

# **CELSIUS EATS: INVESTMENT ANALYSIS**

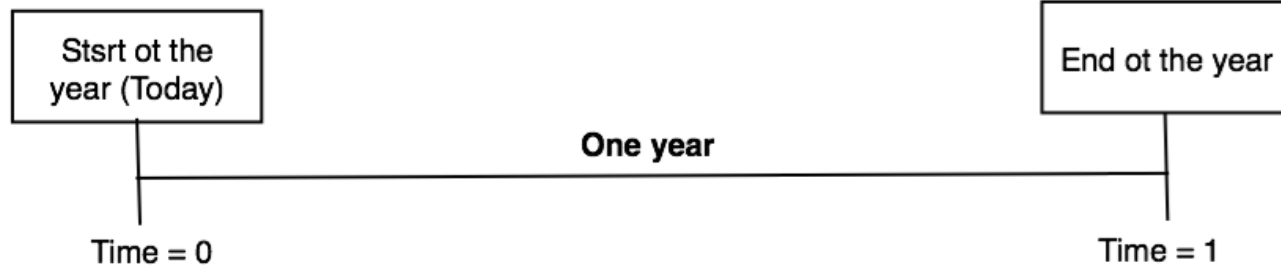
To snack or not to snack!

# DISCRETE AND CONTINUOUS TIME

## The Real World

Most of your cash flows occur over the entire year. Revenues and operating expenses are spread over the year, though there may be "seasonal" factors

Some of your cash flows (tax payments, debt payments) occur at discrete intervals (every quarter or month)



## The PV World

The Discrete Time World: Cash flows are assumed to occur at a point in time.

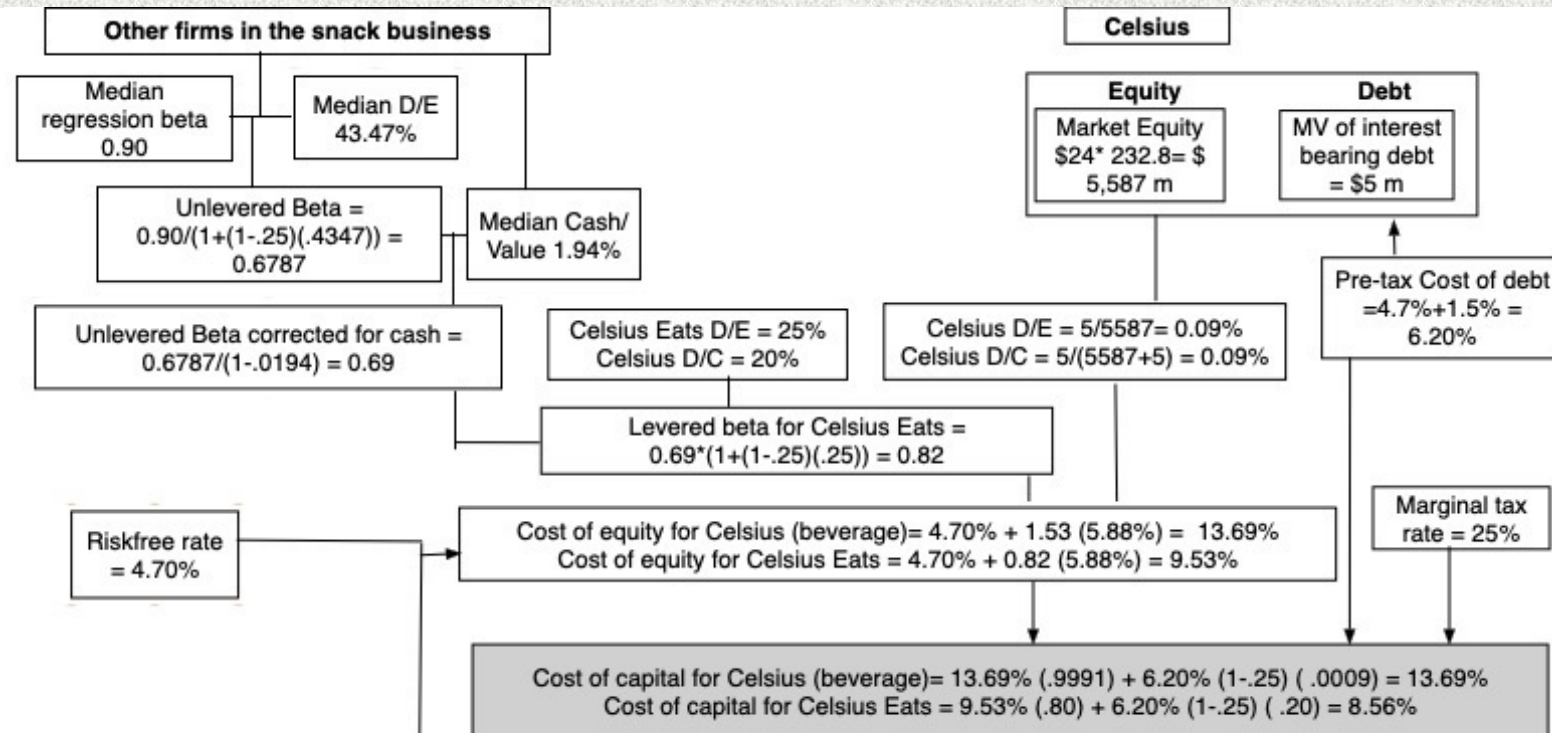
## The Accounting World

The Accounting World: Revenues, earnings and expenses occur in fiscal years

# SUMMARY OF CONCLUSIONS

- Based upon the riskiness of this project and the targeted debt mix of 20%, the beta for this project, when fully operational, is 0.82, **the cost of equity is 9.53% and the cost of capital is 8.56%.**
- From an accounting return standpoint, the return on capital computed using the average operating income (without allocated G&A) and capital **invested over the period is about 10--15%**, depending on what you include in book value, and whether you consider side costs & benefits.
- The net present value of just the cash flows on the project, discounted at 8.56% (for most of the years..)
  - is **-\$16 million**, for a finite life of 15 years without counting side effects (increased beverage sales) & **\$185 million**, with side costs and benefits considered.
  - is **-\$ 22 million**, under the assumption of an infinite life, with higher capital expenditures during the project life, without counting the side effects (increased beverage sales). With the side effects considered, the **net present value is \$329 million.**
- I would recommend rejecting the investment. Without the benefits of added beverage sales, the net present value is negative, and the company has a lot of room in the beverage business to consolidate and fight off competition...

