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SPECIAL REPORT
**Global Overview: The Milken Institute
Global Conference 2024**

The World at Inflection

By: Jim Altenbach, CFA

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The 27th Annual Milken Institute Global Conference kicked off live in Los Angeles in May 2024. Over 170 panels and 500 speakers participated. Speakers included Elon Musk, President Bill Clinton, Argentina President Javier Milei, former Treasury Secretary Steve Mnuchin, IMF Director Kristalina Georgieva, and other luminaries.

We present topics of interest to those with an eye toward growth, technology, and innovation.



Global Capital Markets Part 1: A Conversation with IMF Managing Director Kristalina Georgieva

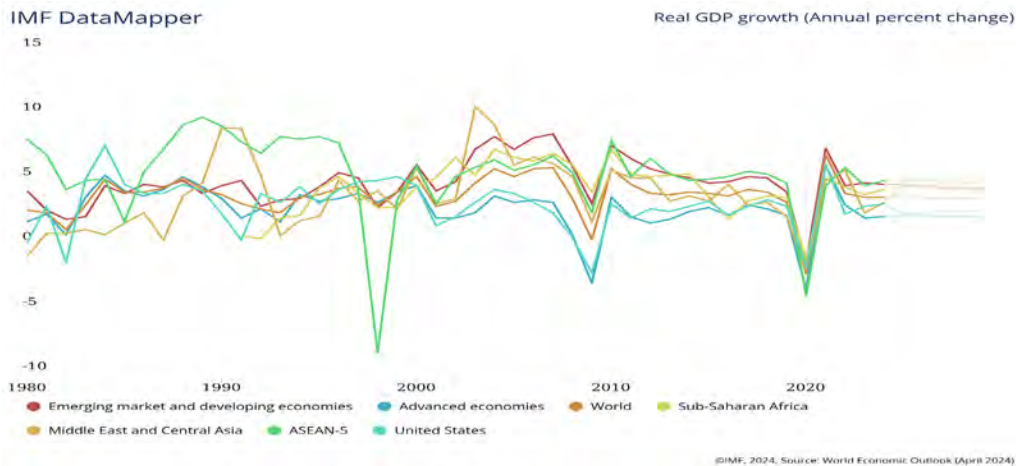


Video: <https://youtu.be/V81ETIXdv88?si=8bMvOWbiTXkYUbki>

Global Conference 2024 opened with a discussion on Global Capital Markets. Zanny Minton Beddoes, Editor-in-Chief, The Economist, sat down with the Chair of the International Monetary Fund (IMF) Kristalina Georgieva for a discussion on the global economy.

Global Economic Growth:

Zanny Minton Beddoes, Editor-in-Chief, The Economist opened the session on the topic of global growth prospects. She asked **Kristalina Georgieva, Chair of the International Monetary Fund (IMF)**, "your biannual flagship publication of forecasts I read and is pretty upbeat. I mean you say that the world economy has been remarkably resilient in the face of shocks. You're expecting 3.2% growth and slowly declining inflation (see chart below.)"



Beddoes inquired: "But the IMF is the world's premier financial firefighter. What is going to go wrong?"

Georgieva, Chair of the International Monetary Fund (IMF) first acknowledged good news at least about the US stating:

"There is a reason to be happy about the US performance. The US is a very innovative economy as ideas turn into businesses and, then businesses get scaled up, the US has a remarkably strong labor market. The fact that there is ample supply of labor, and the US has the tremendous advantage of being an energy exporter at a time when artificial intelligence demands a lot of energy. And we know that other economies are limping because they are dependent on energy imports. So, all these things go well for the US and of course the question is would the inflation drive down be completed? We think that it will be completed this year. We look at the data, what we see is that some data is a bit more worrying than other data.

She pointed out a nuance by stating: **"This disinflation is not just in the hands of the Fed; it is also in the hands of American businesses. Repairing the supply chains played a role in bringing inflation down.** Could that be derailed? We just talked about it in our baseline scenario, we would see inflation going down to target this year."

Global Economic Risks: Energy tensions and Trade Tensions

"But on what can go wrong?" Kristalina Georgieva, Chair of the International Monetary Fund (IMF), responded: "Just imagine that something distorts energy prices and pushes them up, like tensions in the Middle East. Then this beautiful trend of inflation going down and growth in positive territory can be disturbed."

Trade Tensions:

IMF President Kristalina Georgieva also warned of a remote but possible scenario where the global economy could shrink by up to 7% due to a U.S.-China trade war. With Trump now the incoming President, this risk may be a bit more elevated, but still remote, as he was already President and was measured in trade negotiations.

Georgieva estimates the more likely risk is slower growth due to trade frictions stating: "From 2020 to 2029, the global economy will enter a 'low growth phase' at a lower level than the decade before the pandemic." She explained that "protectionism has emerged as a serious global economic risk as it has spread beyond the U.S. and China to industrial policies around the world."

President Georgieva continued: "Trade restrictions (such as the U.S.-China trade war) reduce global GDP by 0.2-7%. Take the worst case of 7% loss in output, that is like we take Japan and Germany, and wipe them out from the world economy and we live with the rest!"

"Half of the 2,500 (trade-restricted) industrial measures around the world have occurred in the United States, China, and the European Union," Georgieva said.

"The trade war is worsening as industrial policy has turned into a trade barrier." She predicted that this would cause the global economic growth rate to fall to 3% over the decade of the 2020s, lower than the growth rate of the previous decade (3.8%). In addition, there are concerns that the polarization of the global economy could become entrenched thus causing headwinds and contributing to stagflation.

She also said she did not believe that the trend toward deglobalization was leading to the disintegration of the global economy but warned that trade sanctions and industrial policies taken by many nations will only lead to lower growth rates — with the primary question being how much, as she stated above.

Georgieva calls herself an "eternal optimist," who believes "policymakers will take a course correction when they see that where they are headed. This is before we fall off a cliff."

She envisioned that this decade would see advanced economies like the U.S. do well, while others will stagnate, and lower-income countries continue to fall behind.

So, highly likely we will have a world in which some economies transform, some economies stagnate, and some parts of the world are in perpetual turbulence," she said.

The US Debt:

Of great concern to IMF Chair Georgieva is the rising US debt service.

Beddoes inquired asking One element of the US that certainly perplexes me is the size of the fiscal deficit. When I was at the IMF years ago, we used to get worried about deficits bigger than 3% of GDP. Now it's what 7% the US fiscal deficit. And if you look further out, there's no sign either of the policies in place or anything that would bring it substantially down. So I know that the fund has written about this, you've warned about it, but how urgent is it that the US deals with its fiscal problems?

IMF Chair Georgieva responded:

"Current level of deficit spending was not sustainable and could crimp U.S. and global growth if it's not brought under control."

"Servicing the U.S debt — now roughly \$34 trillion — consumes more than 17% of federal revenue, compared to under 7% in 2015," Georgieva explained.

Georgieva continued: "It cannot go like this forever, because the burden on the U.S. is going to cripple spending that is necessary to make for servicing the debt. To pay 17-plus percent in debt service is just mind-boggling. There is an opportunity cost to this money. It doesn't go to US

domestic or international emerging markets where it can finance jobs and business opportunities for American companies."

Georgieva stressed that "the U.S. needs to address its entitlement spending but said its economy is strong and remains a pillar of the world economy given its innovation, strong labor market and position as an energy exporter."

Part 2: Global Capital Markets



Video: https://youtu.be/uTdP3_MhRos?si=-m6CnWmALxom0zV0

Higher-for-longer interest rates, the golden age of private credit, Bitcoin ETFs, and others were all unfamiliar territories as recently as 2019. As markets emerged from the pandemic, they matured into the defining characteristics of our time as leaders continued to navigate a low-growth, soft-landing environment. How can today's investors uncover value and unlock opportunities in this unique set of circumstances?

Global investors are still looking to invest in the United States, but the next five to 10 years will present more opportunities in global markets, including through private investing, panelists agreed.

US and Global Markets:

Panel Moderator, Zanny Minton Beddoes, Editor-in-Chief, The Economist, opened by stating: The US has done remarkably well, and US valuations are also rich. ***Where are we in the capital markets? Are investors pricing in higher expectations for longer? What is your sense of where market valuations are?***

Jane Fraser, CEO, Citigroup, observed: "the markets have been on a tear, particularly the equity markets of late and this could continue. Valuations are high on many of the metrics and technology is a very high percentage in terms of valuation. But there's still potential for a win for equities here in the near term because if growth is stronger, equity valuations benefit and if rates come down, equity valuations benefit. There's a potential win-win here, unless there's some shock in the system." We shouldn't forget fixed income markets. ***We've had very strong debt issuance and a very strong start to the year. one often***

overlooked fact is pension funds around the world are now very fully valued and that is going to give them an opportunity to lock in returns. That could be an unexpected boost for fixed income to see some more flows going there.

Moderator Beddoes stated: **The Cyclically Adjusted Price-to-Earnings ratio (CAPE (or Shiller P/E) (*the CAPE is adjusted to account for economic cycles and inflation) is higher than it was in the late 1920s.** Only in 2000 and in 2021 was it where it is now and both times after that the market corrected quite substantially. Should we just not worry about that or **is there a risk of a substantial correction? Mike, what's your sense of where markets are?**

Mike Gitlin, CEO of Capital Group, responded:

"Well, I am in the non-market timing category. This is not just something people say, that is how it works.

'It is time in markets, it is not market timing. 'So, trying to pinpoint right now whether there will be a 10% correction or not from where we stand today is not a good policy. You have earnings growth in developed markets growing 6%, with the US in high single digits. Emerging markets' growth in earnings is 15%. These are reasonable economic growth rates. Inflation is coming down, not as quickly as central banks would like, but it is coming down.

"Is the S&P 500 relatively expensive versus a cohort of high dividend paying stocks? Yes. Against small and mid-cap stocks, yes. And against international and emerging stocks? Yes. So, from a relative standpoint, you may suggest the S&P 500 is relatively expensive."

Gitlin emphasized: **"At the end of the day, there's plenty of individual opportunities, there's lots of idiosyncratic opportunities around the world, and in small and midcap in particular. So I think it's more about where do you find the broadening of the market opportunities and less about the beta of the index."**

Moderator Beddoes commented: Harvey, regarding the US dominance, **valuations are much higher here than they are elsewhere. The story was about the US. Is that healthy? Will it last?**

Harvey Schwartz, CEO, Carlyle commented: I think there is not really a particularly exotic answer to the US phenomenon. You heard in the prior discussion, Mike and Jane were just talking about it. You have incredibly strong earnings growth, you have interest rates that are high, relatively speaking, anything we've seen.

I mean if we were here two years ago, there would be a four or five sigma event, they would be up 5%. So, it's like a one in a million probability, which as an economy we've navigated. So, on the one hand you have high interest rates, which are a good thing because the economy is strong. **High interest rates, which is a troubling thing because a lot of this has been fueled by the deficit investment in green data centers infrastructure, but the economic activity that's underpinning all this is quite profound.**

Schwartz continued: "I traveled the world a lot in the past year, and I won't say you can't ever say anything's in totality this way, but I would say the vast majority of investors, including my clients around the globe are overallocated to the U.S., but still want to add more.

This is due to the depth of the US capital markets, and the attractiveness of everything we know in terms of valuations as micro investors across our credit platform and our portfolio companies. We see a lot of unique opportunities to create alpha over the next several years on a relative basis."

In addition, "Private markets are playing a much more significant role in private company growth, and I think that trend will continue," Schwartz said.

He added: "I agree with what Mike said. When we talk to *investors, they do not see risk to avoid it. They see risk to evaluate it and its return potential.* And so, you might say that the US market is overvalued relative to another market. I think that is just a question of whether investors feel like that risk profile is most attractive for them and whether the risk reward makes sense. The fact is that we've had a 500-basis point increase in interest rates (in the past few years) and things are as stable as they are and still adjusting to it."

Global Private Markets

Private markets are becoming a "rapid way to get exposure" to global markets, said **Ron O'Hanley, Chairman and CEO of State Street**. He pointed to India and Saudi Arabia as opportunities. O'Hanley noted that "having alternative sources of lending are quite important," but that private credit has not yet been tested by an economic event like the Great Depression of the 1930s or the Global Financial Crisis of 2008 and how private credit managers would withstand such events is uncertain.

Panel moderator Beddoes asked **His Excellency Mohammed El-Kuwaiz, Chairman of the Board, Capital Market Authority of Saudi Arabia**, "if the regulatory framework is different for private equity and private credit verses public equity and credit."

El-Kuwaiz responded: "Oh, undoubtedly. First, *there is a cycle to this and there are things regulators can do to either accelerate the cycle or slow it down or even reverse it. One of the most important things is how easy is it to become a publicly traded company and how easy is it to remain a public company?*" The more difficult it is to go public, the more the preference to is to stay private. We (Saudi Arabia) as an emerging markets are acutely (but including developed markets, too) aware of the balance between investor protection and between attracting businesses that want to get listed and raised capital through the capital markets.

He added: "The other thing we are increasingly aware of is *transmission mechanisms between private markets and public markets. Private markets have grown substantially, and given the current size of private markets, along with the growth and leverage of private markets, those transmission mechanisms are becoming increasingly important to monitor.*"

As private debt investments often involve regular contractual interest payments, providing insurers with a stable source of income, they have become more used by insurers.

Fraser interjected: "just picking up on Muhammad's point, we are seeing regulatory arbitrage going on. A lot of the private assets are going into insurance vehicles, as it's more effective. There is arbitrage between the banking and the insurance regulations." This makes the insurance industry a more efficient mechanism for distributing and placing that capital.

Moderator Beddoes asked **Mike Gitlin,**

CEO of Capital Group: Do you think that the system is much more privately dominated? Is it more resilient if there is a crisis now or less resilient?

Gitlin observed: "I'm not sure it's about resiliency. ***My concern in private credit would just be the amount of money chasing an asset class where you need a really strong infrastructure to invest in and monitor your portfolio. These functions include being the investor, the originator, and the banker in private credit. A firm like Harvey's firm has the resources to be excellent. It requires hundreds of people, not 10 people on a Bloomberg machine.***"

He emphasized: "***It's important when we think about the health of the system, the majority of the assets are in the larger private credit managers who are fully built to manage what can be a challenging illiquid asset class. The more that expands and the smaller firms and investors get involved without the resources required to do it, you'll end up in some illiquid situations where you have pretty high drawdown risk. But I think when I look at the largest private credit managers and their capabilities and resources, I'm not worried about them and their ability to deliver returns to their clients over the long term. I worry about the smaller operators, " cresting long tail risks.***"

Citi CEO Jane Fraser said she sees an important role for banks to play in private markets for origination and distribution. She expects private credit will continue to grow saying there is a "win-win to play for."

And within the next 10 years, Fraser said she expects to see greater democratization of private markets for investors.

Global Markets at Inflection



Video.: <https://youtu.be/P6jCJRW062I?si=FSXw4p7aVXpPLpj>

The global capital markets have continued to navigate choppy waters with shifting tides of interest rates and macroeconomic currents at the center of forces shaping investment horizons. Digitalization has renewed opportunities for growth and inflation is cooling.

Yet contradictory macro signals exist. How are luminaries navigating the crossroads of global finance? What are the mega-forces shaping their vision and where are global opportunities?

The most interesting topics of the panel included the discussions on longer term global economic issues.

International Perspective

The moderator Gerard Baker, Editor-at-Large, The Wall Street Journal, asked Andre Esteves, Chairman of BTG Pactual "how do you see things from an international perspective?"

Andre Esteves, Chairman of BTG Pactual responded:

First, regarding the US, "if you go back 18 months ago, the key uncertainty was how deep was the recession necessary to bring inflation from nine to two percent.

We are in the last mile of inflationary adjustments. If you look at the Personal Consumption Expenditure (PCE) index between 2.5 to 3% (or CPI at three and a half), we are not that distant from 2% inflation with Fed Funds Rate at 5.5 percent.

"The short-term markets move according to short-term perspectives and the Fed has been sometimes adding volatility to the markets.

Markets were over optimistic by the end of last year and the Fed kind of 'tagged along with the markets.'"

Long Term Fiscal Challenges:

Esteves emphasized: What concerns me more is the long-term.

The ***neutral rate of interest***, previously called the ***natural rate of interest***, is the **real (net of inflation) interest rate that supports the economy at full employment/maximum output while keeping inflation constant.**

"Serious academics studies about what is the ***neutral rates***, real rates in the United States show that the neutral rate of interest is between .50% to 1%, very seldomly, one and a half percent. Yet, for a few months we have had US Treasury Inflation-Protected Securities (TIPS) trading at or above 2% and long-term TIPS trading at these levels.

This is an interesting question why it is happening. It is not because inflation is 100 bps ahead of the targets. **There is something more serious than that and I think it's the structural deficit of US economy and the lack of serious discussion around that.**

"We see the election coming, and there is no serious debate about the long-term US debt, and the budget deficit. Even if you are the owner of the printer, there is a limit to how much you can print. In a certain way, markets are telling us that we are not so distant from that limit. I am worried about seeing US TIPS trading at above 2% rates for 30 years, 20 years, and even for 10 years. It's not a short-term monetary cycle. It goes beyond that."

Exchange Rate of USD:

Gerard Baker observed that international investors are obviously interested in the exchange rates of the dollar. There has been a remarkable runup in the dollar particularly against the Yen over the last few months.

He asked Esteves, "do you think that that is now heading into reverse?"

Unique Microeconomics Traits of Structurally Strong U S. Dollar:

Andre Esteves responded:

"Generally, we are in a strong dollar mode," in relation to other currencies.

Esteves opined that investors like to identify macro factors that drive currencies, as it is 'our training.' However, he emphasized a *nuance regarding the dollar*, "that people talk less about, which is the *microeconomic factors of the dollar*," he said:

"There is extreme strength of US capital markets above any other market. This is a kind of financial black hole in terms of attracting capital from everywhere":

For example, "if you take a middle-class boy who grows up in Colombia, he likes the idea of having some Apple stock, some Bitcoin, or Microsoft etc. "And it's the same thing in Colombia, in South Africa, in Australia, in Japan and in France, etc.; developing and even developed countries.

These extremely **strong capital markets, amazing innovation, fantastic companies make the United States extremely attractive to foreign capital.** These factors play a relevant role in the price of the dollar more than the classic current account deficit or interest rates. **The microeconomic factors are the attractiveness of the US capital markets."**

Gerard Baker interjected:

There still is relatively high inflation in the US and a high dollar. There are concerns the US could be exporting inflation to the rest of the world. Is the strength of the US dollar a major risk for global markets?

Andre Esteves replied:

I do not see that. I think the world has reacted to that. The net export growth in the US is declining. So, the markets are doing the job adjusting. Of course, the trade balance between US and Japan will change, for example.

My forecast regarding the recent moderation of growth in US net exports is it will continue to reduce. This is the normal functioning of the markets.

Again, as I said above, E.g., these ultra strong capital markets in US where we have Nvidia stock and others. We see the creation of \$2 trillion in value in 24 months. So, it's amazing, spectacular in terms of value creation, innovation, and the opportunity of investment, it's bigger than any other part of the structural dollar strength."

U.S. Long Term Fiscal Situation:

Gerard Baker observed: There is a view held by some people at this conference that we may not be done with inflation. There are many reasons to be concerned about in terms of wage growth, and service inflation in particular, and that the economy may be slowing. We have had a little bit of a slowdown in the labor market.

Jamie Dimon, CEO of JP Morgan Chase recently used the dreaded "S word" - stagflation.

Jenny, do you see any reason to fear the possibility of the worst of both worlds where inflation remains higher even as growth slows?

Jenny Johnson, President and CEO, Franklin Templeton observed:

We are too focused on what the Fed is going to do this month, next month, and this year.

"The thing that doesn't get enough conversation, is US debt. I think that is what Jamie Dimon was also talking about this. And if you look at it, **in 2007, our debt was \$9 trillion, now it's close to \$33 trillion.** Our largest foreign buyer is Japan at \$1.1 trillion, and the second largest is China at about \$800 billion. Neither of those countries are going to buy more debt. We are adding anywhere from \$1.5 to \$2 trillion dollars a year. Our government does not act like it is changing.

"You need buyers of that debt. That doesn't mean there are not going to be buyers. There will be buyers, but the thing that becomes very difficult is who can control the longer end? The Fed is going to have a harder and harder time controlling the longer end of the curve."

When the US Treasury must go out and raise money, it's going to have to be insurance companies, corporates, and other buyers. And the Fed will still buy and sell Treasury securities on the open market.

Johnson emphasized: ***The Fed has been trying to reduce their ownership of US Treasuries.*** They actually made a change to monetary policy where they were retiring \$95 billion a month and now, they're doing like \$60 billion a month. Well, that is inflationary.

So, Jamie's point is we're all focused on what's happening in this shorter term, but I think in the longer term the US has got to deal with this issue, and you cannot continue to spend at the pace that we spend. Unfortunately, I worry about us raising taxes and things like corporates, it is always goes after the corporations. Well, US companies must compete globally and so if we tax 'em here, it is less dollars that we must spend on R&D and expansion.

