



ARE THESE STOCK MARKET TRENDS OVERHEATING? AI & WEIGHT LOSS DRUG BOOM

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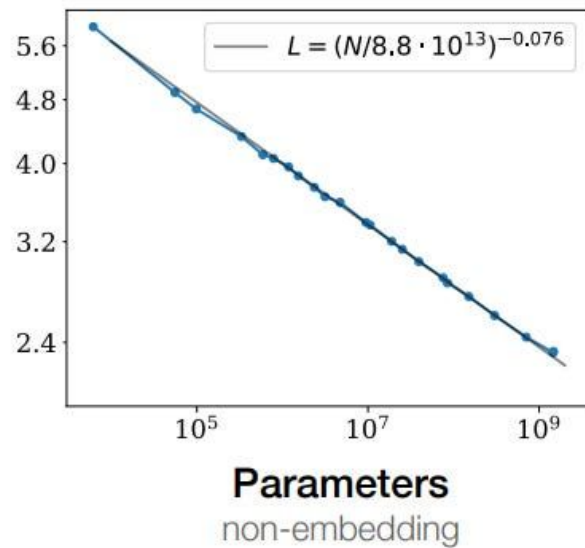
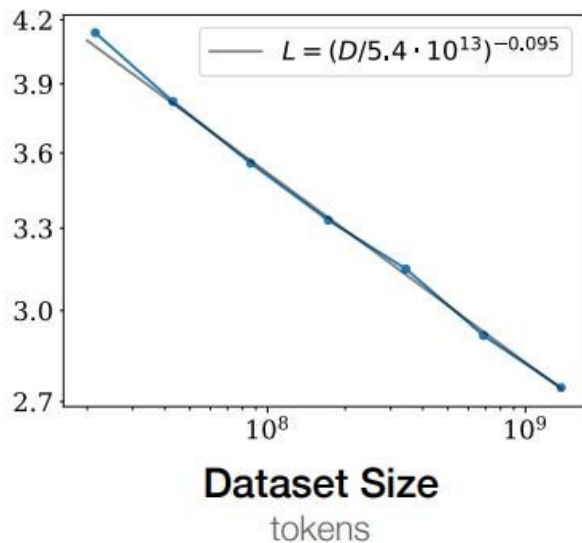
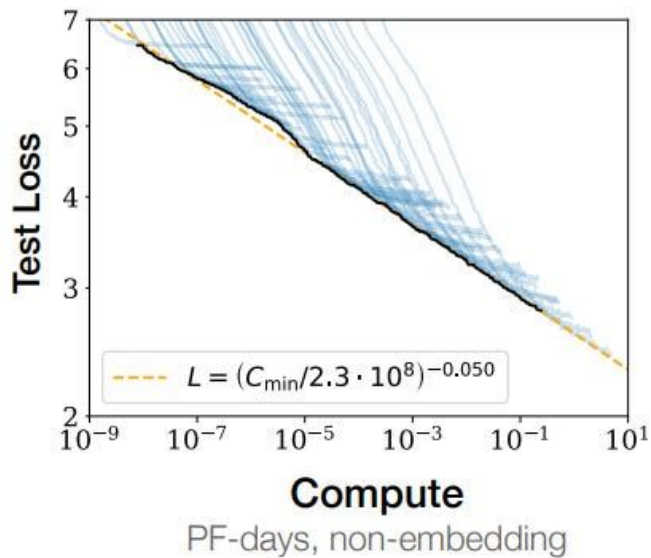
Strawberry - early thoughts:



AI - the problem to solve:

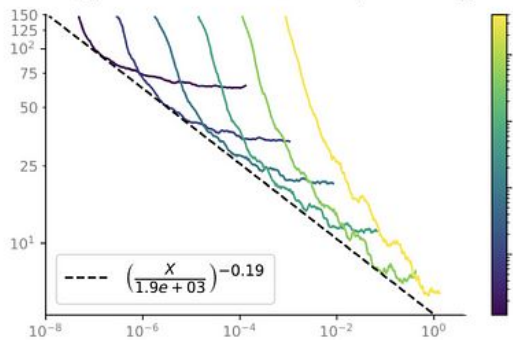
- Data size
- Parameters
- Compute

Scaling laws seem consistent:

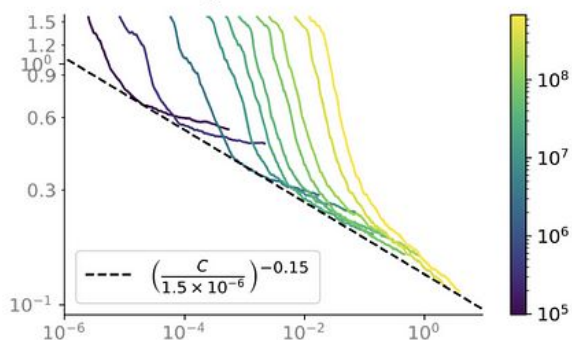


Scaling laws seem consistent:

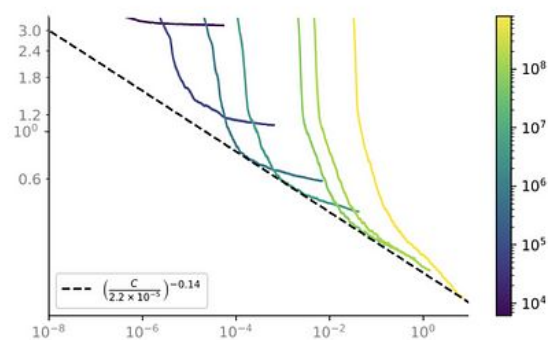
Images 8x8, loss per image



Text \rightarrow Image



Video



Math

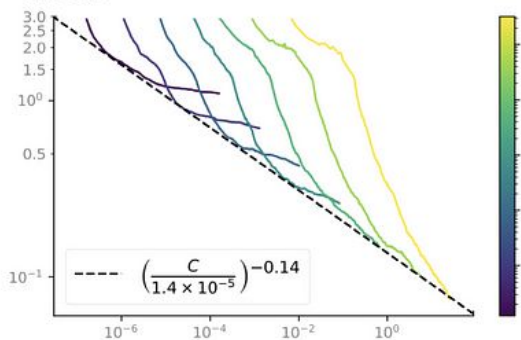
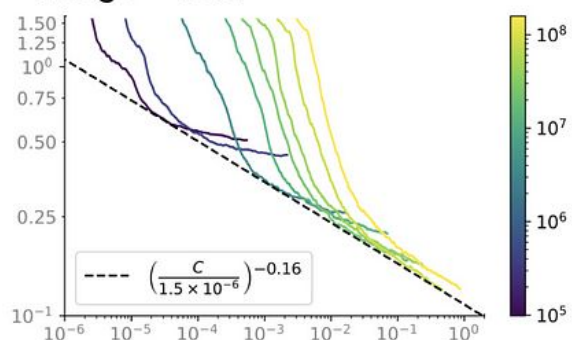
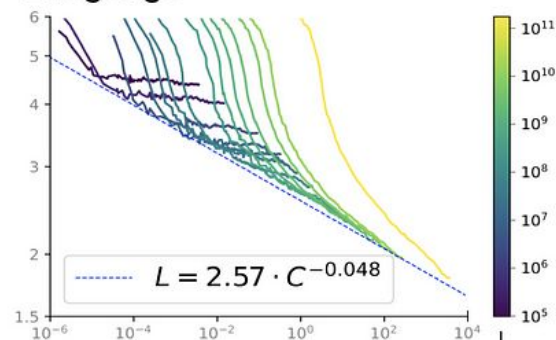


