Whoa, whoa, whoa sacks found the gel. Oh my god, this guy. He's running for office
If he shows up with the red tie next week, we're fucked. That's the end of the show
He shows up with a red tied a blue shirt. Are you coming out of your law retirement?
Are you gonna be an active lawyer defending Trump sacks? You look really good?
I gotta say with that with the job that looks that's a really good look that's got a shower
I use the comb. Oh the weekly shower in Italy. Good luck, right? It's not a bad look. Did you use soap?
Oh
No, I didn't have time didn't have 90 seconds. I didn't want to keep you guys waiting another two minutes
All right, everybody welcome to another episode of the all-in podcast it is
August and we just might have had the most consequential week in terms of
politics and science
In a long time could be it could be the week of the year Freedberg's been going nuts inside the group chat because
Everyone is trying to replicate this LK 99 room temperature semiconductor
Experiment superconductor superconductor. Yes. So god, I mean
This has been I was it been like 10 days and now everybody is on Twitter trying to recreate this
Maybe I should just let you cue this up Freedberg since this is the first time
Perhaps the last that we're gonna start the show at science corner. So science corner take over a week
Tell us is this legit because you flip from this is a fraud to this is changing the world
Like every day you you seem to have a new piece of evidence. Where are you today with this?
Is this the real deal? I mean, it's probably it's probably somewhere in the middle
But it leads to a path that could get us to the holy grail
Which is room temperature
Superconducting material which we've talked about twice on the show before and I encourage folks to go look at the episode
We did a couple ago after the original
Claim was made a few months ago that turned out to not be true
But the description in the paper that came out on how to make this material was
Chased by hundreds of labs around the world over the last few days
Folks have been live streaming it on these Chinese websites Billy Billy and Twitter and Twitch everyone from
Russian scientists to Chinese to Korean to American to European. I will say one thing that I think is
Really profound which it is this is the first time in a very long time that I've seen so many people
Share a unified voice about optimism about an abundant future optimism about a big breakthrough rather than
Get on social media to share a voice about fear and
Anger at someone or something and to hear everyone around the world get together and be excited about the potential of this discovery and its applications
It's really profound to see and it's really amazing and wonderful to see now where we are a bunch of labs

Took the described chemical structure of this material LK 99
Which has lead and phosphorus oxygen and some copper in it and put it into these modeling systems
These computer modeling systems to try and understand
Where do the electrons flow?
where do the electrons sit in this material if this material is made the way it's described and
five different labs have now published papers that
Show that the way that this material is supposedly produced
It should create these pathways or these energy states with the electrons that theoretically could enable
Superconductivity at a very high temperature and so that's an a very confirmatory signal that
Computer modeling of the electron clouds because remember electrons even though they move around the nucleus of an atom
We only kind of have a probability statement of where they are
So if you look at all the probability statements of all the atoms stuck together and you try and figure out
What's the aggregate?
Probability of where electrons are it indicates that there are these pathways that theoretically could allow for
Electrons to move freely through the material and be completely
Void of any sort of resistance, which is superconductivity and
And so that's what's really profound about the modeling outputs from five very separate independent labs
Just so we're clear when electricity normally moves down an electric wire or in computers and CPUs GPUs
Whatever, there's resistance that resistance results in loss
It results in heat and the only way we've been able to reduce that loss is by making it freezing cold like
Significantly cold totally right. Yeah, so now if we were to do this when we didn't have to make a cold
That means it these superconducting experiments move from the laboratory where it's forced to be called
To the real world our desktop you used an analogy in chat
That was really interesting of like a superconducting road where and then you don't lose energy right now
How much energy do we lose transporting it to our houses, right?
So, you know, I would say on the order of 70 percent of energy
We produce is lost to heat and friction think about moving a car down the road when you move a car down the road
You're having to put energy and to overcome the friction of the car hitting the road
So if the car could hover above the road
The friction goes away and the energy needed to move the car goes way way down when you build a data center
The electrons that are moving through the copper and the semiconductors bump into other atoms

when they bump into the atoms in the material
They shake those atoms when atoms shake that is heat
So that's why copper wire heats up when you put electricity through it
You're moving electrons through it some of those electrons bump into the copper atoms shakes the copper atoms
They get hot and then some of the electrons make their way through the rate at which electrons are bumping into other atoms is
The resistance of the material so and so so all this energy is going into cooling down data centers and all this energy is lost in
computing to heat and
Same in in electric motors could be reinvented semiconductors
Integrated circuits would be reinvented and like I said if you had enough of this material
You could put it in roads and because superconductors also reflect magnetic fields
You could put magnets on the bottom of cars and float them above the ground and cruise around without any friction
And any of this is true
This 70% loss of and then all this energy put into cooling data centers. We could be looking at Doubling or tripling
The amount of energy available because we've built a certain amount of energy infrastructure
So this would be all gains if we could figure out how to yeah
Technology massive and massive abundance. It would lower the cost of electricity by ten percent a hundred percent
I mean look assuming huge infrastructure investments, which would take probably decades to do sure you would get there
But in the near term there are these incredible applications quantum computers are built using little superconductors as the qubit
And so the superconductor holds the qubit state
So this idea that we could now have room temperature quantum computing is also a very profound one game changer
Low cost and the first thing that would be changed is likely electronic components
So we would take electronic components and redesign them using superconducting material
That would allow you to reduce heat loss and energy loss and that would have a big transformative effect on for example
The big effort right now to make more AI chips GPU chips to do matrix transformations
There are some precedent for this people are now creating optical
Bridges between GPUs and CPUs in order to reduce the heat so they're using optics basically light to transfer interconnects
Yeah, yeah, that's been the big lift right now from what I understand in GPUs and data centers is you still have to
Data yeah, it's I mean we could go on for hours on that but like yes
I mean this would just be a game changer electronic component photonic chips, right? Yeah photonic chips
But look this this is obviously a little bit separate

But here's where we are so LK 99
There's all these simulation models that show this thing could work
But there's two two things I will say came out of this from some of the simulations
The first is remember this is a crystal with mostly lead atoms and these lead atoms
Some of them get replaced by copper and when when they get replaced by copper
It causes the crystal structure to change by point four six degrees is what the Koreans say the angle changes by point four six
degrees and when that happens that bending
Causes the electrons in all the atoms in the crystal to overlap slightly and that overlapping effect
Causes this free-flowing electron tunnel that that be read that is the theory for why the superconduct now
What the simulation showed is that you have to replace only one of the lead?
Atoms not any of the other ones in order for this to work and that could explain why everyone's having different results in the lab
Trying to reproduce this because when you bake this stuff in an oven if the copper gets into the wrong atom space in the crystal
It doesn't work and so that's why some of these things might end up looking good
And some of them don't look good and some of them there's a lab yesterday in China that published
No resistance, but they had to cool it down to a hundred degrees below freezing
And so it wasn't at room temperature, but it did superconductor did have no resistance 170 Kelvin
Yeah, so a hundred cells a hundred below zero
So in other words there is a key there's a key here in the molecular structure that you have to just thread perfectly
You have to replace the right lead atom with the copper in order for this to work
And so that's a technically very and what happens that's a fidelity issue
That's a tool issue like you have to have the right tool to do it or is it luck or right now
So here's the crazy story and I'll tell you guys this I don't know how real this is but the guys claim so remember
These two scientists Lee and Kim
Supposedly saw this material in a lab in 1999. That's why it's called LK Lee and Kim 99
And so in 99 they came across this and they could not replicate it
They had no idea how to make it again and it disappeared and they didn't have the sample again
They then spent the next 20 years of their life
One was a college professor and the other one worked for LG for as a battery engineer
And they just had these random normal everyday lives
It reminds me of Dennis Quaid in the movie the rookie where he had like this amazing arm
And he was gonna go to the MLB and then something happened and he spent the rest of his life as high school PE teacher
And then 20 years later he gets his arm back and he goes to the MLB and he plays in a major league baseball game
Because all of a sudden in during COVID these guys got some funding they set up a company
They went into a lab and they rediscovered this material and apparently this is the rumor
I don't know if this is real the rumor is they had it