Gerard Baker asked:

On the debt issue, only when the markets get an alarm signal do policy makers pay attention to the debt. We have seen that once or twice in the last 40 or 50 years. Is there anything in the elevated bond yields that signals concern?

Jenny Johnson responded:

"There will be buyers of US Treasury because there's no other reserve currency that makes sense. It just becomes at what price. And if you're trying to ultimately drive interest rates down and you still have to attract investments versus other investments every year, you got to have \$one and a half to \$2 trillion more dollars invested in US treasuries than you did the prior year. So, there's got to be investors there."

Gerard Baker asked: Charlie, if the markets do not seem that concerned about the fiscal position, why should we expect policy makers to be?

Charlie Scharf, CEO, Wells Fargo responded: *"I am very practical of the way Washington works, which is that Washington has a lot of things on their agenda, and they react to the things that they've got to deal with in the shorter term. To stand up and say that 'the deficit is the issue we have to deal with today' is someone putting political capital into something which is going to be hard for them to get done. **Unless it's someone in an administration or as part of a campaign, it's going to be very hard to get traction until there's some kind of event which makes people realize that it's time to do something about it.**"*

Gerard Baker Asked Andre Esteves, "markets don't seem to be that alarmed right now huge explosion in the deficit and in the debt." What are your thoughts?

Stagflation?

Regarding **stagflation**, Andre Esteves added:

"I think it's a total exaggeration talking about stagflation. The Fed targets the Personal Consumption Expenditures (PCE), not the Consumer Price Index (CPI). So, we are at 2.8 percent (PCE) after a strong quarter (as of May 3rd, 2024.) So, we are not that distant from where we should be - as the Fed targets 2 percent PCE. So, inflation is not what we are going through.

We have healthy growth in the US — even moderating — and inflation is slightly above the targets."

Risk of an 'unprecedented' debt load could eventually lead to disaster:

Esteves continued: Having said that, regarding your second question about **deficit spending, Markets are already sending signals about that.** Regarding the real rates on the long term, the US is issuing more debt and with fewer new buyers, something is not matching here.

"Real Long yields are the same as real short-term yields real yields. That is a clear signal that something is wrong about public finance. Of course, it's not a dramatic signal, it's not a huge volatility," in the short term. **"My concern is that this is the first clear symptom of something wrong. And even though the dollar is a global reserve currency of the world, there is always a limit to how much you can print** even if you are the owner of the printer."

Long Term Inflection Points:

Gerard Baker asked about long term structural drivers, directing the question to Jenny Johnson.

Jenny Johnson observed:

Decarbonization:

"Decarbonization is a major theme. Ninety percent of governments who represent ninety percent of the world's GDP are committing to be carbon neutral by 2050. The challenge of course is it requires I think genuine hybrid financing because a lot of these projects do not make sense. And so, hybrid financing where there's some sort of government policy stepping in, but I think it is a very real trend and infrastructure is going to be important.

Digitization and AI are significant investment areas, and they will have already and will create productivity improvements.

Consider Blockchain, a lot of innovations happening there are going to be investment opportunities and the companies that are good at using it.

AI:

She continued: "Today, if you invest in AI, it's kind of like the picks and shovels of the gold mine. Currently, investors are focused on Nvidia, cloud services, and the data centers, but they are not yet investing in companies who have figured out how to make themselves better from AI."

Demographics:

Major global trends in demographics are ongoing. The reality is it is an interesting time in the world. Developed markets population is going to increase about 4% by 2040. In frontier markets, it's 44% in the same time period. You go to a place like India, 56% of a population of 1.4 billion people are under the age of twenty-five. An economy can be a growing economy if it has a growing population; however, the governments must educate them and that will be a great challenge.

And then of course for aging populations of people live, somebody read something, we are going to have the person today who is going to live to a hundred fifties alive now. Well, that is scary if you think about a depleting younger population having to support an aging population. So, demographics are going to be tricky.

Deglobalization:

We see deglobalization because of the macroeconomic environment and the geopolitical environment and obviously with US vs. China tensions, for example.

This has resulted in '**The China Plus One strategy**', also known as **C+1 or Plus One**. This is a business strategy that involves expanding manufacturing and sourcing beyond China. The goal is to diversify investments and reduce risk.

"This results in the global supply chain being distributed, which adds to inflation. There is a reason companies were investing in China: it was cheap. A China plus one strategy is going to be more expensive, but they're great investment opportunities."

"A supply chain manager told me the Chinese companies that are selling to Walmart and other places, are setting up a factory in Vietnam, Malaysia, or Indonesia and they're constructing whatever their item is at the last mile in that location just enough to meet the WTO requirements to stamp it made in Indonesia and bypassing any of the tariffs."

"The Five D's": Demographics, Digitalization, Deflation, Decarbonization and Deglobalization

Gerard Baker stated:

Let us look at trends that are driving markets and going to drive markets and inflection points.

He asked Bruce Flatt, CEO, Brookfield Asset Management to comment on major themes and Inflection Points

Multi-Trillion-dollar Global Investment Boom

Bruce Flatt, CEO, Brookfield Asset Management explained:

"The most important thing to add to this discussion is that there is an investment boom going on globally that is going to contribute to enormous amounts of wealth creation and industrial growth around the world."

Flatt continued explaining the drivers of the investment boom:

Decarbonization: "The money that's getting invested into the transition of the global economy and getting carbon out of the system is tens, if not hundreds of trillions of dollars.

Digitalization: The amount of money going into the digitalization of everything is enormous. AI is only the newest portion of it.

Between fiber optics, 5G Internet towers, Internet of Things (IoT), data centers and the whole backbone and rewiring of the economy for less carbon and more data is an incredible transformation of the economy. " It is very productive, and it will add some amounts of inflation, but there's bad inflation and good inflation and this is investment led growth to the economies.

Deglobalization:

Moderator Gerard Baker interjected:

Andre, regarding **Deglobalization**, obviously you have a very international perspective and how much of a reality it is. We hear obviously Jenny just talked about the US China tensions and how that's impacting the nearshoring, the protecting of supply chains, the building of resilience, all of these things that do seem to again result in reduction in the kind of international economic engagement that we've seen over the last 25 to 30 years. **How much is it going to continue and how do you see this from an investing perspective?**

Andre Esteves responded:

"Well first regarding your first question on the many Ds, and whether they're inflationary or deflationary, I think clearly **demographics and digitalization are deflationary, and decarbonization and deglobalization are inflationary.**"

"On a net basis, we are neutral on inflation given the amazing gains that AI will bring even with all the required investments in digital infrastructure, data centers, fibers and so on. Clearly it's a huge productivity game."

"Having said that, I think deglobalization is a reality. We were moving to a more divisive world. We continue to move in this direction and it's a reality. We do see in countries like Mexico, Brazil, nearshoring movements. And if you go back in 500 years of history, any big political dislocation creates winners and losers."

For example, take the most remarkable of that during the second World War. It was a humanitarian disgrace, but it was positive economically speaking for us in terms of opportunity. This is happening today on a net basis, **deglobalization is bad for global productivity, and is clearly an inflationary force, but it's also bringing opportunities for different regions.** And you asking me about Latin America and clearly countries like Brazil and Mexico are benefiting from the trend both on the near shoring terms but also in accepting investments that otherwise would not be made on that region.

For example, last year we have big transmission lines auctions in Brazil and Bruce Flatt's Brookfield is always a major participant in the auctions.

Chinese companies were big players, too, doing around \$5 Billion in Foreign Direct Investment (FDI). The challenge for them is, if a Chinese infrastructure company wants to invest \$5 billion abroad, they may find it challenging. (This is due in part to many governments, including the US, restricting Foreign Direct Investment (FDI) for a variety of reasons, including to protect local industries, maintain political and economic independence, and to preserve national culture. Some countries have also restricted FDI from Chinese firms for national security reasons.)

The Chinese infrastructure company cannot do that in the US, Europe, Australia or in Canada. Maybe in the Middle East you can do that, but they don't need capital. In Africa you can do that, but there is a lack of institutionalization.

Countries that are more neutral in the geopolitical game offer more opportunities in global investments.

Gerard Baker stated:

Bruce, what are the other kind of trends in AI and digital transformation we should be looking out for?

Bruce Flatt responded:

Let me give you an example. 20 years ago, nobody had a smartphone. Now everybody has one and it has everything in it.

He stressed: "And these ubiquitous smartphones go from here to a fiber line, it goes out, goes up to a tower, goes across town, goes down to some data center, into a cloud, and that build out is dramatic. So, the opportunities on that whole spectrum are enormous. We've been building **data centers, towers, and fiber for 10 years. These types of investments have been doubling every year for 10 years.** And *AI has taken it almost like this in the last six months.*"

And there is two additional things. One, "it's all the infrastructure that I just mentioned, but it's all powered by green power. These AI and cloud companies all want renewables. They need it to be green. And so the amount of build out that's happening on that is very, very significant. We just signed a deal with Microsoft to purchase renewable power."

Gerard Baker took questions from the floor: **Question:** How do we square blockchain and AI with decarbonization given the immense energy requirements for these? Aren't there some paradoxes here? And this is before we consider electric cars.

Answer: Bruce Flatt answered the question:

"Regarding the amount of energy that's getting built and the amount that's needed. *We are electrifying most industries over the next 25 years.* An important thing is in most countries of the world, the lowest cost bulk electricity is solar or wind today. But what **we need is batteries.**

Bruce Flatt continued:

"And we need less power consumed by many things. For example, we need chips that consume less power. We need to build more renewables, we need to have better batteries, they need to use less power with their chips.

For perspective, the electrification in the last 20 years in the United States is flat. In the next 20 years it is going to double. That's an enormous amount of capacity that has to get built."

Bridging Policy and Innovation: Paving the Way to Sustainable Energy



Video: <https://vimeo.com/942440966>

Draw an arc from policy frameworks to innovative solutions, and discover how we can rapidly shift towards a sustainable energy future. Join us in our common goal: the push for a cleaner, greener world. Our panelists are experts in harnessing the power of renewables to enhancing energy efficiency and fostering resilient infrastructure. Follow along with them as they delve into key challenges and opportunities facing the energy sector, shedding light on policy frameworks, investment priorities, and regulatory mechanisms crucial for driving systemic change.

Energy Transition: Private Sector Led and Government enabled:

Panel moderator **Brian Sullivan, Anchor and Senior National Correspondent, CNBC** opened:

We have the biggest transformation and investment in sustainable and renewable energy in the history of modern humanity. ***Vanessa, How do you and Energy Secretary Granholm make sure that the resources are put to the best use for the taxpayer money?***

Vanessa Chan, Chief Commercialization Officer and Director of the Office of Technology, Transitions, U.S. Department of Energy responded:

"The **Department of Energy (DOE)** and the rest of the **Biden administration** is facilitating a **clean energy transition that is private sector led and government enabled**. That theme is important because commercialization requires an entire ecosystem.

"We have the largest infusion of capital ever: A trillion dollars towards a clean energy transition. **But a trillion dollars of government money is really small compared to what the private sector has put forth which by some estimates is \$23 trillion.**"

"We used that trillion dollars in government funding to buy down risk to the point where the private sector is comfortable with stepping in. Ultimately, to commercialize any of these technologies, we need sustainable economic business models for the private sector."

We've published reports that provide roadmaps for all the clean energy technologies and what it will take to get to a sustainable economic model. These reports are available at liftoff.energy.gov. There are reports on advanced nuclear, carbon management, energy storage, virtual power plants, and grids. The reports provide a sense of what it's going to take in order to get us to that point where the economics make sense and we can actually achieve economies of scale.

Private Sector's Role and the Challenge of Balancing Capital Allocation between Future Clean Tech and Maintaining Legacy Systems:

Brian Sullivan asked Olivier Le Peuch, CEO: "***What is SLB's role in this transition? Where do you fit given your company.***"

Olivier Le Peuch, CEO, SLB responded:

We need to balance investment in technology that keep the energy system transitioning safely and securely to a new lower carbon future. That seems very simple, but it's not because you need to keep lights on, you need to keep affordability at the same time. You need to decarbonize the current energy system and at the same time you decarbonize, you need to invest in a balanced way. You need to invest to disrupt some of the new low carbon energy systems, and you need to do both and share your capital allocation between both.

That is the most difficult thing because it's easy to say that we need to put all efforts and all capital into a new low carbon energy solution, but at the time, we must realize that each of these solutions is a first of a kind and it will take time to realize. Whether obtaining permits for infrastructure, or acquiring critical minerals, there will be other obstacles for success before you have realized a new low carbon energy source. During this period, you are at risk of being under invested in the current energy system.

So "it's all about balance of capital. We need education and innovation on both sides. Innovation to decarbonize oil and gas faster, while addressing the methane electrification of whole sectors, and at the same time putting enough capital - smartly using some of the policy that I think this country and others are pursuing- to go from small scale innovation, startup capital venture into large scale deployment of technology."

"This challenge will take not five years, it will take 20 to 30 years to do this transition safely. We'll have to balance the capital allocation, and recognize what can scale, get the support and the long-term incentive, get the clarity of the safety of future investment outcome in order to balance the investment. That's the most difficult part and that's where we work and give feedback to the government and benefit from the incentive or their sticks when there is,

The history of energy is not one of energy transitions, it's one of energy additions!:

Moderator Brian Sullivan commented:

Jason, You are an educator. Sullivan asked him, "*from an education perspective, what do people mostly get wrong about the transition?*"

Professor Jason Bordoff, Founding Director, The Center on Global Energy Policy at Columbia University, responded:

"I think the scale and magnitude of the transition have been underestimated. Two things can both be true at the same time. We're breaking every record you could imagine and exceeding expectations.

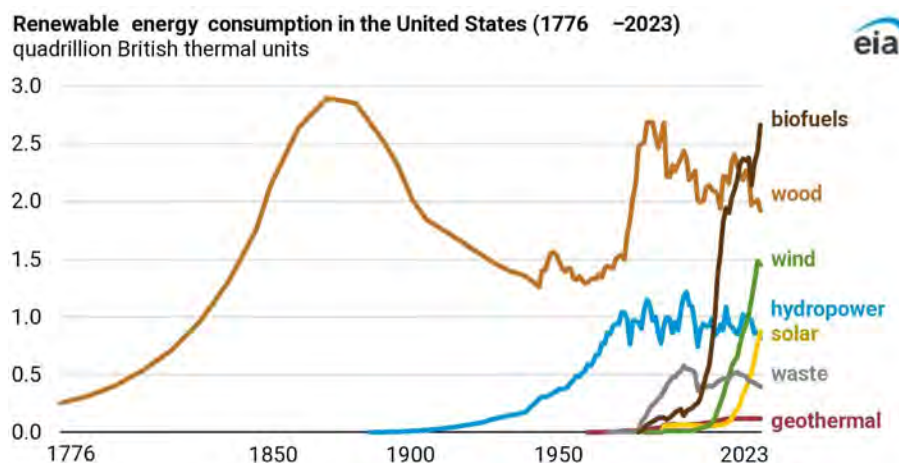
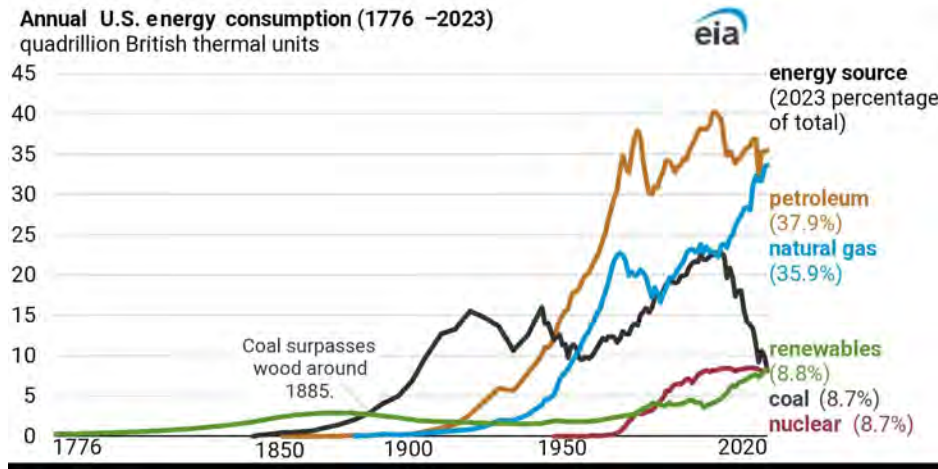
E.g., in 2020 one in 20 cars sold globally was electric. Last year (2023) it was one in five. Last year, \$1 trillion was spent globally on fossil fuels investment, and nearly twice that, was spent on clean energy investment: \$1.8 trillion.

Clean Energy Up: Oil, Gas, and Coal up, and emissions up, too!:

Professor Bordoff emphasized: "The pace of growth and progress in the deployment of clean energy is staggering and remarkable. And still oil, gas, and coal use is going up along with emissions! And that's the history of energy. The history of energy is NOT one of energy transitions, it's one of energy additions." This is true because energy transitions enable new utility. New sources of energy allow us to do things we couldn't do before. Coal enabled a revolution in manufacturing. Oil & Gas enabled revolutions in transportation. Historical energy transitions have enabled new utility by using higher quality fuels that are more energy dense.

Professor Bordoff continued: "Look at energy going back to 1850 to today. We went from wood to coal, then from coal to oil, then from oil to gas. More recently we are increasing use of small to zero carbon sources of energy. Nevertheless, total energy use for each source measured as metric tons of energy, which is what the planet cares about, has never gone down! We're using more wooden biomass today than we did in 1850 because we're getting wealthier, and more populous."

The U.S. Energy Information Administration (EIA) publishes data and charts including these two charts that demonstrate these processes from 1776. The unit of measure used is quadrillion British Thermal Units (Quads):



The reader can observe on these charts what professor Jason Bordoff describes. The second chart focuses on renewable energy.

Bordoff continued: India is a good example. India has a goal to go to 500 gigawatts of renewable energy by 2030, much of this from solar. It's a staggeringly ambitious goal. Recently, India is the world's 3rd largest consumer of electricity and the world's 3rd largest renewable energy producer with 40% of energy capacity installed in the year 2022 (160 GW of 400 GW) coming from renewable sources.

To achieve that they would need to take the best year they've ever had for renewable deployment, which was last year, triple that amount of new solar and renewable energy on the grid that's added, and do that every year between now and 2030.

And *if they can achieve that Herculean feat, coal use will be higher in 2030 than it's today!*

What happens when you take the most populous country in the world and make them wealthier and give them more ways to productively use energy?

Bordoff emphasized: "We miss thinking about the need to transition over a multi-decade timeframe, which is realistic. We don't quite understand the scale and magnitude of the global energy system and how big it is and how hard it is to turn that tanker and move that needle."

Old Energy source demand is historically resilient because energy tech evolves nonlinearly:

To demonstrate how resilient old energy sources are, Brian Sullivan commented that 80% of Norwegian households have at least one electric car (EV), achieving an 80 percent penetration. "*With 80% penetration of EVs, how much has Norwegian oil consumption gone down? Only less than 10%!*"

Sullivan asked Joe McMonigle, we had a nation, Norway, that achieved an 80% EV penetration and had less than a 10% drop in oil consumption! Surprising. What does the world get wrong?

Joseph McMonigle, Secretary General, International Energy Forum responded:

"I think there's a realization that we need a new approach to the energy transition. *This one size fits all linear pathway is really misguided and outdated.*

What we need is something we talked about in this report and initiative we did at the **International Energy Forum (IEF)** called the *Global Energy Solutions Initiative*. We said that there *needs to be a multidimensional approach to the energy transition.*"

"That means different countries are at different starting points and are going to use different pathways. Everybody has their goals in 2050 to reduce emissions as close as they can to Net Zero, but every country's going to use their best assets and resources. There's a new recognition that 'the one solution for the globe' doesn't work. This realistic thinking has been interjected into the discussion at the COP 28 in Dubai."

We have to manage the transition. E.g., "there's a lot of people that call for no new investment in oil and gas. However, that creates higher energy prices and volatility. And if you care about the transition and climate progress, you have to be for continued investment in hydrocarbons."

To do otherwise, we risk losing public support for the transition because if the public starts to equate high energy prices and volatility with climate action or the transition, we're in big trouble.

Three Priorities: Energy Security, Energy Affordability, Energy Sustainability:

Brian Sullivan asked Olivier Le Peuch: SLB is a truly global company. How do we make sure we do the energy transition responsibly and not alienate massive swaths of the population?

Olivier Le Peuch responded "We need to find together as a society a balanced approach that is comprehensive. We need to recognize that every nation will have a national determined contribution target. Every energy system that is localized, regionalized, will have to transition."

Le Peuch continued: "And for that, everybody would have to agree that there is a path that respects three priorities for energy. One is **energy security**. This point has been put to the forefront with the recent crisis, particularly in Europe but also likely in the Middle East. And it also relates to another point: energy **affordability**. Visit beyond the western world and go anywhere in the global south, energy security and affordability is their utmost priority ahead of the last point **energy sustainability**. So when you put these three points together, you conclude there is not one single path because depending on the region, the country, the civil society, you have different priorities across the spectrum."

