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Tyler Goodspeed
Chief Economist, ExxonMobil

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Moderator: Richard Clarida
Global Economic Advisor, PIMCO

Introduction

President Barbara Van Allen

Hello and welcome to the 838th meeting, that's 838 meetings, of The Economic Club of New York on a beautiful New York day. I'm sorry for those that are participating virtually because this is a great day to be in New York City. But welcome all. I'm Barbara Van Allen, President and CEO of the Club. And I'm just delighted also to extend a warm welcome to students joining us virtually from Ramapo College and Indiana University. The Economic Club is proud to stand as the nation's leading platform for discussions on social, economic, and political matters. We've been doing this for more than a century. We have a great tradition of excellence and that continues up to and includes today.

As part of our Author Series, we get to welcome Tyler Goodspeed as our distinguished guest. Tyler is Chief Economist of ExxonMobil. He previously served as Chairman of the White House Council of Economic Advisers during the first Trump administration and chaired the Economic Policy Committee at the Organization for Economic Cooperation and Development, overseeing international economic policy coordination.

From 2021 to 2023, he was Director and Chief Economist at Greenmantle, a New York and London-based macroeconomic and geopolitical consulting firm advising leading hedge funds, venture capital, and private equity firms, asset managers, and

corporations. He is a regular contributor to the *Wall Street Journal*, the *National Review*, *The Telegraph*. He's appeared on CNBC, Bloomberg, BBC, and Fox Business. He has also frequently testified before Congress.

The author of four different books, Tyler holds a PhD in economics from Cambridge University and a PhD in history from Harvard. He has held faculty appointments at Oxford University, King's College London, and Stanford University, and currently serves as a Senior Fellow at the Adam Smith Institute which, by the way, I have visited, and a member of the Geoeconomic Council of Advisers at the Center for Strategic and International Studies.

Today's discussion, again, is part of our Author Series, and you should have the books at your place. And again, we're delighted to explore his latest book, *Recession*. And the program will begin with some opening remarks from Tyler followed by a conversation moderated by Rich Clarida, Global Economic Adviser at Pimco and former member of the Federal Reserve Board of Governors. And we're just honored to have him back with us again today. And there will be an opportunity for questions from the audience, so please know that we'll be reserving some time when we get closer to 1:00. So please have those ready.

As a reminder, this discussion is on the record. We have plenty of media, both in the

room and virtually tracking the event in real time. So without further ado, please join me in welcoming to the stage for some opening remarks, Tyler Goodspeed.

Opening remarks by Tyler Goodspeed

Thank you, Barbara. I must say it's a real pleasure and privilege to be here today and to see so many friends and some former colleagues. And I should note that I see many friends who are also former colleagues, but no former colleagues who are not also friends. I should, of course, begin with the disclaimer that the views expressed in the book and by myself here today are my own and should not in any way be interpreted as representing the views of any other individual or entity.

If asked when the price of a barrel of oil reached its all-time high, one might reasonably proffer 1973 in the aftermath of the Arab oil embargo, 1979 in the aftermath of the Iranian Revolution, or 1990 after the Iraqi invasion of Kuwait would also be good guesses. One might even suggest today. But the correct answer is June 2008. In fact, to date since 1945, the price of energy writ large has never been higher than it was in the summer of 2008.

As a result of a confluence of shocks to both energy supply and demand, by June 2008, the average American household was spending a record \$8,500 per year on energy,

goods, and services. That was about \$2,000 more than they had been paying just a few years prior. In 2025 dollars, the price of a gallon of gas hit \$6.08, which remains a record. And as high energy costs drove up the price of fertilizer and farmers shifted corn production toward ethanol, food inflation topped 6%.

By comparison, the additional \$800 that the average household was spending on mortgage payments as adjustable-rate mortgages reset higher was a relatively modest affair. But for many Americans, half of whom after tax have no savings, this was an unsustainable situation. Driving to work, dropping your kids off, heating and cooling your home, putting food on the table, those are not expenses on which it's easy to economize. And so by summer 2008, approximately 5% of American homeowners had fallen seriously behind on their mortgage payments. And the rest, as they say, is history.

Like tropical storms, we tend to name recessions. But unlike the naming convention for hurricanes, we have a persistent habit of naming recessions after some perceived excess in the preceding economic expansion. So the 2008 recession was not the energy crisis, it was the housing bubble. The relatively mild recession that inaugurated the 21st century was not the 9/11 recession, it was the dot.com recession. And earlier this year, many economic commentators were already writing the obituary of the current economic expansion as the AI bubble.

But is it true that to understand episodes of economic contraction, it is to the contours of the expansions that precede them to which we must turn. Do expansions die of their own infirmity or advanced age or, in the words of former Federal Reserve Chairman Ben Bernanke, are they murdered?