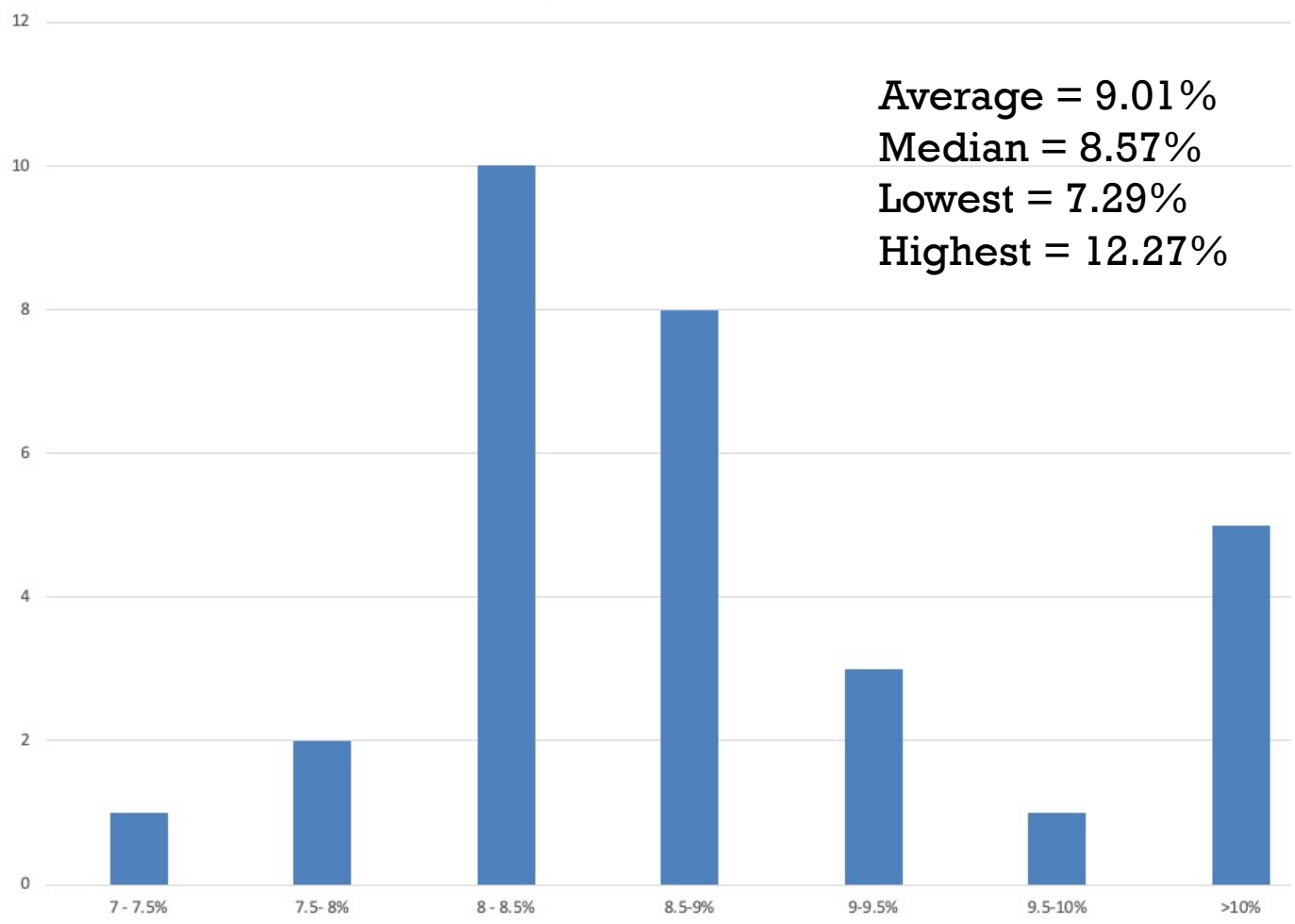
# COST OF CAPITAL CALCULATIONS



Region	%	ERP
United States	50%	4.33%
Europe	30%	6.28%
Latin America	20%	9.15%
<b>Total</b>	<b>100%</b>	<b>5.88%</b>