"Hence you need to be able to respond with a different portfolio of technology solutions and an energy system transition that needs to be managed."

He added: Some investment will be infrastructure first and then the demand and the supply will come. So every country is adapting to this with the priority of their society and trying to manage it the best they can. The energy industry needs to communicate much better that there is no silver bullet. This will not be cost free. This will not be capital free. "*Choices will have to be made regarding time frame, security, affordability, and sustainability that every nation, and every energy system we have to face.*"

He emphasized: "There's a reason why it will not be one size fits all. There is a solution in every country, and for every subset of the energy system. And there will be tons of innovation that have to be realized before it can scale."

Challenges: Public short sighted

Brian Sullivan commented:: Vanessa, the public can be shortsighted sometimes and they often don't want to spend anymore. When we look at investing in energy, there is an external cost to climate change. There's a second and third derivative cost.

People don't want to pay more for this energy, but yet if we're having bigger storms, they're going to get charged just on the other side, not directly. He asked, "***When you look at the accounting of this, how do you calculate it?***"

Vanessa Chan responded: The problem needs to be framed correctly. E.g., the peak demand for electricity this year was about 740 Gigawatts in the US (in summer when people use air-conditioning). If we start looking out to 2030, we're going to be at between 900 to 1500 Gigawatts depending on data centers, AI and other applications such as blockchain, etc.

When I think about the energy management of the transition, it's really kind of driving a stick shift car, which unfortunately this next generation doesn't know how to do. If you pop the clutch too fast, then it stalls. And so when we think about the energy transition, it's the same thing. You have to do it in a modulated way, you have to be thoughtful around it. And as you look at the demand growth, it's so high right now that we need everything."

"To your point, it's not like a silver bullet. There's a portfolio. And the thing that's really interesting is we looked at technologies which actually have a sound business case and actually have been deployed and they're not being used right now."

Brian Sullivan inquired: What technology?

Vanessa Chan answered: If you look at the grid, DOE released a report on enhanced innovative power grid. In it, there are descriptions of technologies for enhancing the grid. Technologies such as **reconductoring, dynamic line rating**, and so forth. These technologies can increase the capacity of our existing grid, which was built in the fifties, sixties.

Brian Sullivan asked "What is dynamic line weighting?"

Vanessa Chan explained "Dynamic line rating allows us to actually shift energy around to make the current infrastructure you have be much more efficient. With only a 20% investment of what it would actually cost to put into a new grid, you actually can double the capacity of our current grid.

We can actually deploy the technology in a cost effective way, but utilities and regulators are hesitant because it's doing something new. If we can get over that, what we actually can do with these new innovative grids as well as virtual power plants, *we can shave down the peak demand to buy us time to get the other technologies that aren't there yet* so we get the time to actually get to a point where we can deploy everything.

Chan emphasized: "There's not one single technology. We need several. These include hydrogen, long duration energy storage, we need carbon management, and morel.

But **there's timing and sequencing around these things that really matter.**

For example, we need five to 10 next generation small nuclear reactors by 2025.

But the problem right now is people are waiting for the person behind them. **No one's first in line to be first. And this is where the government comes in because we're trying to buy down the risk to the point where the private sector actually can take over.** So to your point on the public side of things, I think once we can get to the tipping point of scale for these things and get utilities and others to really invest, we'll get traction.

Brian Sullivan asked Jason, Why doesn't anybody want to be number one? If you've got the might and power and money printing ability of Uncle Sam, why isn't somebody first to be first? Jason,

Jason Bordoff answered: "There are some companies that have stepped out to do this. Microsoft with carbon removal, Google with First Movers Coalition, and others. The Biden Administration obviously has put somewhere around a trillion dollars with the Inflation reduction Act."

But to your point, "What's the hold up?"

"We should not pretend that this transition is free. It is cheaper than not having one because of the cost of climate change. But when we talk about pragmatism and realism, this is a multi-decade transition.

"Black Rock Chairman Larry Fink's letter this year was a bad energy pragmatism and JP Morgan's Jamie Dimon calling for a reality check on the energy transition" from two very influential men.

Nevertheless, "we need to be moving much faster, not slower because emissions haven't even started falling yet. There is a green premium for many parts of the energy transition. There is some cost to it, albeit lower than the cost of not doing it."

Professor Bordoff emphasized: **"This is a global problem. It doesn't matter where a ton of CO2 comes from, they all contribute equally to the problem."** Some of the places in the world where emissions are growing the fastest are the parts of the world that use the least energy per capita and have not contributed to this problem historically. These are developing countries with smaller economies but are fast growing. They don't have the resources to develop in a lower carbon way or to adapt with the impacts of climate change. These emerging and developing economies understandably perceive a sense of hypocrisy and unfairness about how this transition is unfolding."

"We need to increase the pace of decarbonization for what is 12% of the world's emissions, the United States. But in my background in foreign policy and national security, how do we use all the tools of international economics, trade development, finance, export finance to accelerate the pace of clean energy deployment in the rest of the world? We need to be doing a lot more."

How to Save the Human Race and Other Topics: A Conversation with Elon Musk



See Video: <https://vimeo.com/940874278>

The session was a fascinating discussion consisting of Michael Milken, Chairman of the Milken Institute asking profound questions to visionary Elon Musk, Co-Founder and Technoking, Tesla; Owner, X Holdings Corp. Milken spent much of the discussion citing old Musk quotes and having Musk expand on the topic.

Milken opened the session noting that Elon Musk visited Global Conference in 2013.

Milken stated: "I thought we might want to go back in time to 2013. Eleven years ago, Elon was sitting on this stage talking about things he was thinking about when he was in college: Things that would have the biggest impact on the future of humanity."

That panel at Global Conference 2013 was titled "***To Infinity and Beyond: Jeff Skoll Talks with Elon and Kimbal Musk.***" Elon shared a lot including his thoughts of the biggest technology trends at the time, including the modifying the human genome and AI.

In that 2013 panel, Musk explained: "When I was in college, I thought about things that will most affect the future of humanity. There were **three areas that I thought would have the biggest impact**. Those were **1) the internet, 2) sustainable energy** of which solar power is the production side and electric cars, the consumption side, and then **3) humanity becoming a multi-family multi-planetary species.**" Musk also talked about modifying the human genome and AI. •***Elon Musk at 2013 Global Conference***

Milken observed: "a lot of people weren't thinking about these things when they were in school, particularly humanity on multiple planets at that time."

Elon Musk observed: "Sci-Fi was certainly thinking about it, but I think at some point we want to make science fiction not fiction forever. Yeah. So let's make life multiplanetary and be a space bearing civilization and be out there among the stars. I think there are things that you have to be excited about in the future. Life cannot just be about solving one problem after another. There have to be things that move your heart and make you excited to wake up in the morning. I think becoming a space-bearing civilization is one of those things. If you ask kids anywhere around the world, what are some of the most

inspiring things you can ask? A five or 6-year-old anywhere in the world is going to say space exploration is one of those things."

Musk continued and emphasized: The point is "**we want to make sure that the Apollo program was something that was inspiring to everyone around the world and we don't want the Apollo program to be the high watermark of human exploration.**

You want to have some sense that the future is going to be better than the past, that we're going to be out there going to other star systems. That's what you see in non-dystopian sci-fi stories, of which there are not many, but like Star Trek."

Milken stated "you're going to take us to places we've never gone before. To seek out new life forms and new civilizations to boldly go where no one has gone." Like Star Trek!



Elon Musk responded: "That's the idea. If we send probes out there, I mean we might find the remains of long dead alien civilizations. If physics is correct, the universe is

about 13.8 billion years old. The Earth is about 4 1/2 billion years old, so given the universe's age of 13.8 billion years, a civilization that even lasted 1 million years, is three digits past the decimal point old."

"Consider human civilization, I dated it from the first writing. So that first writing was the ancient Sumerians' archaic pre-cuneiform around 5500 years ago, so that is one-millionth of earth's lifespan (pre-cuneiform writing is characterized by using pictures and symbols.) That's how long writing has existed. So if we would last as a civilization for a million years, that would be incredible and we would actually probably be in every part of the galaxy so this has caused me to think that, where are the aliens? It's the Fermi question!"

The Fermi Paradox asks, "Where are all the aliens?" despite the high probability of their existence. It stems from a casual lunch conversation in 1950, where physicist Enrico Fermi questioned why we haven't found evidence of advanced extraterrestrial life. The paradox lies in the contradiction between the likelihood of life existing elsewhere and the absence of any contact or evidence. It's a cosmic question that continues to intrigue scientists and the public alike."

Musk has often made reference to the Fermi question.

Musk continued: "So, the great physicist Enrico Fermi, asks where are they!? A lot of people think there are aliens among us. For some reason, a lot of people who think there are aliens among us don't think we went to the moon! (Laughter) Think about that

for a second! But, I've not seen any evidence of aliens. SpaceX's Starlink constellation has roughly 6000 satellites and not once have we had to maneuver around a UFO!"

CIVILIZATION IS PRECARIOUS AND RARE

Musk continued stressing an important point: "So, if somebody has evidence of aliens that is not just a fuzzy blob, I'd love to see it. But this is actually a reasonable concern because if any civilization in the Milky Way, our galaxy, would last for a million years, even with a speed of travel that is far below the speed of light, like a few percent of the speed of light, they could easily have explored and colonized the whole galaxy. They haven't. Why not? I think the answer is probably that civilization is precarious and rare. You should really think of human civilization as being a tiny candle in a vast darkness and we should do everything possible to ensure that candle does not go out." Musk thinks that colonizing other planets is a risk limiting strategy to insure humans survive an Extinction event like an asteroid hit, etc.

FREEDOM OF SPEECH:

Milken turned to the subject of free speech. He observed that freedom of speech is one of the main reasons that Elon Musk bought Twitter (now called X) back in 2022.

Musk often stated: "**Freedom of speech is the bedrock of democracy without it, America**"

Musk expanded: "It's not possible to have democratic elections if people do not have access to the information that would allow them to make the right decision on a candidate or a party. So if speech is constrained in a fundamental way, you can't expect people to make the right decision or an informed decision because they are prevented from being informed. It's a foundational element. Why is free speech, freedom of speech, the First Amendment? Because people came from countries where if you spoke freely, you would be imprisoned or killed." That was why they made sure that we got this right secured.

"And remember that time when they tried to kill us back at the other country, England, just for saying we didn't like a political candidate. The First Amendment makes sure that's okay in America. In many parts of the world, you can't say what you want to say without some bad consequences. And sometimes people forget why the Constitution is there? **"The U.S. Constitution is there to protect the people from the government. It is meant to make it hard to change things. That's why the Constitution exists."**

Milken turned to the subject of socialism and merit.

The Error of Socialism: "THE BASIS OF ANYTHING OTHER THAN MERIT IS WRONG"

Musk has often said: **"The fundamental error of socialism is shifting capital allocation from highly effective entrepreneurs to astonishingly ineffective government."**

Elon Musk expanded on this: "I think we'll find agreement in this room. This is definitely a stacked deck. But, you'll hear the argument that we shouldn't have some greedy corporation do various functions that are deemed too important (e.g. health care). We should have the government do it. Well, actually the government is just a corporation in the limit. The government is a corporation with a monopoly on violence. If you're unhappy with a commercial corporation doing it, you would likely be very unhappy with the government doing it since it is simply a corporation."

And, "you can actually easily get more sway in the outcome of a company than you can in the government. Everyone's experienced this going to the DMV. Do you want the DMV at scale? Probably not."

Michael Milken interjected: The government is the DMV at scale.

Milken asked Musk **"is discrimination on the basis of anything other than merit wrong?"**

Musk continued: “I think we do need to have a merit-based system. As soon as you go down the path of discriminating on anything other than on a merit based approach, where do you stop? *I think we need to be as rigorous about merit as possible. It's a foundational thing. I think we should not be discriminated against on anything other than on merit.*”

Government Regulations:

Milken turned to regulations.

Musk once said: “LIKE GULLIVER, TIED DOWN BY THOUSANDS OF LITTLE STRINGS, WE LOSE OUR FREEDOM ONE REGULATION AT A TIME.”

Musk stated: “This is actually a very important point that I think is not talked about enough, that **laws and regulations are immortal**. They don't die, humans die, but laws and regulations can last forever.

If year after year, there are more laws and regulations passed and more regulatory bodies created, eventually, everything will be illegal and that's why you see the California high-speed rail has made a tiny section that doesn't even have a rail on it. They spent several billion dollars. But it's hard to do business here. California has made almost everything illegal, so you can't make progress.

Historically, what has cleared away the cobwebs of regulation has been war. We would prefer not to have a war, so in order to have civilization function without war you have to actively eliminate laws and regulations so you have to basically garbage collection

process for rules and regulations. A garbage collection process for rules and regulations is necessary, otherwise, you get hardening of the arteries and over time nothing can get done.

The most poignant example that I can think of that happened this week is the sad picture of the California high-speed rail, which billions of dollars was spent on for practically nothing. But it will only get worse year after year, so we must have a regulatory clearing house or garbage collection process. This is essential or civilization comes grinding to a halt.

GAMEFY THE PROCESS OF LEARNING:

Milken brought up the next Musk quote.

Musk QUOTE “THE MORE YOU CAN GAMEFY THE PROCESS OF LEARNING, THE BETTER. YOU DO NOT NEED TO TELL YOUR KID TO PLAY VIDEO GAMES. THEY WILL PLAY VIDEO GAMES ON AUTOPILOT ALL DAY SO IF YOU MAKE IT INTERACTIVE AND ENGAGING, THEN YOU CAN MAKE EDUCATION FAR MORE COMPELLING, AND FAR EASIER TO DO.”

Musk observed: “The way education works today is really much like Vaudeville. Before there was radio and TV and movies you had Vaudeville, where every town would have their town troupe, their sort of acting troupe and that would be the entertainment. In a big city you’d have much better players than in a small city. But then along came movies and TV and video games where you take the smartest and best people in any arena,

whether they're acting, writing, directing, or special effects, you spend tens of millions, sometimes hundreds of millions of dollars creating a great movie or a great video game and you make it as compelling as possible. Now that crushes Vaudeville!"

"So, *what you actually want to have is an interactive learning experience that is as compelling as possible. And you don't actually want a teacher in front of a board doing a board will act. You want it to be engaged, real time feedback. And then there are a few other principles in teaching. You have to establish relevance, otherwise your mind will want to forget things. So our mind is constantly trying to forget as much as possible. So you'll only remember things if your mind can establish relevance or there's a strong emotional element to it.* Otherwise you're basically going to forget everything. Memory is very expensive from an evolutionary standpoint. So it's trying to forget as much as possible. So when teaching a course, you have to explain to kids why it's important, and then you want to teach the problem instead of teaching the tools." For example, "if you teach calculus without explaining what calculus is used for, kids will soon forget it."

Immigration:

Michael Milken turned to immigration, asking Musk to elaborate on immigration. **Musk replied:**

"I'm very much in favor of increased and expedited legal immigration for anyone who is talented, hard-working, and honest. Bizarrely, it's difficult and agonizingly slow to immigrate to the US legally but it's trivial and fast to enter illegally"

Musk expanded: "If anyone here has been through the immigration process it's only gotten worse since 9/11 and, Covid. It's sort of a Kafkaesque, a very long, bizarre process to immigrate legally to the US. It's a system characterized by surreal distortion, a sense of impending danger, and the dehumanizing nature of intricate bureaucratic systems.

I have friends of mine who can't get their wife a green card. It's insane. On the other hand, you can hop across the water in the south. It's very easy! I went to the border to see what was going on. I was like, Is this propaganda or real? So I went there and, like, Oh, it is real, OK this is crazy! You know we have situations where people are going across the border like it's World War III. This doesn't seem healthy. Are we checking anyone here, like what's going on? And you know we don't.

This is not to say that I'm not a big believer in immigration, but **to have unvetted immigration at large scale is a recipe for disaster.**

I'm in favor of expediting legal immigration but having a secure southern border so there's vetting of who comes into the United States. I think this is just sensible."

Satellites, STARLINK & ACCESS TO EDUCATION:

Milken went onto satellites.

Musk quote: "We're basically building the Internet in Space. Why does it matter?"

Starlink is a massive enabler for people in remote locations to learn anything, you can learn almost anything for free on the Internet right now, for example, MIT has all of its lessons online. That's if you have the Internet, if you don't, you're limited to books. It might be the number one technology that improves people's standard of living around the world."

Musk expanded: "Once you have access to the Internet, you have access to all the world's information, but if you don't have access to the Internet or it is too expensive or

low bandwidth, then you cannot access the MIT list, because you can't access information, and you can't sell the goods and services that you produce.

"Internet connectivity, I think, is certainly a candidate for one of the things that would do more to lift people out of poverty than anything else, because they can now sell their goods and services, they can learn anything, and without connectivity, they cannot. I think Starlink will actually move the GDP of countries."

It's going to be that kind of thing because GDP is a function of average productivity per person and so if there's a technology that improves productivity per person, you would expect to see that actually reflected in the gross domestic product."

RISE AND FALL OF CIVILIZATIONS:

Milken went onto the fragility of civilizations.

Musk quote: "Civilization is fragile, we should always regard civilization as fragile. There is not an inevitable upward trajectory, a lot of civilizations have risen and fallen in recent years."

Musk expanded: "Yes, I suspect most people in this room have actually read history." "There are many civilizations that have risen and fallen, many that we just don't have much of a record of. The ancient Sumerian language was forgotten for a long time until it was finally decoded only in the last two to three hundred years. In the 1800's, I think. But for several thousand years, nobody understood what those tablets meant. They were the ruins of a long-dead civilization. There are many long-dead civilizations. At some point, our civilization will come to an end too. We just don't want to be anytime soon."

DYING ON MARS (BUT NOT ON IMPACT.)

Musk has stated previously: "I was asked in an interview if I wanted to die on Mars, but then I considered the corner case of dying on impact, and I was like...except for that case! You've got to consider the various corner cases. If you have got to die

somewhere, it might as well be Mars. I'd like to explore for a bit before I die. I think we want to be a multi-planet civilization."

Becoming a Multi-Planetary Civilization: Passing the Fermi Filter (with Rapidly Reusable Reliable Rockets.)

Milken went back to multi-planetary civilizations.

Musk quote: **"The fundamental invention that is necessary for humanity to become a multi-planet species is *rapidly reusable reliable rockets.*"**

Musk expanded: "Yes, rapidly reusable, reliable rockets.

Let me touch upon why I think making life multiplanetary is important. It's one of the things that gets us past one of the Fermi great filters.

So in trying to explain why we do not see aliens, there are various explanations for why we do not see aliens.

What stopped those civilizations from expanding beyond their solar system? And what were the sort of filters, sometimes they are called fermi filters?

If you don't become a multi-planet civilization then you're simply waiting around until you die from a self-inflicted wound or from a natural disaster like the dinosaurs.

You will get hit by a big meteorite or Asteroid or something like that. Eventually, something like that's going to happen and if you wait around long enough, the sun will expand to engulf Earth and we'll be incinerated.

We've got some time before that happens, there are more near term risks.

But, we try to get past the Fermi filter of being a single-planet civilization.

Now, this is going to be somewhat cerebral to many people listening, but I think this is actually very important."

Musk continued: **"We want to get past the fermi filter of a single-planet civilization. The point is not to move from Earth to another planet and let Earth die. That's not what I'm saying at all. I want to be a multi-planet civilization so that there will be planetary redundancy such that no single event can be the end of our civilization. That is the point of making life multi-planetary."**

If we fail, our civilization potentially dies. That is a sad ending.

Population growth:

Michael Milken: Moving to population growth. "We have countries like Korea that used to have a birth rate of 6, now it is $\frac{3}{4}$."

Musk observed: "I certainly encourage everyone in this room to have at least three children. Babies have to come from somewhere, you know, and I think we want to have a slightly increasing population and not a plummeting population. I think this applies to all countries and cultures. I don't think we want any country or culture to disappear." "We want them to ideally flourish and not disappear. In fact, one of the things that is overlooked by (probably) most historians is the role of low birth rate in the decline of civilizations."

"The Romans weren't making Romans."

Musk added: "Around 50 BC, Rome passed a bill to give a bonus to any Roman citizen that would have a third child. So the birth rate was a problem in Rome in 50 BC. The Romans weren't making Romans!"

The same is true of ancient Greece. There was a time from about 800 BC to ~ 300 BC where the Greeks had a lot of kids and lots of surviving kids. The birth rate far exceeded the death rate which is why you had Greek cities popping up all over the Mediterranean.

But it seems that prosperity destroys the birth rate. So when a civilization feels like it has no meaningful external threat and is very prosperous, that is what causes the birth rate to plummet."

Elon Musk noted: "Counterintuitively, you think if you've got more resources that would lead to more kids. In fact, it is the opposite. The more prosperous civilization is, and the more the civilization feels that it does not need to defend against external threats, the lower the birth rate."