Like in Oscar Wilde's, *The Picture of Dorian Gray*, which I reference in the book, many economists have long contended that economic expansions are only superficially healthy as all the while errors, excesses, and mis-allocations accumulate until the whole rotten picture has to be destroyed so that it can begin again anew in exquisite youth. But in the book, I reject the Dorian Gray view of economic fluctuations. Economic fluctuations are not the picture of Dorian Gray, they're Peter Pan. They never grow old. But though Peter Pan never ages, he is mortal and similarly are economic expansions. Though they never grow old or infirm, economic expansions can be killed at which point they die healthy and innocent.

Fundamentally, recessions are about shocks of which the 2008 energy crisis was just one example. Some of these shocks I describe in the book as acts of God of which the 2020 pandemic recession is a recent example, but other shocks could be described as acts of man. Throughout the 19th century and into the 1970s, coal strikes were perennial contributors to the death of economic expansions on both sides of the Atlantic. So too, for lack of a better term, are acts of church participants in the murder of economic

expansions. Though Bernanke and former Treasury officials, Hank Paulson and Tim Geithner described themselves as firefighters, the truth is that looking back over the past four centuries, the state can be arsonist as well as firefighter.

In his classic novel, *Anna Karenina*, Leo Tolstoy opened with the line that happy families are all alike. Every unhappy family is unhappy in its own way. And the same could be generally said of economic expansions. Economic expansions are broadly similar, gradual yet inexorable recovery from past shocks, whereas every recession constitutes an economic expansion that terminated in its own way.

Now, unfortunately, this idiosyncratic view of recessions rebels against our evolved human logic. We are pattern-seeking mammals. It's how we make sense of and process incoming stimuli and the negative experiences that can ensue. So too with the negative, even traumatic experience of recessions, do we thus seek to find in the preceding expansion to find the proximate causes that were correlated or seen, ex-post have been correlated with that trauma.

Yet our search for patterns can often lead us to identify false patterns in observed data or to assign pattern to where none exists. The technical term for this is the opposite of an epiphany, it's called an apophany, which I did not know before undertaking this work. Our understanding of recessions abounds in apophanies as we seek patterns as to the

height, the speed, the duration, the composition of economic expansions with the hope that that information might provide us with some sense of the likely depth, duration, speed, composition, or even probability of the subsequent recession.

But a key lesson of studying four centuries of economic recessions is that statistically there is simply no information in economic expansions, in the contours thereof, that can explain anything about the contours or even likelihood of the subsequent recession. Economic expansions simply do not die of old age and higher, faster expansions do not precede deeper, faster recessions. Booms do not precede busts.

However, though we may be unable to predict recessions, whatever happens in 2026, expansions have been living longer. They've been living longer as we've learned how to better absorb the kinds of shocks that historically may have contributed to economic recessions. Moreover, while we worry, rightly worry, about recessions, we probably ought to be at least as concerned about economic expansions because at the end of the day, the majority of years in which economies expand matter much more for long-run prosperity and indeed human flourishing than the minority of years in which economies contract. And though it may be odd for a book on recessions to so conclude, so it does. Thank you.

Conversation with Tyler Goodspeed

RICHARD CLARIDA: Okay, well, this is really going to be a real treat for you and for me. I met Tyler, I think, seven or eight years ago and have been a fan ever since and was thrilled to be, honored to read an earlier draft of the book. So I'm very happy to be moderating this session.

I'll start off with what I wrote in my blurb, which will tell you my take of the book. So quoting, "*Recession* is a rigorous review, a rewarding read, and a relevant recap of what we think that we know and don't know about economic downturns. Tyler delivers to the profession and the reader a valuable service. This book, I think, is a must-read for practitioners, policymakers, pundits, and pupils of the business cycle."

So let's jump right in. So, Tyler, stepping back, what is one thing that most surprised you relative to your priors as you were researching the book and pulling together the incredible data sets that you provide in the book?

TYLER GOODSPEED: Two things surprised me, Rich. And, first of all, thank you for the exceedingly generous words. One is that there's remarkable constancy in the depth and duration of recessions across time going all the way back to the 18th century. So when you think about all of the institutional changes that we've had over the past three and a

half centuries, and yet the typical, your median and modal recession is over in about 12 months, and the vast majority are over in fewer than 24 months.

The second thing that has surprised me is that in contrast to the sort of boom-bust view of economic fluctuations in which you would probably expect it, unless people are differently rational across time or differently rational across national borders, you expect recessions to be roughly evenly distributed in terms of frequency across time and space. But recessions have become rarer and also, at least historically, the United Kingdom was always substantially less recession-prone than the United States.

RICHARD CLARIDA: Interesting, a term that you use and I'm glad I wasn't the only one that was not familiar with it. So why do we continue, many of us, perhaps the conventional wisdom, fundamentally misunderstand recessions. So to jump off from what you said in your remarks, epiphanies versus apophanies? So why does this keep happening? Maybe because folks didn't have access to your book before now?