# COST OF CAPITAL: YOUR NUMBERS

Celsius Project Cost of Capital



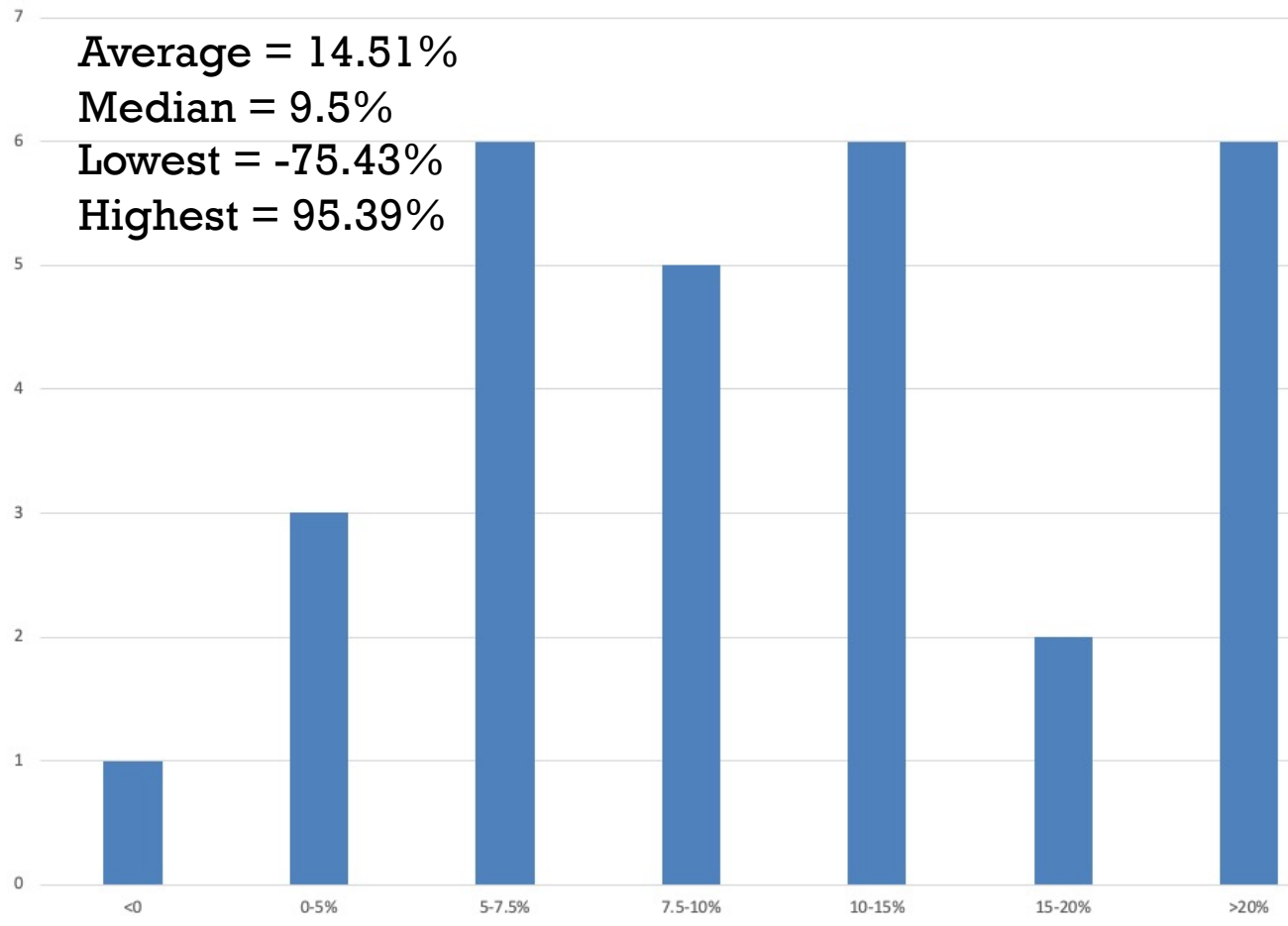
# RETURN ON CAPITAL COMPUTATION

Year	Beginning BV	+ Capital Exp	- Deprec'n	+ $\Delta$ Working Capital	Ending BV	Average BV	EBIT(1-t)	ROIC
0	\$0.00	\$250.00	\$0.00	\$0.00	\$250.00	\$125.00		
1	\$250.00	\$0.00	\$0.00	\$0.00	\$250.00	\$250.00	\$ -	
2	\$250.00	\$0.00	\$0.00	\$0.00	\$250.00	\$250.00	\$ -	
3	\$250.00	\$100.00	\$25.00	\$7.20	\$332.20	\$291.10	\$ (56.37)	-19.37%
4	\$332.20	\$328.10	\$35.00	\$7.63	\$632.93	\$482.57	\$ (39.99)	-8.29%
5	\$632.93	\$106.09	\$67.81	\$8.08	\$679.30	\$656.12	\$ (39.43)	-6.01%
6	\$679.30	\$109.27	\$78.42	\$8.56	\$718.71	\$699.00	\$ (20.91)	-2.99%
7	\$718.71	\$112.55	\$89.35	\$9.05	\$750.96	\$734.83	\$ (1.28)	-0.17%
8	\$750.96	\$115.93	\$100.60	\$9.56	\$775.85	\$763.40	\$ 19.50	2.55%
9	\$775.85	\$119.41	\$112.19	\$10.10	\$793.16	\$784.50	\$ 41.44	5.28%
10	\$793.16	\$122.99	\$124.13	\$10.66	\$802.67	\$797.91	\$ 64.58	8.09%
11	\$802.67	-\$150.17	\$136.43	\$11.25	\$527.31	\$664.99	\$ 88.93	13.37%
12	\$527.31	\$130.48	\$121.42	\$11.86	\$548.23	\$537.77	\$ 135.27	25.15%
13	\$548.23	\$0.00	\$109.46	\$12.49	\$451.26	\$499.75	\$ 180.86	36.19%
14	\$451.26	\$0.00	\$99.46	\$3.19	\$354.99	\$403.12	\$ 195.96	48.61%
15	\$354.99	\$0.00	\$89.16	\$3.29	\$269.11	\$312.05	\$ 211.51	67.78%
<b>Aggregate</b>					<b>\$ 7,637</b>	<b>\$7,627</b>	<b>\$ 780.06</b>	<b>10.23%</b>

Removing the allocated G&A from the mix increases the return on capital to 25-30%.

# YOUR FINDINGS: RETURN ON CAPITAL

*Return on Capital*



# FINITE LIFE CASE ASSUMPTIONS

- **Incremental Effects**
  - **The money spent already is ignored for purposes of cash flow computation**, since it is non-incremental.
  - **When analyzing the cost of the logistics center**, we consider the cost of the system in year 5 (\$ 225.1 million) but we show the savings in year 11 (\$276.85 million). Similarly, for depreciation, we show the depreciation on the system of \$22.51 million from years 6-12, but show the differential depreciation between the two systems (-\$5.17 million) in years 13-15.
  - **Since we are planning on wrapping up the business in 15 years, there is no need for significant capital maintenance expenditures.**
- **Both working capital investments and product investments are assumed to occur at the start of the year and are therefore shown at the end of the previous year.**



# EXPANSION NOW OR LATER?

Capacity used by Celsius Beverage	60.00%	63.00%	66.15%	69.46%	72.93%	76.58%	80.41%	84.43%	88.65%	93.08%	97.73%	102.62%	107.75%	113.14%	118.80%	124.74%
Capacity used by Celsius Eats				20.00%	28.00%	36.00%	44.00%	52.00%	60.00%	68.00%	76.00%	84.00%	92.00%	100.00%	100.00%	100.00%
Expansion Investment					\$225.10							\$276.85				
Depreciation						\$22.51	\$22.51	\$22.51	\$22.51	\$22.51	\$22.51	\$22.51	-\$5.17	-\$5.17	-\$5.17	-\$5.17

## What will happen if I take the investment?

- Run out of capacity earlier (in year 5)
- Spend \$225.1 million in year 5
- Depreciate this straight line over 10 years

## What will happen if I take the investment?

- Run out of capacity later in year 11
- Spend \$276.9 million in year 11
- Depreciate this straight line over 10 years

## What is the effect on present value?

- PV of spending earlier rather than later =  $\$225.1/1.0856^5 - \$276.9/1.0856^{11}$
- Depreciate the earlier investment starting in year 6 versus year 12

*If you take Celsius Eats, there is a second investment that you have to make in year 13 that I don't consider for two reasons. First, Celsius Eats, when all of its products are in production uses only 88% of capacity and it is unfair to charge it with two investments, especially since in the finite life case.*