What keeps Elon up at night and what gives him joy?

Musk: "I think kids give me joy!" "I probably get the most joy from my kids, and, I'm not saying that that's the reason to have kids, because you should have them anyway, but certainly kids are the greatest joy of my life. In terms of what keeps me up at night, I guess anything that I think is a civilization risk."

Elon outlines here three things that keep him up at night.

"In terms of what keeps me up at night, I guess anything that I think is a civilization risk."

Musk added: "Birth rates continue to plummet. I do think about the birth rates plummeting as being a civilization risk."

“I think anything that undermines the foundations of democracy in America or elsewhere is a risk.”

“I think anything else that leads us away from a merit based system is a risk.”

“I listen to podcasts about the fall of civilizations to go to sleep so that might be part of the problem. There’s a podcast called the fall of civilizations which I’ve listened to a few times and I also recommend hard-core history. If you haven’t listened to it, it is a great podcast.

I listen to history podcasts to sleep so that’s probably why I’m ruminating on these things as I go to sleep.”

Remarks by the President of Argentina Javier Milei:



Video: https://youtu.be/O17_9diKkwo?si=ILZ25vX9dg3tYZ2d

President Milei is an economist, a libertarian, and a specialist in economic growth.

Only two years ago, after he entered politics, he was elected president of Argentina. President Milei took office amid an annual inflation rate of more than 200% with 41% of Argentines living below the poverty line.

In his brief tenure so far, President Milei has spearheaded an ambitious plan for fiscal reform and the elimination of unproductive regulations. He's also helped stabilize the foreign exchange rate. His policies have sparked a decline in the monthly rate of inflation. In the first quarter of this year, Argentina achieved a financial surplus for the first time in 16 years.

Remarks by **JAVIER MILEI, PRESIDENT OF ARGENTINA:**

I would like to begin by thanking the Milken Institute and Michael Milken for making this event possible. The Milken Institute has for decades remained one of the few international think tanks that has remained steadfast in its defense of the true principles of capitalism and the ideas of liberty, something that is unfortunately scarce in today's world.

A few months ago, I addressed the world at the Davos World Economic Forum, and I expressed my deep concern about the road the West has taken in recent years. What I said during that address, which apparently got a lot of attention, was that the West was in danger and the West is in danger because its leaders have long moved away from the ideas of liberty, the ideas that turned the West into the greatest civilizing feat in human history. *Instead of defending the ideas that created the prosperity everyone here enjoys, they listen to siren songs that inextricably lead to socialism and consequently to poverty.*

Back then, I said that I knew this for certain because I come from Argentina, where all of this sadly has already happened in the last 100 years. In a certain way, we Argentines are prophets of an apocalyptic future that we have already lived through. All these discussions going on nowadays based on supposed well-meaning intentions to help others, based on our mistaken idea about the nature and the role of the state, relying on economic theories that have long been refuted by data and by empirical evidence, we Argentines have experienced them, since a hundred years ago. And unfortunately, implementing those ideas led to ruin.

The Failure of Collectivism:

The result is known to all, from having the world's highest per capita GDP, down to a country where 60% of the population are poor and over 15% are extremely poor. **Although Argentina may well be the most emblematic case in the history of the Western world reflecting the failure of collectivist ideas, it's not the exception, but the rule.**

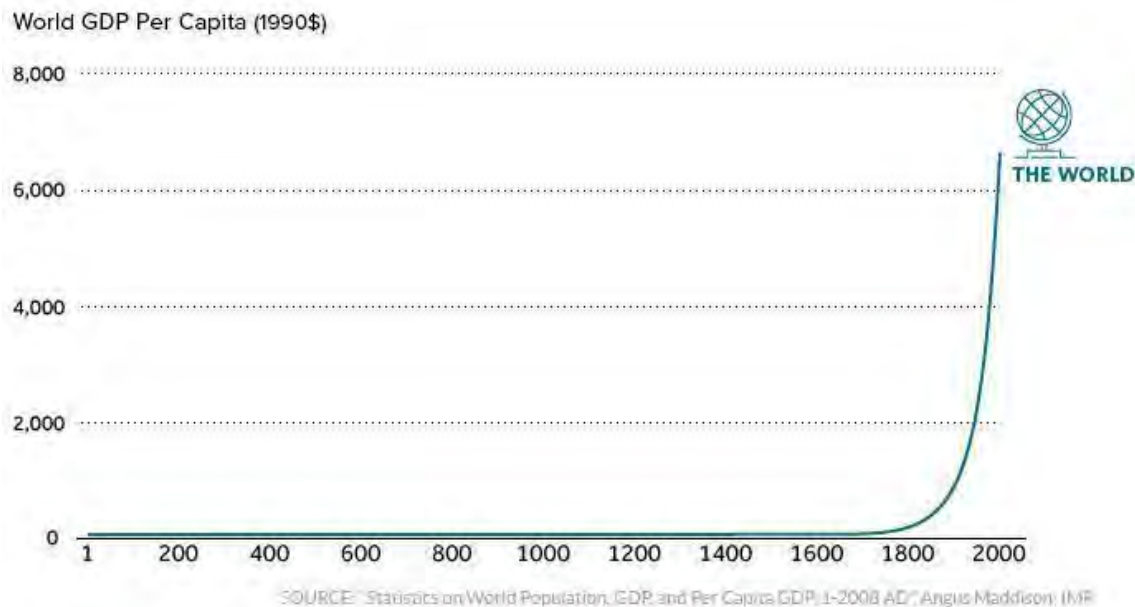
Every time it has been tried out, socialism has ended in failure economically, socially, and culturally.

And besides, as it's a philosophy that goes against human nature, the only mechanism they have had to implement it has been by murdering 150 million human beings. But I haven't come here to the Mecca of capitalism to criticize socialism, but rather I have come to defend capitalism as I stand before you, since you are the true heroes of the history of progress in the West.

The Direct Relationship between Capitalism and Prosperity:

Although faced with constant criticism today, defending the model of liberty is really not difficult because the direct relationship between the implementation of free market capitalism and the explosion of prosperity that humanity has seen in the last 250 years can be easily demonstrated.

If we were to look at a graph depicting the evolution of per capita GDP throughout human history, we would see a graph shaped like a hockey stick, a function that has remained constant for 90% of the time and then shot up exponentially from the 19th century.



[Chart from Visual Investor. For thousands of years, economic progress was largely linear and linked to population growth. Without machines or technological innovations, one person could only produce so much with their time and resources.

More recently, innovations in technology and energy allowed the “hockey stick” effect to come into play. All this was made possible by Capitalism.]

So from the year zero to the 1800s, approximately, world per capita, GDP almost remained constant. But starting in the 19th century and as a result of the industrial revolution, per capita GDP not only increased, but did so exponentially. And **in the last 150 years, it multiplied by 15 and created an explosion of wealth that lifted 90% of the world's population out of poverty, getting to a point where, by 2020, only 5% of the global population lived in extreme poverty. Far from being the cause of our**

problems, free enterprise capitalism as an economic system is the best instrument that our species has known of to end hunger, poverty, and extreme poverty all around the world.

Beware of Collectivism:

But although the success of capitalism can be easily demonstrated, what many don't always grasp is the counterfactual scenario where the adoption of a systematic collectivist model takes you, even within the lax rules of capitalism. As I've already said, the best example may well be the Argentine case. Our entire history is testimony to what can happen when you abandon the model of liberty and replace it with collectivist experiments.

When Argentina adopted and began to enforce its first libertarian constitution back in 1860, it took us only 35 years to become a world power. From being a country of barbarians, we became the first one in history to end illiteracy with a total GDP higher than the aggregate of Brazil, Mexico, Paraguay, and Peru. We had more railway lines than the sum of all Latin American countries. We were compared to Germany, to the United States, and to the UK. People from all over the world fled from nations that today we envy and they crossed oceans to find an opportunity in our land. A foreman could aspire to his son becoming a producer, a workman to the son becoming a builder, an illiterate worker to their son undertaking studies and getting a skilled job. It was an explosion in trade, production, and human demographic and human development with almost no other similar example in history.

But at the peak of this process, based on the well-meaning idea of distributing among all the wealth created, Argentine leaders began to implement that misnomer that is the doctrine of social justice, which advocates that the state should cater to the endless needs of people. This is a theory that is at odds with reality, because whether we like it or not, demands are endless, but resources are finite. As a result of this view of the relationship between the state and the economy, public spending increased dramatically.

In order to finance this rise in expenditure, they first asphyxiated the Argentine people with taxes. When the taxes were no longer enough, they started to burn up the stock of foreign currency reserves built up in our golden years. And when no one wanted to lend any more money to us because we had become the greatest serial default in history, they started to print money unlimitedly.

Warning to the United States regarding reckless Monetary Policy:

To give you a sense of what we are talking about, since 1949, the monetary base in the US multiplied by 16, whereas in Argentina, it did so by an astronomical 25,000 trillion times. No, the figure is not wrong. It

is a real, actual figure. I'm not making it up. The monetary base expanded by 25,000 trillion times! That is the extent of havoc that politicians can wreak if they're allowed to deviate from the basic principles of a market economy.

This cycle, we have witnessed not just once, but about a dozen times. Again and again, all basic rules of the economy were broken in order to sustain the drive of politicians to spend beyond our means. And as the natural result of these measures, we saw how our citizens started to become systematically impoverished, until we dropped to number 140 in the world's per capita GDP ranking; With the result being a tenfold multiplication in poverty in the last 50 years. For a hundred years, we repeated this toxic pattern with one collectivist experiment after another. And last year we hit one of the lowest points in this cycle.

When we took office and we found a situation so critical that if it had all carried on as it was, the economy would've been heading for a hyperinflation of at least 15,000%. So as an economist, as an Argentine as well, I know firsthand how playing with fire can divert a country from the path of progress and steal a hundred years of its history from it.

Therefore, a few months ago in Davos, I asked myself, "How can it be that academia, international organizations, politics, and economic theory demonize an economic system that has rescued from extreme poverty over 90% of the global population? Why does the West want to forego of its own accord the principles and beliefs that made it come such a long way? And why does it insist on experiments for which there are historical examples of failure, as is the case with Argentina?"

Of course, when we talk about Davos, we are not talking about just any forum. It may well be the global institution with the greatest influence in charting the political and economic course for both nations, corporations, societies, and NGOs for the past 40 years. But leaders in the West have forgotten about an elementary truth, and it is the moral responsibility of those of us who still remember it to defend it and to claim it.

The Process of Discovery: Economic Liberty in the pursuit of individual interest creates collective benefits:

That inescapable truth is that economic liberty in the pursuit of individual interest creates collective benefits. Therefore business people who risk capital with a view of profit are social benefactors. Because in a system that guarantees the classic institutions of libertarianism -- private property, free markets, free from government intervention and free competition, meaning that you can go in and

out, the division of labor and social cooperation, well, the only way to succeed is by supplying others with goods or services of a better quality or at a better price.

However, those in charge of the leading nations and organizations of the West don't rely on this idea and view the economy through a theoretical framework, believing that the market is imperfect, that it leads to failures, and that it requires state intervention to be perfected. The trouble with this perspective is that it justifies interventions that bring more problems than benefits and undermine economic growth.

Not only don't they resolve the problem they intended to resolve, but they obstruct what Hayek called the Process of Discovery. The market presupposing free competition and a system of free prices with clear signals is a mechanism of extraction and transmission of information, in which the greater the freedom, the better the functioning. So a free market is a discovery process in which a capitalist finds, on the go, the right path in a constant quest for the benefits inherent in offering better quality goods and services at a better price.

Those who favor interventionism don't just prevent the virtuous functioning of the market, but on top of it, they're self-congratulating and they exchange medals of social responsibility at pompous ceremonies, while at the same time, they push an agenda of values that gradually opens the doors to socialism and therefore to misery. This view of markets is also what underlies a phenomenon that is no longer just a fad and has become a mandate in Western culture. And I would like to take a moment to comment on this.

I mean a self-repressive and self-flagellating culture that has spread across the corporate world, the world of journalism, the world of education, and the world of entertainment. It's a culture where due to different forms of coercion, either directly or indirectly forced by the states, individuals are persecuted in order for them to submit to supposed morality mandates on issues such as gender, racial issues, or environmental matters. All of which eventually undermines the ability of business to generate wealth. These are notions that lead to the absurdity of punishing merit in order to reward diversity, the absurdity of regulating the free circulation of ideas in order not to offend a few sensitive souls, they demonize technological optimism out of a fear of climate change. These are, these are ideas and approaches that punish ambition and reward mediocrity, that punish risk and reward conservatism. Basically, they're ideas that fuel sad passions and encourage us to become ever smaller versions of ourselves, when it's precisely innovation, ambition, and even greed in human activity that have driven the development of humankind.

In other words, *as a civilization, having seen what we are capable of, we are choosing to distrust our own ability, deny our own virtue, our own identity, and commit what is clearly collective suicide.*

Today, it's already too late in some places, and we are horrified to see the fruits that these ideas are bearing. For example, this week in the States, with tens of thousands of young people across university campuses justifying Islamic terrorism and promoting anti-Semitism. In other words, literally the future elite of the West is estranged from its own culture.

Marx used to say, in that detestable pamphlet he wrote with Engels, that 'capitalism carried in itself the germ of its own destruction.' Let us hope, that like with the rest of the things he wrote about, he was wrong.

Capitalists are Social Benefactors:

Now, do not be mistaken. I do believe that the private sector has a very clear social responsibility mandate, but it doesn't have to do with over-moralizing or guilt trips. The true social responsibility of business people is a natural effect of the free functioning of their own economic activity. The mandate to produce goods and services of a better quality or at a better price. **The social responsibility of business people is about making money and they can only do that by serving others with goods of a better quality at a better price. So business people are social benefactors, regardless of the criticism leveled by squandering politicians.**

That mandate translates into the creation of more competitive markets with societies that are more satisfied, and at the end of the day, it will not just satisfy demands, but also broaden the horizons of what humans want to do and can do through technological innovation. In other words, this mandate ultimately trends toward human excellence and the enhancement of humankind. It's not a mandate stemming from superficial morality carried out by regulating the free market. It's a mandate of glory, which is met by unfettering the potential.

On the other hand, when the drive of some to regulate blocks the human potential to create, it binds our hands and feet and we face a problem, because building a promising future for our species is impossible if there are good ideas that are still considered heretical to be explored. Building a promising future for humankind is impossible if we sacrifice merit, competition, and results on the altar of diversity as it was precisely the free circulation of ideas and a system of incentives, promoting effort and merit that built the pillars in which the West was built.

So today, I would like to reassert the value of the great ambitions of our species and civilization. For as long as there have been free markets, we have pushed boundaries further and further. In 250 years, we have rescued a lot of people from poverty, we have put men on the Moon and are now aiming for

Mars. And this we have done thanks to the ambition, creativity, and optimism of people like you who partnered with one another in a quest for their own happiness.

We don't have to lose faith in that primal ambition that we humans have as a guide. We're a species of explorers, of creators, of inventors, not one of bureaucrats. And it's adventurous entrepreneurs, not desks of bureaucrats that currently embody this timeless quality of the human spirit.

Therefore, I celebrate the endeavor of my friend, Elon Musk, to set foot on Mars. Because we think that space exploration is part of our destiny as an explorer species, too big to be confined to this planet. We have the moral obligation to protect the pillars that made this whole edifice of ambitions, achievements, and dreams possible. The pillars on which the history of human progress was built are the defense of life, liberty, and property. If we forget about that or take it for granted, we run the risk of losing it all.



I look at Argentina with all of the changes we're undertaking, and I see that we are against the global trend because while in the rest of the world, the ideas of liberty are under attack, in Argentina a renewed faith in them is growing. While the West is turning towards control and imposition, Argentina is turning towards trusting our citizens to exercise their freedom. While the west turns towards deficit, bureaucracy, and meddlesome government, Argentina turns towards austerity, savings, and makes the state withdraw from economic activity. While the West turns towards economic shamanism and unsustainably heterodox formats that endanger the future of all, Argentina is returning to the path of

reason and the ideas of common sense. And it is doing so with broad support across all segments of society. Because after decades of recession in Argentina, the pro-capitalist consensus permeates all of society. So we are managing to make the fastest and largest state adjustments in the history of humanity without losing support along the way. This is because society has understood it is worth making the effort required by a change of course.

The big government model is a prison, and the people of Argentina have understood this. This is why they support the bill we are pushing through in Congress, which is the largest government tax, financial and regulatory reform project in the last 150 years. How come that the political group with the smallest parliamentary minority, in a context of dire economic hardship, can still spearhead the most ambitious reform in memory and do so with popular support? This is because Argentine society demands a major and urgent change of course, in order to again, espouse the ideas of liberty.

When we took the helm of government and of the economy in Argentina in December 2023, we announced from day one that with us, deficit spending would end, and therefore so would money printing and inflation also end. The establishment would not believe us and a lot of things were said. It was said that making an adjustment of over one GDP point was impossible, that having zero deficit within the first year would be impossible, that a low rate policy would be no good to reduce inflation. But we have defied these forecasts and are reaching our objectives in just five months. We have achieved the first quarter with fiscal and financial surplus in the federal public sector for the first time in 20 years, having inherited from the previous administration a consolidated deficit of over 15 GDP points, including the Treasury and central bank deficits, which this is no exaggeration, is a feat of historic proportions worldwide, not just in Argentina.

We have drastically cut public spending by reducing by 76% of discretionary transfers to our provincial states, by adjusting also 87% of public works projects. We did away with 50% of political appointments, closed down unnecessary government agencies, and above all things eliminated government advertising. This is why people here, a bunch of journalists speaking evil of our government because we have touched the most sensitive organ, their pockets.

We slammed on the brakes on treasury financing through money issuance, and as a result of the fiscal and monetary anchor, inflation has started to go down and has been consistently lower week after week for the past four months. At the same time, we have implemented a systematic rate reduction policy, without the exchange rate or inflation shooting up. The establishment argued that this was impossible, and we have done all of this with all of politics, most of the journalists, and most crony

capitalists against us. And all this without the legal instruments we were seeking from Congress, and which all other presidents in recent years have had, which was partly to be expected because for every budget line item we are cutting back on, there's some privilege or business we are taking away from some politician or crony.

But even in the face of such adversity, we are delivering and we are backed by results. There's still a lot of work ahead, but we have set a course that most Argentines believe in, and a plan to get there. We intend to shrink government to expand society, aiming at consolidated public spending of 25% of GDP, 10 GDP points less than in the States and half the level of France, to have some comparison, our guiding star is to give back to Argentine's every Peso we save first by eliminating or ending inflation, and then when the time comes by reducing taxes. And it is also our goal to undo the mesh of regulations that Argentina has become, to free up economic activity, and unlock the productive forces. We have therefore issued an executive order repealing over 350 laws, and we are proposing a bill containing reforms in the fiscal labor, pensions, and tax fields, including an unprecedented promotion regime for large investments.

With all of these legal instruments, we will have introduced about 700 structural reforms in the first five months in office, a reform program seven times larger than the state reform introduced by former President Carlos Menem in the early 90s. That was the last major libertarian project in Argentina.

In other words, we are concretizing the most ambitious reform program in the past 150 years because the only way to get 60% of Argentines out of poverty is through economic growth. And there can only be economic growth with freedom. There's no other way.

President Milei concluded his remarks:

Finally, I wish to conclude my remarks by inviting all of you here, who are the heroes of the history of the progress of humankind. **So if like me, you believe in the superiority of free enterprise capitalism. If you believe like me, that the West is slowly but surely heading in the direction of regression. If you believe like me that merit, ambition, liberty, innovation, and optimism are essential values of humankind that should be rewarded. I wish to invite you to bet on Argentina. You, as the embodiment of human progress, can help me make Argentina the new Rome of the 21st century, to make Argentina a land of opportunity for all those who are willing to inhabit our land. You are the ones that can demonstrate to the world's bureaucrats that they're destroying the West, that the ideas of liberty are the only way to achieve prosperity.**

So, along these lines, I would also like to share something that I think is very significant. This is something that Joseph Ratzinger, Pope Benedict XVI, said. He said, "There is a self-hatred of the West, which is

strange and which can only be regarded as something pathological. Of its history, it now sees only what is deplorable and destructive, while it is no longer able to perceive what is great and pure."

Therefore, I ask for us to once again embrace the ideas of liberty with pride. Let us be proud of being entrepreneurs. Let us be proud of being business people. Because entrepreneurs and business people are the true social benefactors, the ones that create wealth and have lifted the world out of poverty. So I ask you to join us Argentines in this rebirth of the West. And finally, I would like to thank you all. May God bless the Argentines. May the forces of heaven be with us.

Market-Based Innovations for Growth: A Conversation with Dr. Glenn Yago, Senior Fellow, the Milken Institute

By Jim Altenbach, CFA

The 27th Annual Milken Institute Global Conference 2024 kicked off live in Beverly Hills in early May. This year, we present a RealClearMarkets exclusive interview with Dr. Glenn Yago.

