

# AEI PREMIUM

Escaping 1980  
Episode 2 – The Boom

**David Widmar:** In the summer of 1972, the USSR came looking to buy some wheat. It's the first, like crack in the Soviet curtain.

**Brent Gloy:** All of a sudden, we are taking a huge step forward in the Cold War and great times were ahead, right? And everybody wanted that to be true. And that is what set the stage for a huge crisis.

**Sarah Mock:** You've seen the movie Apollo 13, right? It's a classic - Tom Hanks, Kevin Bacon, Bill Paxton, Ed Harris, the famous and mostly factual line, "Houston. We have a problem." Sometimes when I need a shot of inspiration, I watched the clip of the re-entry scene. It's a real nail biter, a mix of raw fear, anxiety, and hope that puts you on the edge even though we already know the ending. The unifying shots of people around the country and the world breathlessly waiting to see if we could bring home a team of astronauts who in every way that mattered were soldiers. Soldiers in a technological race to beat the USSR into space. The Apollo 13 mission launched on April 11th, 1970. The space program was seemingly moving forward with unstoppable momentum, but at the same time, the trajectory of the world outside of NASA was not so clear. The Beatles were breaking up. Elvis Presley was visiting President Nixon in the Oval Office, disco, punk and Elton John were on the rise as the flower power culture of the 60s receded. Confession time. I was not alive in the 1970s, but the pace of changes that America was going through socially, culturally and economically, at least in my mind, recall that last scene in Apollo 13. A country ruled by extremes of fear and anxiety, but also incredible hope will almost inevitably I think, lead to quite a bit of swinging for the fences so to say. Taking big risks with the hope of big payoffs but knowing that big losses are just as likely. I wondered how much of this feeling had seeped into the farm economy and rural people at the time. So, I asked Brett and David, what they remember about agriculture in the 1970s.

**David Widmar:** This was whenever we really had the first big tractors. And so big four-wheel drive tractors, I believe Big Bud. Right? The big, Big Bud 747 was built in 1977. And then it was the 80s that led to all the consolidation - of Case and New International Harvester would have merged. What is now AGCO, began to get its big merging. I think Big Bud is really a symbol of agriculture in the 1970s. These giant four-wheel drive tracks, versatile tractors but also big.

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**Sarah Mock:** The 70s were a fascinating time in the farm economy and not just because of the technology, we'll get into the tech question more later, but first we'll take a little bit of a step back to understand what was happening in the big picture.

**David Widmar:** Henry Kissinger was the secretary of state, President Nixon was in office and these were geopolitical wizards, right? They were really active. And in February 1972 is when Richard Nixon flew to China after 25 years of zero diplomatic communication or activity. And so, he went over there, shocked the world by doing this, and then, by the end of the decade, of course there were diplomatic relations between the U.S. That visit in 1972 was the first step in normalizing that relationship. In June of 1972 is when the Watergate break-in happened.

**Brent Gloy:** But it didn't all come to a head for quite a while.

**David Widmar:** Correct. So, Nixon resigned in August of 1974 and a footnote is in 1973 is when Vice President Agnew resigned for his own set of challenges. So, a lot of things were happening in that time in history. Like it's just mind blowing that, like there were so many things happening. Like I couldn't imagine, maybe in the moment it didn't seem so surreal.

**Sarah Mock:** This is Escaping 1980, a podcast that explores the farm crisis. That was, and what we can do to avoid the next one. I'm your host, Sarah Mach. Today, we're going to talk about the 1970s, all denim outfits, Jane Fonda hair, bell-bottoms and lava lamps optional. We'll jump right in because there is a lot going on in the 1970s and agriculture and it starts with something you probably won't expect - a heist.

**David Widmar:** And the summer of 1972, the USSR came looking to buy some wheat and this wasn't just Russia, right? This was the Soviet Union, our Cold War nemesis. Arguably the biggest challenge the U.S. was facing, the communists, came looking for some wheat. The story had been, they had some bad weather and there was some concern about them having enough wheat to feed their livestock and if things went poorly, they might have to fodder off the livestock or in recent memory, back in the thirties, they actually had a similar situation where they had a significant amount of famine that took place. And so, they came to the U.S> looking to buy some wheat and Nixon was president, Henry Kissinger was secretary of state, Earl Butz was the secretary of ag. And what was the best way to prove the importance of capitalism and open markets was to sell our Soviet Russian enemies wheat. And so, we started negotiating with them in the summer to buy wheat and, keep in mind, right, we just put a man on the moon. This was during the space race. We landed on the moon in 1969. So, we're in 1972 and they need to buy wheat from us and we're eager to make this deal with them.

**Sarah Mock:** Eager is putting it lightly. There's an important lesson here about confirmation bias, which we'll talk more about later, but it's worth remembering that this wasn't just about

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pure greed, the USSR knocking on our door with their hands out in 1972 fit into a narrative that we desperately want it to be true, that we were winning the Cold War and that the USSR was failing. We saw this transaction as evidence of our power, as much as we saw it as an opportunity to move grain.  
Here's David again.