They were baking it in an oven in a vacuum sealed tube and when the guy took it out of the oven
He accidentally bumped into a table and the tube cracked and when the tube cracked
It did something to the material and then they measured it and oh my god
It's room temperature superconductor. That's the current theory of what the rumor of what happened is a video
That's like Peter Parker being bitten by a radioactive spider. I mean
So here's the drama this guy Kwan got inserted to oversee them as like their CTO the guy that gave the money to Q Center
Said he's got to oversee you
Kwan apparently got fired from his job in March and he was kicked out of this company was no longer affiliated and
The rumor is that Kwan took all the lab data and these guys in 2020 during COVID they discovered this
They started filing patents and working on the manufacturing process trying to figure out how to replicate it and do it again
They had all this data, but they weren't going to publish it
They didn't want the world to know about it yet and then all of a sudden Kwan gathers all this data probably disgruntled after getting fired
Puts it into a paper and puts it on the internet. So that's the first paper that came out because there's a website called our
AR X IV is there a pronunciation for this website? So this is where you can open source file
Scientific papers, right? Okay. So this is a place for
dropping papers outside of the
the traditional yeah, the the traditional journal process requires peer review and there's editors at the journal that decide whether or not to
Publish your paper. So sometimes gatekeepers. Yeah gatekeepers
And so if you don't want to do that, you just want to get a story out to the world right away
So during COVID everyone was publishing on the site while their updates on research
They were doing to help the world figure out what's going on with COVID
So it's a great place to just hit the world with your data hit the world with your findings
This is like acoustic raw papers and it's called archive
AR X IV.org if you want to go see it archive
So anyone anyone can publish a PDF. No one knows if it's real or not. It hasn't been peer reviewed, etc
So this guy won yeah
So Kwan drops the paper with his name Lee Kim and Kwan on the paper only three people can win a Nobel Prize
So the theory is he did this to get his name out there to make sure he could lock in his name for the Nobel Prize
Wow, and then within a day Lee and Kim and four people they've been working with
It's some including some folks in the US
Publish another paper with better data, but it was also rushed out and so both papers are pretty ugly
I got to be honest. They're like pretty messy. They don't have a great deal of clarity. There's errors in

them
There's mistakes. There's redundancy. There's little basic chart editing errors stupid stuff
Clearly this was a rushed job, but these guys rushed out and said, you know what if this is going to be public
We now have to correct the the the story and say what happened
They wanted to get their claim in to get their Nobel Peace Prize, which would indicate
That would lean towards a piece of evidence as would people funding them 25 years later
That would indicate maybe there's something there two things worth noting on the simulation stuff number one
Obviously, you got to get the copper in the right place and the production way to do that
How do we actually engineer that to happen? It's not really clear baking it in an oven clearly is creating what's called heterogeneous results
Meaning everyone's getting different results around the world that have been doing this for the last couple days
And everyone's really confused. Is this real? Is it fake? I don't know
But that simulation explains why there's maybe lots of different results another comment
It turns out that one of the simulation team said hey if you put gold instead of copper in the spot
It's a better superconductor. It could actually be a better material
So it's opening up all these paths for exploration that we had never considered before
That there's this whole new approach to creating superconducting materials that was not on anyone's radar before
So this is opening up a whole new realm and I think this is going to unfold over the next couple of years
With more material discovery more invention coming off of this initial discovery and simulation model that then
Offers all these other opportunities for creating potentially new materials that maybe are easier to manufacture and better to produce
And the final thing I'll say is that there are some teams that are commenting
That are saying that this thing may be superconducting
But only on one dimension which means along a line of atoms or line of molecules in the material so
Normal superconductors think about him as like a 3d matrix and the electrons can flow through
Freely through any direction through the matrix through the crystal and in this case
They're saying the electrons can only flow freely across a line in this material
And so now there's another question of wait
How do you manufacture lots of lines to run in parallel to make this thing truly superconducting at scale?
So that's all the hard technical stuff that's emerging right now
Whether or not this actually does turn into a room temperature superconducting material that can be industrialized and used in all these
Applications everyone's really excited about I think it's probably months to years away from knowing but at this point
There's a great set of indications that oh my god. We might be onto something new

There's a whole new path of discovery a whole new path of engineering and invention
And it's amazing to just see everyone gather around this and get so excited about it because it really will
Change so much about the world and create extraordinary abundance and prosperity for humanity
If this proves to be real and industrializable and scalable
Chomac, but can I ask a simple question here when you say if this proves to be real if nobody has reproduced the result
Why is there any belief that this is real? There are properties of this that you know
I think we have to take a step back
We have found superconductive materials in the past there are many ceramics that are superconductive
Mercury is superconductive
There's all kinds of elements and materials and compounds in the physical world that we've already figured out have these properties
So this is not like a new thing that's never been found before
It's just this idea of trying to find it at a certain temperature where it could exist naturally in the normal world without all this expensive
Cooling, okay, but there is a separate thing which is that we also have found a whole bunch of
Materials that look and behave like
Superconductors but are really not they're what's called just diamagnetic
And I think right now what what people are trying to sort out is is this a clever
Diamagnet is this diamagnetism?
Or is it superconductive and these are huge differences that swing this from yeah, it's kind of a cool thing
And yeah, whatever there's a bunch of other materials we found that are like this too
Wow, this is transformational and right now we don't know any of that and I think that
All of the mystery around this is mostly because people can be on one side of the debate or the other
Literally by the second based on what new simulation or what new
piece of research people are putting out there
But you have to remember like
Diamagnetism is like a property of matter superconductivity is a state of matter. It is totally different
All superconductors are diamagnetic, but all diamagnets are not superconductive. So we could just be
Extremely excited about not much of anything
Or this could really be a breakthrough if what the Chinese guys said is that they were able to cool this thing down and get it to
Be superconductive then that does at 170 k. It doesn't mean much in my opinion
Right, it's not room temperature, but it does indicate that this material can be superconductive
Look, there are many materials like this
There's like a lot of forms of red matter that we've already found that at that temperature
Gradient at that range of temperatures can be superconductive. It's not practically useful at that point
Yeah, that's right

And I'll think you're gonna see like some massive revolution. So I'm a betting man
I make bets I think I've talked about when there was this guy
Ranga Diaz that had to try this stuff and he was sort of refuted in what he was working on
But 18 months before that happened. I was trying to get a deal done with the University of Rochester to buy all that IP
So I've been grinding in and around this space for a couple of years
My intuition on this is that this is diamagnetic
And I think and I think we're gonna find that you know, it was
It's like yet another material added to the list of materials and it's okay
But hopefully what it really does is it is it sparks an interest in
In a lot of other people putting more money behind this Nick if you could pull up this
manifold markets, uh, there's a prediction market called manifold dot markets that people have been sharing a link from
betting markets where people bet either side of this will lk
99 room temp ambient pressure serving conductivity
Preprint replicate before 2025 and you can see it's about 30 chance
You what do you think of the prediction markets assessing this free bird?
Yeah, I think it's probably that's probably a good handicap for where we are
I'll say when you look at a
diamagnetic material
And so what that means a diamagnet will expel magnetic fields of both
polarities a paramagnet will
Reflect the north or the south pole its north pole will reflect the north pole of another magnetic material, right?
Diamagnets you can put north or south pole and they reflect both
And there's plenty of videos you can watch of putting a frog
In like a 10 tesla machine and the frog floats technically a frog is diamagnetic
But what happens typically with a diamagnetic materials is they orient themselves while they're while they're freely floating
Into a particular direction
So there's going to be three things people are going to be looking for in terms of confirmatory proof on lk 99
The first is does this material float like a superconductor over a magnetic field because remember superconductors perfectly spell magnetic fields
They are diamagnets to the
Absolute degree they perfectly reflect all magnetic fields
So if you put a superconducting material above a magnetic field it should kind of float freely and spin around and stuff
If it orients back to one position it probably means that there's something going on
Where it's maybe not a perfect superconductor
Now all these videos the second thing you're going to look for is zero resistance
So can you actually pass an electric charge through it and have no resistance in the material?
So you're seeing data coming out now that's indicating we're seeing that but we're seeing it at a low

temperature
No one's yet replicated this at room temperature
And the third thing is a transition which means that there's a point where it shifts because that's a classic
Characteristic of superconducting materials if there's a transition temperature transition phase where the material becomes superconducting or it's not superconducting
So those kind of generally those three experimental proof points and what everyone's looking for thus far
The videos we've seen look like ufo or bigfoot videos. They're friggin grainy
They're like, you know, you guys have seen some of these videos that have come out. They're like at a distance
It's like wait. Why didn't you do the whole angle? Why did you only take a picture?
Why didn't you do the video? There's this woman in russia who's
Now in ufo territory people are
Yeah, look at this. I mean it's super like there's a raw there's a little flake of here's a video of a little flake
Of a material that someone supposedly made in the lab or it could be just on the camera
Right and they put it over the super the over a very strong magnet and this is the video. They got it super blurry
There's a woman in russia and she totally reinvented the manufacturing process
She's actually well known scientist
So she's not bs and she said I made this thing in my house using a furnace and I used a whole new process
So she does this whole new process
She livestreams the whole thing and then she puts out a video of the thing floating in a straw
It's a sorry a video photo and it's a blurry photo and people are like show us the video show us that it's real
And she's refusing to so this whole thing is feeling a little like there's ufo big foot type people out there
That we're not really seeing clarity on is this real and then obviously the resistance data
There's very credible academic universities coming out and I will also say there are a number of labs
There's one in china and the one in china that measured the zero resistance at negative 100 degrees
They created 8 000 samples. So they found one that worked
There's another lab that did eight different pathways of manufacturing it in china and they said we can't find any that work yet
so, you know, there's a lot of
Negative indications as well, which is why the prediction markets are probably right
But I do think that this theoretical explanation
That you have to get the copper atom to replace the correct lead atom in the crystal structure
Explains a lot of the heterogeneity and results and the reason why people may not be able to replicate this
And if someone could crack the code on how do we actually
engineer this thing and produce it correctly