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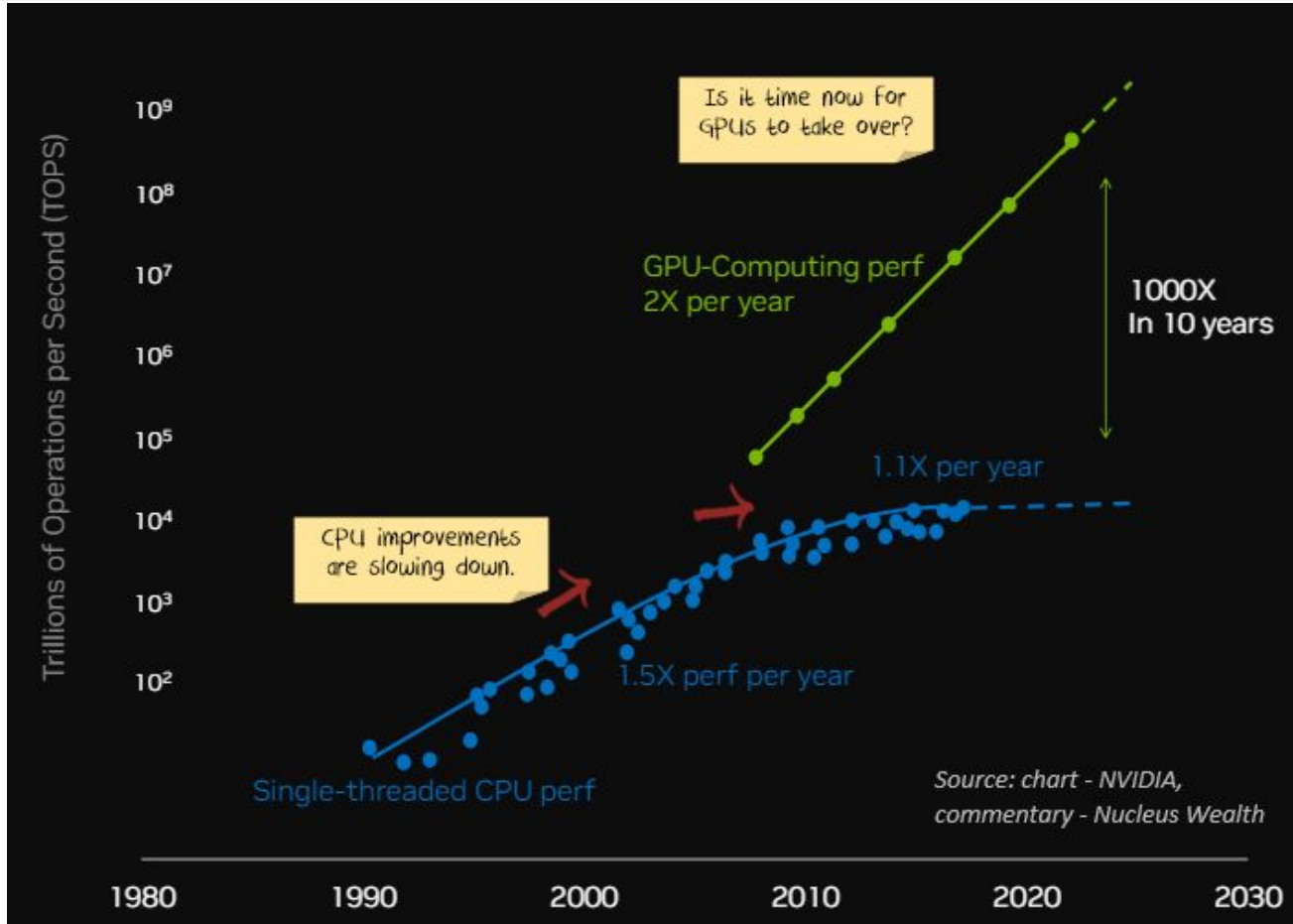
Language



Compute (PF-days)