# INCREMENTAL CASH FLOWS - FINITE LIFE

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Number of Products	-	-	-	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	11.00	11.00
Revenues per Product	\$ -	\$ -	\$ -	\$60.00	\$61.80	\$63.65	\$65.56	\$67.53	\$69.56	\$71.64	\$73.79	\$76.01	\$78.29	\$80.63	\$83.05	\$85.55
Revenues	\$ -	\$ -	\$ -	\$ 60.00	\$ 123.60	\$190.96	\$262.25	\$337.65	\$417.34	\$501.50	\$590.34	\$ 684.06	\$782.86	\$886.98	\$913.59	\$941.00
- Direct Oper. Exp.	\$ -	\$ -	\$ -	\$ 24.00	\$ 49.44	\$ 76.38	\$104.90	\$135.06	\$166.94	\$200.60	\$236.14	\$ 273.62	\$313.15	\$354.79	\$365.44	\$376.40
- Deprech'n	\$ -	\$ -	\$ -	\$ 25.00	\$ 35.00	\$ 67.81	\$ 78.42	\$ 89.35	\$100.60	\$112.19	\$124.13	\$ 136.43	\$121.42	\$109.46	\$ 99.46	\$ 89.16
- Allocated & Incrm. G&A	\$ -	\$ -	\$ -	\$ 61.58	\$ 67.16	\$ 73.26	\$ 79.95	\$ 87.28	\$ 95.30	\$104.09	\$113.72	\$ 124.28	\$135.86	\$148.54	\$153.38	\$158.37
- Advertising Exp.	\$ -	\$ -	\$ -	\$ 24.59	\$ 25.32	\$ 26.08	\$ 26.87	\$ 27.67	\$ 28.50	\$ 29.36	\$ 30.24	\$ 31.15	\$ 32.08	\$ 33.04	\$ 34.03	\$ 35.05
EBIT	\$ -	\$ -	\$ -	\$ (75.16)	\$ (53.32)	\$ (52.58)	\$ (27.88)	\$ (1.70)	\$ 26.00	\$ 55.26	\$ 86.11	\$ 118.57	\$180.37	\$241.14	\$261.28	\$282.01
Taxes	\$ -	\$ -	\$ -	\$ (18.79)	\$ (13.33)	\$ (13.14)	\$ (6.97)	\$ (0.43)	\$ 6.50	\$ 13.81	\$ 21.53	\$ 29.64	\$ 45.09	\$ 60.29	\$ 65.32	\$ 70.50
EBIT(1-t)	\$ -	\$ -	\$ -	\$ (56.37)	\$ (39.99)	\$ (39.43)	\$ (20.91)	\$ (1.28)	\$ 19.50	\$ 41.44	\$ 64.58	\$ 88.93	\$135.27	\$180.86	\$195.96	\$211.51
+ Deprech'n	\$ -	\$ -	\$ -	\$ 25.00	\$ 35.00	\$ 67.81	\$ 78.42	\$ 89.35	\$100.60	\$112.19	\$124.13	\$ 136.43	\$121.42	\$109.46	\$ 99.46	\$ 89.16
+ Fixed Allocated Exp (1-t)	\$ -	\$ -	\$ -	\$ 8.68	\$ 9.12	\$ 9.57	\$ 10.05	\$ 10.55	\$ 11.08	\$ 11.63	\$ 12.22	\$ 12.83	\$ 13.47	\$ 14.14	\$ 14.85	\$ 15.59
- Cap Ex	\$250.00	\$ -	\$ -	\$ 100.00	\$ 103.00	\$106.09	\$109.27	\$112.55	\$115.93	\$119.41	\$122.99	\$ 126.68	\$130.48	\$ -	\$ -	\$ -
- Opp. Cost of Logistics System	\$ -	\$ -	\$ -	\$ -	\$ 225.10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (276.85)	\$ -	\$ -	\$ -	\$ -
- Chg in WC	\$ -	\$ -	\$7.20	\$ 7.63	\$ 8.08	\$ 8.56	\$ 9.05	\$ 9.56	\$ 10.10	\$ 10.66	\$ 11.25	\$ 11.86	\$ 12.49	\$ 3.19	\$ 3.29	\$ -
+ Salvage Value																\$457.73
Cashflows to the firm	-\$250.00	\$ -	-\$7.20	\$(130.32)	\$(332.06)	\$(76.70)	\$(50.76)	\$(23.49)	\$ 5.15	\$ 35.21	\$ 66.70	\$ 376.50	\$127.19	\$301.27	\$306.99	\$773.99