Based on the theory
Maybe we'll see different better results
But again, that's also theoretical because no one seems to have nailed the manufacturing process here
So lots of data coming in every day by next week. We could be clapping and you know cheering
Or you know, we could sort sort of be on this very long grind sort of like russia ukraine
Just a long grind and it's a it'll last years
And maybe someone will win maybe someone won't or maybe it just opens up a whole new set of explorations
For new superconducting materials at room temperature that could change the world
I gotta say the thing I love most about this is like we have this oppenheimer film comes out
And at the same time this happens. We got ufo
testimonials, you know
In congressional hearings all of this energy at the same time
Of people who are just really stoked do material science to do basic science to figure out big problems
And uh, I agree with you the optimism around all this
Is is I mean how
Fantastic something else
Tell me something else in our lifetime in our in the last decade or two where we've seen the whole world
Say in a positive way something great could happen
Instead of something bad could happen and someone's to blame for something
I mean it really is in my mind the first time I've really seen this happen in a very long time
Maybe the internet was a was a kind of great moment. Yeah, everybody being connected everybody being able to share information
For all over the world
They're doing it on twitter and billy billy and youtube and like all sharing this stuff
And saying my gosh, we could have this breakthrough together as a
As a civil as a species not like a country not a individual not a who messed up who did something wrong
Who's to blame who's on the other side? It's like dude if we all do if this happens
We're all going to be like chilling on the beach. It's going to be amazing like this is awesome
We're going to have a rash of vcs running into this next
And start funding this stuff material science. Yeah, I mean my attitude is kind of like wake me up when you know
It's real
Because it's nice that if
This is real then
It's great that there's all this positive energy around it, but that's like a big caveat
Until we know that there's something real here
I think it's premature for everybody to say that this is like some wonderful thing now
If we find out that the science is real and then it's just a debate over commercialization of it

Then yeah, I agree that would be like a really positive moment
I just love the fact that when something positive in the world happens or when something negative happens
We have this amazing platform for everybody social media x.com formally twitter
Where everybody can get together around this campfire and just start discussing it and speculating now some people don't like speculation
Obviously, if there's a school shooting or a tragedy a building burns down
The fog of war as we've seen in the constant ukraine
Coverage, you know, you can have it's very easy to make mistakes when you're caching this stuff in real time
But I love the real-time nature
Of the world and the pace we're moving at it's it's kind of delightful to me
I don't have a problem with the speculation and there is a fun element to it
But when you start talking about investing in it
Like I said wake me up when you know, it's real. There's a really funny meme that vc brags posted Nicky, shout out vc bra
It's this is a famous meme of a kid drowning
While the mom is playing with another kid and not paying attention to the drowning kid
It's sort of like
The guy who's holding hands with his girlfriend
But looking over his shoulder and whistling at the other woman by and superconductors is the happy little kid
Vcs is the mom and generative ai is drowning
But then they show in the
Underwater. Yeah, somebody who's tied to a chair with chains of skeletons the last hype cycle
The last hype cycle creator economy crypto f3. Yeah, it's pretty funny. It's pretty I will say sex
I um, I told gemat this when we were in italy last week
But uh, when I was 13 years old jcalc can make fun of me now
I did a science fair project on superconductors. Actually, I was doing it when I was 13
And I bought this superconductor from the back of popular science magazine, you know, this old ytrium barium copper oxide
That was the one that won the Nobel prize
You could buy it for nothing
And I got liquid nitrogen at UCLA and I did a demo at the science fair and I did a poster board and I I had hypercard on a macintosh lc and I showed everyone
This is the future. We're about to have room temperature superconductors
It's about to happen
And we're going to have flying cars and we're going to have limitless energy and limitless battery storage for energy
By the way, which is one of the big applications
And it's it's just on the brink and this was when I was 13 years old 1993, you know, here we are 30 30 years old 30 years later
And everyone feels like this moment might be upon us

But it has been this thing that's always been elusive that everyone's always thought it's around the corner
Well, it sounds like cold fusion, you know, we've always been
10 years away from some breakthrough in cold fusion self-driving cars
Artificial general intelligence. Yeah
Well, I think there's a difference between
this physical world material sciences type innovation and then software innovation and
One of peter teal's critiques is that we've had tremendous innovation in software
But in every other aspect of the economy
There's been little snow innovation planes, for example, are getting slower not faster
Would you believe that position from from him? I I don't buy that
position
Well, I mean with the exception of like what elon has been doing with the genomic revolution
He he misses life sciences entirely in that point. I don't know. I mean genomics is largely software based at this point
If you look at the revolution driven by gene editing
Oncology the breakthroughs. I mean, look, it's all slowing down
I do agree with him if you look at the number of
Approved drugs every year and the cost per drug cost per drug is going the wrong direction
And the number of drugs per year is going in the wrong direction
So there is an argument to be made there
But there there are arguably some quantum leaps in the types of medicine that we're applying
We didn't have biologics, you know 40 years ago. We didn't have gene therapy 10 years ago
These are new modalities for for therapies that didn't exist as we've engineered the molecular world to do amazing things
In the biochemical application space. So I think there's elements of this that I disagree with
But I think the general trend lines as he points out is totally true
Yeah, but with planes
I think we made a conscious to see he always cites the plane issue. Hey, we don't have the concord
We're going backwards in terms of speed. I think that was a deliberate
Cost-cutting measure because people aren't willing to pay to go faster and burn more fuel
So they have an innovation the price gets cheaper. That's right. That's right
Same with electricity same with energy like electricity is getting more expensive not cheaper
But if you look at the massive if we wouldn't have the massive gains in
artificial intelligence and machine learning if it hadn't been for the revolution in gpu storage and data centers and
microprocessors and
The isle but that's kind of the point is that we were promised flying cars and instead we got 280 characters
Not that twitter slash x is bad, but that's just where all the innovation has been as an it
That I agree with so they figure it out
They keep figuring out I put more circuits on a transistor or whatever and you know keep morse law going or I don't know

I could show you
I could make a different argument by showing you human lifespan
And agricultural yields. I mean agricultural yields continue to climb
Because of our ability to engineer in a smarter and better way every generation there
There's a there's a lot of
Counterarguments to them. I would say what's valid about it is we go ahead Truma
I was going to say the reason you we don't see these kinds of innovations is because
The ruling class has clogged up and sclerotically dominated all the places where you'd have this massive
Forms of innovation like and regular regulatory capture. Yeah, no, no, no. No, no. No, that's like I'm talking about
That's like a that's like a boogeyman. So get the boogeyman out because the regulatory capture is there forever
like why was this paper published on arxon because
Every other form of publishing mechanism is sclerotic. It's establishment. It's hierarchical
It's about people basically dominating their own little forms of paola
Right. And so nature, jamma, all of this stuff works this way. And so what happens?
You don't get fundamental innovations that happen in labs. You have things that feed
research proposals that feed
People who need to basically establish their supremacy
You saw the stanford professor get booted out because of stuff that you know, he the president of stanford
The president said so why is all this happening? Well, peter is right
The reason why this stuff is happening is that instead of places where true fundamental innovation can happen
If you look at the noble prize winners and you do distribution by age, what do you find?
People win no bells in their 60s for work that they did in their 20s and 30s
Right. And so you have a system now that rewards people staying in their positions. I wrote this in
One of my annual letters if you look at the average age of like leading people in schools
They're like 70 years old if you look inside a congress
So there's all of this stuff that just kind of sclerotically prevents
Young naive people from basically going out and really pushing the boundaries in specifically this case of science of fundamental science
And so for every innovation, I think the question to ask is what other innovations are we missing? and if innovations are on a fundamentally
Well-established pathway that defends a bunch of work of senior people before it
It'll get supported and I would say that genetics is a perfect example of that
The other if you look at the if you look at the number of rare diseases that have still that are still like unsolved
Or the lack of understanding of immuno disease. It's just crazy like it's I just think that that's really what's happening
I think peter's more right than he's wrong. The other issue here sacks is
And I like to get your feedback on this is if you look at how venture capital works