TYLER GOODSPEED: So in part it's because it's in our cognitive wiring. It's because we receive incoming stimuli. We organize that in patterns, and that generally serves us very well. You observe colorful mushrooms or stagnant water that you imbibe and you get sick so you avoid that in the future. And it's easy to do because there have been many more records than there have been recessions, so record stock prices, record

home prices. Each year of an expansion typically GDP sets a record. So it's not hard to look around during a recession and find some near-term peak that subsequently declined and to associate that with recession. Building height records is another one.

And it fits with the story because the stories we tell ourselves about recessions, they have all the classic ingredients of a good story. They have setting, often this city, or the city of London. They have ought. They have characters. Bernanke and Co. described themselves as protagonists, but we also often have antagonists. There's conflict and then there's resolution. Ultimately every economic recession has ended in renewed economic expansion.

And the typical story we tell ourselves about recessions and the peaks that preceded them, they accord with patterns that we've observed in other contexts. So, in particular, that what goes up must come down, and the higher it goes, then the harder and faster it hits the ground. So it's difficult for us to move away from what we have cognitively evolved to do. We don't handle randomness very well.

RICHARD CLARIDA: Yes, so I think another author at one point had a book entitled, *Fooled by Randomness*, on that theme. Alright, let's bring it up to current events. I think if we'd had this conversation six or eight weeks ago this might not have been front and center, but it is. So today the Middle East is engulfed in a war, the Strait of Hormuz is

closed, and oil and natural gas prices have surged.

So I'd like to ask you to delve into why energy market disruptions have been a perennial accomplice, I think you mentioned, to the murder of economic expansions. And this is, I think, where your data set is very, very helpful because you actually do have prices on coal and other energy going in your data set.

TYLER GOODSPEED: Yes, so there are basically two different types of recessionary shocks. There are your large aggregate shocks that affect most sectors of the economy roughly contemporaneously and roughly evenly. Take a pandemic or a major international war. You also have sector-specific shocks that maybe only directly impact one or two sectors, but those sectors have very high linkages to the rest of the economy and their output is difficult for households and businesses to substitute away from in, say a 12-month time period, which is, as I said, the duration of your median and modal recession. And so the oil shocks, the oil supply shocks of the post-war period are those with which we're most familiar.

But if you go back farther in time, as I noted, industrial action in the then-essential coal industry was a perennial contributor to the economic recessions on both sides of the Atlantic. And if you go farther back in time than that, then you will read of what were often called fuel famines or turf famines because biomass and peat or turf were

regularly combusted for residential heating and also for industrial power generation. And when you think about the primary source of ground transportation in the 18th and 19th centuries, it was animal draft power for which biomass provender were the main fuel input.

But it's not just energy shocks. You can think of some other sectors which maybe have a lot of linkages, both upstream and downstream. So there was a relatively mild recession in the United States in 1960 to which a major wide-scale steel strike in late 1959 was a contributor. You can go back to 1927, and one of the primary contributions to that was the shutdown by Ford Motor Company of all production for a series of months as they retooled their factory floors for production of the Model T, for production of the Model A. Then you can go farther back in time and cotton was a perennial contributor.

So these sector-specific shocks are not the sexiest explanation for economic fluctuations, but over the long run, empirically they are at least, if not more important as sources of economic fluctuations than the sort of big aggregate shocks that we tend to think about.

RICHARD CLARIDA: I guess maybe one thing I'll just add, parenthetically, that I noticed years ago and I think it's also important in the context of your book is a lot of what we

think we know, as U.S. macroeconomists, about the U.S. cycle is very much influenced by the way statisticians seasonally adjust data. So if you just look at raw economic activity data, I think there was a classic article by, I think, Jeff Miron, maybe 40 years ago that made that point very vividly. And so just a question, in putting together your data sets, I'm presuming that some of the original data is not seasonally adjusted, right? So how did you handle that?

TYLER GOODSPEED: So for data available at quarterly frequency, you do have to regress on dummy variables for quarters so that you can adjust some of those quarterly observations for seasonality. For the longer run, longer run time series, that's at annual frequencies.

RICHARD CLARIDA: Annual.

TYLER GOODSPEED: So it's not an issue there.

RICHARD CLARIDA: Okay. So fast-forwarding to the last 25 years, a very eventful 25 years, there have been three recessions in the U.S. – 2001, 2008 and '09, and of course, at least according to the NBER, March and April of 2020, the sharpest downturn post-Depression, also the briefest downturn. So I think we can agree on the proximate cause on the Covid collapse, but let's turn back and talk to us a bit about your take on

the '01 and the '08 and '09 experiences. And also if you could bring in the U.K. comparison because I'm less familiar with that as well.