Yago is a Senior Fellow at the Milken Institute. He is also the founder of the Financial Innovations Labs at the Milken Institute and is Senior Director of the Milken Innovation Center.

His research contributed to policy and program innovations fostering the democratization of capital to traditionally underserved markets to finance ideas for projects by business and social entrepreneurs globally. Yago is also a visiting professor and Dean's Fellow at the Hebrew University of Jerusalem School of Business and the University of California-Berkeley.

I first met Dr. Glenn Yago over 25 years ago at the Milken Institute Global Conference, and always enjoyed listening to his thought-provoking presentations.

I interviewed him on the sidelines of the Global Conference. We discussed the history of financial innovations, market-based innovations for growth, recent developments such as blockchain technology, and developing markets.



The interview was originally published by RealClearMarkets. I share it below with RedChip readers.

For the original publication see:

https://www.realclearmarkets.com/articles/2024/06/11/market-based_innovations_for_growth_glenn_yago_interview_1037190.html

5/28/24

RealClearMarkets Exclusive Interview

“A Conversation with Dr. Glenn Yago, Senior Fellow at the Milken Institute: Market-Based Innovations for Growth” by Jim Altenbach, CFA

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The Milken Innovation Center:

Altenbach: Thank you for joining us.

Altenbach: Can you tell my readers about the Milken Innovation Center and the Jerusalem Institute for Policy Research, and what is your role in these organizations?

Yago: I've always gone back and forth to Israel. Fourteen years ago, I moved there. The Milken Innovation Center in Israel grew out of the Institute.

We run a fellow's program through the Israel Civil Service Commission that trains young professionals after their MBAs, engineering degrees, or policy degrees to work on specific projects where innovative finance can drive economic development and new sectors of the Israeli economy. We have expanded from information technologies to biomedicine, AgriTech, and CleanTech.

Eight years ago, we started a very close working relationship with University of California, also training global fellows, in the U.S. and Israel who can then work in their home countries on sustainable economic development finance projects in all the areas of food, energy, water, and healthcare; things that are core to the Milken Institute's agenda in terms of democratizing of capital and financing.

My teaching continues at Hebrew University and at Berkeley between California and Israel.

Financial Innovations:

Altenbach: You used to moderate the “Financial Innovations” panel with Mike Milken, Lew Ranieri, Nobel laureate Myron Scholes, and Richard Sandor. These are among the greatest financial innovators in history.

Could you explain to my readers what financial innovations are, and why do they enhance economic growth? Why are they important?

Yago: Financial innovations are critical to enhance economic growth. All the names you mentioned, Mike, Lew, Myron, Richard, and later other people created financing techniques and new markets. Whole companies have been spawned in innovative finance.

“What financial innovations address is a basic issue in macro national accounting: that issue is how savings are transformed into investments. There should be an identity in an ideal world. There are intermediaries and financial intermediaries that take savings at one point in time and transform it into investments that can create value in the future and increase returns.”

“And that's why for 100 years, most of finance has been based on the idea of looking at risk and return and what the asset values are that result as a process of the intermediary nature of finance, and its ability to reduce the cost of a major factor of productivity in a firm, a country, a farm, etc. This increases total factor productivity. That is finance's core function.”

Financial Innovation & Complete Markets:

Yago: *Innovative finance* means that “you produce securities, designs of financial products, institutions, trading platforms, insurance products, and savings instruments that become investment instruments that can create a more **complete market**.”

I've done a lot of writing with Franklin Allen, he used to run the finance department at Wharton and is now at Imperial College.

Altenbach: You wrote four textbooks with him.

Yago: Yes. He's one of the great financial theorists of our times. His theory on *how to complete markets* is solid. “Financiers complete markets by having financial innovations that can align the interests both of investors and entrepreneurs, and governments and consumers that are trying to finance both their savings and investment.” At the same time, this gives people the ability to finance their hopes and dreams. That's classic Mike Milken.

Simply put, a financial market is **complete** if there exist contracts to insure against all possible eventualities.

Complete markets are desirable because they enable producers, consumers, and investors to allocate scarce resources, invest capital, and share financial risks in the most efficient manner.

Financial Innovations such call and put options, futures, derivatives, and junk bonds are socially beneficial because they enhance completeness.

Altenbach: Recently, people think of innovations in finance as being digital. However, some innovations involve changing and adopting new market conventions, but also there are often tax hurdles to overcome. Lew had to solicit and convince Congress to change the tax code so the mortgage-backed securities would be fully applicable.

Yago: Issues regarding taxation shape or misshape a market, as documented by Nobel Prize recipient Merton Miller's work.

Greatest Financial Innovations:

Altenbach: Could you name the top financial innovations in the past one hundred years?

Yago: Thinking historically, we could go back in history to **the period after the American Revolution. In response to the Whiskey Rebellion in 1791, Alexander Hamilton created the early sovereign bonds. The United States was a major credit risk at the time, but France and other buyers would purchase our paper.**

Another innovation was the ***Homestead Act of 1862 that facilitated land and agricultural financing in the United States.*** After that, the grain storage units where farmers could store produce and get warehouse receipts for agriculture credit, would later become the Federal Reserve System.

But for the last one hundred years, what happened in the public equity markets after World War II, is new issuances exploded.

Later on, Richard Sandor worked in the creation of derivative markets in the 1960s and 1970s.

Yago: Move along into the **corporate bond market** (circa 1970 to mid-1980s), Michael was certainly a revolutionary thinker in that era in terms of the new issue market in high yield debt.

Until then, ninety five percent of the public debt market was taken by five percent of the firms that were investment grade, therefore completely monopolizing the debt market the same way the equity markets had been occupied by the top 30 companies in the country before World War II.

Mortgage securitization was Lew Ranieri's innovation of the 1980s. What happened in the great financial crisis of 2008 was an example of regulatory pressure and the lack of transparency in the markets. Mispricing of assets occurred.

Yago: There was very little transparency regarding the underlying cash flows associated with many of those assets that had become overly complex.

Lew was on record early on, before the crisis, about what mistakes were made in securities design of some of the issues.

The main lesson is that complexity is NOT financial innovation. Rather, financial innovation is an attempt to be able to increase capital access and to have deployment that generates returns that investors are looking for.

Altenbach: And what about Myron Scholes' work?

Yago: *That was like the discovery of DNA. This enabled us to be able to do asset pricing based on Black-Scholes, and to estimate asset pricing and risk.*

Innovations have different buckets. You have the bucket of financial products, from high yield bonds or buckets of asset securitization. And asset securitization has just blossomed after the great financial crisis and now private debt markets are now larger than public debt markets.

Prosperity of a Society is enhanced by Financial Capital Access:

Altenbach: Regarding the total prosperity of a society, *Mike Milken often displays his famous prosperity formula, stating: "access to financial capital serves as a multiplier effect on the world's largest asset - human capital."*

$$P = \sum Ft_i * (\sum HC_i + \sum SC_i + \sum RA_i)$$

P = Prosperity
Ft = Financial Technology
HC = Human Capital
SC = Social Capital
RA = Real Assets

Altenbach: You have seen this formula many times. I have, too. **Can you explain to my readers the significance and importance of this formula and how prosperity is influenced by the interaction of financial technology, human capital, social capital, and real assets?**

Yago: Mike first wrote this formula in the Bancroft Library at UC Berkeley back when he was a student aspiring to go to business school. He wrote it after studying financial literature and reading reports about the mispricing of non-investment-grade bonds that were 'busted' railroad bonds and fallen angels.

New Growth Theory:

Yago: But to answer your question, *why is this so important?* There was a great dialogue between Paul Romer and Mike a couple of years ago. Romer won the Nobel Prize in 2018 for coming up with the idea of **Endogenous Growth Theory or New Growth Theory (NGT)**. NGT explains how long-term economic growth is related to technological innovation.

Yago: New growth theory was Michael's 'hand in the back of the envelope,' -but with more formulas-, way of explaining why technology relates to human capital, social capital (being what human capital does as a group), and real assets.

These assets are *not just land, labor, and capital, but also ideas. That is what technology is, the manifestation of intellectual and knowledge capital into techniques, just like tools.* Instead of hand axes, we have computers now. In our evolution, these different technologies are key.

For example, Romer documented that most post World War II growth can be explained by the fact we had Veteran Laws that provided investment for people to go to college and get trained. This produced many accountants and engineers.

This in turn drove the aerospace industry, along with the hard and soft technology that came, and then later information and computer technology, then biological sciences, and every advance thereafter.

NGT codified why technology and human capital together explain the variation in macroeconomic growth. The little formula that Mike came up with was an early form of Romer's extensive NGT that informs us how economics works.

Blockchain Technology:

Altenbach: **Blockchain technology is a new digital technology that everyone knows. It has multiple applications, but it's most well-known for cryptocurrency. What do you think of cryptocurrency?**

Yago: We have several very good panels at the global conference on that. There's no short answer but let me try to give a medium-term answer.

Altenbach: Okay.

Yago: What's common between information technology and financial technology is both are trying to overcome what in economics and in computer science is called **information asymmetries**: - The fact that I may know more about one thing than you, and you may know more about something else than I do. If we can get more knowledge about what each of us know, we can better value a transaction.

Altenbach: Ok

Yago: *Using computer science and its ability to link things, Blockchain technology is probably the greatest invention since double entry bookkeeping that came out back in the Middle Ages.*

We haven't had anything that important for accounting until now. ***We can now establish quantitative accounts of things and where they are in the value chain or the supply chain. It is not just the supply chain of a sector, whether agricultural or industrial or other, but rather the value of an overall economy, so we can better value and monitor the macro economy.*** That is where blockchain technology has enormous potential.

Tokenization of Assets:

Altenbach: I think blockchain technology's greatest application may not be in cryptocurrency, but in the tokenization of assets. Tokenization can be more cost effective and scalable than securitization, and thus it better supports ethical financial services based on inclusion, & equality of opportunity, as well as faith-based objectives including Islamic Finance seeking and other objectives.

Yago: Absolutely. You are spot on, Jim.

Altenbach: I want to share with you an example, and we could talk about this. I noted this in a publication I authored:

"In October 2019, Indonesia's BMT Bina Ummah, an Islamic microfinance institution, raised \$50,000 U.S. dollars through the world's first sukuk issuance on a public blockchain, and that created the world's first micro-sukuk. The micro-sukuk structure uses sukuk issuance on the blockchain to fund micro-SMEs (Small Medium Size Enterprises) and entrepreneurs. The use of the blockchain is expected to reduce issuance costs and attract retail investors." BMT Bina used the Smart Sukuk platform introduced by Blossom Finance.

"The platform standardizes and automates bond, legal, accounting and payment systems. The platform makes micro investments accessible, transparent, and tradable."

Altenbach: I think this is a significant development in the democratization of capital. What are your thoughts on asset tokenization and of this example?

Yago: I couldn't agree with you more. I was so excited that you brought up this example. I was introduced to this example by one of my graduate students at Berkeley from Indonesia.

Yago: It's so exciting. The point you are making here relates to what we were talking about earlier. ***We are in the middle of trying to establish a more inclusive economy that can grow.***

In terms of mainstreaming the developing economies that are now the majority of global GDP on a purchasing parity basis, these types of innovations are needed.

For example, we had one of our financial innovations laboratories back in December on smallholder farmers.

Roughly 80% of the farmers in the world generate over 60% of the food in the world.

Yet, a significant part of the world is suffering from food insecurity. Smart technology needs to get into the hands of these smallholder farmers to help them maximize both their incomes and their productivity in being able to meet the food security gap over the next 25 years.

Altenbach: So, this type of technology could make issuing the very small dollar issuance and finance facilities more available. And that's something we never were able to do. So, you could service these types of operators in an economic manner?

Yago: Right. And some of our fellows, and the MasterCard Foundation are sponsoring experiments in this area, along with the US Development Finance Corporation and USAID and other development finance institutions.

People are very excited about this convergence of financial technology with information technology. It is bringing everybody online and giving them access to these tools, both the financial tools and the technologies in soil science, seed science, cultivation, and post-harvest storage.

This brings us back to your question about *what financial innovations are, and what Milken's insights are and what Romer and his team of growth theorists and practitioners have done in macroeconomics; How do we bring those points together?* **They're converging at the points that you made with the wonderful example above with the tokenized BMT Bina Ummah micro-finance deal.**

Yago: Summing up digital finance and the digitization of everything, whether it's a greenhouse or taking a product to market, or measuring water in water stressed areas, or seed yields, all of this will enable a greater level of participation and growth in the economy.

Opacity vs. Transparency:

Altenbach: Many years ago, you were part of a team of scholars that researched the role of Opacity in retarding economic growth by placing a cost (or shadow tax) on businesses and governments. You even quantified a measure called "O Factor Scores" which enabled you to index countries' economies according to transparency. I thought it was remarkable that you even estimated the costs associated with Opacity in terms of 'corporate tax equivalency' as well as a 'risk premium on capital.'

Can you elaborate on your work on Opacity, why it is important to promote more transparency, and how do we do that?

Yago: That was the book *“Global Edge: Using the Opacity Index to Manage the Risks of Cross-border Business”* I co-authored with Joel Kurtzman published by Harvard Business School Press.

Altenbach: I was in the room 20 years ago when you presented that in Santa Monica.

Yago: That was at an early point, and history has been very generous to that book. Many of the ideas have been adopted and internalized by finance ministries, central banks, the Bank for International Settlements, and other regulators. They have looked beyond just the political transparency that was the general notion of transparency and try to break it down into accounting, judicial, other factors that were in that multi-factor set.

The concepts have been extended to looking at elements of systemic risk that would be generated by low-frequency, high-impact events.

Altenbach: That is Nassim Taleb's Black Swan.

Yago: Right.

Yago: *But you asked why is this important? Let's remember **the ultimate impact of financial innovation is to reduce the weighted average cost of capital. If you can reduce the discount rate from 11% to 8% or even to 4%, you can finance more things and that can generate economic growth.***

Lower capital cost enhances the breadth of the capital markets, and how deeply and broadly those markets can grow. In turn, having broad and deep capital markets is an essential property of having ones that can function well in converting savings to investment.

Altenbach: And transparency decreases information asymmetry.

Yago: You do not have mispricing, you don't get perverse markets, you don't get distortions, you don't get cheating, etc. Your point about there being a tax equivalency of the lack of information is really true.

For example, the hurdle rate in Ghana and many African nations right now is enormous. It's well over 15%. These are all countries that are much lower than investment grade.

Yago: In order to facilitate infrastructure projects for more energy, food, water, and health how do we pool those projects and design them in a way that they can be investment grade or have a higher rating, and then get foundations, get philanthropic investments, get concessionary capital into those capital structures in a more variegated and stratified capital structure that lowers the weighted average cost of capital, in order to enable more energy, food, water and health to be produced and consumed.

Altenbach: Even without lowering taxes, government regulators, especially in developing countries, can attract capital if they fix problems such as corruption, weak legal systems, inefficient enforcement policies, deliberately confusing or illegal accounting procedures, and dysfunctional regulations.

Yago: Right. That's the whole part.

Agri-Tech Solutions:

Altenbach: A few years ago, you were part of a team of researchers who published a report called: "**ACCELERATING AGRITECH SOLUTIONS IN ISRAEL, CALIFORNIA, AND DEVELOPING ECONOMIES**". The research regarded agricultural technology and meeting the challenge of water scarcity in regions including both Israel and California. **What can California learn from Israel in meeting the challenges of water scarcity?**

Yago: That report focuses on agriculture. Twenty-five percent of the countries in the world are water stressed right now, however in the next couple of decades 50 percent will be water stressed.

It's important to have water for food production. Drinkable water is needed which is challenging. Fifty seven percent of the hospital beds in the developing world are filled with people that are suffering from water-based diseases because of drinking unclean water.

Altenbach: **What's the Israeli way of addressing water scarcity?**

Yago: They understood prosperity and inventions come with overcoming problems of scarcity. That's basic economics. **They started to manufacture water.**

Desalination has been a major aspect of it. The recharging of aquifers has been very key.

The other main factor is increased efficiency in the use of water. Israel was the first country to adopt drip irrigation rather than flooding. People have been flooding fields since the Mesopotamian era. California followed with drip irrigation.

More food can be grown with the same amount of water by using drip irrigation. Add computers with software predicting growth stages that adjust the drip accordingly based on the growth stage of the plant, and producers can reduce water usage even more.

Fertigation:

Yago: With fertigation, you take the cow manure and put it back into the corn fields, you get a circular effect on both the improvement of milk production and corn production. It's been done in California a lot, and part of the outcome of that was having a dairy farm that grows corn.

The other part is recycling. Israel recycles 82% of its wastewater into usable treated water.

Yago: The next closest country is Spain, with 17% recycled water. California has been recycling more water but mostly for use in fruit and vegetables, but not in row crops. These processes are replicable.

Altenbach: Regarding desalinization In California, we are behind Israel.

Yago: California is moving ahead and has learned a lot from Israel.

Desalination uses a lot of energy:

Altenbach: Desalination is a tremendous application in California, however, to do desalinization, you need a lot of electrical energy to do it.

Yago: California has been a leader in energy with rooftop solar and other renewables here with a portfolio of energy sources.

Yago: *Sixty percent of water production is energy. You must move it around. Just think about water flow every time you flush the toilet. There is a lot of energy involved in the process of generating water.*

Altenbach: To use desalinization in the U.S. on a mass scale, wouldn't we need nuclear power? Not necessarily the huge dome style reactors. Westinghouse has their eVinci Micro-Reactor. I think one of those would be able to power desalinization plant.

Yago: Oh, yeah. You and Bill Gates agree on that one, in terms of the role of nuclear power in solving challenges of clean energy as the pathway to lift billions out of poverty.

Altenbach: I think the days of those big domes like San Onofre, are probably over. What do you think?

Yago: It's a very interesting point you're making that decentralization is the way to produce and distribute not only electricity, but also democratic power. This requires having more people operating in local and community levels of participating and not the old command and control centralized economies that we were used to.

Altenbach: Well, we covered a lot. It's been a pleasure.

Yago: Same here, Jim.

About the Author:

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Shaping a Shared Future: A Conversation with Bill Clinton, 42nd President of the United States



Video: https://youtu.be/eR2z_1-v87Y?si=qlC_3Xi6jeFYgUzo

Michael Milken, Chairman of the Milken Institute, sat down with President Bill Clinton, 42nd President of the United States, for a wide-ranging discussion.

Michael Milken, Chairman of the Milken Institute, opened the discussion:

So, Mr. President, you and I have had a lot of interaction over a long period of time. I'd like to take you back 28 years, and this was August 29th, 1996, we set forth on a journey to bring our vision to the country, to keep the American dream alive for all who are willing to work for it to make our American community stronger, to keep America the world's strongest force for peace, freedom and prosperity.

It was 12 years ago in this same room, at the same time that President Clinton was here setting the mission and a vision for us at this time. And the words from that day are even more poignant today than they were then. Let us look at a couple clips from you from 12 years ago.

At Global Conference 2012 in April of that year, President Bill Clinton spoke:

“America's still younger than everybody else in Europe, in Japan, still more diverse, still more open to immigrants, still the best place to start a small business, still the best place for R and D. It is a great mistake to write the epitaph of this country. We just have to get out of denial and back in the future business.” — President Bill Clinton in 2012 at Global Conference

Michael Milken asked: “Well, that optimism view you have then, do you still share that optimism today?”

President Bill Clinton, 42nd President of the United States, responded:

Yeah, but, I think what I said then in 2012 regarding what was wrong with that current moment (in 2012) is also more true today. I mean, “anytime you spend all your time trying to settle past grievances or trying to focus on our differences, instead of figuring out how to make common cause for a shared future, we are all in trouble.”

And I think we have been through a period when for any number of reasons, “the political rewards of grievance based politics and essentially name calling and being negative have been so immense that nobody could give 'em up, knowing all along, including members of the mainstream media, not just the right wing media, knowing all along that if you didn't give 'em up, it put our system and our country and our kids and our grandchildren's future in peril. And I think that's what this whole shebang has come down to. Now, it's not tribalism. We are all tribal. We cannot build identities except with reference to other people with different identities.”

President Clinton continued: “But there is what I would call inclusive tribalism and divisive tribalism. And the big political benefits have come from divisive tribalism, but it is a potential endless disaster because our capacity, if we cooperate to solve every challenge we face, including all the things you've done so much wonderful work on over the years is unlimited. But we can't do it unless we work together. We have all these differences, but what we have in common is so much more important. That I think is the key question facing not just the United States, but so many countries in the world today.”

Michael Milken interjected:

So over the years, you have done so many things to build what I would call the social capital of our country, pulling us together. And when we look at it from a financial standpoint, the GDP of our country, the gross national product, which is the largest in the world, is around \$27 trillion. Our debt is around \$34 trillion. The total financial assets of our country that you measure financially, real estate, factories, et cetera, is around \$139 trillion.

Human Capital and Healthcare: The March for Life to increase NIH funding:

Milken stressed: But all of this pale in comparison to what is the estimated social and human capital of the country that you've worked most of your life to build education, healthcare, et cetera. And I think the tribalism you're talking about here is the risk to that social capital you spent your life building from that standpoint. And so let's maybe start with the first element that you spent a lot of time on, and that's healthcare.