You got a 10-year window you want to get returns for your LPs
You look at how this fundamental research we just said this started in 1999. That's why it's called dash 99
This thing took 25 years to get to this point
Is is part of this issue that you have this big opportunity zone between
Say ventures window 10 years and then academia, which you put at like four decades there to mop 20
You know year olds getting their rewards in their 60s
How much of this has to do with we don't have a platform in between venture and academia? That's not the problem
I mean, so it's true that vc funding typically you want to go to the commercialization of an idea
And that the underlying platform shift already exists and usually that comes from some sort of breakthrough that happened
In academia. I mean that's basically what happened with the internet. So yeah, you do not want VC funding typically going to
Basic rnd, you know fundamental science rnd. It's just really expensive takes too long and too unknown
So you want that stuff kind of done more at the academic level
The question I have is how much of what's happening in academia is basically
Either irrelevant or fraudulent. So Chumath you brought the Stanford president
I think the the story there is he had five papers
about Alzheimer's research and you know related topics like that
Where they found out that the papers are basically bogus and
quasi fraudulent
So how much of the the work that's being done in academia? How many of these papers are basically bogus?
Well, the thing with peer review is like it's presented like it's a great incredible solution to the world's problems
But I think what it has inherently wrong with it. So the positive part of it is theoretically you have error correction
Right
But here what you don't find is that that error correction actually even happened
And so it takes like some young 20 year old kid at stanford who's a journalist whose family were journalists to basically figure that out
So instead what were those journal? What were those papers doing?
They were supporting a rising up and coming person because they thought that you know
He would support them at some point. This is like the whole corrupt Fauci system at the age
Freedberg their chumath and sacks are presenting academia as corrupt
Do you agree with that? I don't know if corrupt is the right term because I think that implies mal intent
I think that the incentives are wrong. So in order to get funded
You have to show results. No one gets a grant
To disprove someone else's work. No one gets a grant to do confirmatory work on someone else's

work
Should you get a grant you get it? Yeah, I mean, that's that's the argument that that some folks make
You get a grant to do breakthrough research and have breakthroughs and if you have breakthroughs you get more money
That's the way the system is set up. But this is why this guy. This is why well, let me just say it's corrupt
I think it's corrupt. There's no funny breakthroughs. Come on
Okay, whatever you want to define it as the guy at stanford if you read some of the testimony
From people in his labs
They said that he encouraged people to have big findings and if you get big findings you get to progress in the organization
You get more funding etc
So the the incentive structure that he set up for people was not necessarily to go in and disprove stuff
Or try something and show that it didn't work
If you try something and show that it didn't work and publish a paper on that
It's going to be very hard for you to turn around and get a trophy or get some money or get a grant
That's not what he did
There was like a bunch of error in the data that they went back and were like, hey, this is this was incorrect and he's like
Oh, yeah, it was sloppy. I just didn't do a good job of reviewing
So yeah, so what happened was if you read some of the testimony the people that worked in his labs
The students and the the graduate students and so on they said that he basically encouraged people to get good results
And in that process and in that way
There was some fuzziness in the data or some tweaking of the data that he didn't double check for sure
But he was encouraging this sort of system of performance and the system of performance says you've got to show results
You can't show non results and if you show non results, there's no money
And yeah, the reason they're doing that is marketing. They want to market and get more attention
So they get more donations. Yeah, exactly the problem with with a pure research
Is that you have to get funding to do your research? Where do you get your funding from?
You get your funding from federal agencies from nonprofits from your
You know your donors and so in order to get that money you have to say here's what I'm going to do
Here's not what uh, here's you don't say I'm going to go not prove something you say I'm going to go prove something
No, no, but the problem is you're hiding the cheese. Can you stop hiding the cheese?
That's not what these people are saying these people aren't saying I'm not going to not prove this these like
Most of these people are working on
Very thin incremental extensions of work that's already been done because it allows them
A more defined path to get tenure ship to be a well-respected professor to work through the

hierarchy of a university
that's what's happening today
And the reason why that stuff gets funded is that those are the same people that are in charge of the funding infrastructure at NIH and all these other places
what we don't have
Is something that says go and write the most ambitious proposals and i'm going to go fund it
I think both things are true. I sorry. There's no market mechanism
I'll just say both things are true because what you're saying chimac is a point of failure
If you say i'm going to go try something crazy like do a search for a room temperature superconductor using lead crystals
You're not going to get funding for that. It's too out there
I mean you guys today are talking about how low probability stuff isn't that interesting
I'm not going to fund it until it's real and so when things are real
You have some molecule that has some effect on cancer cells. Then you get funding to
Make that molecule go to the next phase or go to the next stage
That is more fundable than the outlandish crazy thing where the probability of it going to zero is 99 percent
You could throw elizabeth hums into that right?
I mean she came up with this absurd idea that she could do 200 tests on one drop of blood
And they left her out to do research that that was just a statement about engineering
That wasn't ready and wasn't another company just got funded to do the same thing that theranos promises is going to do
Yeah, do you see this?
But I did not see that no
Yeah, I mean some pretty good vcs invested in it actually and they especially said we know this is the same ideas theranos
But for that very reason we think it's very unlikely to be fraud because it's being held to such a high standard of scrutiny
I want you guys to think about this. I want you guys to think about this as vcs
An entrepreneur comes to you and the entrepreneur. She says I've done this thing. I did this thing
I did this thing. I did this thing. I did this thing five different things. None of them work
I want to have money to do this next thing
You're less likely to fund that person than the entrepreneur that shows up and says
The first thing I did work the second thing I did work the third startup. I did work
They weren't home runs
But they actually have the opposite and I had good results
That's basically what happens in in you know, the scientific research is you've got to get something that's fundable
And often that means not doing something that's likely to go to zero
And that's where the incrementalism comes in chimot. Is that orientation? I think that I hate to uh
Give my playbook, but one of the great successes I've had is finding people who got their asses kicked on the last two companies
Talking to them about why they got their asses kicked and then how they're going to avoid getting

their asses handed to them with this third company
Then if you look at travis with uber, he did scour got got you know, sued for a quarter trillion dollars
He did red swoosh
He got like a 30 million dollar exit and then he did uber, right?
His first two companies were very hard steeve jerbetson and future ventures
He took his venture fund and he told the lps. It's a 15 year term not 10
So he specifically
Is trying to do a little bit of a longer window. I think that is actually a possible solution here
I think smart independent thinkers find ways to make money. I've been looking at
This superconductor space for the last two years and so
It's not like people are are shy and have money and aren't willing to write the checks
I just don't think that's what it is the body of work that's coming out of academic institutions today for the amount of money
That's put in is modest and I think that's the best way to describe it
It's the fairest way and the reason is modest is not because of the intellectual capacity of the people it's because of the incentives and the hierarchy and the
Establishment elitist politics that infuses how these organizations are run
and I think the only way to break that apart is to basically
Disrupt who is in charge of these institutions nick just throw up this chart
These are people that for decades and decades and decades
Are in a grind
And who are now in control and so what is the incentive of these folks to explain the change?
Yeah, what is this?
This is a chart that I put together which is just the generational distribution of academic leadership across all the leading research institutions in america
Okay, well isn't isn't fouchy a prime example of this the birth here
No, listen, you had the most important person hold on a second the most important person
Probably in the federal distribution of grants in the medical field was fouchy, right?
He literally was running the NIH since the 1980s
He's been there for 40 something years
And the mass was peeled away during coven and we saw how much power he wielded really I think in a corrupt way
Jason used the word corrupt you had that letter to the land set
That he got a whole bunch of scientists to sign
That claimed that covet was not made in a lab. That was a conspiracy theory that
The only place it could have come from was the sort of the zoonotic leap naturally occurring from animals
We know that he used his power over grants to basically pressure
Those people into signing the letter or they thought it would be in their interest to do so
Even though fouchy had already been updated by a bunch of scientists that it likely had come from a lab
They could just look under a microscope and see if you're in cleavage sites, which are the telltale sign

So they knew that this thing likely came from a lab
There was no basis for calling it a conspiracy theory certainly and yet the whole the whole field got behind that
But sacks did you see the did you see that slack messages where they were trying to manipulate the new york times science writer?
I mean they basically but the question you have to ask is why were all these scientists willing to go along with this?
Because because these guys have been grinding for 40 or 50 years in a hierarchy
And so to all of a sudden put a pin in it and just say you know what?
I'm going to dispense with all of it
And now i'm going to basically like be completely open-minded. How likely was that the odds of that were very low look?
Look at the number of people who have basically grown up in one segment of society
That are sclerotically in charge of every single leading research university in the united states
That is why we don't have flying cars
This is why
Because after 40 years of working in a specific hierarchy being rewarded in a very specific way with a very specific set of incentives
When some young brash 22 year old naive person writes an extremely ambitious research proposal
You're like no you will not be a part of my lab to do that
But you can do this incremental thing that that further reinforces my leadership in society
That is what this chart shows. Yeah, it's also perverse inside of government
We didn't talk about it. I don't think last week, but mitch mcconnell
I don't know how to say it, but I guess he froze while he was speaking and you know
We got to have an upper eight in the diane feinstein thing. Remember when she started
And their staff are whispering saying just say I you know when she starts going on that's like philibuster
No, jc you're right
We have a sclerotic political system run by octan's generians because the boomers are not
Relinquishing political power fucking we're not really inquisiting bureaucratic power
Can we just pull up this lancet letter for a second? They say here's zoom in on this the rapid open and transparent sharing of data on
This outbreak is now being threatened
By rumors and misinformation
Around its origins. We stand together to strongly condemn
Conspiracy theories suggesting that covet 19 does not have a natural origin
How could they say that at that point in time?
All the evidence suggested it was made in a lab now. Certainly. I think you could take the other side of that but to condemn
The lably theory as a conspiracy theory that was corrupt. I'm not sure that that's corrupt
You know what's corrupt is not retracting that and apologizing
That's where the real corruptions we have not gotten our post but the lancet letter was organized
It was organized. This is just like the 51 spies who lied claiming that the hunter buying the laptop