TYLER GOODSPEED: Yes, so I already noted in my opening remarks that we tend to forget the magnitude of the energy price shock that impacted the U.S. and also U.K. economy in 2008. And if you look at, first of all, the official NBER time series but also the empirical work of Jim Hamilton at the University of California, that recession was already underway in January of 2008, eight months before the failure of Lehman Brothers. And so this is a point that I make in the book, that very often asset prices are the casualty of recessionary shocks elsewhere in the economy rather than the cause thereof.

2001, we all call that the dot.com recession, but when I study it in the book I find that the decline in tech stocks in 2000 and 2001 was one of at least four shocks that were impacting the U.S. economy, not the U.K. economy, in 2000 and 2001, and quantitatively it was the least important.

First of all, we have empirical estimates of the responsiveness of consumer spending to changes in financial wealth and they can explain the decline that we observed.

Especially when you consider that a non-trivial fraction of tech stocks were held by foreign investors and also the ownership skewed toward higher net worth individuals

who tend to be less responsive to changes in financial wealth.

The second shock was a big run-up in energy prices in the aftermath of the 1998 Asian recession, so Asian demand was growing very quickly. And this was the year, recall, of rolling blackouts in the largest economy in the United States, namely the state of California. And that was a development that actually contributed to the collapse of Enron.

The third shock was that in October 2000, the United States granted permanent most-favored nation status to a multi-trillion-dollar non-market economy, an immediate effect of which was a sharp decline in net new hiring in industry and manufacturing. And one of the salient features of a lot of recessions, most recessions, is not so much a sudden increase in the rate at which firms lay off workers, but a sudden decline in the rate at which they hire workers.

And then the fourth and most important shock were the terrorist attacks of September 11th. And all of the output decline during that relatively brief 2001 recession occurred during the quarter that included the terrorist attacks of September 11th, the complete closure of U.S. air space, the widespread concern and fear among consumers.

RICHARD CLARIDA: Yes, maybe a personal anecdote on that, I had the privilege of

serving as Assistant Treasury Secretary from '01 to '03, and it just turns out coincidentally my first day on the job was September 11, 2001. And certainly I can tell you that when I arrived on September 11, 2001, the NBER had certainly not called a recession.

And with the originally available data, the incoming George W. Bush administration actually did not think we were in a recession. I remember saying to Secretary O'Neill on September 12, well, if weren't in a recession yesterday, we are today. And, of course, with the revised data I think the NBER has now gone back with the benefit of their 20/20 hindsight and said, oh, it really began in March. But I can tell you in real time that was not the belief either, I think, in markets or among forecasters. So that was an important episode.

A real strength of your book, I think, is the parallel chronology you develop and interpretations you provide on the U.K. and U.S. recession experiences. So maybe you can expand on that since I think most of us, many of us in here are familiar with the U.S. experience but much less so the U.K. So maybe just start post-World War II and then go further back.

TYLER GOODSPEED: Yes, so 1948, 1953, 1957, 1960, 1970, 2001, U.S. recessions each, not U.K. recessions. And you can go back all the way to 1826 and you will

observe a similar difference in recessionary experience between the United States and the United Kingdom, which is odd because these are two very similar economies, similar institutions. They have been deeply financially and economically integrated for a long time. Though one might be tempted to say, well, Brits are just less prone to excitement than Americans, the reality is much more prosaic.

So, for most of that time period, the primary source of greater stability in the United Kingdom was that from 1826 on the United Kingdom had a nationwide system of branch banking. So if you think about a national economy as being similar to a broadly diversified portfolio, you may have weakness in one region or one sector that's offset by strength or resilience in another.

And so in the United States where we had, for domestic political reasons you couldn't operate across state lines if you were a bank. And in most states, for most of U.S. history, right up until the 1970s and 80s, you couldn't even operate more than one branch within a state. So we had tens of thousands of small undercapitalized, under-diversified financial institutions that would tend to amplify adverse shocks when they would occur.

The second reason for the greater avoidance of recessions in the United Kingdom is that from 1926 to 1972, the United Kingdom went without an official coal strike. And

they were an overwhelmingly coal-intensive economy. So the 1948, '53, '57, '70 U.S. recessions, which were very much oil-related, those were much less impactful in the United Kingdom simply because of the mix of their primary energy stack.

RICHARD CLARIDA: Maybe I can expand on that a bit because obviously an important demand, source of demand for coal in the 19th century were the railroads. And in your book, you put together some interesting charts and analysis of that period. I was, again not having, neither being a student of history nor of the railroads, I was struck by how similar the railroad adoption curves, if you will, are between the U.K. and the U.S. You know, geographically the U.S. is a very different country, obviously much bigger, much less history of connectivity among different parts of it. And yet if you just sort of look at the cumulative, I guess it's miles of track is the thing that you're measuring, it's really striking how similar those are.