**David Widmar:** And so, there's a lot of nuances with the deal, but they brokered the deal, and the sort of the nuts and bolts of the deal is they had to buy. So much grain over a three-year period. The U.S. really wanted the Russia to commit to a multi-year deal. So, they took these allocated that over three years and they thought we had a long-term partnership. We just didn't want a one-off sale; we wanted to create a trade partner and really get this going long-term. It happened in the early part of the summer. By the time we got to the fall, it became obvious that what's now known as the Great Grain Robbery or the Russian Grain Robbery was underway. Whereas we thought they were going to buy X number of bushels over three years, they ended up buying all the wheat in one year, in one big shot. And there's a lot of, there's a great book written about that, how they actually pulled that off with all the different grain buyers. The U.S. government was actually helping provide some credit to make that happen. So, there was a bit of a subsidization that took on...

**Sarah Mock:** Hold on, circling back to that point. Did we just not know what was happening or what?

**David Widmar:** So, keep in mind in Russia. They have some real boom and bust periods that are based on the weather. So, we had the third, the big famine in the 1930s, and then here we are in the 70s and we had, we had an idea of what was going on over there. And the idea was that they just needed some wheat to keep their livestock fed. And so, animals use quite a bit of grain, but we thought they just needed enough to keep their livestock fed. The magnitude of the problem was completely miscalculated by almost everyone on the U.S. side, but really the rest of the world. No one had any idea of how bad the situation was. And so, when Russia came in and started making purchases in the fall, we didn't have nearly as much information as we do today. In fact, a lot of the USDA's reporting techniques came into place as a result of this. But we had no idea how the severity of the drought. It's actually interesting because a few weeks after we struck the deal with the Soviets in the summer of 1972, we launched Landsat one, which is a satellite that was going to start using some infrared information to help us measure things. And they, in hindsight, they wonder if that satellite would have launched a few weeks earlier, if we would have been able to size up the scale of the Russia problem. And so, we thought we were going to be able to help send a little bit of grain to shore up a smaller problem than we had. What we didn't know was that they were going to come in and buy up what came to about 440 million bushels of wheat. That's equal to more than all that we exported in 1971. And it's about 30% of an average crop for that time in

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history. So, it was a huge magnitude and it had implications for global ag trade for a few years after that.

**Brent Gloy:** And I think it's one of those cases where lack of information, right? Amplified the problem because you know, we sold them all this week. Imagine that you go from zero to selling 30% of your crop to a new customer. It's going to set off a lot of exuberance, right? I mean, that's a lot in terms of commodity markets and Earl Butz famously came home and told American farmers that they needed to plant, "fence row to fence row." Why? Because there was this view that the Russians. This was not a one-time deal. They were going to be in the market for these kinds of quantities, not for one year, but for multiple years. And that's where, I think, the boom got misconstrued. We thought that was more of a permanent kind of demand shock and it turned out not to be.

**Sarah Mock:** But it was this perspective - the one we didn't have on the Russian economy that caused us all the problems. In a lot of ways, it was the classic case of things we didn't know that we didn't know that hurt us.

**Brent Gloy:** In hindsight, we know that the Russian economy wasn't humming along, right. Back in the day, we didn't know that. I mean, we were concerned, genuinely concerned, we were fighting the Cold War with the Russians. They were developing nuclear weapons as fast as we could develop them. They were, they had a huge military. They were active all over the world, just like we were. And so, we're in this global conflict with them. And so, it makes sense that people would interpret that as going, "Well, there's no reason to think they won't be buying that kind of stuff forever." Because they were the famous USSR. They're, you know, a formidable enemy. Little did we know that that economy was a train wreck and that, I think, some people knew, but it was not widespread knowledge, how bad things really were in Russia at the time.

**David Widmar:** And you take a lack of knowledge with the backdrop of, these are our arch enemies. Right. And we were able to number one, get in a sale. And that was really good. And then, Oh, by the way, is this the first like crack in the Soviet curtain? Right? Whereas they needed way more grain than we thought. Are they not going to be able to keep up with their own production system? Is their technology treadmill not going to be able to keep up? Are they coming to the market for the long haul? And it was probably more of a big supply shock that turned into a demand shock for the world as the USSR came to make those purchases. But in the moment, we didn't really know what the future would have in store for USSR production.

**Brent Gloy:** A lot of times the greatest bubbles are built upon things that have a sound premise, right. And so, the premise was that. Well, the Soviet Union needed grains and they were doing well, and the world population is increasing somewhat rapidly at the time, as well as incomes

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around the world. So, you know, I think people are looking at it going, “Well, demand is going to really, really take off here.” And the mantra again was, “We have to feed the world. We're not going to have enough.” And so, there were elements of truth to that, the thinking that went into that kind of conclusion. But there, it didn't all quite hold together as well as we might've hoped.

**David Widmar:** The Soviet's coming in 1972 to make these purchases really played into a bigger theme in the U.S., that we were in this space race, and that we were winning. We had just put a man on the moon before them in 1969. And now they were needing to come to us and purchase a commodity, a wheat.