# INCREMENTAL CASH FLOWS — FINITE LIFE (A MORE DIRECT APPROACH)

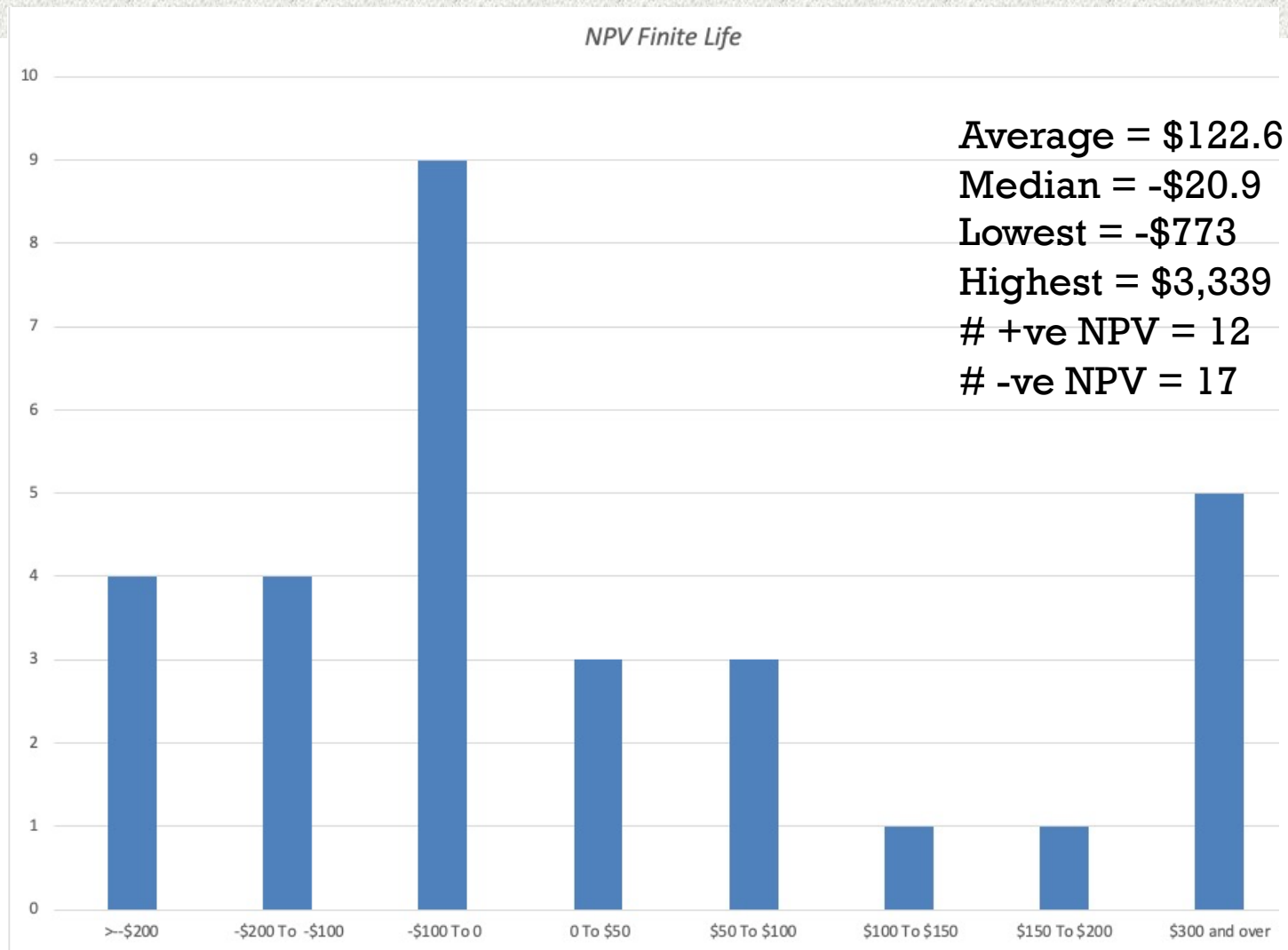
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Number of Clinics			-	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	11.00	11.00
Revenues per Store	\$0.00	\$0.00	\$0.00	\$60.00	\$61.80	\$63.65	\$65.56	\$67.53	\$69.56	\$71.64	\$73.79	\$76.01	\$78.29	\$80.63	\$83.05	\$85.55
Revenues		\$0.00	\$0.00	\$60.00	\$123.60	\$190.96	\$262.25	\$337.65	\$417.34	\$501.50	\$590.34	\$684.06	\$782.86	\$886.98	\$913.59	\$941.00
- Oper. Exp.		\$0.00	\$0.00	\$24.00	\$49.44	\$76.38	\$104.90	\$135.06	\$166.94	\$200.60	\$236.14	\$273.62	\$313.15	\$354.79	\$365.44	\$376.40
- Deprec'n on new investment		\$0.00	\$0.00	\$25.00	\$35.00	\$67.81	\$78.42	\$89.35	\$100.60	\$112.19	\$124.13	\$136.43	\$121.42	\$109.46	\$99.46	\$89.16
- Deprecn: Cap Mtnce				\$0.00	\$2.73	\$6.40	\$13.62	\$21.62	\$30.45	\$40.15	\$50.77	\$62.38	\$75.02	\$84.83	\$92.42	\$98.23
- Allocated & Incrm. G&A		\$0.00	\$0.00	\$61.58	\$67.16	\$73.26	\$79.95	\$87.28	\$95.30	\$104.09	\$113.72	\$124.28	\$135.86	\$148.54	\$153.38	\$158.37
- Advertising Exp.		\$0.00	\$0.00	\$24.59	\$25.32	\$26.08	\$26.87	\$27.67	\$28.50	\$29.36	\$30.24	\$31.15	\$32.08	\$33.04	\$34.03	\$35.05
EBIT		\$0.00	\$0.00	-\$75.16	-\$56.05	-\$58.98	-\$41.50	-\$23.32	-\$4.45	\$15.11	\$35.34	\$56.20	\$105.34	\$156.31	\$168.86	\$183.78
Taxes		\$0.00	\$0.00	-\$18.79	-\$14.01	-\$14.74	-\$10.38	-\$5.83	-\$1.11	\$3.78	\$8.83	\$14.05	\$26.34	\$39.08	\$42.21	\$45.95
EBIT(1-t)		\$0.00	\$0.00	-\$56.37	-\$42.04	-\$44.23	-\$31.13	-\$17.49	-\$3.34	\$11.33	\$26.50	\$42.15	\$79.01	\$117.23	\$126.64	\$137.84
+ Deprec'n		\$0.00	\$0.00	\$25.00	\$37.73	\$74.21	\$92.04	\$110.97	\$131.05	\$152.34	\$174.91	\$198.81	\$196.44	\$194.30	\$191.89	\$187.39
+ Fixed Allocated Exp (1-t)		\$0.00	\$0.00	\$8.68	\$9.12	\$9.57	\$10.05	\$10.55	\$11.08	\$11.63	\$12.22	\$12.83	\$13.47	\$14.14	\$14.85	\$15.59
- Cap Ex	\$250.00	\$0.00	\$0.00	\$100.00	\$103.00	\$106.09	\$109.27	\$112.55	\$115.93	\$119.41	\$122.99	\$126.68	\$130.48	\$0.00	\$0.00	\$0.00
- Capital Maintenance		\$0.00	\$0.00	\$27.32	\$39.39	\$78.61	\$93.64	\$109.88	\$127.44	\$146.39	\$166.83	\$188.86	\$173.11	\$160.75	\$150.45	\$138.92
- Opp. Cost of Dist'n System		\$0.00	\$0.00	\$0.00	\$225.10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	-\$276.85	\$0.00	\$0.00	\$0.00	\$0.00
- Chg in WC		\$0.00	\$7.20	\$7.63	\$8.08	\$8.56	\$9.05	\$9.56	\$10.10	\$10.66	\$11.25	\$11.86	\$12.49	\$3.19	\$3.29	\$3.29
+ Terminal Value																\$2,697.88
Cashflows to the firm	-\$250.00	\$0.00	-\$7.20	-\$157.64	-\$370.77	-\$153.71	-\$141.00	-\$127.97	-\$114.67	-\$101.14	-\$87.44	\$203.24	-\$27.17	\$161.73	\$179.64	\$2,896.49

# THE VALUE EFFECT: NPV

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Incremental Cash Flows	\$ (250.00)	\$ -	\$ (7.20)	\$ (130.32)	\$ (332.06)	\$ (76.70)	\$ (50.76)	\$ (23.49)	\$ 5.15	\$ 35.21	\$ 66.70	\$ 376.50	\$ 127.19	\$ 301.27	\$ 306.99	\$ 773.99
Cost of capital	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%
Cumulated Cost of capital	\$1.00	\$1.09	\$1.18	\$1.28	\$1.39	\$1.51	\$1.64	\$1.78	\$1.93	\$2.09	\$2.27	\$2.47	\$2.68	\$2.91	\$3.16	\$3.43
PV of Cash Flows	-\$250.00	\$0.00	-\$6.11	-\$101.87	-\$239.11	-\$50.88	-\$31.02	-\$13.22	\$2.67	\$16.82	\$29.35	\$152.61	\$47.49	\$103.63	\$97.27	\$225.92
Net Present Value	-\$16.45															
Internal Rate of Return =	8.31%															
Increased Beverage Sales	\$50.00	\$51.50	\$53.05	\$54.64	\$56.28	\$57.96	\$59.70	\$61.49	\$63.34	\$65.24	\$67.20	\$69.21	\$71.29	\$73.43	\$75.63	\$77.90
Incremental Revenue	\$ -	\$ -	\$ -	\$ 54.64	\$ 112.55	\$ 173.89	\$ 238.81	\$ 307.47	\$ 380.03	\$ 456.67	\$ 537.57	\$ 622.91	\$ 712.88	\$ 807.69	\$ 831.92	\$ 856.88
Operating Income	\$ -	\$ -	\$ -	\$ 9.29	\$ 19.14	\$ 29.58	\$ 40.62	\$ 52.30	\$ 64.64	\$ 77.67	\$ 91.43	\$ 105.95	\$ 121.25	\$ 137.38	\$ 141.50	\$ 145.75
Operating income after tax	\$ -	\$ -	\$ -	\$ 6.97	\$ 14.36	\$ 22.18	\$ 30.46	\$ 39.22	\$ 48.48	\$ 58.26	\$ 68.58	\$ 79.46	\$ 90.94	\$ 103.03	\$ 106.13	\$ 109.31
Operating Income net effect	\$ -	\$ -	\$ -	\$ 6.97	\$ 14.36	\$ 22.18	\$ 30.46	\$ 39.22	\$ 48.48	\$ 58.26	\$ 68.58	\$ 79.46	\$ 90.94	\$ 103.03	\$ 106.13	\$ 109.31
Present Value @ Celsius Retail WACC	\$ -	\$ -	\$ -	\$ 4.74	\$ 8.60	\$ 11.68	\$ 14.11	\$ 15.98	\$ 17.37	\$ 18.36	\$ 19.01	\$ 19.38	\$ 19.51	\$ 19.44	\$ 17.62	\$ 15.96
Value of Side Effects =	\$ 201.77															
Overall Project NPV =	\$ 185.32															