TYLER GOODSPEED: Yes, and that was one thing that really struck me.

RICHARD CLARIDA: Maybe just to bring it to today, you know, we're in the midst of a big innovation boon, not railroad, but large language models and hyperscalers and investment.

TYLER GOODSPEED: So something that struck me in the book is that, take your pick

of transformative technology, whether it's canals or railroads or fiber optic cables in the 1990s and 2000s, a lot goes on. There's a lot of noise with regard to valuations and pricing. But in terms of the real physical infrastructure, as Rich suggested, there's remarkable fidelity to long-run trends that if you just plot it, it exhibits, it resembles a very smooth technology S-curve. And as you said, there's remarkable slope preservation across time and across countries.

And I would just like to add in addition to the statistical aspects of that, there's a very fascinating historical element, which is if you read either contemporary or secondary accounts of 19th century economic history, you would think that railroads and over-investment or speculation in railroads was a serial killer of economic expansion.

RICHARD CLARIDA: Guilty as charged.

TYLER GOODSPEED: On both sides of the Atlantic. But again, there is remarkable fidelity. There are no fits and starts in terms of that cumulative mileage, but the narrative set in very early. So there was this very important transcontinental railroad in the United States, the Northern Pacific Railway, for really quite idiosyncratic reasons it ran into some difficulties. And the failure of the bank that was financing it was a precipitous event of the 1873 U.S. recession. At the time, Cornelius Vanderbilt and many contemporary press reporters concluded, well, this is what happens when you attempt

to build a railroad from nowhere through no-man's land to no place.

The project was eventually completed. It's still in existence today. Can you guess who owns it? Berkshire Hathaway, in full. So this bridge from nowhere through no place to no-man's land is owned today by the most legendary value investor of all time.

RICHARD CLARIDA: Yet another fun fact I did not know. Okay, so a couple of perennial topics on business cycles, again a narrative that many of us have heard either in class or reading the financial press, the issue of do recessions cleanse via creative destruction? Are they irrelevant or do they impede the process? Maybe just to reacquaint the audience with the notion of creative destruction which does get trotted out by many people who are not aware of its origin.

TYLER GOODSPEED: Yes, so essentially, it's the idea that some enterprises need to fail so that you can move people and capital from less efficient enterprises to more efficient enterprises. And to be clear, there is a large, and I think convincing empirical literature that that is an important source of long-run growth. The question, as Rich poses it, is whether that process is enhanced or impaired by recessions. And the evidence I present in the book is that on net recessions impair that process.

For one thing, recessions are rampant age discriminators. They discriminate against

younger firms in favor of older firms. They discriminate against younger, more marginal workers in favor of more incumbent workers. Also a natural part of...

RICHARD CLARIDA: So there's just, just to interject there, so we tend to talk about aggregates, but there's a huge distributional regularity in recessions. You say younger firms, younger workers get...

TYLER GOODSPEED: Younger firms, often they have less physical collateral that they can pledge. And marginal workers are by definition those with less tenure. So recessions also tend to collapse the ladder by which workers move from less efficient firms, less productive firms to more efficient firms, more productive firms because of that collapse in hiring that I mentioned earlier. So they're spending longer in unemployment. Even when they do regain employment, they're often having to move from short-term job to short-term job.

Research and development, you might think that if you're constantly having to produce to meet current demand in sort of high-demand, high-profit environments, during expansions that maybe recessions are an opportunity to sort of organize your desk. The reality is that research and development tends to decline sharply during economic recessions and recover sharply during economic expansions.

And then you can also just ask, okay, well, if recessions are performing some cleansing, a re-allocative function, then we should expect to observe that several years on from a recession, the economy should look fundamentally different from how it would have looked had we continued uninterrupted along long-run trends. But if you look at the composition of output, the allocation of output across sectors, if you look at the allocation of employment across sectors, it is remarkably trend stationary. And at the end of an economic recovery, that allocation typically looks pretty similar to how it would have looked had you continued uninterrupted along long-run trends.

RICHARD CLARIDA: Okay, now I'm going to invoke a moderator privilege to ask you about maybe one of the more technical parts of your book. But I think along with your findings on creative destruction, arguably to me the most important in terms of current policy discussions. And Milton Friedman, of course you've all heard of Milton Friedman, a very famous economist, he was also a very clever wordsmith. And one of Friedman's contributions to the economic literature was his theory of "the plucking theory of business cycles." And I must admit as a graduate student at Harvard back in the 80s, I was vaguely familiar with it.

But I think it's fair to say that empirical macroeconomics in the last 40 years has basically assumed it away and ignored it. And your book, I think, makes to me a very compelling case with your incredible data set that not only should it not be ignored, it

should really be the starting point for modeling business cycles. So, you know, with that softball, hit it out of the park.