**Brent Gloy:** Yeah. Just to feed themselves. So, all of a sudden, we are taking a huge step forward in the Cold War and, you know, great times were ahead right. And everybody wanted that to be true.

**Sarah Mock:** We were doing it. It was a golden age as far as anyone could tell. And I hear it from older farmers, a lot. One farmer I talked to recently unbidden described it like this. Quote: “There was no end to the money we made in the 70s. We bought new equipment. We bought new tractors. We bought new pickups. We couldn't really spend the money that we had in the 70s,” end quote. What made it so good? Well, it started with high prices.

**David Widmar:** The immediate implication was commodity prices taking off. So, for some context, wheat prices through the 60s and early 1970s were an average U.S. farm price at about a \$1.50 per bushel. In 1973, the average price was \$3.95, almost \$4. By 1974, it actually got to \$4.10 cents a bushel – so, a dramatically different commodity environment for producers. Corn, again in the early, in the 60s and early-70s was about a \$1.13, a bushel. It jumped to about \$3.11 cents a bushel - so a very big increase in the price of commodities. At the food level, wholesale food prices in the U.S. jumped up by 29% in the first part of the 70s. As a result of this, all of a sudden, the U.S wheat crop, all of our ending stocks were just being shipped out through these exports.

**Brent Gloy:** And so not only though were commodity price changing, there were other things changing very rapidly as well and one of those is, was in the financial markets. Where we got our first kind of major taste of inflation. It was always kind of lurking around, but in 1971, the inflation rate, if you look at the CPI was something around 3%. By 1974, we were running an 11% inflation in the United States. By 1980, we were up to 14%. So, inflation really took off in that decade and it wasn't just ag commodities, all kinds of stuff. At the same time, interest rates had not responded as rapidly. And so, [what] we had was, economists talk about is negative real interest rates. In other words, inflation rates are growing, or inflation is going up, prices are going up faster than the cost of borrowing and that creates some really weird incentives.

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**Sarah Mock:** What kind of weird incentives? This is kind of wonky stuff but bear with me. Basically, negative real interest rates means that it's basically more costly not to borrow money than it is to borrow. That you can actually get paid for taking out a loan instead of the other way around. Brent and David will talk about how farmers specifically responded to this incentive. But first let's take a brief detour to talk about where farmers were starting from.

**David Widmar:** One of the characteristics of the farm economy, boom, in the 1970s was it was a sharp up and then it was a quick adjustment, lower. It depends on if you use real or nominal terms to describe that in both terms, it contracted after 1973. So, 1973 was definitely the Good Year. And in fact, net farm income that year is the highest that we've seen in inflation adjusted dollars in more than 90 years of data, it was even better than any year during post-World War Two.

**Sarah Mock:** What is net farm income? It reflects income after expenses from production in the current year and is calculated by subtracting farm expenses from gross farm income. What exactly does that mean? I'll let David explain.

**David Widmar:** We use the word farm income as I'm not profitable, or I don't have positive income, but in reality, at the sector level, it's usually a question about profitable enough or enough farm income. So, this number is always positive. And so even during the boom and the bust of the 70s and 80s, and even today, that number still remains positive. So, for context at the low, real net farm income in 1985, got below \$40 billion in today's dollars. So, \$40 billion in 2020 dollars and that's a big number, but that income is then used to cover things like debt, service, and family living expense. And so, I think it's important to notice that at the sector level, we're not talking about negative farm income across all producers, because we have to have a positive farm income to cover family living and debt services. Debt service isn't an expense. This is kind of a nuance as to how the USDA calculates that. So really important to keep in mind.

**Sarah Mock:** So net farm income hit its high in 1973. But that didn't mean that was the peak of high prices. The problem with understanding high prices are high commodity prices that farmers can earn are also high prices that farmers pay [00:19:00] in terms of both family living expenses and farm inputs. This overall rise in prices throughout the economy is called inflation and inflation paired with real interest rates were two key factors that made for some confusing decision-making for farmers in the 1970s.

**Brent Gloy:** We got our first real taste of inflation and kind of the modern economy during the 1970s and inflation is a tricky beast. There's a reason we don't like it is because prices increase rapidly. It's hard to keep track of what's happening. It's hard to really understand what is a good

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price? What's a bad price? So, all of a sudden, if you sold corn for \$3, a bushel and the next year, it's \$3.20, you might think that's a really good price, but if you had 15% inflation going in there, it might not be so good and so it makes it hard to kind of understand what's happening around you. And you throw on top of that, for instance, during the 1970s, the ten-year Treasury rate. The borrowing rate of the federal government on a ten-year basis I don't think got much higher than about 7%. So, you have inflation going up at 15%, the government's borrowing at 7%, it's like free money. And so, farmers saw this, and you even had universities telling producers use leverage. Land values are going up 15% a year. You're borrowing for 8-9-10%, which today seems really high. But back then, that was kind of a normal interest rate. If you buy an asset, that's appreciating at 15% and you're only borrowing at 10%, it seems like it's almost too good to be true.