Line color denotes model size

Its a trade off between money and compute:



ChatGPT Strawberry - it is very different:



What does this mean:

- Is this a temporary issue or an ongoing one?
- Do people want about right and free or almost always right and expensive
- Maybe that is just a matter of time anyway?
- Chips. Demand, which ones.
- Mobile technology - do we need a new iPhone? Or are the calcs going to be done on a server. This suggests server.
- Business model issues for companies - more service, less software

Morningstar on Weight Loss companies:



Extreme opinions:

Bear Case



- more severe side-effects will start showing up
- backlash as more data emerges about how they change brain chemistry
- mass adoption won't occur because people like food

Bull Case

- doctors will prescribe them for everything from heart disease to sleep apnea to knee replacements.
- manufacturing issues and side effects will become trivial
- health insurers or governments will greatly encourage the use with the view spending \$x now will save multiples of \$x in future costs.
- we will all be popping them like multi-vitamins for vanity reasons.

Morningstar on Weight Loss companies:

Exhibit 2 PitchBook/Morningstar Analysis Offers a Different Take on a Rapidly Growing Obesity Market

	Market Perspective		PitchBook/Morningstar Take	Reference Pages
	Novo Nordisk's and Eli Lilly's obesity drugs face limited competitive risks.		Competitive obesity drugs will likely begin to launch in 2026.	Page: 3 Exhibit: 3
	The obesity driven GLP-1 market is very large, but complex to quantify.		We quantify key assumptions to support a \$200 billion annual market.	Page: 4 Exhibit: 4
	Obesity drug penetration will be high.		Relative to other blockbuster markets like atopic dermatitis, asthma and psoriasis, we expect obesity drugs to post higher market penetration.	Page: 5 Exhibit: 5
	Obesity drug pricing will remain fairly strong.		Pricing will likely fall in the near term to gain expanded payor access, and price declines will accelerate to over 10% annually by 2027 as more competition enters the market.	Page: 5 Exhibit: 6
	Secondary indications beyond obesity will drive significant sales.		The high overlap between obesity and other cardiovascular disease will largely just help market penetration into obesity.	Page: 6 Exhibit: 7
	Eli Lilly and Novo Nordisk look undervalued.		Eli Lilly and Novo Nordisk look overvalued, with high market share retention and stable pricing needed to support current price and undervalued calls.	Page: 7 Exhibit: 8
	The next wave of obesity drugs is building, but too far away to value.		The next wave of drugs is poised to launch in the 2026-2029 timeframe and could improve on current mechanisms of action and bring novel targets.	Page: 7 Exhibit: 9
	The efficacy of Eli Lilly and Novo Nordisk obesity drugs sets a high bar.		The next wave of obesity drugs is surpassing Eli Lilly and Novo Nordisk drugs, likely on efficacy, convenience, and tolerability.	Pages: 8-10 Exhibit: 10-11
	The market recognizes new strategies are emerging to treat obesity.		We highlight the major evolutions of obesity drug treatment strategies.	Page: 11 Exhibit: 12
	Investments are increasing into earlier stage obesity drugs.		We highlight the key buyers and sellers in the public and private markets.	Pages: 14-20 Exhibits: 21-23

Source: Morningstar.

Morningstar on Weight Loss companies:

Exhibit 4 GLP-1 Drug Market Projections With Key Assumptions

				2031 Market Assumptions
	2023	2028E	2031E	Patients Treated with GLP-1
US Diabetes Patients (mil)	5.2	13	16.7	41%
US Obesity Patients* (mil)	0.9	11.2	21.1	23%
US Overweight Patients** (mil)	0.2	3	4.8	13%
US Total GLP-1 Patients (mil)	6.3	27.2	42.6	
Percentage of US Adults	2%	10%	16%	
International Diabetes Patients (mil)	12.2	41.6	57.6	19%
International Obesity Patients* (mil)	0.4	8.3	23.9	7%
International Overweight Patients** (mil)	0.1	4.3	10.6	1%
International Total GLP-1 Patients	12.7	54.2	92.1	
Percentage of Intl Adults	0%	1%	2%	
				Insured Versus Out-of-Pocket Pricing
Price (USD)	2023	2028E	2031E	
US Diabetes	3,739	2,817	2,415	Primarily net insured price
US Obesity	7,107	4,253	2,921	Weighted average of insured/out-of-pocket price
International Diabetes	749	579	497	Primarily net insured price
International Obesity	3,300	2,553	2,189	Mostly out-of-pocket
				Novo Nordisk/Eli Lilly Combined Market Share
	2023	2028E	2031E	
Total Market (USD Bil)	36	150	217	67% (2031E)

Source: Morningstar, company reports. *Non-diabetic. **Includes overweight patients treated for cardiovascular risk and kidney disease.

Assumptions:

- Pricing
- Market Share
- Market size 60m people.
- 15m in overweight
- Vanity market
- Hypertension close to 10x that

Back of the envelope valuations:

- Novo \$550b, Eli Lilly \$800b current market cap.
- Say \$500b due to weight loss.
- If in “steady state” and a 25% discount to market, then we would need about \$31b of profit from weight loss drugs to justify \$500b
- But 2031 is a long way away, with discounting we need a bit less than double, \$58b in profit in 2031. At a 45% profit margin = \$125b in sales
- If 40% market share each, we want a total market size of \$310b
- Diabetes, say \$500 a year for 150m people (~45% of total) = \$75b.
- Rest = \$235b. At \$2,000 a year = 118m people. At \$1,000=235m

How many people?

- At \$200 a month = 100m people. At \$100 a month = 200m people
- ~400m obese in developed markets. ~500m overweight
- How about the “vanity” market
- Developing countries
- Insurers and governments?
- Blood pressure = 1.3b people, ~600-700m being treated

Choose themes to screen from your portfolio away from (i.e. remove stocks)

Climate Change

War

Human Rights

Health

Vices

Animal Rights

Religion

Asset Class

Thematic

Climate Change

- No Fossil Fuels (Worst Offenders) ⌵
- No Fossil Fuels (Any) ⌵
- No Coal Seam Gas or Fracking ⌵
- No Nuclear Power ⌵
- No Old Growth Forest Logging ⌵

Personalise Your Portfolio

Screens

You can exclude the below to customise your portfolio

Climate Change	War	Human Rights	Health	Vices
Animal Rights	Religion	Asset Class	Thematic	

- No Fossil Fuels (Worst Offenders) ?
- No Fossil Fuels (Any) ?
- No Coal Seam Gas or Fracking ?
- No Nuclear Power ?
- No Old Growth Forest Logging ?

Tilts

You can add the below to customise your portfolio

Investment Style Factors	Climate Change	Technology	
Consumption	Commodities	Military	GICS Sectors

- Quality Stocks ?
- Value Stocks ?
- Growth Stocks ?
- Defensives ?



Personalise your portfolio now >



Build Your Portfolio

Need help with this page? Video Tutorial

- Account Selection
- Investment Choice
- Risk Profile
- Build Your Portfolio**
- Ethical Overlay
- Review
- Applicants
- Bank Details
- Compliance
- Final Review

Portfolio Tilts



Quality Stocks

Value Stocks

Growth Stocks

Oil & Gas Stocks

Gold Stocks

Agribusiness

Large Technology Stocks

Cloud Computing Stocks

Robotics/AI

Video Gaming

Cybersecurity

Clean Energy

Defensives

Battery Supply Chain

Nuclear Power

Defense Contractors

Travel

Luxury Goods

Logistics

Global Communication Services

Global Consumer Discretionary

Global Consumer Staples

Global Energy

Global Financials

Global Health Care

Global Industrials

Global Information Technology

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