TYLER GOODSPEED: Right, so there are basically two models for how economic fluctuations work. So one is you have a trend and then actual economic output, actual employment sort of fluctuates or oscillates around that trend so higher peaks will be followed by deeper troughs. Maybe faster increases will be followed by faster decreases.

But empirically you can test this, you can ask, okay, does the height of an expansion as measured by GDP, consumption, investment, bank lending, does that predict the depth of the subsequent recession? Does the speed, the compound annual growth rate of those variables predict the speed of the subsequent contraction? You can also look at things like investment consumption ratios, whether those vary systematically.

And the reality is there is simply no information in the height or speed of economic expansions that can explain variation in the depth or speed of the subsequent recession. However, the depth and speed of a recession can explain variation in the height and speed of the subsequent recovery. So typically, again Anna Karenina principle, these things are all, recessions are economic expansions that failed in their own way, but typically higher, faster rebounds succeed faster, deeper contractions. So

that really lends itself to this plucking model. You can think of plucking a string where the amplitude of the contraction is very positively correlated, very strongly correlated with the amplitude of the subsequent rebound.

So that lends evidence in support of the hypothesis that economic expansions are not positive deviations from long-run trend. Rather, economic expansions are negative deviations from long-run trend. So the expansion is the error correction rather than the other way around.

RICHARD CLARIDA: The reason why I think that's important, well, a number of reasons, one, I think your book makes a compelling case that that's a good place to start. And, if you will, as a Bayesian, that's a good prior to have as you're looking at macro data. And secondly, I would argue, you know, based on my own experience in financial markets for the last 25 years, it also, at least I think in the last 25 years seems to capture well the way that people, at least in the markets that I follow, tend to think about the world, which is that it's not an oscillation. Bad stuff happens in '01, '08, and 2020, and then you move on to whatever your view of the trend is and that seems to be reflected in equity valuations and credit spreads.

And I think any serious way to sort of connect market valuation with the business cycle ultimately will have more success with sort of a plucking approach as opposed to the

traditional oscillation approach. So I was really excited about this part of the book. We're going to have time for questions from you all in a couple of minutes, but I want to conclude with a couple of points.

A very well-known discussion, not so much of cycles per se, but of those cycles associated with financial collapse is, of course, the Reinhart-Rogoff book, *This Time is Different*. And one of the things I took away from that book is the notion that if you look at recessions and you then separate out the subset of those associated – they very carefully did not say caused by, they just said recessions associated with banking or financial panics – the subsequent recovery tends to be much weaker than in recessions that were not coincident with that. Maybe talk to us a bit about your take on their thesis and if it also was evident in your data set.

TYLER GOODSPEED: Yes, so I have huge admiration for both Ken and Carmen.

RICHARD CLARIDA: I see a "but" coming...

TYLER GOODSPEED: They're both very good friends and a fantastic book, *This Time is Different*. Brilliant and so much rich data in there. I find that for the United Kingdom, going back all the way to 1700, whether a recession was associated with a financial crisis as measured either by a simple binary – is this a financial crisis or not – and I take

my former Oxford colleague's Stephen Broadberry's designation of financial crises, or a financial crisis as measured by the magnitude of the contraction in bank lending during the recession, I find that financial crises have no effect on the speed of the subsequent British recovery, going back to 1700.

For the United States, Mike Bordo and Haubrich have a paper from just a couple of years ago in which they test the same for the United States going all the way back to the 1880s, and they find a similar pattern. And if anything, they actually find that the typical plucking pattern of faster recoveries, higher, faster recoveries succeeding deeper, faster recessions is, if anything, stronger in the United States when it's contemporaneous with the financial crisis. So for the United States and the United Kingdom specifically, at least on average over the past three and a half centuries, financial crises don't seem to be associated with slower recoveries.

RICHARD CLARIDA: Again, yet another nugget or more in your book that I think will generate a lot of interest in activity. Of course, you've got data going back to 1700 for Britain and during that time Britain has been in a lot of wars. It's won some wars and did not win some wars. So talk to us a little bit about the connectivity or correlation or perhaps causation between wars, outcome of wars, subsequent economic activity.

TYLER GOODSPEED: So I should preface by saying that not all wars are created

equal.

RICHARD CLARIDA: You win some, you lose some, right?

TYLER GOODSPEED: When you look back over the past four centuries, the longest, most protracted economic recessions were generally those associated either with major world war or war that really visited one soil in a major way. So the three longest and among the deepest recessions in U.K. history were a very protracted recession from 1943 to 1947, during and in the immediate aftermath of World War II, a protracted three-year recession at the end of World War I, and a four-year recession during the seven-years' war which is often known as the first, First World War.