And that inflation created a huge mess because eventually it was going to have to come to an end. When it came to an end, it caused a real problem. But that stage setting of here we've got a big boom so the logic is American producers have a huge, very bright future because our only equal in the world in terms of economic and military might, the Soviet Union, is actually buying grain from us, so we've got a bright, bright future. And then you throw on top of it. A situation where farmers and businesses in general are incentivized to borrow because of the real rate of borrowing looks really, really low, if not negative. So, what do you do? You've got a bright future in, in normal cases. Well, if I have a bright future, I might be willing to go out and borrow some money to invest in that future. Now, it's like the best of both worlds. You've got a bright future and money is almost free. So, what do you think farmers did? They went and borrowed a boatload of money.

Just to give you some context - and these are in real 2020 dollars. In 1970, the U.S. farm sector had \$256 billion of debt. By the end of the decade, we had gone to \$440 billion. So, we didn't quite double during those 10 years, but boy, did we add a lot of debt during that time period. So, that debt would prove to be the reason, ultimately, that the 1980s ended so badly. It was going to end badly because the demand shock kind of wore off and we caught up to it on the supply side, but the reason it ended so badly was that huge increase in debt that we added during that decade.

**Sarah Mock:** If there's one big takeaway from any farmers from this period, this is it. It's all about debt. That farmer from before the one who said he couldn't spend all the money he made in the 70s, spoiler alert, he went on to sell his third-generation family farm in the 90s. He was happy to do it. With the wisdom of time and age, he said, it was just such a relief to get out from under the debt. He picked up in the 70s during those good years. He said it took a terrible toll that debt, not just on his mind, but on his personality, selling the farm, he said, was a real load off his shoulders. He did it with a smile on his face. This is not an unusual story for the time, here's Brent.

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**Brent Gloy:** I have a friend that tells me in that time. He said, I'll never forget. You know, I had a lender come. We were just walking around the farm. He was like, "What do you need money for?" And he's like, you know, he's like, I'm a new farmer. I've been farming for like two years and this guy's willing to write me a check for whatever I wanted. And it was kind of a free, easy credit time period as well. People borrow money for all kinds of things from tractors to land, to everything. And they financed it at that time [with] short-term interest rates because that's the way we did things in those days. We didn't have long-term fixed rate mortgages nearly as common as we have today. So, you were at the whim of your interest rates adjusting upward, but why would they adjust upward? They hadn't adjusted upward in a big way for a long time. We'd never seen anything like that.

**David Widmar:** It was a new paradigm. We came off from the stable era in the 60s and the Soviets bought this and all of a sudden it was a new paradigm. It was this, how are we going to keep up with global demand? And so, we were eager and ready to start making investments. And whether that was bidding up farmland values or buying new equipment, or in the global context, we pulled more acres into production all the way around the world. But this combination of the demand shock in 1972, from Russia that sent commodity prices and income higher in 1973. And the combination of this interest rate and inflation environment. Led to some, a lot of investments being made.

**Brent Gloy:** I think it's even, there's even more to it. When you look at it, you've got okay, a demand shock, things are looking good. We've got improvements in technology. We're industrializing agriculture for the first time and agriculture went from farming to science-based, you know, factory type production processes being adopted on the farm for the first time ever. Mechanization really widespread, farmers achieving yields they never dreamed possible on big acreages. So, there's just all these incentives for people to go, and grow, and expand, and get larger. And Earl Butz famously made the quote at that time, "Get big or get out." So, it wasn't an environment that was just souped up with kind of animal spirits of farmers wanting to go into this bright new future and even better, we could go into it with, by borrowing money at very reasonable rates, especially given the huge amount of inflation that was taking place. So, land value is going up 15, 20% a year.

**Sarah Mock:** This is a critical point. Farmland is one of the biggest expenses many farms have on their balance sheets and more importantly, in the overall sense, it's finite. Whereas AGCO or Case IH can increase their production of farm equipment when demand is high, there's a relatively more fixed quantity of farmland or potential farmland in the United States, which means that the kind of easy money that was common in the 1970s led to outrageous increases in farm prices even while very little was changing about the productive potential of the land. And the increase in demand and price of farmland was not limited to the U.S.

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**David Widmar:** the other point that's important to keep in mind for this boom era is the increase in global acres. And so, in the early 70s we harvested around the globe about 1.8 billion acres and as soon as the Russians came to buy the wheat from the U.S. the profits came in. The income and the commodity prices soared, and we saw global acres increase and they would increase for the rest of the decade. And they increased by 300 million acres or about 18%. So that was the expansion of the global factory. And this was the idea of making investments and buying farmland – they're not making more of it and getting bigger equipment, get bigger, get out.

**Brent Gloy:** But David most of those acres, weren't they in low producing areas? And did they really matter?

**David Widmar:** At the day they weren't contributing and so, yes, they're on the marginal side of the land, but they were still part of the factory. And what was going to foreshadow, what was going to happen in the 1980s is all the investments we are making in mechanization, and better hybrids, and better fertility and crop protection. Those marginal acres came in and they were able to hold their own. We did not see those acres leave. When you expand the global ag factory, when you increase those acres just don't really leave. There's some bouncing around, but once you bring them in, they're able to keep their foothold and they stay in the production cycle for generations.