In computing the side benefits from beverage sales, I used the pre-tax operating margin of 17.01% from the most recent year and discounted the net after-tax earnings change at Celsius beverage cost of capital of 13.69%

# YOUR FINDINGS... FINITE LIFE NPV



# EXPLANATIONS FOR INFINITE LIFE CASE

- While the case does ask you to extend the life of the project, **it does not specify over what duration**. I assumed that it was long enough to treat it as a perpetuity.
- When extending the project life to infinity, I did make some changes to the assumptions about capital maintenance.
  - **Starting in year 1, I start with capital maintenance**, setting it equal to depreciation in each year, with an inflation adjustment. Thus, to get capital maintenance in year 3 =  $25 (1.03)^3 = \$27.32$  million.
  - **Advertising expenses continue** beyond year 15.
  - **Working capital will continue to grow** to keep up with revenues
- **The side benefits (from increased beverage sales) now continue in perpetuity** as well.

# INCREMENTAL CASH FLOWS- INFINITE LIFE

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Number of Clinics			-	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	11.00	11.00
Revenues per Store	\$0.00	\$0.00	\$0.00	\$60.00	\$61.80	\$63.65	\$65.56	\$67.53	\$69.56	\$71.64	\$73.79	\$76.01	\$78.29	\$80.63	\$83.05	\$85.55
Revenues		\$0.00	\$0.00	\$60.00	\$123.60	\$190.96	\$262.25	\$337.65	\$417.34	\$501.50	\$590.34	\$684.06	\$782.86	\$886.98	\$913.59	\$941.00
- Oper. Exp.		\$0.00	\$0.00	\$24.00	\$49.44	\$76.38	\$104.90	\$135.06	\$166.94	\$200.60	\$236.14	\$273.62	\$313.15	\$354.79	\$365.44	\$376.40
- Deprec'n on new investment		\$0.00	\$0.00	\$25.00	\$35.00	\$67.81	\$78.42	\$89.35	\$100.60	\$112.19	\$124.13	\$136.43	\$121.42	\$109.46	\$99.46	\$89.16
- Deprecn: Cap Mtnce				\$0.00	\$2.73	\$6.40	\$13.62	\$21.62	\$30.45	\$40.15	\$50.77	\$62.38	\$75.02	\$84.83	\$92.42	\$98.23
- Allocated & Incrm. G&A		\$0.00	\$0.00	\$61.58	\$67.16	\$73.26	\$79.95	\$87.28	\$95.30	\$104.09	\$113.72	\$124.28	\$135.86	\$148.54	\$153.38	\$158.37
- Advertising Exp.		\$0.00	\$0.00	\$24.59	\$25.32	\$26.08	\$26.87	\$27.67	\$28.50	\$29.36	\$30.24	\$31.15	\$32.08	\$33.04	\$34.03	\$35.05
EBIT		\$0.00	\$0.00	-\$75.16	-\$56.05	-\$58.98	-\$41.50	-\$23.32	-\$4.45	\$15.11	\$35.34	\$56.20	\$105.34	\$156.31	\$168.86	\$183.78
Taxes		\$0.00	\$0.00	-\$18.79	-\$14.01	-\$14.74	-\$10.38	-\$5.83	-\$1.11	\$3.78	\$8.83	\$14.05	\$26.34	\$39.08	\$42.21	\$45.95
EBIT(1-t)		\$0.00	\$0.00	-\$56.37	-\$42.04	-\$44.23	-\$31.13	-\$17.49	-\$3.34	\$11.33	\$26.50	\$42.15	\$79.01	\$117.23	\$126.64	\$137.84
+ Deprec'n		\$0.00	\$0.00	\$25.00	\$37.73	\$74.21	\$92.04	\$110.97	\$131.05	\$152.34	\$174.91	\$198.81	\$196.44	\$194.30	\$191.89	\$187.39
+ Fixed Allocated Exp (1-t)		\$0.00	\$0.00	\$8.68	\$9.12	\$9.57	\$10.05	\$10.55	\$11.08	\$11.63	\$12.22	\$12.83	\$13.47	\$14.14	\$14.85	\$15.59
- Cap Ex	\$250.00	\$0.00	\$0.00	\$100.00	\$103.00	\$106.09	\$109.27	\$112.55	\$115.93	\$119.41	\$122.99	\$126.68	\$130.48	\$0.00	\$0.00	\$0.00
- Capital Maintenance		\$0.00	\$0.00	\$27.32	\$39.39	\$78.61	\$93.64	\$109.88	\$127.44	\$146.39	\$166.83	\$188.86	\$173.11	\$160.75	\$150.45	\$138.92
- Opp. Cost of Dist'n System		\$0.00	\$0.00	\$0.00	\$225.10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	-\$276.85	\$0.00	\$0.00	\$0.00	\$0.00
- Chg in WC		\$0.00	\$7.20	\$7.63	\$8.08	\$8.56	\$9.05	\$9.56	\$10.10	\$10.66	\$11.25	\$11.86	\$12.49	\$3.19	\$3.29	\$3.29
+ Terminal Value																\$2,697.88
<b>Cashflows to the firm</b>	<b>-\$250.00</b>	<b>\$0.00</b>	<b>-\$7.20</b>	<b>-\$157.64</b>	<b>-\$370.77</b>	<b>-\$153.71</b>	<b>-\$141.00</b>	<b>-\$127.97</b>	<b>-\$114.67</b>	<b>-\$101.14</b>	<b>-\$87.44</b>	<b>\$203.24</b>	<b>-\$27.17</b>	<b>\$161.73</b>	<b>\$179.64</b>	<b>\$2,896.49</b>

# THE TERMINAL VALUE CALCULATION

- I assumed a perpetual life.
  - Did I have to?
  - What are the alternatives?
- Cash flow to the firm in year 16
  - = EBIT (1-t) + Depreciation – Cap Ex – Change in WC
  - = \$ 143.2 + \$ 192.0 – \$ 197.8 - \$ 3.39 = \$ 149.88 million
  - (Capital expenditures exceed depreciation by the inflation rate)
- Terminal Value in year 15
  - = CF in year 16/ (Cost of capital –g)
  - = \$149.88/ (.0856-.03) = \$ 2,697.88 million