was disinformation
This is the establishment
willing to use its credentials and
Respectability and expertise
To sign a letter. They know is false to perpetrate a fraud
On the american people in order to protect the people in charge
That's the motivation here because Fauci had funded gain of function research in the Wuhan lab
I think the same rot that is in some of these leading research institutions and leading academic institutions
And politics they all share the same commonality which is
We are sclerotic
We are in desperate need of a generational shift of power
And right now there is no incentive because at the same time, you know, the people that are 70 and 80 are thinking to themselves
Well, I'm probably going to live to 100. What should I do for the next 20 years being in power is pretty good
Right. So we're we're in this weird clash
I was thinking a lot about
The fiscal spending problem in the us and we should talk about the Fitch rating downgrade that happened this week
I've got some data. I'd like to share one thing I was thinking about was how tied
the age of congresses
To our fiscal spending problem
If you think about someone who's young
They're going to want to invest for their future and think about the future
If you're someone who's old you live for the day
And you don't think about the future and I worry so much that the aging of the establishment that makes the decisions about how
Money is spent creates a a psychological barrier
Yeah positioning that's all about giving away all the money today
Instead of making the right decision to make sure that we have a prosperous tomorrow
And that's why I think so many of these things
Kind of slipped through if you put a 20 year old in charge
That was well informed in charge of some of the fiscal policy environmental policy energy policy decisions defense policy
It would be a very different set of decision making than someone who's in their 80s inheritance tax
Yeah, yeah
I mean so anyway, we should talk let you want to talk about the Fitch downgrade because I think it's a really important story this week
Fitch the rating agency
Downgrade of the us's long-term debt
by one notch from AAA to AA plus
Only nine countries have AAA ratings from the top three rating agencies s and p global fitch and

moody's
Those are Germany, Denmark, Netherlands, Sweden, Norway, Switzerland, Luxembourg, Singapore and Australia
What you can take from that is you got to have a good balance sheet and you have to have high functioning
Governments the highest functioning governments in the world are the Nordics
That's why you see Denmark, Netherlands, Sweden, Norway there according to npr
The negative reaction hasn't been as strong as uh 2011
That was the first time the us was downgraded from AAA to AA plus by the s and p
That also had to do with the debt ceiling the markets kind of shrugged off
Largely shrugged off the Fitch downgrade main reasons for the downgrade
is obviously
Higher interest rates aging population the debt to GDP ratio, which we've talked about here
But government kept coming up
Over and over again and how dysfunctional our government is and the debt ceiling is one of the key manifestations of that
Your thoughts on this for the first half of the show freeberg. You're an optimist
But are you now going to switch to declineist? I wouldn't say declineist
Are you going to switch to declineist mode now? Or are you still in optimist mode?
I mean in jakell's view unless you're a cheerleader for every stupid government policy
You're a declineist. I know it's it's jakell listen it
I want to be honest. I I don't think so. I think he like
And I concur
I think you can highlight that there are concerns with us fiscal policy
That are putting us in decline in our spending spiral
With the us currency reserves, which there are now diversification efforts underway and i'll talk about this in one second
And that doesn't mean that the us isn't the most exceptional place to do engineering and entrepreneurism
And have freedom of speech and thought and so on but there are elements of the us that put things at risk
So let me just point out these two charts if you guys pull the first one up
This is a pretty striking chart and I think I showed this before this is federal government interest payments that are being made
We're we're now up to you know a trillion dollars
The chart as you can see a year has spiked and by the way that number is spiking further and we'll talk about this in one second
As a result of rising interest rates and increased fiscal spending
So this is now becoming a pretty sizable part of our budget and as of now
paying the interest on our debt
Is a larger capital outlay for the federal government than defense spending the second chart shows what happened in the last week
Which is that 30 year treasuries have been sold off and as that's happened treasury yields have

climbed
So there's been about a 10 percent decline in pricing and you know a concurrent nearly 10 increase and bill ackman
You know basically said today that he's shorting 30 year treasuries
He thinks we're going to go to five and a half percent long term rates
Currently the 30 year treasury sitting at 4.3 and remember I told you guys this after this thing I went to a few weeks ago
that
There were two prominent economists who shared
That they think we're going to be facing long term rates in the five to seven percent range very long term rates for a very long period of time
That it is a new fiscal regime
And then if you pull up the last link I sent nick this is a report made
By the treasury borrowing advisory committee of the treasury department
And I just want to read a couple of quotes from this report
This just came out today and it was published that it was sent over to the secretary of the treasury yesterday
And it said since the advisory committee convened convened in may two year treasury yields are about 100 basis points higher
Well, 10 year treasuries have increased by about 40 basis points
The bank holdings of non-mortgage backed government securities mainly treasuries have actually declined
By 146 billion so far this year so that means banks are selling off their treasuries
The committee goes on to say at the same time
Treasury investors have noted the treasury supply will need to increase
To address the rise in public deficits as tax revenues have come in weaker and government spending has increased
issuance needs will be additionally impacted by the timing of a recession so on then they said
Based on the marketable borrowing estimates published on july 31st treasury. This is crazy treasury currently expects
privately held net borrowing of
1.007 trillion dollars in this quarter
With an assumed end of september cash balance of 650 and then they said we expect
another
852 billion dollars of borrowing next quarter that means treasury is going to try and issue and sell 2 trillion dollars worth of treasury bonds
In the next two quarters, that's 2 trillion dollars of new borrowing by the federal government to pay our bills
At the start of the year, they were estimating 1.6 trillion for the year, which was an insane number
Now we're talking about 2 trillion in just two quarters
So rates are climbing as a result
We need to borrow more and this is a perfect manifestation of the debt spiral problem that we've talked about multiple times

Our fiscal spending outlay and the rising interest rates combined to create an insurmountable debt spiral
That is now manifesting in the fact that we need to sell 2 trillion dollars of
Treasuries and here's the crazy statistic that they said in reviewing recent demand for us treasuries
In auctions the committee noted that an increasing percentage of supplies being absorbed by investment funds
While foreign participation has remained range bound
That means as we're trying to sell more treasuries governments foreign governments are buying fewer of them
Which means that the u.s. Currency as a reserve is no longer the place that everyone wants to plow their money as much as it used to be
It is in decline
Now the other thing i want to share which i think is is absolutely critical is how do we address this gap?
Well, the one way is these entitlement programs and so several republican presidential candidates nicky hailey
Ron DeSantis and mike pence have all publicly stated on the
The campaign trail that they're promoting programs to cut social security benefits for people that are 30 and 40 years old
And here's the response to that
So so they've gone out and they've started saying that
A poll was done and on that poll 82 percent of voters
Oppose the push to cut social security for americans under 50 82 percent
So where is this going to take us? This is what is so scary to me jay cal. I'm not an american declineist
I believe in the american system it benefited me and my family
But I do worry that we find ourselves in a whirlpool that it's very hard to get out of because
The populace says we don't want to make the cuts that are necessary in order for us to save ourselves
That's what's so scary to me
And I said it before I think it's worth saying again. That's it
I'm done. It's not a problem of populism. I mean the elites are saying it too
There's no appetite in the dnc to cut or reforms or security. You're kidding. It's very unpopular. How do you get?
How do you get elected? I don't know why those republicans get elected saying I hadn't seen that article
I would advise all those campaigns not to touch that rail. They're going to electrocute themselves
I think trump has the right political instincts on this point, which is you cannot
touch the security
As a single party effort it has to be bipartisan and there is no bipartisan will to do anything
So I think you're you're right about the larger point. Chamath your thoughts on
freedberg's
manifesto that

80 percent of the public does not want to cut spending they're in favor
Of social security for people under 50 years old and we have a trillion dollars in debt payments
And we're in a death spiral because we're borrowing two trillion in 180 days. We're borrowing an extra two trillion
That's the real point the the end of the end of the fiscal end of days
For at the start at the start of the year the the expectation was they were only going to borrow 1.6 trillion for the year
Now we're borrowing two trillion in just these two quarters. Let me just state what I think about the dongrave. It's irrelevant
The s&p did it 13 years ago. Fitch is a
marginal credit rating agency
They're at a minimum 13 years late at a maximum. They're just anxiety like other people are
The sky is true. So that's my first point
The second point and the more important one is that I none of you who are always freaking out about this understand
This conversation about relativism
All of these conversations are relatively you can deal with them in absolutes
On a relative basis japan's debt to gdp is 270 and growing on a relative basis our debt to gdp is half of that
We are the most important economic force in the world
It is going to continue to be the most economic force in the world and all I see actually on every single monetary basis
Is every other country struggling more than we are so my question to all of the chicken littles is
What do you do if you're a central government?
Where you have to have foreign reserves
Do you all of a sudden double down on the euro?
Do you double down on the yuan which is basically a proxy for being for doubling down on the us dollar?
What are you supposed to do and I never get a good answer because on a relative basis the us will still continue to do
Well, I think that debt to gdp
Is a red hearing for a lot of people
And I think that the way that people run their personal lives, which should take income to debt into consideration
I don't think applies as much to governments and I think these things are going to march forward as a group
There's not going to be a single g8 country that all of a sudden moves away and starts printing surpluses
It happened almost as an accident an aberration during the clinton administration. It'll never happen again
And I think that we shouldn't worry so much
Because I just don't see an alternative
So give me instead of telling me how bad this is because you think about your own life