**Brent Gloy:** Right, and just like American farmers, those farmers adopted technology too. While they started out from much lower yields than we did, they got better and better. And so, it added more and more to the supply.

**Sarah Mock:** The boom that started in the 1970s was defining for many American farmers. But it's worth taking a beat to discuss the fact that it was far from the first boom. Many of them had ever seen.

**Brent Gloy:** When you think back through history and these booms and busts have happened before. Most notably, there was a pretty big boom after World War Two in American agriculture. And that boom ended a little more gently than the one in the 1980s, but that was clearly one of the big cyclical events that took place as, GIs returned from the war. We had a lot of growing demand for agricultural products and there was a lot of innovation in agriculture during that time with mechanization and other things. And it really set off its own boom. And it kind of played out in a similar fashion, although not quite as calamitous as the 1980s.

**David Widmar:** And we've also seen a cyclical pattern here in the last 15, 20 years. We've seen the China ethanol story play out. We saw the boom unfold, and we've also seen the backside of that, we're seeing, and we've been living through the crunch, the financial crunch, the margin

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squeeze, the lower commodity prices, the adjustments in farmland values, and cashflow, and rates. So, these typically take a long time to play out right. And the USDA has data going back to the late 1940s and so that's what we've been looking at. I think, if you go back even further, there was the situation, the Great Depression. And so, there's probably been four of them in our collective knowledge over the past 100 years. But if you back out even further into history, the cycles are driven by elements of supply and demand, and demand is always increasing steadily over time and increases in yield at different points isn't enough. And so, we have to expand the global factory. We expand that agricultural production factory, and that's typically what leads to these cycles, these booms and these busts.

**Brent Gloy:** And I think when you think back about history, the most obvious bust in agriculture is obviously the Great Depression. We had, the Joads going across the United States in Steinbeck's novel, "The Grapes of Wrath," as a result of the bust of American agriculture in the 20s and 30s. You know that there was a boom, that led up to it and then a really painful bust. And we repeated it again right after World War II - didn't end this poorly, but it really set the stage for another one that was coming in the 1970s and 1980s.

**Sarah Mock:** The U.S. had been through decades of radical transition since World War II had rocketed the American economy to global relevance. The time between the moon landing in 1969 and the last successful cavalry charge in world history was fewer than 30 years - horses to rockets in half a lifetime. The possibilities of the future seemed limitless. But despite the intense rise in technology, in terms of the farm economy, this period was stable. What did that pre-boom period mean for American farmers? We'll get to that right after this quick break. Escaping 1980 is brought to you by Ag Economic Insights. That's David and Brent. Here's more from them about how they made AEI Premium and how you can get more involved.

**Brent Gloy:** I'm a practical farmer. We have a family farm; it's a full-time type of farming deal and I try to be as much of a full-time economist as I can. I've always been focused on trying to bring out what all the economic data actually mean because I'm a strong believer that economic information is super valuable and trying to focus on getting past - here's what the data are, to here's what it means. And that's, I think what, one of the guiding principles that we've used in developing Ag Economic Insights,

**David Widmar:** There's a ton of information out there, but it's all fast food. It's all empty calories. And you go through the buffet and you got all sorts of sugar and carbohydrates and you have a headache afterwards. You're still hungry, but you're full. There's a quote that's out there, it was talking about, "We're drowning in information but starved for knowledge." And I think that was true two-plus decades ago. It's even more true today. And one of the things that Brent and I were really interested in is how we have all this information out there, all this breaking news, but there's really a void of how do we break that down and create insights? Or

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how do we use that information to think about decisions or actions that we need to make in an organization? So that's what we've been about is taking the data, providing some insights and helping the users, either producers or those who work with producers, make better decisions.

**Brent Gloy:** And it's been interesting to watch how it's evolved from a kind of a once a week, column on the internet to what it is today, which is way more than that. The, What We're Thinking About memos, which kind of get into our thoughts and the things that we're thinking about more broadly, every few weeks to analysis of very specific issues in agriculture to coverage of news that matters in agriculture and agricultural economics, to Ideas That Make Us Better - where we have really good information on economic trends and agriculture. We make them relevant, but even more so now with the addition of the Ag Forecast Network, trying to help people just make sense of that information and improve their decision-making.

**Sarah Mock:** To learn more about becoming an AEI Premium member visit [AEI.AG](http://AEI.AG) online. Now back to the show. From the end of World War II to the early 1970s was what Brent and David call a “stability period.”