Milken stated: “In 1995 when we tried to accelerate medical research and said, if there is a treatment that works, we don't need to go to phase three. Let's get it to cancer patients.

There was one leader in the world that signed into law fast track for cancer patients, and that was yourself Mr. President. Many benefits accrued because of increased spending at NIH. Indeed, the reason

we have a vaccine in a year, and not in 10 years traces back to the increased NIH research commitment that resulted from our movement then.

We had a **March for Life** in 1998 in Washington. Half a million people in Washington and around the country came together and they had been trying for decades to increase the NIH budget. When this march was over, within two months, you signed in the law a legislation that created the doubling of the NIH budget, something that could not be done for two decades. And the incremental benefits to our society of what you put in motion now totals \$500 billion. Every single person on the planet has benefited from that decision you made. Through the Clinton Health Access Initiative, you've long focused on improving public health in the United States and globally. What are some of the most important lessons you have learned that can make us more effective in creating solutions?

President Clinton remarked:

Well, first, there are problems that you know of and with the tools at hand you can solve them. Then there are problems with the tools at hand which enable you to alleviate but not completely solve. And then there are those that you do not yet know how to deal with because there haven't been enough medical breakthroughs. So the first thing you have to do is figure out what kind of issue you are dealing with? And when I started working on AIDS, for example, we made a couple of decisions.

I did know a lot of people and I could put together groups to help solve problems. So, the first decision we made was we would not go into a country unless the government welcomed us. We would not decline to go into a country just because I disagreed with the government on other political issues. If they were willing to protect the integrity of public health work and were willing not to ask us to do anything that was corrupt, I would go anywhere.

Clinton Health Access Initiative

President Clinton added:

I cut a deal with the United States government when George Bush, Jr. was President, then with President Obama. I never did anything they didn't know I was doing, and they didn't object to what I was doing as long as it was all transparent.

And then we just started working on ways to do things faster, cheaper, and better. The first thing we had to do is to realize that we had a traditional system which had served America and the Western world very well, of giving a fairly extended patent for the development of new medicines because it requires a lot of advanced money to develop medicines, and you've got to give people a chance to recover their investment. But in the case of AIDS, that puts us in a terrible position. There were so many people who had it around the world and people were dying like flies.

President Clinton continued:

And we needed to do something to speed it up. So, in the middle of all this, there is this huge argument going on about whether poor people can be trusted to take a drug, they must take three times a day and will the pharmaceutical companies move out of this if we buy generic drugs? There were all these issues, and Nelson Mandela and I found ourselves working and it was a joy. He still had more than a decade to live then, and we had a wonderful time together. But we were trying to put together a system that would in effect address these cases of AIDS with affordable drug treatment options, in part by not

allowing the patent laws to be so severe that huge numbers of people would die before we could ever get any medicine in the country. So there was an exception created in the international patent arena for such cases so you could save lives.

President Clinton observed:

So I just kept trying to work with everybody and we came up with our mantra with the Clinton Health Access initiative, that we would find a way to do things faster, cheaper, and better. And even now, after all these years, about 30 million lives have been saved and over half the people on Earth receiving AIDS medicine, get it from contracts we negotiated, and about 80% of all the children on Earth have access to it, if needed.

And all we did was to figure out how to maximize production. We helped the generic drug companies primarily in India and South Africa become more efficient. We worked on supply chains, we worked on all the stuff that I never dreamed I would be involved in when I started trying to help out with AIDS.

“One reason public health has gotten so much more money is that people know that it has dramatically improved its efficiency. And I think you had a lot to do with that Mike, and how we spent the money and how we make investment decisions. But **I think now it is going to be much harder because of the challenge of climate change, the overlap of health and climate problems.**”

"And for after years and years and years of public health being the only basically adequately funded program, I think there's a lot of competition for other money and a lot of question about whether this new sort of divisive nationalism is going to undermine a commitment to larger public health. And so, I think you probably like me, you keep wondering when we get to quit and the answer is never. You can't quit and you have got to keep looking for answers and you can't do it without a cooperation position. And the cooperation between the private sector and the public sector and civil society, and cooperation across lines that would otherwise divide is critical."

Fifty percent of all economic growth can be traced to public health and medical research:

Treating AIDS:

Michael Milken stated: Mr. President, for 31 years at the Milken Institute, we have put up slides reminding everyone that **50% of all economic growth can be traced to public health and medical research.**

The partnership and the initiative that you launched in conjunction with President Bush, targeted the people that had the most incidents of AIDS and HIV in the world which were in Sub-Saharan Africa. There were countries that at one time, women had a 95% chance of passing AIDS onto their child when it was born. And after the work that you did, that percentage of passing it on is now 2%. The children of the world now have been born without AIDS. And we're about to see for the first time in history, the doubling of life expectancy in one generation. That partnership, and those initiatives you launched changed the world and we're seeing it today. And today there's the potential that if you have HIV or AIDS, you might

only have to take three pills a year to bring it under control. So, you talked about an initiative and staying with it in determination. Let us see, another clip from 2012 on the future of America,

Education and Mentorship:

At Global Conference 2012 President Clinton remarked:

“A lot of you got here into these chairs at Global Conference because of your extraordinary abilities, and because of your persistence. But every single one of us had somebody in some way that helped us. We had a teacher or somebody that gave us a job in the summertime or somebody that helped us get into a university or somebody that gave us our first job out of school, something we all had that.” – President Bill Clinton, 2012 Global Conference

Michael Milken stated: So, you talked here about a mentor and one of the other initiatives you really focused on is education. And so, I thought I'd put up a quote from two people spanning 30 years. One a person you've just mentioned on the stage, **Nelson Mandela who said, “Education is the most powerful weapon, what you can use to change the world.”**

And, on this stage, a few days ago **Elon Musk said about education. “You can learn almost anything for free on the internet. For example, MIT has all its lessons online. Starlink might be the number one technology that improves the people's standard of living and around the world.”**

Milken then asked the President: “let us start, can you think of a mentor, a teacher that gave you the energy as a young boy?”

President Clinton remarked: My sixth-grade teacher remained my friend until she died at 90 and I was a Governor then and once a year she used to come and listen to me speak and she was frail and in a body brace. But on the last day of my career in elementary school, she said, I can't tell whether you're going to become governor or a permanent prisoner. And I said, why? She said, it really is entirely dependent on whether you learn when to listen and when to talk!

President Clinton continued:

So, she had a big impact on me and I loved her very much. I had an eighth-grade science teacher who taught me the most important lesson I have ever known. He was an Arkansas teacher so did not make much money. They were the second poorest paid in the country. He was a coach and a lot of those guys got a reputation for being dumb and they just hung around to get in their retirement. This guy was really smart and his wife was my algebra and geometry teacher. So he said, kids, this is the last day of school. Five years from now, you're not going to remember anything you learned in eighth grade science.

Do you remember anything anybody told you 63 years ago?

But he said remember this: 'every single morning I get up, I go into my bathroom, I throw water on my face, put my shaving home cream on, I shave myself and wipe it all off. And I look in that mirror and I say, Vernon, you are beautiful. He said, you remember this? Every single person wants to believe they are beautiful, that they matter. If you remember that one thing, it'll take you a long way verbatim word for word.'

Clinton added: "That's what he told me 63 years ago. So, I think you could say he had an influence on me and it's still pretty good advice, isn't it? You think of that, how far did you ever get in telling other people how ugly they are?"

Clinton Foundation and Education:

Michael Milken observed: Education of children and American around the world is an area you have been very focused on with the Clinton Foundation.

But how have you looked over the years at education and the challenges we have had in education over the years? You have had many initiatives in this area getting books to kids so they can read, et cetera. As you think back, what were the most effective initiatives in terms of education and what were the least effective things you worked on?

President Clinton commented:

"Before I became president, I was a governor for 12 years, and that is the longest I ever had a job in my life until I went to work for my foundation. And I spent an enormous amount of time in the classroom. And when I took office, a national expert said we had the worst schools in the country and we had 370 school districts in a little state with only two and a half million people. When I left office, the same guy said that the most improved schools in America were in Arkansas and South Carolina. So I've cared about this a lot. My daughter just gave an award to her elementary school principal who she stayed in touch with all this time that she loves this woman.

President Clinton continued:

"So, what did I learn? First of all, it's a mistake to assume that there are many people who cannot learn. Well over **90% of the people can learn well over 90% of what they need to know to triumph in the world.** Secondly, **they will learn more if it is interesting. So, you have to really devote a serious amount of time to make the learning enterprise interesting and worth the time.** And thirdly, I think that ***there has to be an enormous efforts made to keep people in school through high school and then to make interchangeable the avenues after high school - whether they're at four year universities or community colleges or in various vocational efforts so that we can establish a flowing system of lifetime learning*** that all of us will be able to access. But the **most important thing is not to give up on kids before they get started. And then the second most important things is not to let people use economic and social and other disadvantages as an excuse not to learn.**"

A Conversation with OpenAI COO Brad Lightcap

Video: <https://youtu.be/OVsr1UBVZ5g?si=epuuVHXaIMIUWwU>



Brad Lightcap, Chief Operating Officer, OpenAI sat down with Julia Boorstin, Senior Media and Technology Correspondent, CNBC, to discuss AI.

On a related panel on AI, Brad Lightcap, Chief Operating Officer of OpenAI, spoke about OpenAI's artificial intelligence products as well as the future of AI — a technology that can propel the world's growth and productivity gains.

Usage of OpenAI's ChatGPT

Lightcap said that ninety two percent of Fortune 500 companies are using the company's ChatGPT enterprise product. Lightcap gave as an example of business usage, Moderna. Moderna, an American pharmaceutical and biotechnology company, is maker of one of the leading COVID-19 vaccines, and is using the OpenAI's technology for drug development.

Lightcap noted that the OpenAI chatbot of Swedish mobile-payments company Klarna is replacing the work of 700 customer support representatives.

Technology is Advancing Rapidly

However, Lightcap maintained that artificial intelligence will create job demand in areas that can't be predicted, and that advancement of the technology is so rapid that in the

next 12 months “the systems we use today will be like laughably bad.”

He envisioned a not-distant future where “it’ll be foreign to anyone born today that you can’t talk to a computer the way you talk to a friend!”

The AI executive expanded on his enthusiasm adding: "In the next couple of years, we are going to move toward a world where the systems are much more capable."

Lightcap says Large Language Models (LLM), which people use to help do their jobs and meet their personal goals, will soon be able to take on "more complex work."

He noted that AI will have more of a "system relationship with users," meaning the technology will serve as a "great teammate" that “can assist users on any given problem. That's going to be a different way of using software," regarding AI's foreseeable capabilities.

In light of his predictions, Lightcap acknowledges that it can be tough for people to "really understand" and "internalize" what a world with robot assistants would look like.

But in the next decade, Lightcap believes "talking to an AI assistant like you would with a friend, teammate, or project collaborator will be the new norm. I think that's a profound shift that we haven't quite grasped."

Lightcap's comments allude to what is to come next with GPT-5, OpenAI's latest model that the AI pioneer is set to release as early as 2024.

Summary of Discussion:

A concise summary of Lightcap's points during the discussion was published by TheEarningsNugget @EarningsNugget:

1. OpenAI is focusing on partnerships to expand its technology's reach, with recent examples including Stack Overflow and the Financial Times.
2. Enterprise adoption of AI is accelerating, with 92% of Fortune 500 companies using ChatGPT and over 600,000 individual users in enterprises.
3. OpenAI encourages broad experimentation with AI tools within companies, rather than limiting access to specific departments.

4. Lightcap doesn't believe AI will lead to mass job losses, but rather a shift in the types of jobs available as the economy adapts.
5. OpenAI balances open sourcing some models while keeping frontier systems more controlled for safety reasons.
6. The company is concerned about the growing energy and computational demands of AI systems as they scale up.
7. In the next 12 months, AI systems are expected to become significantly more capable and shift towards a more assistive, collaborative relationship with users.
8. Future AI interactions may move beyond text interfaces to include visual and verbal interactions, with systems becoming more multimodal.
9. The pace of AI innovation is outstripping the typical speed of corporate adoption, creating challenges for businesses to keep up.
10. OpenAI is working on ways to help companies implement AI technology that is scalable and robust for the future while keeping pace with rapid advancements.

Leading in the Generative AI Revolution



Video: https://youtu.be/x-uZ-Xk_Ah8?si=aovX3wXx2qR0s_gl

In today's dynamic business landscape, leaders at the helm of corporations are skillfully steering through a myriad of simultaneous challenges. From crafting innovative growth strategies and developing modern-day workforces, to meeting evolving customer expectations while navigating ongoing global macroeconomic uncertainties—and now, the new world of generative AI. What are the ways in which corporations and industries are developing, experimenting, and learning with generative AI to protect and benefit businesses, their customers, employees, and broader society? What are the essential leadership elements and strategies that CEOs employ to propel their companies towards success—particularly in an era characterized by disruptive and emerging technologies? Join seasoned business leaders across sectors as we explore the opportunities of generative AI,

and the multifaceted role of executives in fostering growth, effective leadership, and innovative transformation in the AI revolution.

AI Database or Data Bias?

This year's panel discussing Generative Artificial Intelligence used the discussion to summarize where they are in the development, where AI could be used, and finally information validity from AI.

The Engineering Progress

Thomas Kurian, CEO, Google Cloud, explains that the technology is “Using a sports analogy cloud computing is in the 5th or 6th inning” and later explains that most Generative AI is in the “Use Case” portion of development. The choice of Google is to develop an “Open Platform” allowing integrators to enable and choose to use the Google code base for their own products. I guess we can all conclude that Google has now become the Santa Clause for all developers and corporations and has become the world's altruist as we wait for the 7th inning stretch!

Arvind Krishna, CEO and Chairman, IBM, differentiates IBM's approach with Google as “complimentary” and not “oppositional” and builds an AI that is good for the enterprise solution. The companies they serve worry about where their software is deployed, and sovereignty and the data used for AI models. He goes on to state “. people in the financial industry might care deeply about data for models.” As a Generative AI consumes data from bigfoot and space alien sites one would hope it would somehow incorporate this into my portfolio!

Janet Truncal, CEO-Elect and Global Chair, EY Inc., sees opportunities in medicine “as long as the models can be trustworthy.” She later expounds that “30% of all people are all in and all others are somewhere else in trust,” regarding the models. Later she gives an example where x-ray examiners are 15% inaccurate in readings and with AI it could go down to 1% inaccuracies in reading but explains that “we are up against this familiarity bias that we all have.” It does seem that AI can help solve the inaccuracy of an x-ray but still cannot get this carbon life a Friday Dr. Appointment for a nagging cough.

Greg Brown, CEO and Chairman, Motorola Solutions Inc. explained Motorola is using AI for public safety “the old paradigm is the human is detecting in the video.” Using the new

paradigm, “AI analyzes the video, and is detecting the human and reporting.” Brown later goes on to describe an AI system working with emergency call services to augment emergency call operators. He later goes on to describe the limited number of operators available and gives reasons why AI will fill in the gaps “augmenting, speeding but not acting alone.” He also describes how AI will inform the police dispatcher, or command and control it finds in its camera network. This of course begs the question: If AI informs the short supply humans faster is this really helping reduce the problem of few humans supporting a new electronic boss?

Accuracy of AI

Sara Eisen, Anchor CNBC, the panel moderator asks, “is the AI accurate” and Arvind Krishna states “the AI is 80 to 90% accurate but it depends on the use cases.”

Later Google’s Thomas Kurian stated “can you tell me that your model is making accurate conclusions? Now that is the beauty in the eyes of the beholder because any model can make wrong conclusions. How do you triangulate? How do you get it accurate?” he opined.

The panel then goes on to discuss “use cases” on where to test AI and where it can be used accurately. One wonders why the “use cases” seem to shy away from eliminating brokers and investment bankers as the past decades' exemplary actions seem to make its actions prime for some moral help!

Later, Thomas Kurian explains Google is “collaborating with policymakers for trust.” When they use a model “what is the basis” on how it derived the outcome: This is a critical point to consider. The means verification of AI responses uses “Grounding” where the answer is compared to the whole internet or private database.

Summary

The panel seemed to still be in the “If you build it - it will come” part of development discussing the “Use Cases” - a Trojan horse to eliminate non-existing problems, spend billions solving them and justify bias in conclusions from an all too human source.

Genes, Galaxies, and Groundbreaking Discoveries: Engineering New Advances in Modern Science



Video: <https://vimeo.com/event/4228591>

Science has driven innovation for centuries. Serendipity contributed to many breakthroughs in the past. However, science has demonstrated that focused research initiatives with ambitious goals can solve some of society's biggest questions while making new discoveries along the way. From the Human Genome Project mapping humankind's genetic make-up, to the Apollo Program shooting for the moon and stars, philanthropy, government, and the private sector have much to learn from ambitious, collaborative initiatives to continue engineering breakthroughs in modern science. Panelists will glance back at scientific landmarks and look ahead to some of the goals waiting to be discovered around the scientific corner.

Moderator Susan Karlin, Science and Technology and Fast Technology opens the session:

I'm going to set the stage first. There has been a seismic shift in how we innovate. Small groups of researchers have given way to moonshot goals that take a global village to pull off. Think of the Wright brothers versus Apollo, Jonas Salk polio vaccine versus the Human genome Project. Now we're expanding that strategy towards loftier goals and unexpected applications. So our panelists are at the forefront of this expanded approach and they're going to reveal how they've applied this thinking to technology, targeted medicine and financing. So first, why has this seismic shift happened?

Kathryn North, Director, Murdoch Children's Research Institute, David Danks Professor of Child Health Research, University of Melbourne responds:

Think that I speak from a medical perspective, but we're all working much more collaboratively in its scale. I think that the vision across from a medical perspective and a medical research perspective is that you have to really look at bringing big data together across state borders, across international borders, because the only way we're going to make a seismic shift in everything is by really bringing the best minds together to solve a specific problem.

Cara Altimus, Managing Director, Science Philanthropy Accelerator for Research and Collaboration (SPARC), Milken Institute jumps in:

Develop targeted partnerships between scientific, medical ecosystems, and philanthropies

I'm **Cara Altimus**. I lead the Milken Institute Science Philanthropy Accelerator for research and collaboration, and we work across a number of different scientific and medical ecosystems to develop targeted solutions in partnership with philanthropies. And that has given us a really unique perspective of seeing where science funding and philanthropy has been and what the current needs are and where it's going. And so one of the, just riffing on this change and what's driving it, we've seen decades, a century really of science innovating kind of in a one off investigator initiated model. And that is excellent for the planting of a thousand seeds, getting the million ideas out there, getting the start of discovery. But when we see the opportunity to dramatically shift science in the direction of actually curing a disease, getting to the moon, solving a problem that is no longer a one person, one lab problem, that becomes an ecosystem level problem that requires expertise across many domains.

And so, it's in these areas that we have enough insight to know that there's a place to go, but not enough coordination yet that you must actually change your model. And that means changing the structure of how individuals come together, changing the structure of funding and changing your incentives and expectations. And that is we're in this messy middle space that

science is learning how to do that well, particularly in biology. And I think following what's happened in physics and what we learned from NASA in space to be able to get there and think about how to solve those problems.

Susan Karlin: Yes, it's not only sharing information but also sharing risk.

Steve Altemus, President and CEO, Intuitive Machines, LLC observed:

I'd like to add that it's also timing. Intuitive Machines develops lunar landers.

Susan Karlin:

You are being very humble. His company just landed the first private and American lunar lander on the moon since the Apollo era 52 years,

Steve Altemus:

First time in 52 years. And what brought that about I think was timing. So, if you think back on the development of space programs, they've been influenced by the Cold War where you had the Soviet Union and the United States building monolithic programs to go to the moon and show technical prowess. Then you saw an age of collaboration in space where the timing was right, where you built the NASA and 110 countries built the international space station and each country got a module or a piece and then the interfaces were strictly defined where it wasn't exactly fully collaborative, but what it was an approach to you take this piece, I'll take this piece and you'll build an international space station. And now what we are seeing is by the change in procurement, the change in the way that our government buys goods and services has allowed for the commercial sector to lead and be part of this where it's no longer just sovereign governments. And now we can leverage it, at least in the US economy, we can leverage the ingenuity and the innovation that comes out of private investment, and it comes out of commercial companies and tag that with the federal dollar to move faster and further. And I think that has been transformational for us in the United States and it will be our competitive edge in the space race moving forward.

Susan Karlin:

Then Josh,

Josh Denny, CEO, All of Us Research Program, National Institutes of Health

I'm CEO of the All of Us Research program, which is part of the National Institutes of Health. We seek to enroll at least a million people across United States representing all backgrounds, diversity in many perspectives to help advance medical breakthroughs that are relevant to all populations. And I think the transformation that we saw with, as Catherine noted, big science projects. So you think about the human genome project, which could be harken to a map

without labels maybe we understood and we certainly knew where all the roads were, maybe with the human genome project, but the understanding of the impact and maybe the cities and states and or the impact on disease was needed. And so, projects that bring together people, lots of diverse genomes like ours that also include health information and allow them to answer surveys and bring in new technologies are the kinds of things I think that are needed to create a large platform for people to discover. So, it's the scale of science that enables many those million projects to bloom on top of it, but without large, concerted efforts with huge numbers, you're not going to get to unravel these vexing problems.