And how it would be bad if you had debt to gdp of a hunt. I get it
As a country give me the alternative country
But just start with that. Can you answer that question? What is the alternative country?
Yeah, where would you put your your wealth if not the dollar?
Well, let me paint a scenario. That's not as dire as a collapse of the u.s. dollars world's reserve currency
Okay, so on this fitch, right? That's not that's not what I think happens, right? I think this is just purchasing power goes down
That's it. But go ahead sex relative to who?
Be specific anyone
But what does that what does that mean relative to anyone? Let me paint like a non catastrophic scenario or non apocalyptic scenario
Which is what you saw on this fitch ratings downgrade
Is that the bond market did move at the margins?
There was a sell-off in the tenure and as a result the tenure bond yield moved up to 4.2 percent
So it wasn't a case of everybody shedding all of their u.s. Treasuries
It's just that there were market actors at the margins who adjusted their portfolios
Okay, now freeberg is saying that the treasury is going to have to do another
$2 trillion bond offering and we have trillion dollar plus deficits as far as the eye can see
And we've got entitlement
Liabilities on the horizon and then a political unwillingness to do anything about it
So the deficits are only going to get bigger and bigger now. What does that do?
It's supply and demand when the u.s. Treasury needs to keep issuing more and more bonds at some point the demand for those things
Gets incrementally saturated and they have to offer a higher yield
So what happens? Well the bond rates go up and so the tenure goes up
Like freeberg was saying from 4.2 to somewhere in the five to seven percent range
And that doesn't mean that u.s. Dollar is not the world's reserve currency
It just means that it gets incrementally
Harder and more expensive to keep financing our debt now. What is the result of that? Well, if I as an investor
Could theoretically get seven percent
From the u.s. Treasury as the risk-free rate
Why would I want to take equity risk and put it in the stock market?
Which historically has yielded somewhere in the five to seven percent range
So if I can get my five to seven percent
From a risk for u.s. Government bond, of course, I'm going to do that
So the discount rate on equities will go up
That means that the stock market relatively on a relative basis will go down risk capital will go down
Go down and there'll be way less risk capital available for things like venture capital and private equity
Just risk taking of all kinds
And so the economy will just grow slower. It's not like there'll be a collapse

It'll just be this yeah huge albatross
Yeah around the neck of the private sector and this is called crowding out
Here see I'll give may I give a counter here
I think if you look at the amount of sovereign wealth funds and the investment coming from around the world into us venture capital
That will keep the venture machine
Cranking here in america, but three charts to just look at here nick pull up the first one the 30 year fed
So to counter this argument really the aberration has been
2010 to 2020 when we had you know low single digit mortgages three percent four percent
The majority of our lifetime it was between five and ten and if it sticks up in the five to ten
Basis that that's what we experienced for most of our life and then the second chart
This is the lowest unemployment we've had in our lifetimes if you look at the unemployment rate in the united states
3.6 is
Unbelievable and then combine with it something we've talked about here for two years that we can't understand
Is when do all these jobs burn off we peaked?
You know during the post covet era at about 11 million job openings and then you know, we're still over nine
So for there's two or three job openings for every american who wants to work
And we've shut down the borders largely even though we have some illegal immigration coming in
It is basically shut down the united states to immigration. It's about a third of what it was
Before trump and biden decided to shut things down
I don't think we're looking at the same video that that i'm seeing
Yeah, if you're looking at videos, those are very distracting
I would encourage you to look at the numbers of the actual migration into the country
It's a third of what it was just seeing what's happening in new york city. They got lines around the blocks
Clips on from the border. I would just look at the raw numbers sacks and the wrong numbers
Yeah, because we count them and we can't we count the all those we have to estimate them because they're illegal
But they got seven million
Numbers and the actual statistics than anecdotal videos because both sides will manipulate the hack out of them for their own purposes
But the fact is americas just crushing it in terms of employment
And that's why we didn't have this crash landing and the and I think the soft landing is because of employment
And i'll just end there
And if we can keep ourselves employed and everybody from the middle east to japan
To high net worth individuals in europe are pouring their money into the u.s. Venture ecosystem
I think the setup here is we got a control spending as you've said correctly freeberg
We get a little bit of control on spending

Hopefully and then we are going to have to slowly burn off some of this
You know debt we can't live with this kind of debt payments. Here's a little data for you. This is from congressional research service off of fed data
So foreign holdings of u.s. Treasuries have declined
From 40 percent to 30 percent of total treasuries 70 percent of treasuries today are held by domestic investors
This is the data that was being described
In the treasury advisory committee
The borrowing advisory committee letter that I just said is that they're seeing less demand
From foreign buyers of treasuries now I can argue we can argue theoretically about what else are they going to buy and what else are they doing with their money
I don't know but the the data is showing a decline in purchasing intention
Buy foreign buyers of u.s. Treasuries and we're having to pick up the slack through investment funds held by the u.s
Mostly pension mostly retirement funds
I would guess that are buying these treasuries. That is not what this chart shows the chart shows the effect of quantitative easy
That's what this chart shows because when you're buying treasuries from the market and retiring them
Of course the percentage of foreign and domestic holdings of publicly held debt is going to go down
So this last period explain this x of qe explain it. Sorry. I don't understand what you're saying
This is a measurement of the amount of people that own treasuries. Is that right domestic versus foreign?
Yeah, so who who owns so as of december 22 there was
24 trillion
I'm going to assume because this chart is fucking worthless if this if it doesn't assume
That the domestic holding the gray bar that adds up to 100 doesn't include the fed which it must
And that is because the fed has been buying treasuries
from the market
Okay, so just let me just give you the numbers for a second and then we can
Take out. I'm just looking at the chart. The chart is a great bar. That's his domestic holdings
I'm going to give you there's an orange bar. That's his foreign holdings. You've had 10 years of the the fed buying
Treasuries, I'm going to give you the numbers. There are 24 trillion dollars
of treasuries publicly held treasuries outstanding
7.4 trillion held in foreign hands the foreign holding
Of publicly held debt between december of 18 and december 22
Increased from 6.3 trillion to 7.4 trillion while other investors increased from 16 trillion to probably 23 trillion
So, you know, it's we're having to pick up the slack investment funds private investors
Are having to pick up the slack because of foreign demand for treasuries lagging at this point
That's the point of the chart. I don't know what I don't want to tell you
I think what this chart shows me is that the balance sheet of domestic holdings grows

Goros because the fed has been buying treasuries and in a in a world of qt
I suspect that this bar chart will change in the next 10 years
If you look at the histogram 10 years from now if you assume that qt sticks around
So, I don't know you can interpret whatever you want to feed your anxiety
It doesn't change that there's a relative problem at hand, which is you cannot sell one thing without buying another
That's just the way it works in financial markets
Here's the number the federal reserve during that same time period increased their treasury holdings. Here's the exact numbers
From 9 3.7 trillion to 9.7 trillion. So they bought 6 trillion of that debt
I think the fact that we're going to go from quantitative easing to quantitative tightening over the next decades another overhang
But because I'm holding on a second because not only does the u.s. Government need to sell another 2 trillion
of bonds every year to finance its deficit
Which is basically the addition to the debt you've got the fed now shedding what like 8 trillion
They're not they're not they're just they're letting them roll off
They're letting them roll off and they're not reissuing them
But you actually said the right thing earlier, which is that the risk premium has been shrunk so massively between equities and bonds
these 2 trillion of bonds that these guys will issue that between
The strip will trade from 5% all the way down to
There'll be a line
Out the door I guarantee you and the reason why is exactly what you said before David
Which is like why not own 5% paper from the u.s. Government
Versus having to like all of a sudden speculate on the sb 500 or something else
It's a no-brainer and I totally agree with you
But that this last 2 trillion that'll be the easiest 2 trillion to sell there will be a line out the door
Guarantee well, there's a line out the door at some price
So my point is that the yield will have to go up to attract those incremental buyers
And as the supply of t-bills becomes a glut
Obviously, they're gonna have to make the yield more attractive in order to keep
Attracting that marginal buyer
It's just that simple. So yeah at some price, they'll be able to find a buyer
But that yield will have to get higher and higher over time and then that crowds are private investment
Because why in the world would you invest in a risky stock when you get 7% risk-free?
What's your alternative because again, like what do you think the spread to jgb's is going to be if that's true?
If u.s. Treasuries, okay
If 30 your treasuries are all of a sudden in five and a half of bill ackman's right
Which you could very well be the other part of what he's not saying is what did jgb's look like?
What do european bonds look like? You know what they're going to be they're going to be