# FINITE VERSUS INFINITE: THE CASH FLOW TRADE OFF

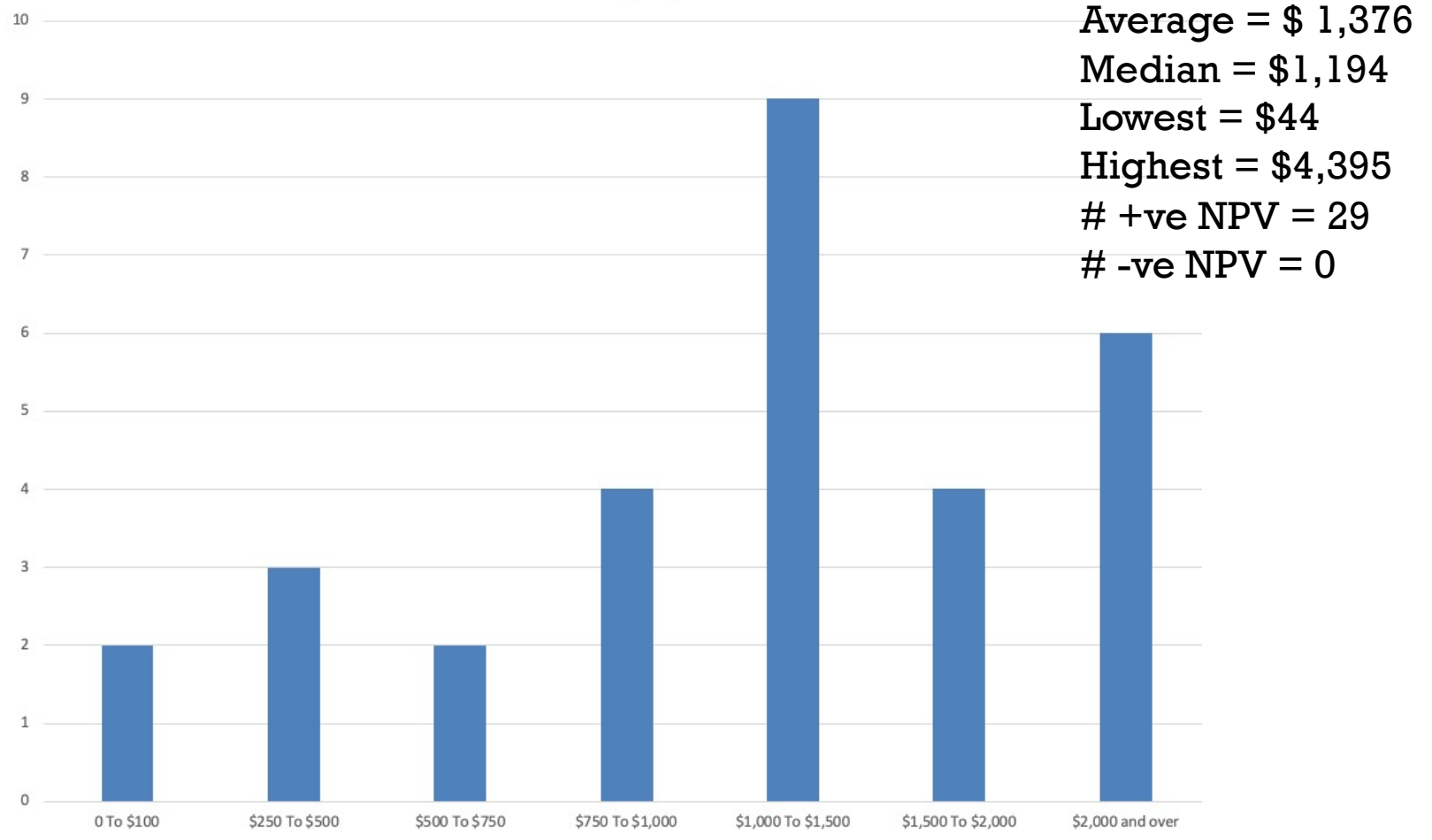
<i>Year</i>	<i>Finite</i>	<i>Infinite</i>	<i>Infinite minus Finite</i>
0	-\$250.00	-\$250.00	\$0.00
1	\$0.00	\$0.00	\$0.00
2	-\$7.20	-\$7.20	\$0.00
3	-\$123.35	-\$150.67	-\$27.32
4	-\$317.70	-\$356.41	-\$38.71
5	-\$54.51	-\$131.53	-\$77.01
6	-\$20.30	-\$110.53	-\$90.23
7	\$15.73	-\$88.75	-\$104.48
8	\$53.63	-\$66.19	-\$119.83
9	\$93.46	-\$42.89	-\$136.35
10	\$135.27	-\$18.86	-\$154.13
11	\$455.96	\$282.70	-\$173.26
12	\$218.13	\$63.77	-\$154.35
13	\$404.30	\$264.76	-\$139.54
14	\$413.11	\$285.77	-\$127.34
15	\$425.57	\$307.93	-\$117.65
Ending Value	\$457.73	\$2,697.88	\$2,240.14

# VALUE ADDED: NPV OF INFINITE LIFE CASE

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Incremental Cash Flows	\$ (250.00)	\$ -	\$ (7.20)	\$ (157.64)	\$ (370.77)	\$ (153.71)	\$ (141.00)	\$ (127.97)	\$ (114.67)	\$ (101.14)	\$ (87.44)	\$ 203.24	\$ (27.17)	\$ 161.73	\$ 179.64	\$ 2,896.49
Cost of capital for Celsius Eats	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%	8.56%
Cumulated Cost of capital	1.0000	1.0856	1.1784	1.2793	1.3887	1.5075	1.6365	1.7765	1.9285	2.0935	2.2726	2.4670	2.6781	2.9072	3.1559	3.4259
PV of Cash Flows	\$ (250.00)	\$ -	\$ (6.11)	\$ (123.23)	\$ (266.99)	\$ (101.96)	\$ (86.16)	\$ (72.04)	\$ (59.46)	\$ (48.31)	\$ (38.47)	\$ 82.38	\$ (10.14)	\$ 55.63	\$ 56.92	\$ 845.46
Net Present Value	\$ (22.48)															
Internal Rate of Return =	8.33%															
Incremental Revenue	\$ -	\$ -	\$ -	\$ 54.64	\$ 112.55	\$ 173.89	\$ 238.81	\$ 307.47	\$ 380.03	\$ 456.67	\$ 537.57	\$ 622.91	\$ 712.88	\$ 807.69	\$ 831.92	\$ 856.88
Operating Income	\$ -	\$ -	\$ -	\$ 9.29	\$ 19.14	\$ 29.58	\$ 40.62	\$ 52.30	\$ 64.64	\$ 77.67	\$ 91.43	\$ 105.95	\$ 121.25	\$ 137.38	\$ 141.50	\$ 145.75
Operating income after taxes	\$ -	\$ -	\$ -	\$ 6.97	\$ 14.36	\$ 22.18	\$ 30.46	\$ 39.22	\$ 48.48	\$ 58.26	\$ 68.58	\$ 79.46	\$ 90.94	\$ 103.03	\$ 106.13	\$ 109.31
Operating Income net effect	\$ -	\$ -	\$ -	\$ 6.97	\$ 14.36	\$ 22.18	\$ 30.46	\$ 39.22	\$ 48.48	\$ 58.26	\$ 68.58	\$ 79.46	\$ 90.94	\$ 103.03	\$ 106.13	\$ 109.31
Value in perpetuity																\$ 1,022.89
Present Value @Celsius beverage	\$ -	\$ -	\$ -	\$ 4.74	\$ 8.60	\$ 11.68	\$ 14.11	\$ 15.98	\$ 17.37	\$ 18.36	\$ 19.01	\$ 19.38	\$ 19.51	\$ 19.44	\$ 17.62	\$ 165.31
Value of Side Effects =	\$ 351.12															
Overall Project NPV =	\$ 328.64															