**Brent Gloy:** Before all the turmoil of the 1980s coming in through the 60s and the early 70s where the world, you know, we kind of just moved along. The best way I can describe it is, we operate in a band where commodity prices don't provide farmers really big returns and then you don't provide them really steep losses either in the short term. I mean, you might lose some money, but they're not terrific losses. Prices just kind of bounce around that cost of production and what that process does is it tends to weed out a lot of farmers that may have higher costs or the things that they get to the point where they kind of give up and go do something else. And that's kind of what stability usually looks like. And you may only see one or two of them throughout your career, where you see a really true economic boom, where we have new demand and that new demand becomes significant enough to, shift the supply-demand balance in a way that creates substantially higher prices. So, farmers really have a lot of experience with stability. And the thing is those few booms and busts tend to have a huge impact on how we perceive the world.

**Sarah Mock:** But what actually is stability? How come we don't swing wildly from boom to bust and then right back to boom again, all the time? Or do we? Bear with me here this gets a little technical, but I promise it's worth it. So, the reality, Brent says, is that most farmers will spend 80% of their career in stability. And the mechanism there is that in general changes in demand for food and fiber are known and stable. It's largely based on human population and changes in supply are also known.

**Brent Gloy:** What you've got here is typically demand growing just a little bit a year, maybe 3 or 4% every year and supply growing as well. And why supply grows is generally due to

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technological improvement - better growing practices, better technology to grow up better plants, better seeds. So, we tend to grow our supply slowly but surely. And a lot of times it actually may grow even a little bit faster than our demand over time. And so, what you get are farmers that are sitting there, and they can observe this technology. And if you happen to be one of those farmers that adopts the technology, maybe not too early, when it's unproven. But when it's proven and you have the ability to adopt a better production practice and be just a little bit better than your neighbor, you kind of open up a little bit of an advantage. Eventually everybody sees that a new adoption, new technology or better farming practice, and they get a little bit better and that adds to the supplies. There is an ag economist, I believe his name is Willard Cochrane, that talked about the "technology treadmill." And the technology treadmill is this idea that farmers are on this treadmill where you always have to be getting a little bit better on technology. And when you do it, when you make that adoption and you produce better, what does it, what happens? Well, commodity prices fall. So, what do you have to do? You have to find the next technology to produce even more, to make enough money to survive. And when everybody adopts that what happens? Prices go down. And so, you're right back on this technology treadmill.

**David Widmar:** For context, I think he first introduced that concept in the late-50s. And so that sort of is that stable period - this idea you have to stay on the edge of technology and that's what keeps things moving forward.

**Sarah Mock:** The idea of the technology treadmill is common well outside of the ag economy as well. But it's particularly pronounced in agriculture because of the laser focus in the industry on increasing raw productivity. In other words, yield. The long-term effect on the real price of commodities gives us the best evidence that supply of agricultural commodities is outstripping demand, or that we are in fact, on this technology treadmill.

**Brent Gloy:** The one trend is absolutely clear is that when we look at what has happened to the real prices of ag commodities over time is that they decline. And the reason they have generally done that is because the productivity growth has slightly outstripped the demand growth over time. So, when people worry about running out of food, you know, we've got a long history to suggest that's probably not going to be the case. Over time real commodity prices generally will decrease, but there are periods within that hundred years of declining, real commodity prices where that's not true, and those are the booms. And as we try and account for that period where real commodity price actually takes a jump upward and everybody goes, "Holy cow, I need to produce a lot more. And the prices here are telling me to really produce." We over adjust and we overdo it and then as that becomes apparent commodity prices take a big leg down and that's painful. You had economists, ag economists out there developing this concept called the technology treadmill, trying to explain what was going on. And it was that commodity prices keep falling. Why do they keep falling?

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**David Widmar:** That technology treadmill and the falling real price of commodities over time - In the 1960s, in that last stable [00:41:00] area before the 1970 boom, that was taking place as we're adding commercial fertilizer, and better technology, and hybridizing corn. So, we had a huge technology, boom, going into this, leading up to the 70s.

**Sarah Mock:** At the same time that farmers were running this technology treadmill at an ever-increasing pace, they, and others involved in the farm economy, had, because of years of stability, little context to understand what was happening at the macro level.

**Brent Gloy:** Boom's come about for a really simple reason. Normally supply and demand float along and everything is hunky dory and occasionally supply changes because of weather and we get temporarily high prices. But farmers know that weather shocks are usually temporary and either good or bad. So, a string of really good crops usually ends with a bad crop and the string of really bad crops usually ends eventually with a really good crop. And those kinds of things are well known and well understood by farmers, I think. What we have less experience with are those demand increases because demand usually just grows as a function of population growth and that, of course, is pretty darn predictable. We have a pretty good idea what the world population is going to be five, six years from now. So, we have a good sense for that. The other key thing is income growth and kind of globally income growth is usually pretty sure and steady as well. But occasionally, just occasionally, we get these kinds of big shocks where a new demand source comes out of the blue. Whether it be something like biofuels in the most recent farm boom or the dislocation that was caused by the World War and changed kind of the productive factory of farmland all over Europe. So, you had a lot of demand, a lot of new global trade and that created a huge demand shift.