Trading at 300 to 500 basis points above that
It is cataclysmic for the entire world economy and so we all move in unison
When we suffer we will suffer less in other countries
And when we win we will generally win more than other countries that has typically been true
I suspect it will typically be true and I don't see anything changing that well
Hold on. Let's assume that you're right
And what happens is that the let's call it the western world and all these governments are basically mired in debts with a few exceptions
I guess australia is good switzerland's good, but the rest have massive debt to gdp as well
So their bonds have to move up with ours
And so their risk premium has to go up as well
So you're right in lockstep with the u.s. But now why wouldn't global growth just slow down
Across let's call it this whole western dollar complex coupled with inflation coupled with inflation, right?
Which is inevitable. That's basically what's happened in japan right is that they have like a 200 debt to gdp
And they've been very active and you'll curve control
And so they've controlled the interest rates, but the price of that's been total economic stiflation
Which is the pop emissions declines. They have demographic problems as well
But that's the main issue there is young people there. There's just not a lot of young people there. I mean, they're the housing is crazy
If you just look at it and I think the united states has a lot of innovation, so
We will innovate our way out of it is is my belief which is kind of what we've always done
You know what's so exciting guys? We can have this conversation with larry summers himself at the all-in-summer
Okay, great. There you go. Wait, do we have ray dalio too?
We have ray dalio, yeah
Are they gonna be on a panel together or are we really interesting to discuss this topic with the two of them?
Maybe overlap. I'll look at the schedule everyone
Unfortunately, all our speakers are in tight schedules on when they're in and out, which is why I need jcal to respond to my
I am to him about
finalizing some of our other speakers, but
Hey, do you mean texted me because like apparently he's in like london or he has to go to london right after you got to figure
How to get him back? Yeah. Yeah, he said he'd fly out, but we got to figure out how to do that
But yeah, we can have this conversation in la september 10 through 12th
Well, it's sold out so way to frustrate everybody. I'm getting like
All kinds of like LPs and giant folks are like, can I buy a VIP ticket and I'm like, listen, it's sold out
You had two months to do that. So in other news
The GOP's lead candidate for
The 2024 race donald trump has been indicted for trying to overturn the 2020 election

and stop the peaceful transfer of power the indictment has four counts
And is the third criminal case for those of you playing along at home four counts include
Conspiracy to defraud the u.s. Conspiracy to obstruct an official proceeding obstruction of an attempt to obstruct
an official proceeding conspiracy against
rights trump campaign
Not shockingly called it fake news
The indictment feels like it's got him dead to rights
And this is on top of the oath
Keepers founders steward roads getting 18 years and a bunch of other cases in addition to that
The doga prosecutors also accused trump of ordering employees to delete security videos
And the classified documents case to cover up of course being worse than the crime
Looks like they got him dead to rights on that one as well
All of this against the backdrop of disantis spending tens of millions of dollars and falling in his percentage
sacks explained to the audience why this is hunter biden's fault and uh, that's a deep state conspiracy
I kid
What are your thoughts on this when you say they have him dead to rights like what what do you mean by that?
What's your basis for saying exactly? What do you dead dead to rights on what charge?
Yeah, so in this indictment the 45 pages if you read it
You will see that they put up fake
electorates and they knew that it wasn't going to work
And they did it anyway after losing 60 cases. So
that's the
Belief of why this is such a serious case
and then also the cover-up
obstructing justice and it looks like
Some of these maintenance workers are potentially flipping and mark meadows
They claim has flipped as well. So but you know, he listened everybody
This case is is sort of separate. I mean, I think we should just stick to this
The the big news here is what do you think of the fact that he tried this allegation that he tried to delete the videos?
Do you think it's real or do you think it's made up? I don't know that that's a that's a detail about a piece of evidence in that case
I do think the documents case
is
on a sounder legal footing
Then the more dangerous to him you're saying more dangerous to it doesn't involve as many novel legal theories
Now is it really dangerous? I think the american people think that at the end of the day that documents case is sort of a paperwork case

And there are many other people who violated the classified requirements
Rules like sandy burger like david portray us like hillary clinton never prosecuted
So I think if they have him dead to rights on any of the cases is the documents case
But I also think that in the lines of american people
That in the minds of the american people feels like dc inside baseball now. I think on this january 6th case
About the documents case. What do you personally think? I think if you're going to prosecute trump for that
You need to prosecute all these other people who violated classified documents rules
What do you think about him sandy burger who worked for clinton?
It was a national security advisor stuffed his pants
Yeah, with classified documents from one of those clean rooms
And got away with a slap on the wrist. What do you think about trump trying to overturn the election?
Well, look, do you think he tried to overturn the election? I mean just a basic fact
Let me state right away that I think that
What trump did in the wake of the 2020 election was indefensible. I said so at the time
I said that I did say it
What I said is that once the supreme court once the courts in general throughout his case
And once the supreme court denied certiori it was time for him to stop
And he kept going yeah, it was time for him to stop and he did it
And so I think that his actions were indefensible
However, when you're talking about criminal prosecutions, they can't just be an expression of condemnation
You actually have to prove that somebody engaged your criminal behavior and the issue here
With this January 6 case is that it relies on novel legal theories
There's actually a really good article in the new york times of all places explaining this
Do you think there was a possibility that he if he could have he would have turned over?
The election if pens had gone along with it
You're getting into a bunch of hypotheticals here. The question is whether
These charges will actually stand up to scrutiny. Let me read you
What david leonhardt from the new york times reported
Because I actually think when you have the new york times saying that the case is weak
I think it's really indicative. So
What the new york times says or leonhardt says is shocking as it was trump's behavior on january 6 did not violate
Any laws in obvious ways? He never directly told those the january 6 rally to attack congress
During his speech that day. He even said he knew that protesters would behave peacefully and patriotically
It was part of a long-standing trump pattern in which as my colleague maggi hamerman puts it quote
He is often both all over the place and yet someone careful not to cross certain lines and quote as for trumps brought her effort to overturn
The election result no federal law specifically bars politicians from attempting to do so

Without such a law smith has relied on a novel approach
She has charged trump with committing criminal fraud
And violating conspiracy laws that were not written to prevent the overturning of election result
And then he says that a key part of these laws they revolve around a person's intent
And tend to score to the notion of fraud only if someone is knowingly
Trying to deceive others can he be committing a fraud and he says that's why the case seems likely revolve around trump's state of mind
So the problem with this is they have to know only prove
That what trump did in the wake of the election was indefensible and
Outrageous and all the things that you believe they have to prove that trump knew
That he lost the election and knowingly perpetrated a fraud
And I don't think you'll be able to ever prove that beyond a reasonable doubt
But even though yes, there are statements that they point to yeah
They got all those statements and then bill bar mark meadows
Everybody's flipped on and pence has flipped on them. They're all flipped on them now same as those people
Yes, but trump also had this whack pack of lawyers. So you had juliani and you had
sydney powell
And john easman and michael indell the pillow guy
They were all in the white house telling trump that listen you won the election
You've been robbed and there are valid legal grounds for you to contest this and trump for years has been maintaining the stolen election narrative
Even when his advisors have told him this is not good for you. The the guy has stolen election on the brain
Okay, every
Interview he's brought this up even when it's manifestly harmful to himself and the republican party
So this idea that you can prove that he doesn't really believe the election was stolen
The one thing I believe about trump is that he really does believe the election was stolen
And I think you will never be able to prove beyond a reasonable doubt that he is knowingly lying about that
And as a result of this you can never prove this case
Now it also relies on this novel theory
They are turning the civil rights law into a pretzel to try and figure out a way
to indict
Trump or prosecute him under this novel legal theory of committing quote fraud against the american people
Okay, this is a novel legal theory that's never been
Tried before and by the way if you're going to create that as a precedent
I hope we're going to go after those
The signers of the lancia letter we talked about because they committed a fraud against american people
I hope that we will prosecute the 51 spies who lied because they perpetrated fraud against american people

I hope awesome. I hope we will go after the authors of that steele dossier
Because they perpetrated a fraud of the american people. There's a lot of people in washington who've perpetrated a fraud in the american people
I hope we're going to go after all of them
But my point is this it's not the job of a prosecutor to be creative with the law ever
I mean, they are supposed to apply the law strictly as written
they're supposed to bring cases that are open and shut and what
Jack smith is doing here is going for this bank shot where
He wants to charge trump with incitement, but he knows he can't win that case
So he's going for this backdoor or civil rights law to sidestep the first amendment problem
And it might be this is an abuse of prosecutorial power and once you let prosecutors get creative like this
You're on a slippery slope to show me the man. I'll show you the calm as install in russia
So listen, I believe that again trumps actions were illegitimate and outrageous
But again, the purpose of criminal law is not to express disapproval. You have to be able to prove
These cases in an open and shut way without novel legal theories
I just want to say I need to give I need to give sacks a 10 out of 10 for this last piece. That was
Excellent. Absolutely. Excellent. Jason. Here's the question. I ask you go ahead
Do you believe that trump was guilty of inciting an insurrection? Absolutely. Yeah, when he told those people to
Yeah, when he told those people to go down
Why hasn't jack smith indicted trump?
They've indicted trump on all these different charges with over 500 years of jail time
And they have not indicted him for incitement. Why not?
They could always add to the charges and so I suspect when they start flipping people they will but you know, it's kind of
Meaningless to have this discussion. We should move on to the next one. No, it's not. No, hold on. Hold on. Let me finish
You ask me a question. Here's the thing. You know what 30 percent of people
In the republican party about 30 percent of this country have trump stock home syndrome
They cannot let go of trump and so there's no reason to debate it with the gop
They have tss and it you're going to defend him to the dying day
You're going to do what about isms the republican party will never accept the fact that this person's a criminal
He's corrupt and he's a horrible human being and he it is not fit to serve and you're going to serve him up as your candidate
It's disgraceful. The gop is a disaster for for actually supporting him
Guy has no morality and he would have overturned the government if he had the chance and he will do it again
Can I respond to this? I mean a couple different points here. All right, so look as many points as you want
They're all people who are absolutely fixated
On january 6 and it's the people who've been trying to whip this up and make it into