Susan Karlin:

And then Reid

What do you have to add to it?

Reed Jobs, Founder of Yosemite:

I'm Reid Jobs, I'm the founder of Yosemite, which is a venture capital group in San Francisco. We only really invest in companies that are really tackling cancer and all types of cancer related therapies. I'm sure we'll talk a bit about that. But from I guess my vantage point, what we're seeing now is really the fruits of, I'd say roughly four generations of compounding research that have happened, particularly in oncology. And if you think about it, people who actually discover the structure of the human genome, one of them is still alive today, still with us. So, this is very much something that's still within human lifespans right now, yet the amount of new technological modalities that we've found in the last 20 years have eclipsed anything in else in human history.

I mean, how many of us have mRNA vaccines in this right now, which is completely a new discovery. Things like cell therapy, gene therapy, all of these are really in the springtime of their life cycles. All the people who discovered those are still alive and actually in their prime. So, we're seeing sort of this kind of layer upon layer that we've built over the last say 70 years or so, really getting into new areas right now and all these new modalities are kind of matrixing against each other. The potential right now, at least for the oncology space, are immensely interesting.

Susan Karlin:

And I was going to also add to that is that there had to be an advent of technology to facilitate all that of supercomputing AI modeling. Things like that I think could not have enabled this shift as well. So, was that something you'd agree with?

Steve Altemus:

Technology advances has lowered the cost of access to the moon from 1 trillion to 1 million dollars

Yeah, I think at least for the space program, **if you recall the Apollo program, there was no computer It was MIT who actually came up with a computer that allowed us to fly to the vicinity of the moon and land on the moon.** Today as a business in the United States, there is a supply chain that we can leverage. All of the dollars that trillions of dollars of research that have gone into micro computing, high energy density batteries, miniaturization of electronics, all of that has enabled us to lower the cost of access to space, which is done primarily by SpaceX and other companies, but actually to lower the cost of access to the moon where it was inconceivable to think that it wouldn't cost 4% of the gross domestic product to land on the moon. I talked to an investor at one time and he's like, doesn't it cost like a trillion dollars to go to the moon? Well now we can go to the moon at a price point of roughly a hundred million dollars of mission. That's insane. It's an incredible advancement due to all of the r and d that has gone into the economy over the years to advance the technology.

Susan Karlin:

So, kind of riffing off this collaborative effort, and it's not just private and public money, it's not just government private industry, but you're also doing novel financing and community outreach. And so I wanted to focus on that a little bit. I want to start with Steve because he did a figurative and a literal moonshot. So, let's jumpstart with you. How does a tiny startup end up kickstarting a lunar economy in four sentences or less?

Steve Altemus:

if you can do it fixed price for about a hundred million dollars in the time it takes to get an undergraduate degree, you win.

In 2018, the executive branch, the administration, **the National Security Council and National Space Council declared the moon of strategic interest. And when that happens, the US is compelled to spend money on advancing the moon, the lunar economy in this case sustained human presence on the moon.** And so they looked at NASA as the point of, as this arm of soft power in the United States that could move us out into the solar system out towards the moon in a significant way using from the office of commercial space flight, non-traditional procurements. And so what they said was, let's go start this commercial lunar payload service program where we as a government will no longer build the infrastructure, but we're going to rely on the US economy and commercial companies to get there any way they can. They gave us a handful of payloads and said, go send these to the moon, go get the data back from these payloads and bring that data back to us. And if you can do it fixed price for about a hundred million dollars in the time it takes to get an undergraduate degree, you win.

Susan Karlin:

And the cost of getting an undergraduate,

Steve Altemus:

A lot of gray hairs later, but they started at the beginning with an idea of driving the price point of landing on the moon as low as it could possibly go.

Instead of building these multi decade programs that cost billions and billions of dollars that span 10, 15, 20 years, let's start with how do you do it as cheaply as you can? And I think that has just landing on the moon in that price point in that amount of time has broken so many economic barriers and so many technical barriers and that's unique about the United States and unique about the US economy in the way they innovate. And I think that was the recipe that allowed us to be successful.

Susan Karlin:

And even more remarkable is that while you had backgrounds in the space industry, you formed your own company. It wasn't like you were Lockheed Martin and said, we want to do this. It was like you're a group of guys who knew a lot, but still just a group of guys said, we can do this.

Steve Altemus:

How do you do something that has never been done before?

And part of that was just to add on is how do you do something that has never been done before? Well, I'll tell you, the way you don't do it is **you don't do it like everybody else. You must think differently.** And so there were a lot of people that came out of traditional aerospace that says, it can't be done, it can't be done. But if you think about, well, what can be done? Where do you take the best of human space flight or the best of engineering and you throw away everything else and then you say, I will not be deterred any barrier I come up with, I will figure out a way to solve it. And you put that culture into your company and that company can't say no. It must get through each one of those challenges and you have to do it differently.

There were a number of people who came into the company that didn't understand that we had to find those people who were willing to think about the problem differently and to put their brain power to work to solve these intractable problems. **One example was that we built an engine liquid oxygen liquid methane cryogenic propulsion system using advanced manufacturing 3D printing. We printed it out of high nickel steel, we printed it in the injector in five days. We post-processed it in another five days, and then we put it on the back of a truck and fired it as an engine down on a taxi path at Ellington Airport.** That kind of innovation moved rapidly, we printed some 40 injectors and built our own engine for the first engine to fly in space as a liquid oxygen liquid methane engine.

Cara Altimus

Linking biomedical work, philanthropy, and Federal Dollars

Linking this to some of the biomedical work and philanthropy driving a unique source. A lot of times you see private foundations and philanthropists focused on what does it mean to be a philanthropist and to be a source of funding that is not going to be the dominant source in a field typically. Typically, it's government and private investment. And so how as maybe the minority investor in an area are you able to drive dramatic innovation? And there's a lot of commonalities here. And one you see a drive to think about how to bring in federal dollars, how to attract NIH to an area. But I think where we've seen some really impactful is how to drive private dollars to come on the back. And a story that feels very aligned is in Alzheimer's. So, if we go back five years, we were seeing, almost all companies move out of neurodegenerative research, pulling failures of clinical trial after failure of clinical trial.

And the news was, I mean, just showing the resolution of the neuro programs within these companies. We had a philanthropist at the time that was asking, how do we get involved? How do we drive further innovation? And they were thinking about new drugs, new curative therapies, and as we looked at it, we said, the reason companies are leaving is the clinical trials are failing because they can't diagnose Alzheimer's. What's needed is a deployable diagnostic tool, not just the drugs, but actually the ability to determine. It was like 30% of control groups actually had Alzheimer's and 30% of the population group did not have Alzheimer's. So it was that much of a messy population. And there was a scientific finding at the time that you could detect the presence of Alzheimer's in CSF, but that's not very useful. By prioritizing that, a group of philanthropists came together and prioritized the development of that in a blood-based biomarker. Five years later, anyone can get a blood test and detect Alzheimer's or not. And now five years later, we see a change in the marketplace where companies are coming back in and actually asking how to be more involved, how to put therapeutics back in trial. And so it's a place that you have to think about what is the best way to engage with whatever dollars you have to actually drive a change in the marketplace, whether that's federal investment or private investment.

Susan Karlin:

I'm going to bring Reed into the conversation, what do you look for to create a moonshot or to invest your dollars?

Reed Jobs:

If it's a totally new modality, we love that.

Well, I am a venture capitalist, so that's kind of important for my job. So, in terms of what we're really looking for is I'd say one of three things. First, if it's a totally new modality, we love that. And every once and a lot of people think they have one and usually they're optimistic, but occasionally there's a few new areas that we see coming. One for instance would be epigenetic

gene editing was an area where we saw a lot of advancements with crispr, with basic gene editing. But if you actually look at that, which is a fantastic technology, it has a few problems with it, it can't really replace genes very well when it cuts things. There are occasional off-target mutations that happen, which you really want to avoid. But by going after say the atory markers, which actually aren't part of the genome, but they regulate a lot of it, you can have a much more discrete therapeutic index. So that was one area that we kind of saw early on as being a real true platform. So I'd say one is just a very, very new kind of white canvas area is something that we love. We love being the first there.

We always like to see new areas and are exceptionally meritocratic about how we source things. But yeah, at the end of the day, if we can really bet with someone who we know and we trust, that always is heavily weighted.

Susan Karlin:

Josh and Kathyne, you are two sides of the same coin in terms of collating and sharing data. Josh is reaching out to the public to create a DNA database, and then Kathyne, you're reaching out to other countries for shared data. So, talk about your efforts and then why medical research can no longer be siloed

Josh Denny

A big stumbling block for the US is our fragmented healthcare system, electronic health records across many different vendors, standards (lack of), things like that.

Off to you. Well, speaking from the US perspective, I see a common theme here. Even if you think about Steve, some of your problems that you're looking to solve, it's very different obviously as we think about medicine, but what do you need to actually go to change the health trajectory for populations across all diseases, all medications and the populations are left out where we have huge gaps in health equity. And part of that is what problems are in your way and how can you solve them? That is the same thing. And we're not getting neurodegenerative disease development like we want then maybe it's because we don't have a good biomarker for Alzheimer's disease. So one of those big stumbling blocks for the US is our fragmented healthcare system, electronic health records across many different vendors, standards, things like that. And so if we wanted to build a national population, a cohort for the United States that can be a resource for discovery for the world, we had to figure out a way that those data could be come together and shared and harmonized and just assume that we can do it

Assume that if you get a million genomes that you can figure out the math to be able to compute efficiently on top of it because you need lots of genomes and lots of human variation to understand the impact of genetic variation on disease and health and better screening modalities and all these kinds of things. And so as you solve maybe one of those problems, then there's another way you can do it and you can keep iterating. Trying to drive costs down is

important and then it becomes something that's useful. When Covid happened, the fact that we in this country had already shown that and pushed through with lots of healthcare systems to share electronic health record data in a common format was something that was turned around and rapidly redeployed to create virtual data sets to help answer questions around covid. And it's becoming more and more common as we think about it. And so that is a US perspective as one part of this problem. And it can also be applied internationally because we can only solve the problems of scale that we can internationally.

And we must work together because a million's a lot, but it's not enough. We estimate we can look at 400 plus diseases with a million people with adequate sample size for genomes and environmental influences. We really wanted to go across all the kinds of environmental exposures, genetic variation, diets, things like that across the world. And so that's where things like Global Alliance comes in.

Susan Karlin:

And Kathryn, I was going to ask about how do you take competing entities, medical entities, competing countries and get them to share all this data?

Kathryn North:

Your genome is your entire recipe book. It's equivalent to a thousand copies of War and Peace, which if you piled them one on top of the other is an 18 story building

As Josh has said, you need the data of millions of people to be able to, from a genetic perspective, accurately predict for one individual. And so it's been a real journey that's very parallel in terms of what you've been talking about with the moonshot and has paralleled the increase in technology. So, your genome is your entire recipe book. It's equivalent to a thousand copies of War and Peace, which if you piled them one on top of the other is an 18-story building, huge amount of information. Josh mentioned the **Human Genome Project** that brought countries together around the world and laboratories around the world to say, how do we sequence this? And it once took 13 years, and it costs 3 billion to do what we can now do now with the acceleration of bioinformatics, with computer technology, with sequencing technology in days. **I think the world record now is turning around a whole genome in around 18 hours.**

But now in clinical practice we are regularly able to provide a result in three days. So, that's 13 years to three days to be able to provide that degree of specific genomic information! Francis Collins who led the Human Genome Project brought together a group in 2013 and said, **the next problem we have to face internationally is how we aggregate and share all of these human recipes so that we can identify what's normal, what's abnormal, what's**

associated with disease. And to give quite a specific example, if you're a person that is diagnosed as carrying an alteration in your breast cancer gene, that's quite a good and common unfortunately example, if you've got that spelling mistake, you want to know, is that just a normal variation because we're all different? Or is that associated with breast cancer? If it's associated with breast cancer, does that happen 95% of the time or 5% of the time?

Because on that basis, your doctor is going to make a decision as to whether he recommends that you have bilateral mastectomy, which is quite a major intervention. So, Francis Collins brought together a group of people and saying, we need to be sharing our data internationally. And that led to the formation of the Global Alliance for Genomics and Health that Josh has mentioned, of which I am vice chair and that's bringing together over a hundred countries that are focused on how we safely and responsibly share both clinical and genomic data across country borders. And there are a number of different barriers that we must overcome, but we are doing that. It just means that we can establish, and we have established a collaborative international community that is working together to solve these issues at scale.

Steve Altemus:

Applied breast cancer AI technology to sort through moon landing data

Venture capitalists will say this, it's focus, focus, focus on what your business is. And so trying to find adjacent applications that are outside your main focus area could be detrimental to your business, but to the degree to which you can pull in technologies or applications that would help your business and your primary focus, I think is the right way to think about it. So, for example, we take a tremendous amount of data from the lunar reconnaissance orbiter, which has been circling the globe for or the globe the moon for 20 years generating petabytes and petabytes of data. So now what we want to think about is how do you do landing site assessment? How do you do autonomous driving path planning and things like that? And so we went of all places to University of Texas Medical Branch in Galveston who created a Google Cloud for patient records who actually for cancer treatment, and then took that database, which is a simple structure that businesses use to create cloud platforms, but then applied AI to sort through that breast cancer data.

So using those consultants that set that up for UTMB could turn around and talk to us as a space company and say, here's how you organize that lunar reconnaissance orbiter data so that you could be the world class owners of data around the moon and you could parse it to get to site selection for NASA future missions for anybody that wants to fly to the moon. So, we're using cancer related research and data platforms back to referencing the mountain of data that we need to sort through to land on the moon.

Susan Karlin:

We have a few questions coming down the pike and some of them are interesting. So I wanted to ask you from, they're coming from the ethernet, the human cloud. So the first one was talking about aligning the breakthroughs that you're getting through moonshots with policies. So for example, you've got the person who wrote this question said, thinking of the cancer moonshot being laudable, yet smoking being the leading cause of cancer and the last FDA approved device for smoking cessation was 20 years ago. So how do you get those two arenas aligned? What read is shaking his head? You do not,

Reed Jobs:

Obesity is now the leading cause of cancer – 2 years ago it was smoking

It's not the leading cause of cancer anymore. Actually, it's obesity now. Two years ago, it overtook smoking.

We have an absolute epidemic of obesity in the US and smoking, it's a pan-cancer risk. So yes, that's the new data.

Susan Karlin:

Oh, that is really interesting. Okay, so then using that, you're finding out causes for something, then how do you work with the government to get policies in place to help your findings? If you just find something and find a treatment and people aren't doing it, then it is sort of useless.

Kathryn North:

Five times the diagnostic rate at a quarter of the cost turns government's (and Insurance Company) heads

I have got a point that I think is quite relevant in working with governments in what's a disruptive technology such as genomics is doing the health economic analysis to demonstrate clinical utility and cost effectiveness. And that is also something that we can share that data internationally. But as an example, as genomics was starting to come into clinical practice, we did a study that demonstrated if you had traditional approach to diagnosis with kids with quite severe genetic or syndromes that cause intellectual and physical disability, that the diagnostic rate at that time was around 10 to 11% and the cost per diagnosis in terms of all of the investigations was 26,000 per diagnosis. If you add in a genomic test, the diagnostic rate increased, and this is back about in the olden days, like in 2015, that the cost, the diagnostic rate in the same a hundred children lifted from 11% to 55% and the cost per diagnosis went from 24,000 to 6,000.

So, five times the diagnostic rate at a quarter of the cost that then turns government's heads and that we have a national health system. It led to genomics becoming nationally available and equitably to all children that we're presenting with these types of disorders. It also influences in

the US whether a insurance company will cover the cost. So there is that element and I think most importantly if we say go back to what's more expensive, which is doing that three day turnaround time in kids in intensive care units, then that early diagnosis often allows an early intervention that's going to prevent those children from becoming intellectually impaired. So epilepsy is a genetic disorder, which it wasn't when I trained in neurology, but it's regarded, it is now known that is a genetic or inherited disorder. And by rapid diagnosis when the children are having their first seizures rather than the trial and error that tends to happen in therapies, targeted therapies can stop their seizures so that the kids are seizure free and developed normally. So I would say that the promise from a genomic medicine perspective is that we can change the focus of the health system from waiting for diseases to happen and then trying to treat it, which is expensive and ineffective to prevention and early intervention. And it comes in with smoking, with obesity, the challenge is how do you stop people smoking and how do you stop people eating.

Susan Karlin:

Now I knew this question was going to come up. **What is the promise and peril of AI with your collective work?** I think we should cue the Jaws music in here now.

Josh Denny:

I mean we all, I'm sure have opinions on this, lots of promise and we have to use the power carefully. This is one of the real, I think, driver use case and excitement for the future battalion programs. Like all of us, it's a huge data set. We have really tried to represent a diverse population. Half of our population is diverse by race and ethnic self declaration, but also disability, rural, sexual gender, minorities, just a lot across division across that. Because if you don't have diversity of representation, then of course we all know you can train an algorithm that tells you something that you don't want it to tell you or isn't applicable. And one brief example, one of the first papers published out of our platform looked at an algorithm to prevent who would need surgery for glaucoma. And it used a bunch of features, it was trained at one particular site and one electronic health record.

And then when they applied it to our dataset, it didn't work at all. It was like flipping a coin. It had no predictive capability because one of those other things that's important is having lots of different electronic health record vendors in lots of different parts of the country and all those things across in your model and building a model off of a diverse data set produced a model that performed very well with high discriminatory accuracy. And so I think that's just one of many examples we could point to of lots of other use cases and we'll come up with much more powerful examples for ai, I think, than whether someone might need surgery or not. But I think there's a real future and I'm excited about the future of incorporating that. We just must make sure that underlying data helps support and that we are careful about how we apply AI.

Cara Altimus

AI application in health and science is not new

Building on that. We have a couple of projects initiatives at the moment that are looking at how to drive further innovation using AI in health and science. And a couple of things that I think we need to keep front and center is tons of promise and AI is not new in application in health and science, I'd say maybe even started there in terms of how far we've pushed, but the data is not equal across how we understand human health. And so in an area like oncology, the data sets are vast, they're deep, they go on and on for, we have more than a decade of data in a lot of areas. And if we compare that to the data in serious mental illness, it is almost absent. And so we have to be thinking about how are we driving discovery across different types of data, not just health records, but actual areas that we can use to drive innovation using AI and then touched on in different populations.

Susan Karlin:

And Kathryn?

Kathryn North:

I predict we know that the cost of a human genome is now down around a hundred dollars. It's going to become part of the standard of care for everyone. It will become part of our medical record.

I predict we know that the cost of a human genome is now down around a hundred dollars. It's going to become part of the standard of care for everyone. It will become part of our medical record, as Josh has said, do it once, use it often. I think that is really going to build a culture of prevention, but most importantly, targeted therapies. **The goal we all have in terms of precision medicine is that the treatment that you have is tailored to you and we remove the trial and error from treatment so people are getting the right intervention or the right treatment first time.**

Susan Karlin:

Okay. Thank you so much everyone and thank you all for coming and sticking around.

Bold Proposals for Protecting the Free-Enterprise System while Closing the Wealth Gap



Video: <https://vimeo.com/939678727>

The United States has the world's highest gross domestic product, one of the world's highest GDPs per capita, and the third highest average wealth per capita. We also struggle with persistent challenges, including a median wealth per capita that lags several other large nations. A simple question follows: How can the United States address wealth inequality—which often compounds across generations and limits opportunities for economic mobility—while not impairing the greatest economic engine ever created, namely the free-enterprise system?

Panel moderator **Michael Milken, Chairman, Milken Institute** opened: "we have a goal here of trying to protect both the free enterprise system that's created the most jobs and prosperity in the world, while closing the wealth gap."

Milken turned to **Steven T. Mnuchin, Founder and Managing Partner, Liberty Capital** who was also a **former Treasury Secretary of the United States**.

Milken asked him "what bold ideas would you like to start us out with today?"

Wealth Tax is a Bad Idea

Former Treasury Secretary Steven Mnuchin responded: First, "*it's more important what we should NOT do than what we should do*". There are many people in Washington who think the way to narrow the wealth gap is as simple as putting on a wealth tax on the rich and redistributing that to other people in the economy.

That by definition would shrink the wealth gap. The reason why I don't think that we should do that is because our country has been built on innovation and it's really extraordinary in the last 20 years, the number of companies that have been built and have created employment and have completely changed industry. To think that Elon Musk could come along and revolutionize the automobile industry in the US and the space launch business is pretty incredible. So I think we need to make sure that in solving this issue, we don't create another problem and stifle innovation."