For the United States, outside of the Great Depression, the longest recessions in U.S. history were during the chaotic Articles of Confederation period when you had ongoing conflict with indigenous Americans. You had an armed uprising in Shays' Rebellion. You had financial chaos in the aftermath of the Revolution in terms of what happens to state-level debts. And you also then had a really Depression-magnitude recession in the United States during the American Revolution itself, very protracted. We're talking major declines in real wages.

And then the fourth episode is another Depression-magnitude event that really stood

out to me in the statistics. The farther back in time you go, the harder it is because the statistics just aren't as abundant and aren't as high quality. But there is an event from 1717 to 1720 in the then-American colonies that is clearly a Depression-level event. And when you look at the contemporary accounts, the source is perhaps improbable but unambiguous, namely pirates.

So this was the so-called Golden Age of North Atlantic piracy. You had the war of the Spanish succession during which the British government had paid sailors to become privateers. So in the aftermath of the war, all these sailors are unemployed. They turn from privateering to piracy. And there are accounts of raids going up from the Caribbean all the way to Newfoundland. They were intercepting ships from the Caribbean to Salem, Massachusetts, off Long Island. They were raiding up the Chesapeake Bay. And one brigand, Edward Teach, better known as Blackbeard, even blockaded the important port of Charleston, South Carolina.

And it was really only as the Royal Navy gradually got a handle on these brigands, either by getting them to accept a King's amnesty or else by terminating them and often displaying body parts, pour le courage le alte, that the recession finally started to recover and you see that sharp rebound in commercial activity.

RICHARD CLARIDA: Well, on that cheerful note, and I indeed had forgotten about that

episode, we do have some time at the end for your questions. And so I think there's probably microphones, so just stand up, identify yourself, and let's try to make it a question...yes, starting there...please stand up.

QUESTION: First of all, thank you for that, for the conversation. I am trying to reconcile your comment that recessions have disproportionately impacted younger employees and younger firms, and I wonder whether that view incorporates the technological advancement. Because when you take a look at the cohort of publicly-traded companies, they've really changed over the last several decades.

First of all, they've been halved, the number of companies that are publicly traded. But the top most valuable companies are in the technology space, but also the ubiquity of AI and open source and what have you is actually allowing and empowering younger cohorts, younger employees. And I do wonder whether that is incorporated in your analysis about the impact of, one, who is most impacted, and secondly, could they potentially shorten recessions because you're allowing capital formation and advancement with technology.

TYLER GOODSPEED: So, great question. It would seem to me that that process is reflective of creative destruction, that you have a changing composition of leading firms. You have new firms, new technology entrants that are attracting talent away from

incumbents. That generally, if you're looking back over the past century, I think that is predominantly a process that's occurring during times of economic expansion. And at the end of the day, roughly 85% of years are years of expansion and only 15%, and it's actually declining over time, are years of contraction. And so, yes, that process is ongoing, but the evidence would suggest that on average it has impeded rather than accelerated or enhanced during episodes of economic contraction.

QUESTION: Hi. I'm Colin Teichholtz. Thank you for your remarks. I'm excited to read the book. You mentioned that the depth, or the length of a recession could tell us something about the subsequent recovery, but something that I think is pretty well understood is it seems incredibly hard to forecast either when a recession will begin, or conditional on a recession happening, how deep or lengthy that recession might be. And so I'm curious if you have thoughts, other than maybe seeing lots of pirates on the coast, about how to forecast recessions or their depth or length.

TYLER GOODSPEED: Yes, so unfortunately when it comes to predicting recessions, I do find that they are fundamentally un-forecastable because if you knew that there was going to be a recession tomorrow, then as a consumer you would probably spend less and save more today. If you're a business, you would hire less, invest less today. If you're a depositor, you might withdraw some of your funds today, and you would get a recession today rather than tomorrow.

And so I test a lot of conventional recession predictors or in some cases indicators, whether it's the yield curve, whether it's a Sahm indicator, whether it's the leading economic indicators, whether it's your dynamic factor models with Markov-switching, which do a good job mapping historical recessions but not so good predicting. So they are fundamentally unforecastable. Now that said, I've just written this book in which I arrive at that conclusion. I still find myself occasionally checking the yield curve or checking the Sahm indicator in the same way that I don't believe in astrology, but I'll still take a peek at my horoscope every now and then.

When it comes to predicting the end of recessions, there is a strong indicator of when a recession will end and that is its age. So whereas economic expansions do not die of old age, so the probability of expansion death is unrelated to the age of the expansion and that has always been true – that's been true in the post-war period, pre-war period, in the United States and in the United Kingdom – the same is not true for recessions. So recessions do die of old age and always have. So the probability of recession death is increasing in the age of the recession.

QUESTION: Can I ask sort of a quick follow up on that? Is that implied that there was no policy response, that it still ends at about the same length? Or is that a function of policy response?