**Sarah Mock:** These are exactly the kind of shifts, Brent says, that we're trying to size the global ag economy for. But there's a couple of key problems there. The first being that we're just pretty bad at guessing how big is big enough or how much food or fiber we'll need to produce to feed growing populations. We usually overestimate. The second problem is that these decisions aren't usually being made by a central planning authority, they're being made by individual farmers, making individual decisions on their individual operations with only the price information available in the market. This lack of transparent, decision-making tied up with news stories about Russian demand, cheap money, and the technology treadmill laid the foundation for a real crisis.

As I talk with David and Brent, I've been thinking a lot about these cycles. Stability, boom, bust, recovery - that's been the name of the game in agriculture for pretty much as long as we've been growing food for money. But it's got me wondering why that's the case? Why can't we just grow in stability forever?

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**Brent Gloy:** So, cyclical and economies by their nature tend to be pretty cyclical and economists have studied this forever and it's, there's no just one perfect answer. But I think for the most part, they're cyclical because they're made up of humans, and humans, kind of behave in crazy manners, right. And we tend to all avoid doing something until one person does it. And then they figure out that's kind of cool. And then everybody jumps on, it creates these kinds of waves and cycles.

**Sarah Mock:** And these cycles haven't gone away since the 1970s either. We're still living through them. And the cycle we saw kicking off in the 70s was not so dissimilar to our more recent experiences, especially in the way that farmers and others in the ag industry react or fail to react to different market signals at different times.

**David Widmar:** I think one of the challenges with agriculture is, especially thinking about the last hundred years and we actually have data for the last 40 to 50 years of this. How do we increase output on agriculture? Well, we have intensification and extensification, so if we intensify the process, we get more output per acre, so we have higher yields. We've all seen the graph of upward trends and yields for corn, soybeans, et cetera. The other way is we extensify or we add more acres of production and that is a higher economic hurdle. It actually takes an investment to do that. And one of the challenges. Is bringing on those additional acres or adding onto the global factory is something that it takes some encouragement to do. And we usually encourage that through strong economic signals, such as strong high prices and strong net farm incomes. And so, what we saw in the 1970s, and again, here, most recently in the 2000s and early 2010 decade is we brought additional acres into production around the world. And producers have to see some signals to do that. So, once they take a couple of years to see that signal, then everyone starts to do it at the same time. And then, all of a sudden, we wake up and all of these acres have come in. Whether it's CRP acres that we took out in the United States or it's ground that we pulled out from South America or the former Soviet Union. All of a sudden, all these acres come in at one time and then we realize how big it is. And then we might have a few big crop years, and that's what pushes us over the threshold to not have short stocks now we have burdensome stocks.

**Brent Gloy:** You hit on an important point and that's that an agriculture we have a long production cycle. So, it typically takes, in crop agriculture, it typically takes 12 months, if not longer - some crops have a longer production cycle than that - to get a new crop. So once people get the signal that the market wants more through prices, it takes a while to get that implemented and prices go even higher in the interim, so people add even more. And then as the signal comes in that, "Yeah, that's enough." That extra capacity is really reluctant to leave and it really doesn't leave over time... So, I think, the long production cycle really exacerbates the cycles in agriculture more so than if we had a widget factory and we can kind of see demand and turn it on and off quickly to kind of match that supply and demand. So, Apple

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doesn't have huge problems usually with their supply chain because they can kind of forecast their demand and they can speed the production up of those phones or slow it down depending on where they're at in kind of the economics of it. In agriculture, it's much more complicated and it's much more complicated because of just all of the individuals that are involved collectively in doing it.

**David Widmar:** It might be easier for folks to think about it in cattle, the cow-calf producers in that cycle, where at least traditionally we said it was seven years, right. So, we have strong prices, and we want to retain some heifers. And that takes a few years to actually to get that heifer rated to have her first calf. Oh, by the way, the process of retaining the heifer takes take some of the future supply out of the market, right? So, we hold back some heifers that don't go to market eventually. And then all of a sudden, a few individuals have all retained their heifers and then prices start to fall and that signal's gone, but we still retained heifers that haven't had a calf yet, but they're still retained and then we continue to overproduce and then we get to a point where we're at the bottom of the cycle and we need to pull back the herd. Well then what do we do? We start to slaughter some older cows. We cull the herd and that actually puts more supply into the marketplace and that even sends another signal. So, it takes time and sometimes even in livestock, right, it takes years to retain a heifer or to ... make those culling decisions.

**Sarah Mock:** There's another part of this conversation about the end of booms. Brent puts it this way, every farm boom ends. It's how it ends that's the difficult part. That holds whether you're talking about the 1980s or the more recent boom of the early 2010s when \$7 corn ruled for a brief moment as a result of a big jump in demand around ethanol production and a significant drought.

