

In addition, Aphria has one of the most well-equipped leadership team, which will continue to drive value for its shareholders. Led by President and CEO Vic Neufeld, who was previously CEO of Jamieson Laboratories Canada, Aphria has solidified its operational excellence and is in the best position to grow its value for shareholders through expansion, as it holds one of the largest cash positions in the industry, supported by positive operating cash flow.

Legalization Timeline:

Recreational Marijuana Legalization Timeline



Upcoming Event

Source: Ubika Research

It all began over a year ago, when Justin Trudeau and the Liberal party took office with promises of legalizing recreational marijuana for the entire country. After that day, you saw Aurora Cannabis, Canopy Growth Corp and other marijuana stocks spike around 60% in the 2 weeks following the election.

This past April, the Federal government stepped up and announced its first timeline on the legalization of marijuana and stated that the introduction of legislation into the House of Commons would come by the Spring of 2017. Shortly thereafter, the government announced the creation of a Task Force to gather public input, research and present its findings to the Ministers by November of 2016. Once this report is presented to, and reviewed by the Ministers, it would be made available to the public.

If the bill can be introduced by the Spring of 2017, we can then expect to see the bill given Royal Assent sometime in the summer of 2017 or even towards the end of spring depending on the timing of the introduction. We feel this is an appropriate time to forecast as this past spring the Liberals bill C-14 on Assisted Dying, which is most likely a more controversial bill than the legalization of marijuana, was introduced and passed into law within a two month time span. Until that time however, you can expect to see the marijuana stocks continuing to climb as companies gain scale and profitability.

Introducing the Marijuana Stock Bubble 10 ...

The Marijuana Stock Bubble Index was constructed on the basis of selecting 10 players within the industry, which are most likely to take advantage of the production boom that the industry is facing due to the unfolding governmental red tape. Out of the 36 licensed Canadian producers, our index captures 14 of them (due to PharmaCan Capital Corp.'s investment portfolio).

Figure 3. Marijuana - Stock Bubble Index Valuation Multiples

Ticker	Company Name	Price	YTD Price % Change	Market Cap (CAD mm)	Cash	Debt	EV
CGC.TO	Canopy Growth Corp	10.98	214%	1,276	20	4	1,261
ACB.V	Aurora Cannabis	2.11	253%	537	0	10	547
APH.V	Aphria	5.12	260%	505	53	8	459
OGL.V	OrganiGram Holdings	3.90	234%	345	4	8	349
SLCD	Supreme Pharma	1.32	162%	204	4	1	201
MT.V	Mettrum Health Corp	5.96	179%	280	12	4	271
MJN.V	PharmaCan Capital	1.14	268%	138	3	0	135
MGW.V	Maple Leaf Green World	0.72	700%	86	0	0	86
THC.CD	THC Biomed	0.77	742%	78	0	0	77
EMH.V	Emerald Health Therapeutics	0.82	264%	52	0	0	52

Ticker	Company Name	Revenue (LTM, CAD mm)	Revenue Projections (CAD mm)	EV/LTM Rev	EV/Fwd Rev	Current Grow Capacity (kg)	Future Planned build out Capacity (kg)	EV/Curr Cap. (\$ per g)	EV/Planned Cap. (\$ per g)
CGC.TO	Canopy Growth Corp	24.0	68.6	52.5x	18.4x	22,450	30,000	\$56.15	\$42.02
ACB.V	Aurora Cannabis	1.4	192.3	380.2x	2.8x	7,000	77,000	\$78.16	\$7.11
APH.V	Aphria	11.9	43.9	38.7x	10.5x	3,250	60,000	\$141.33	\$7.66
OGL.V	OrganiGram Holdings	4.9	31.6	70.1x	11.0x	3,500	16,000	\$98.86	\$21.63
SLCD	Supreme Pharma	0.0	28.4	-	7.1x		50,000		\$4.02
MT.V	Mettrum Health Corp	10.6	58.9	25.6x	4.6x	6,000	26,000	\$45.24	\$10.44
MJN.V	PharmaCan Capital	0.0		-					
MGW.V	Maple Leaf Green World	0.0	30.9		2.8x	6,530	33,245	\$13.20	\$2.59
THC.CD	THC Biomed	0.3		310.0x			N/A		
EMH.V	Emerald Health Therapeutics	0.1		463.8x		300	5,000	\$172.29	\$10.34

Source: Ubika Research

Looking at these stocks from a valuation standpoint, an important industry measures to look at is current and planned growth capacity of the respective LPs. The capacities are what ultimately drive sales.

Given the regulatory framework, we believe that the largest LPs in the industry have the best chance of capturing the growth in demand for medical, and eventually, recreational marijuana use. This is due to the fact that they have already passed the barrier of needing to get a producer's license (a process which can last a number of years), and have a better chance of accessing capital markets for project financing.

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Valuation wise, we believe that the industry has definitely reached a state deserving of being called a "bubble." The fact that current EV/LTM Revenues multiples trade within the 25-400+ range is indicative of the market placing high probability for estimates of future market growth. Hence, forward multiples should yield us more reasonable estimates. However, even forward EV/Revenue multiples (using average 2018 revenue projections from brokerage houses and management's estimates) give mixed results.

For example, Canopy Growth Corp (which is the industry leader when it comes to current growth capacity) is trading at a forward 18.4x EV/Revenue multiple. Worrisome to say the least when comparing it to the 3.0x 2016 forward revenue multiples exhibited by high growth (>25% revenue), EBITDA positive, U.S. tech stocks.

The only stock we feel may have a justified valuation is Maple Leaf Green, trading at a forward 2.8x EV/Rev. multiple. Although it's the only company on our list which is not a LP, we believe that they are close to receiving their license. Aurora Cannabis, on the other hand, is trading at a similar 2.8x multiple, however the Company's broker estimate of \$192mm is almost 3 times larger than any other industry comp, giving us hesitation when commenting on their valuation.

In terms of production capacity multiples, we think the EV/Planned Capacity is a good industry metric. Thinking of it conceptually, the multiple represents a dollar value (per gram of marijuana) that the market has placed on the company's future production. Note that current retail distribution channels of medical marijuana are supplying product at roughly \$8.00/g, and as the industry shifts to a more wholesale distribution framework and with the added competition, the price per gram should theoretically decrease by as much as 50%.

Based on this analysis, Maple Leaf Green, Supreme Pharma, Aphria, and Aurora come out on top.

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