TYLER GOODSPEED: So this is one of the things that really surprised me in the research was the constancy of recession duration across time, and going back a very long way. And I actually statistically test, is there a clear point in time at which we broke, we had a structural break toward shorter-lived recessions? And the answer is no. I also test whether there is a structural break toward longer-lived expansions because expansions, as I noted, have been living longer. The reality is that is a long-run structural trend for which there is no clear breakpoint with the possible exception of 1785 when we left behind us the Colonial Wars and the American Revolution.

QUESTION: Thank you. You briefly touched on one of the data points in the oil embargo in the 1970 and '74 where the oil prices went up. Coming from the oil industry, do you have any model that foresees the current oil crisis running a few weeks and what kind of an oil, as it goes up to \$160 or \$200 a barrel, do you have an internal model that runs within?

TYLER GOODSPEED: So I would just say that when I look back on past recessions that may provide some perspective on contemporary macroeconomic dynamics, I think one can see similarities to 1973 in the sense that you're talking about physical barrels, physical cubic feet that aren't flowing. But there are also differences in terms of core OPEC+ being a smaller share of global output, non-OPEC supply being much more elastic. And a dollar of output is both less energy-intensive overall and less oil-intensive

specifically. And we also learned a lot of lessons from the 1970s and that's why a lot of economies maintain strategic petroleum reserves. So what the book provides one is a sample of analogies from which the reader can draw and sort of determine subjectively, do I think the probability here is higher or lower.

RICHARD CLARIDA: Let's get right back there.

QUESTION: Thank you for your remarks. Going back to the theme of this time is different, I'm wondering about your views on the K-shaped economy and thinking about, you know, as you look at the past research, how does that extrapolate going forward because there is a part of the economy that is keeping consumption alive and that has a lot more buffers than the past in withstanding shocks.

TYLER GOODSPEED: So two thoughts. One is, and this speaks to the extent to which recessions can discriminate because it's usually the last-in during an economic expansion who are the first out in an economic recession. And then there's a very long gradual process of recovery during which many workers have to spend extended spells in unemployment and then proceed from one job to a better job to hopefully a better job. And so I think that's one part of the process.

The second point I would make is that while economies in the aggregate may recover

from adverse shocks, that doesn't necessarily mean that every individual or every household does. And so a point I make in the book is that there is a compelling normative case to be made for the provision of relief where it's needed during economic recessions. So even though the state may not be able to end recessions, there is a normative case for the provision of relief where it's most needed. And I think that would be where employment loss is greatest and income loss is greatest.

RICHARD CLARIDA: We have time for one more to stick on schedule. So pop your hand up. Right there, sir. This will be our last formal question for Tyler.

QUESTION: Fascinating remarks. Can't wait to read the book. Thank you. I was hoping you can expand upon your comment that you made in your remarks and tell us what you found about the role of both monetary and fiscal policy as an arsonist as well as a firefighter.

TYLER GOODSPEED: Yes, so I generally, the book would recommend that policy makers adhere to some form of the Hippocratic Oath, First Do No Harm. And when you look back over the past few centuries of economic recessions, there have been cases where policy has exacerbated or amplified adverse shocks elsewhere.

So the most glaring example of this would be the Great Depression in the United States.

And what people don't fully appreciate there is the magnitude of the tax shock that hit particularly in 1932. So you had the top marginal rate go from 25% to 63%. You had a corporate tax rate go from 12% to 13.75% which doesn't sound like much but they also eliminated a prior exemption for small businesses, small and medium-sized enterprises that were earning the 2025 equivalent of half a million or less. You also had contractionary monetary policy to a really devastating effect during that recession.

And you could go back farther in time; there was a British Isles recession in the 1840s to which contractionary fiscal and monetary policy actually had really catastrophic effects given what was going on in Ireland at the time. So fiscal and monetary policy can really amplify adverse shocks elsewhere in the economy.

RICHARD CLARIDA: On that note, I think we'll conclude. I think Barbara will assume the podium.

PRESIDENT BARBARA VAN ALLEN: Gentlemen, thank you. That was fantastic. I just want very quickly to mention we have a number of events. If you turn over your program, for those that are in the room, you can see that actually starting tomorrow we have an event with Sebastian Mallaby on his book, which will be fantastic. And Gillian Tett will be doing that interview. On April 21, we'll be down in Palm Beach with Jenny Johnson, the CEO of Franklin Templeton, so I hope many of you will join us. On the

23rd, we are going to host Salim Ramji, the CEO of Vanguard. And I actually could continue but I'm not going to keep you from your lunch.

But I do want to thank those in the room that are members of the Centennial Society as the donations that you provide really represent the financial backbone of the Club. So thank you for that. For those joining us, let's enjoy your lunch. And for those that are here virtually, I hope we see you tomorrow. Thank you.