A crime and event all these novel legal charges and haven't stopped talking about for the last two and a half years
I'm so sick of talking about this whole january 6 thing. I don't want this to be our politics
Okay, the people who've made it our politics
Include the the mainstream media. It's all the people on cnn and msnbc won't stop talking about it and part of the reason why
I think trump likely will be the nominee is because they are creating a backlash
In the gop where people basically think that he's being unfairly
Prosecuted and persecuted now to my question. Why aren't they charging him with incitement?
That is the crime that the media says he has committed for the last two and a half years
So why aren't they charging him because the doj looked at that at the beginning?
Of 2021
Merrick garland's doj looked at that and they did a report and found that they could not win that case
And when that came out the media and even Biden himself said that Merrick garland
Was basically being a wimp and should be tougher
And so that's when they appointed jack smith to be the special counsel to go find some of the way of prosecuting him
And so that's why they've invented this novel legal theory now
I think the reason why we should care about this that has nothing to do with wanting to defend trump
Or make him the nominee is that I don't think our political system should be weaponized this way
Because when they can start inventing novel legal theories to get somebody that's what they've done here jason
It's show me the man. I'll show you the prime now try
To overthrow and reverse the election and he tried to do that by putting up a fake slate
And he tried to convince pence to go along with it pence is an honorable person who wouldn't go along with it
And everybody in his cabinet said this is a bridge too far his
His supporters from bar to pence to meadows all told him please stop what you're doing is illegal
You cannot overturn the government the election results
But are you saying this
Are you saying this as an expression of condemnation against trump or you saying that that jack smith actually has
I think it'll be proven that he broke the law and they were proven in the documents case that he also tried to cover it up
But that's just my opinion. I believe that he's a criminal. I believe he will be held accountable
I think he should be held accountable for trying to overthrow the election. He tried to overturn the election
That is the most treasonous thing you can do you can come up with all of your
Charge him with treason charge him with incitement. They have not done that. They've invented this not only with theory that never existed before
He's a very smart guy when it comes to avoiding

Accountability and I think that it's his the clock is running out for him. You know what jay cal. Do you not think that?
It's a little surprising
That all of these charges are hitting
Years after this event took place in the months leading up to the republican primary
No, I think it's that's the weirdest thing to me is like
Why would it take so many years to prosecute someone all those guys that went into capitol the capitol building?
They all got charged with crimes years ago, you know two years ago
Why is all this stuff falling on trump today? It's like they because the grand jury
I mean in the case. Yeah, and they take time to build these
Because I will say it does feel like it is interrupting a political process that if there were criminal charges to be filed
I would have liked to have seen him file two years ago
So this could all get adjudicated ahead of a political cycle now that it's in the middle of a political cycle
It makes me as a u.s citizen nervous about the fact that there are agencies interfering in the political cycle
You're so right
He could have given the documents back when they asked for them and he could have said don't delete the
We're talking about you're talking about both. Yeah, and it takes it
You change the subject to the case that I'm talking about both cases. I'm talking about both cases concurrently
We're talking about the documents in that case. I will say the document case is more solid but less important
Okay, actually leonard says this in the new york times
But you asked me a question
I think it takes time to build the case properly and it took them a long time to get to the 400 people
Who attacked the capitol and brought tens of thousands of rounds of ammunition
To the capitol and put it in three hotels, which is why the oathkeepers got 18 years 400 people have gotten sentenced in that
For good reason they beat cops
They beat they broke down their way into the capitol and they brought
Dozens of ar 15s and they bought tens of thousands of rounds of ammunition and placed them in hotels around the capitol
These are dangerous domestic terrorists. They would have shot him for that
That's not what he's being indicted for no they i'm talking about who they they already got those oathkeepers on 18 years
I just want to read this one sentence from from leonard just to wrap this up
Because this is the new york times. This is the new york times
He says you can think of the new charges being both more important and less solid than trump's previous federal indictment

Yeah, no, i'm listening. Everybody's gonna have different opinions on this
I I get that I just hope he has his day in court
And I think he's guilty and I think it'll be proven that he's guilty and that it's time to start
Moving this towards a pardon and figuring out how to get him out of political life
And give him a pardon for all these crimes he's committed and let him off the hook
But get him out and so that your party can fail to a good candidate. That's what I hope happens
I think one of the really tragic side effects of these
Prosecutions where they're inventing novel legal theories clearly to get this man for what he did even though it was outrageous
But I don't think criminal in the way you want it to be jason
But the really tragic thing about the way I wanted to be I would rather he didn't do this criminal activity
Yeah, I get it. I get it. I look I don't want him to be already denounced it. I'm not defending his actions
I'm defending the integrity of our legal system
And really the tragic thing about this the tragic thing about this is that I want the 2024 election to be about issues
It's not it's going to be a referendum on what happened in 2020
And there's no way to convince either side of the american people
That they're wrong about that the msnbc cnn crowd are going to believe that trump is guilty of a crime
No matter where this case comes out and by the way, I think trump's actually going to win this case
Maybe not in the dc jury pool, but I think he'll win it
On appeal because I just think the supreme court. Yeah, I think if he has to get the supreme court
He's going to win it because there's a novel legal theory
By the way, jack smith took a case against the virginia governor
To the supreme court got overturned on appeal 9 0 because of an outrageous legal theory there
So that same thing could happen here. I think it probably will but but those people who believe in this will never be convinced
And by the same token trump supporters the other half of the country will never be convinced that
This was not a political persecution. It's tds versus this will tear the country apart
And to free berks point. It's two and a half years later. We could have just moved on
There's plenty of other things. They already have the documents case
So this is a political prosecution by biden's. Do you have any way to get out of this?
What's your what's your solution to get out of this? We should have just moved on
Oh not charge them
Yeah, listen the the proper forum to deal with this was the impeachment hearing
The second impeachment was expressly on the correct charge was was whether trump incited insurrection
They already had this trial
The proper forum was that impeachment trial?
He made it through and it's up to voters to take this
Actually said the proper one was to go criminal. So it was interesting

Yeah, he said the impeachment was the wrong way to do it. They should just do the criminal
So here we are doing the criminal then the country should have moved forward and instead we're going to turn apart
And this is what 2024 is not going to be about. What do you think?
Free berk, which what do you think is a good path forward?
I kind of align with the fact that this is a little bit too late
It's in the middle of an election cycle and the damage that it will cause in terms of how our country views the
Intersection between the justice system and the electoral process can be more damaging
Then the benefit we would gain from bringing an individual to justice for breaking the law in this case
Unfortunately, the timing is just off and I think it's really scary
All right, jason, you have to ask what what is actually going to strengthen our democracy and what is the wisdom of bringing these charges?
I think this case shows a lack of wisdom. I don't think it's going to strengthen our democracy
I think it's going to undermine it
It's going to make this country more polarized and hyper partisan
And it's not going to help us move past this era of our politics and I believe that a question towards me
I think trump is responsible for part of that polarization, but I think biden now is playing into it from the other side
I don't think we've had a president
Seek to indict
His leading political opponent who's likely to be as involved in this. This is the justice department. He's not he's not driving it
Wait a second. That is not true
Okay
Yeah, he's he's not involved in it. No, there's an article in which biden said
That when merit garland refused the incitement charges
That he thought that it was weak in that biden thought that trump deserved to be prosecuted
And that was a public articles in the new york times and i'll provide the note
Okay, what's your question for me? Do you have a question? You said you want to ask me a question?
Well, no, I didn't say a question. I said you can respond
Oh, but my my point is I now think that biden has crossed a line here
And just remember this is not an independent prosecutor jack smith
Works for merit garland who works for joe biden
This is banana republic type stuff. This is one president's doj
Seeking to prosecute his main political opponent
Who put merit garland in biden appointed him?
Uh, yeah, so, uh, this has been the all-in podcast chamath had to bounce
frieberg congratulations on okay 99. I hope it happens
sacks sorry about congratulations to you too. Congratulations to you too sacks
If it's proven to be real we will all benefit. So it's great. Yeah

Right, and we'll see you all good for next time
You should all just get a room and just have one big huge orgy because they're all
It's like this like sexual tension that they just need to release somehow
What you're about be what you're be
We need to get
We