**Brent Gloy:** When I think about the boom that led to the 1980s farm bust and compare it to what happened to the early 2000s. There are certainly some similarities. The key difference, I think, is that this most recent boom was built on a new use of a commodity, particularly corn, for ethanol. It was a new demand source, and it didn't disappear, and it hasn't disappeared yet. I mean, today, ethanol demand is somewhere around 5 billion bushels of corn. If you were to like change that immediately, it would throw the ag economy into a huge amount of turmoil. And it wouldn't just be corn producers that are going to face that turmoil. That's going to spill into every industry that's ag related. So, I think, in some ways it was a true demand shift. In the 70s, the demand shift was kind of fleeting. It was temporary, it was misinterpreted as a permanent demand shift. The other thing that's just absolutely very different today is that role of debt. We've added a lot of debt in the farm sector here today. When we added it in the 70s, it was a massive amount and it was added under a situation where, as I said, credit looked really, really cheap and it looks really, really cheap today too. And so, I don't think we're in a situation where it could unwind the way it did in the 80s, but we're at risk for that, for sure.

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These things are things we don't know what will happen. if you took interest rates and increase them a whole bunch, or even if you started inflation going and increase interest rates a whole bunch in 10 years, it could cause a lot of problems. So, I think we just don't know how that's all going to unfold. But we've added a lot of credit today at very low, real costs, much as we did in the 70s.

**Sarah Mock:** but there's been another major driver in the last two decades of increased commodity grain production – China. In some ways, the similarities between the rise of China's demand and the rise of the USSR's demand seem strikingly similar.

**Brent Gloy:** In the most recent boom we saw China emerge as from being a self-sufficient grains producer, or food producer to being majorly dependent upon agricultural exports. I mean, in fact, importing is 60% of all the soybeans that get exported around the world. It's just a, it's almost mind boggling to think about how much their demand has grown. That has been real growth and I don't think that's being misinterpreted and I think it's legit. So, I think this farm boom was based on more sound fundamentals than that in the 1970s.

**David Widmar:** The story behind China is, in the early 2000s, China was, if you look at all the acres of the 13 primary principal crop acres, they have about 300 million acres. That's pretty much what they grow year in and year out. Their consumption was underneath 300 million and then the mid-2000s they were about equal, and today they consume roughly 400 million acres of production and they still raise 300 million. So, they need a 100 million acres of trade around the world to meet their needs. And it's about a quarter of all their usage is from things they import and that continues to be growing and expanding. And so, I think, not only are they real demand sources, but we also eased into them.

The 1972 situation was sort of like, maybe they're going to make a deal in the late spring to by the time we got to the late fall, it was full blown - what the world just happened? We knew they were going to buy, which was a surprise. And then the next surprise was how much they bought in a short period of time. It was like, 0 to 60 in very short amount of time. Meanwhile, the ethanol story took many years to unfold, the RFS has several years of phase-ins, the China story got started in the early-2000s and it's been a steady uptick. These were, this new demand was an uptick in the rate of growth. It wasn't just a sudden brick wall of new demand that we had to climb over. So, I think that was another element. We had very little time to adjust in 1973, and I think that's what really caught everybody flatfooted and this time around it was played out over many years.

**Brent Gloy:** I think the one similarity though, between these two things is that both in the late-1970s, 1980s, and today farmers managed to expand supply enough to catch up with that demand. So, they did it then, and they did it now and we've overshot productive capacity so much so that, you know, in the, in the 90s, I used to joke that, you know, it would almost make

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more sense to take commodities out and dump them in the ocean because I mean, they were so cheap and it's not that food is plentiful everywhere. It's not supply of calories that's ever the problem. That's not why people are hungry. They're hungry for lots of other reasons. It's not that we can't produce enough calories. We can produce plenty. End of day we're back in that same environment where we've got plenty of agricultural commodity.

**David Widmar:** I think one of the ironies of it is we had the Soviet Union was the partner and then the adversary, and now here we are with China, an early partner, and now we're in a trade war where they're the adversary. We had a Cold War and now a trade war. It's interesting, how history has some ironies as to who it is that plays the character opposite of the U.S. role. It's usually a dynamic character who, it almost has a Shakespearian sort of plot to it, right where we think it's going to go well, and it starts to have elements of not playing out as optimistic as any of us initially hoped.

**Sarah Mock:** This is becoming a bit of a theme in this podcast. The idea that though features today and in the recent past, aren't exactly as they were in the 1970s and 80s, there's enough similarity to give us pause, Bill Shakespeare's line, "What's past is prologue," comes to mind, but before we get too ahead of ourselves, there's another half of the 1980s farm financial crisis to explore. Because the 1970s did come to an end. And what no one it seems could see was how far the farm economy had to fall. But what goes up must come down. There were other folks in the 1970s who had to survive a harrowing fall to earth. The story of the Apollo 13 mission is actually pretty instructive here. Their splash landing was triggered by an explosion in space, in exogenous and entirely unpredictable factor. Is that what happened in agriculture at this time? Or were there signs that the farm economy was turning, and we just weren't paying attention?

**David Widmar:** But that's next time on Escaping 1980 until then please rate, review, and subscribe wherever you listen to podcasts. Thanks again for joining in Brent and I would like to thank the people who've made this episode and the podcast series possible. First, the AEI Premium subscribers. Second, a huge thanks to the show's and series' producer, editor, and co-host Sarah Mock. This team has been working remote since, before it was popular. A special thanks to Megan, Sarah H., Jeff and Aerin. Thanks, and so long.

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