Early learning about financial literacy and starting saving when kids are young (to maximize compound returns):

"So, what do I think should be done?" Mnuchin pondered? Financial literacy and financial education are critical.

Mnuchin noted that Mike Milken has made an incredible contribution by founding the Milken Center for Advancing the American Dream, which includes advocating for education in financial literacy.

We need to start very early and explain to people why this economic system works and how they can participate in it. Education is very critical.

The Miracle of Compounding:

The second thing is, we all learned from Warren Buffet the value of compounding. We need to start saving when we are young. It is just very simple, if you start saving when you're 18 instead of 35 or 50, the results are significantly magnified. It's just the law of compounding. Preferably we can start kids saving at birth, as Brad will discuss.

Fixing Social Security by freezing it:

Mnuchin continued: We have another problem in this country, and that's the Social Security system. I had a big title. I was managing trustee of the Social Security Trust Fund. Yet, the only thing I could do was put that money in US Treasuries. I don't think we should invest Social Security assets in equities as some countries have contemplated.

But what I think is "we should freeze the social security system. Everybody who's in the social security system now should be a hundred percent guaranteed, and we should pick some young age like 18. And, instead of those people contributing into Social Security, they should contribute into their own retirement plans. 50% of the people have some IRA or something else, a Roth, or something. But we need to get that to a hundred percent. And this kind of reminds me of when company pension funds went to define contributions from defined payments."

We have a broken system in Social Security, we have to take care of that and make people whole. But the more that younger people can save and can get invested in capital markets and economic prosperity, the better off we'll be for free enterprise, said the former Treasury Secretary Mnuchin.

Employee Stock Ownership:

Michael Milken interjected: But **Ownership Works** has made a major effort here in terms of private equity to focus on offering ownership to all employees.

Employee Stock participation has expanded and has increased dramatically the ownership by employees of stock and participation in the markets. And so there's a number of changes that are occurring. Blackstone has 1 million employees in America and their private funds have been focusing on facilitating all one million employees to participate in the equity of their companies.

Also, Alexander von Furstenberg has been working for several years on how to create a mirror of the Federal Savings Program that has created the net worth of people in the Senate and the House.

Milken turned and asked "Brad, how do we protect this free enterprise system while closing the wealth gap?"

Expanding the Miracle of Compounding to the Masses starting at Birth:

Brad Gerstner, Founder, Invest America responded: "Seventy percent of people will never enjoy the benefits of compounding their savings and investments. The wealth gap in this country is a byproduct of the incredible innovative success of the system of free enterprise because there are people who have assets, and those assets compound. Our markets have compounded at 10.2% in S&P 500 for 75 years, but too few people participate in that. Warren Buffet says start with a really small snowball and a really long hill. The problem is most people miss a third of their life. They don't really start saving or have an asset to compound until maybe they're 25 and they have a job."

Gerstner continued: Buffett says everybody misses the first third of their life. It's extraordinary. **We have to align people with free enterprise and capitalism. And It can NOT be that the government is just going to set up another big program and go invest in the stock market.** The idea for **Invest America**, is very simple:

"At birth. Every child gets a social security number. We need to also set up at the exact same time an investment account, seed it with dollars in a lockbox in the S&P 500 and treat it like a 401k from birth. The 401k program in this country now has \$13 trillion in it."

Exhibit:

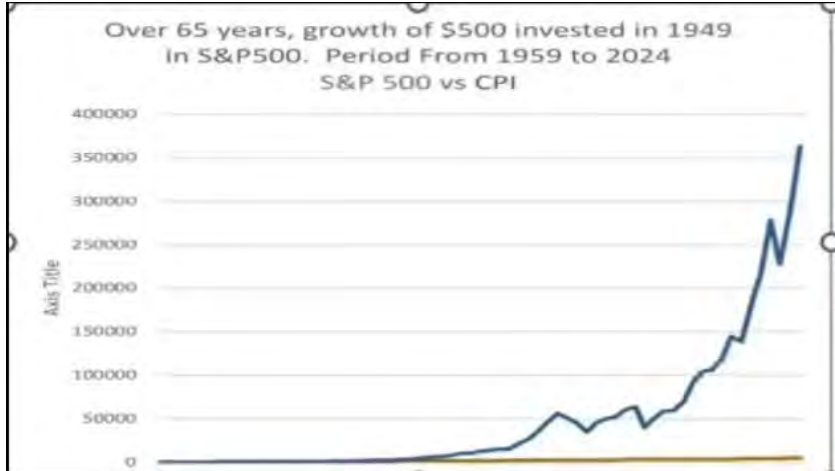
To visualize what \$500 grows to in 65 or 75 years, see charts below. It is evident that even a small investment grows astronomically over long time periods because of years of compounding. The returns far exceed inflation!

In 65 years:

If at birth, a child had to his name a onetime investment of \$500 invested in 1949 and reinvested dividends, in 2024 his \$500 would have grown to \$313,875.34 65 years later.

This is a return on investment of 62,675.07%, or 10.35% per year.

This lump-sum investment beats inflation during this period for an inflation-adjusted return of about 5,687.02% cumulatively, or 6.40% per year.



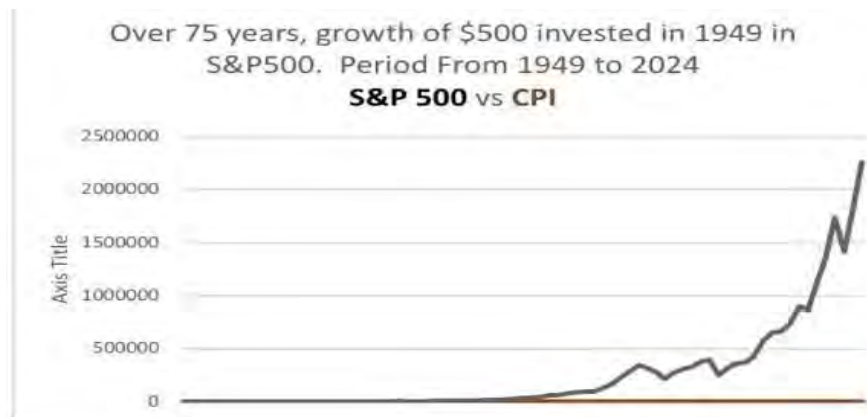
This is without any more funding, government or private. Pretty good. But over 75 years, just 10 more years than 65 years, look at what happens due to compounding.

In 75 years:

If at birth, a child at birth had to his name a one-time investment of \$500 invested in 1949 and reinvested dividends, in 2024 his \$500 would have grown to \$1,908,463.57 75 years later.

This is a return on investment of 381,592.71%, or 11.56% per year.

This lump-sum investment beats inflation during this period for an inflation-adjusted return of about 28,678.34% cumulatively, or 7.80% per year.



This is without any more funding, government or private!

Brad Gerstner expanded further:

"For example, assume \$75 billion is contributed annually. If we set up the financial infrastructure, the private sector will kick in 3.7 million new private accounts a year partnering with guys like John Hope Bryant, Chairman and CEO, Operation HOPE, Inc. to package literacy around this.

Instead of having the government owned retirement assets, we have CEOs who've joined our CEO Council representing millions of employees. These companies include Uber, Dell, AMD, Salesforce, and others.

They contribute to the accounts of not just employees, but critically to the accounts of the kids of their employees. The government can seed it with \$1000, it costs the federal government 3.7 billion a year. At \$500, it costs half of that. We just look at the package that was just passed with respect to Ukraine and Israel. This would pay for this for a hundred million kids for 30 years. It changes the face of America."

"What this does is not only grow wealth, but it increases graduation rates and reduces mental health crisis. It leads to higher savings, it leads to more business starts, but most importantly, it unlocks the human potential because now in the seventh grade when I'm learning about compounding, I'm learning about capitalism, and learning about stocks. Kids believe "I'm not out of the game. I'm in the game. I open up my phone. I see my Invest America account has \$12,000 and I too own a little slice of Apple and Tesla and UnitedHealthcare."

And we have a conversation about how that got there, how it compounded, and how you can contribute to that in the future. The power of America is the power of our families. It's the power of our households. We need to engage them and their kids from birth. And the federal government has the opportunity to do that."

I frankly think, *"you get 90% of the benefit if the federal government only seeded it with a hundred bucks. It's not the amount of the money, frankly, that takes the government out of it. I just want them to set up the financial infrastructure, get out of the way, and let the private sector and families unlock their own potential to get on this journey that **Warren Buffet reminds us is the eighth wonder of the world. Compounding is what gets us out of this.**"*

Income inequality:

Michael Milken interjected and pulled up a chart. He explained it looks at the wealth that exists around the world today and how it's changed. In the United States today, we have a large percentage of our population, 9% that is worth more than a million dollars, but we have twice as high a percent that has a net worth under \$10,000.

Wealth Patterns in Selected Countries

2022 wealth per adult in 1,000 U.S. dollars (rounded)

Country	Median	Average	<\$10,000	>\$1 million
Australia	\$247	\$497	9.9%	9.4%
Germany	\$61	\$257	10.5%	4.1%
Japan	\$104	\$216	11.6%	2.6%
France	\$133	\$312	15.5%	5.6%
Singapore	\$99	\$383	16.0%	6.7%
United States	\$108	\$551	17.5%	9.0%
United Kingdom	\$152	\$303	19.6%	4.8%

Source: Credit Suisse Global Wealth Report 2023 (11/20/2024)

And, as you start to look at that, we have a substantially higher percentage with low net worth in the United States than Australia, if we look at the changes over time:

20 Year Median Wealth Growth – Developed Nations

20-year increase in median wealth per adult (inflation adjusted)

Country	2002*	2022	% Increase
Uruguay	\$7,570	\$33,522	342.8%
Norway	\$51,224	\$143,887	180.9%
Germany	\$26,512	\$66,735	151.7%
Canada	\$57,824	\$137,633	138.0%
Denmark	\$79,430	\$186,041	134.2%
Korea	\$42,234	\$92,719	119.5%
Switzerland	\$79,450	\$167,353	110.6%
Australia	\$126,971	\$247,453	94.9%
Sweden	\$47,048	\$77,515	64.8%
United States	\$79,315	\$107,739	35.8%

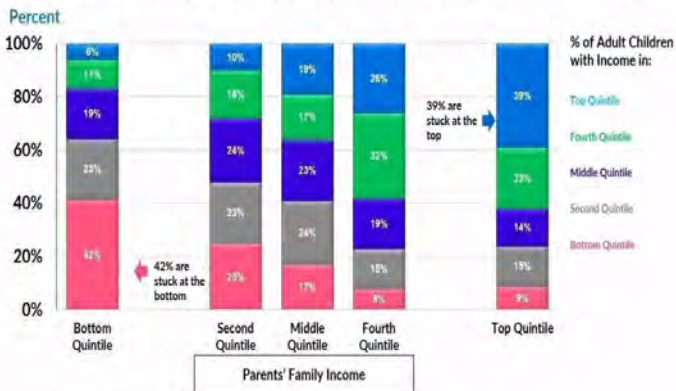
Notes: 2002 figures are inflation-adjusted to 2022 levels.
Source: Credit Suisse Global Wealth Report 2023, Author's Calculations (11/20/2024)

Milken opined: "You can see how the median net worth changed over time. The largest economy is the US which has one of the highest average net worths, but the US median net worth relative to other countries is lower."

Milken stated 'you can see what the growth has been in median net worth in various countries around the world. It's changed dramatically here over the last 20 years. There is a challenge here.'

And Raj Chetty, who's been with us in 2024 at the Global Conference, did a lot of work in this area. And slide 25 showed your probability of rising up from the lowest income.

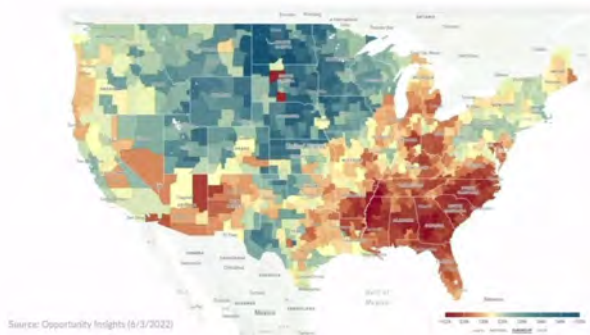
Americans Raised at the Top and Bottom are Likely to Stay There



Source: Pew Research Center, Mobility in America, Brookings Institute (8/10/2008)

The lowest net worth income levels in the country is heavily dependent on the zip code you were born in. So the reddish color gives you the lowest probability, and as you move into blue, you get the highest probability of rising up in your lifetime. And so just like your zip code often determines your life expectancy, the zip code you were born in has a major effect on your ability to rise up.

Opportunity Atlas



Source: Opportunity Insights (6/3/2022)

And if we look at the ability to rise up, it's substantially higher in other countries in your lifetime. It's almost twice as high in Canada to be born in the lowest quartile and rise to the highest in your lifetime. **And one of the keys to this was financial literacy.** And so John, why is this so important?

The Virtues of Financial Literacy:

John Hope Bryant, Chairman and CEO, Operation HOPE, Inc. responded: "Everybody. Hello. I'm from the black church.

"The Bible suggests be hot or be cold. If you're lukewarm, I'll spit you out. Translation, even God does not like mediocrity."

Bryant shared a story of Reginald Lewis, the successful Black businessman.

John Hope Bryant continued:

"This man is not mediocre. In 1985, he did something extraordinary. He went on Wall Street and he pulled Main Street up. He was an attorney who had talent but didn't have contacts, didn't have capital, and he used his foot and opened the door. Back then, if a black man could get \$50 million, it would've been like the heavens opening up. He did a billion-dollar deal."

Reginald Lewis was the first black man ever on Wall Street. In 1983, he founded the TLC Group L.P., a private equity firm.

"I know we're sitting in a moment in history, but history does not feel historic when you're sitting in it. It just feels like another day. But that does not mean the moment is actually not historic."

Bryant continued: "It takes 20 years to change a culture. We don't have 20 years; we have about 10 years. We're sitting at an inflection point, and we talked about these topics and Michael Milken opening that door for Reginald Lewis, Tony Ster, Michael Ti, Harvey Baskin, and all these leaders opening the door for me.

"I had a text last night from a lady named Kip Morrison. A long time ago she gave me a break that transformed my life. She is Jewish, and being 37 years old at the time, she didn't realize that when she gave me an office in Beverly Hills on Pico Boulevard when I was 18 years old, I was homeless. *So when you look at those statistics that Mike showed you, I fit in both buckets. I was a guy under 10,000 net worth, and now I'm the guy with over a million-dollar net worth. But that didn't just happen. I was smart or bright. Let me tell you something. You hang around nine bright people, you'll be the 10th.* Everybody in here was helped by somebody."

John Hope Bryant added:

"Amen. That wasn't a Black Amen. It wasn't a Latino Amen. It wasn't an Asian Amen. It wasn't an Italian Amen. It was just Amen. We're all in this together. Nobody in here got here just because you're brilliant. This lady texted me last night. I hadn't seen her in 40 years. Let's have breakfast. I broke down. She changed my life. She gave me dignity by giving me a place; now I paid her rent. She didn't know what else was going on in my life. I only handled a few hundred dollars a month. But having an office in Beverly Hills for my little consulting firm gave me credibility. I believe in the James Brown version of affirmative action. Open the door, I'll get it myself. She opened the door. People have been opening their doors my whole life. I was homeless. I lived in an airport in my Jeep."

John Hope Bryant pointed out: I didn't have enough money at the end of the month. My Mom and Dad had a high school education and did the best they could.

"But my Dad was financially illiterate. He confused making money with building wealth. So the more money we made the broker we got. This is the number one cause of divorce in America. Money is the number one cause of domestic abuse and heart attacks. Most Americans don't have \$400 for an unplanned event. This is in the richest country on the planet. This was my story."

And so when I think about what Secretary Mnuchin said about the **Milken Center for Advancing the American Dream (MCAAD)**, across from the White House, I also think about the coincidences as God's way of remaining an anonymous ambassador. Indeed, Andrew Young, United States Ambassador to the United Nations and colleague and friend of Martin Luther King Jr, was my mentor when I was nine years old.

The Value of Financial Literacy:

John Hope Bryant continued with a story about a banker who visited his classroom to teach financial literacy when he was 9 years old.

"A banker came into my classroom and taught financial literacy. He was a white banker with a white shirt, a red tie, and a blue suit. He's six two. And after a couple sessions, and I wanted to dress like him, I wanted to be like him. So I wore this crushed velvet purple three piece velour suit that my Mother made me for church. And I wore it to school and got beat up every day (laughter)!

But I was aiming at something. I had an image in my head of what success looked like because I saw this guy who came once a week for six weeks, who was cool, had a business card and had a car in the lot that had plates on it. You'll get that later. And a tag, it was a legal car and legal money. And I said, what do you do for a living? How'd you get rich legally? And I was dead serious."

He said, "I'm a banker and I finance entrepreneurs."

"I said, I don't know what an entrepreneur is. No one's ever taught me that word, but whatever it is, if it's legal and you're financing, I'm going to be one. And I started my next business. I met a black man who owned a store, their liquor store, he sold candy and I put him out of the candy business because he refused to join venture with me when I was 10 years old."

John Hope Bryant added:

"I gave him a shot. I told him. He said, "I have a college degree. I said, that's nice. I've got cavities. You're selling the wrong kind of candy. But that was the start of my trajectory in my life of becoming a capitalist. And people today, Mike, say that they hate rich people. I go give speeches all the time, and I let 'em get it out because people need therapy. They need to talk for therapy. And I say, you actually don't hate rich people. You hate rich people until you become rich. What you hate is a gamed system. What you hate is a system that no matter how hard you work, you don't think that you can get there.

John Hope Bryant continued:

The ladder is broken, and we have to have people who can get from the bottom to the top. So Michael's MCAAD is next to a building called the Freeman's Bank. Can't make this up. March 3rd, 1865, Abraham Lincoln after the Civil War created a bank called the Freeman's Bank, chartered to teach free slaves about money. You may not have known that story. And then he promised blacks the right to vote and Booth killed them because that was a bridge too far. Booth said, you won't give another speech. That bank fell apart because people manipulated it, not because blacks got the memo and screwed it up. So

you fast forward to the Second Reconstruction, the Civil Rights movement, where Dr. King pivoted toward money and tried to mobilize all poor people, including the biggest group in this country, which are poor, struggling whites. And he was murdered before his first march. So, it's not like the poor and struggling didn't hear these ideas. People got the memo on money and free enterprise and economics and ownership and screwed it up. It's what they don't know that's killing them, but they think they know. You mentioned social security. If you live in a 580-credit score neighborhood, you live to 61 years old.

You don't even get Social Security. 15 minutes apart from that is a 700-credit score neighborhood where you live to 81 years old; a 20 year delta, only 15 minutes apart. I grew up in South Central, not far from here. People got their checks cashed at a payday loan lender, next to a rental owned store, next to a title lender, next to a liquor store, next to a pawn shop, and a church down the street trying to make you feel a little bit better once a week. That's your neighborhood therapist.

And by the way, whether you're black or brown, urban or white rural and you're poor in a 580-credit score neighborhood, that's what you see. So, it's not about black or white or red or blue, it's green. It's always been green. So, we're now in the third reconstruction."

John Hope Bryant proclaimed:

"This country can't succeed without all of us. You know the stats, and I won't bury you in what Mike's already told you, but we're the biggest economy in the world. We're the sole superpower in the world. As Lincoln said in 1863, America is the light and the hope for the world. It's as true now as it was then. The question is, are we better together? We had to make that decision in the first reconstruction. *We had to make that decision in the Second Reconstruction, the Civil Rights movement.*

Financial literacy is a civil rights issue of this generation: the *Third Reconstruction*:

And as we move from the streets, ***we're going to have to make that decision in the third reconstruction. And I believe financial literacy is a civil rights issue of this generation. When you know better, you do better. We need to create a generation of capitalists, not just black lives matter, black capitalists matter.***

John Hope Bryant stressed:

And, so we're going to be the first generation over 65, college educated white and trying to retire. We're going to be the first generation of minorities. *'Folks have too much 'month' at the end of their money.'* We have 70% of people living from paycheck to paycheck in the largest economy in the world. Half of those making a hundred thousand live from paycheck to paycheck. A quarter of those making \$250,000 are living from paycheck to paycheck. This is not a poor person's issue. Hold on. You're living in Manhattan and you make a hundred thousand dollars, it feels like \$39,000.

John Hope Bryant:

"So if we don't teach financial literacy to all of God's children, if we don't repair the ladder for all of God's children, if we don't understand, diversity is of business strength and always has been. We'll be speaking Mandarin in 20 years because there's four countries trying to take us out. They've joined

together. I don't want to get political here, but China, Russia, Iran and North Korea, they want our way of life. They can't win in a fair fight. They got to cheat. We're the biggest and the best country on the planet, but we will only win if we're better together. **And so we must teach this generation about financial literacy. We must give them access to capital. I love your idea of a stock account, a thousand dollars with a kid.**

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