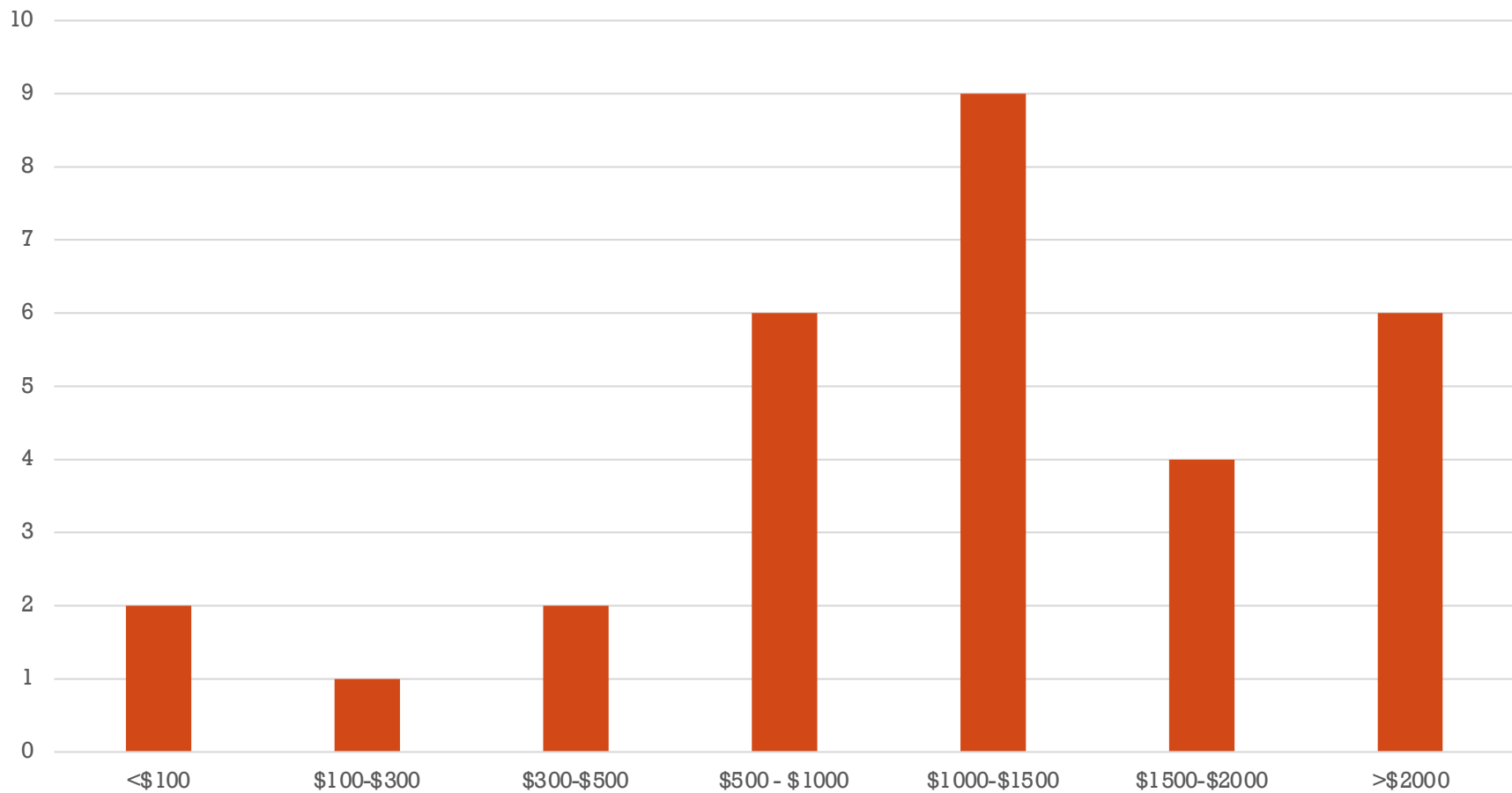
# YOUR FINDINGS: INFINITE LIFE

*NPV Longer Life*



# EFFECT OF LENGTHENING PROJECT LIFE

*Effect of lengthening project life*



# INVESTMENT CONSISTENCY IN GROWTH AND PROJECT LIFE ASSUMPTIONS

*After year 15*

*Capital Expenditure Assumption*

Project ends

No (or very low) capital maintenance

Let assets run down towards end of life

Infinite life;  $g=0\%$

Capital maintenance = Depreciation

Maintain invested capital at base level

Infinite life;  $g = \text{inflation}$

Capital maintenance  $>$  Depreciation

Capital invested has to grow at inflation rate

Infinite life;  $g > \text{inflation}$

Capital investment to increase capacity

Capital maintenance  $>$  Depreciation

Capital invested has to grow to reflect real growth

# A WRAP UP AND SUMMARY

- Of the 30 groups that turned in numbers, **17 groups chose to invest, and 12 groups suggested rejection.**
- There was at least **one group that had a conditional decision**, i.e., reject with a 15-year life and accept with a longer life.
- If you believe in crowd wisdom, **the crowd judgment was that the project has a negative NPV in the 15-year life, a large positive NPV with the longer life, and that the company should accept the investment.**
  - If you **accepted the project**, even though the NPV in the finite life case was negative, what went into your decision?
  - If you **rejected the project**, even though the NPV in the longer life case was positive, what went into your decision?
  - Does the fact that **the company (Celsius) is young and has broken through into a business (beverage)** that is notoriously hard to crack play a role in your decision?