Adam: **00:00:00** All right. We're here with Logan Mohtashani. Logan, maybe just to get us started and set the table, walk us through your background and your current role.

Backgrounder

Logan: **00:00:11** Currently I am the lead analyst for HousingWire. I started doing that job around toward the end of 2019. A lot of people know me for my financial blog that I started back in 2010. I started just kind of tracking housing economic data. But then by 2015, I made it into this more kind of a data analyst, really focused on economic expansions with a tilt toward housing economics. One thing led to another and I became kind of like a chart nerd on social media. And I'm just kind of a pure data person. I used to work in the mortgage industry, I retired in 2020.

So, pretty much at this point, all I do is look at data 24/7 with just a pure mathematical data sense, not any kind of ideological or investment kind of premise, just trying to show the historical models of economic cycles and expansions, recessions and try to talk about housing economics, and it's all traditional, for which isn't the most exciting, but in this day and age, it can be kind of useful.

Housing Markets

Adam: **00:01:19** Sure, yeah. So, I mean, I came across your work on Twitter. I have long had an interest in the drivers of housing economics and housing prices. And yeah, I mean, I think your work represents a really novel contribution. So, that's my motivation for having you on the show. So, thanks, again, for joining us.

So, maybe let's get started with kind of the current situation, but I know that it goes back a few years. And I want to focus on something that you sort of keep repeating, which is that we currently have what you characterize as a savagely unhealthy housing market. And you go through in quite a bit of detail in several articles, why you think that's the case. So, maybe just walk us through some of the fundamental data points and drivers of your case that you're observing and why you think the housing market is savagely unhealthy.

Logan: **00:02:16** So, to understand housing economics, you have to almost in a sense, go back to the previous expansion. And when I started talking about housing economics back then I've always said, and I've separated my work into two periods, 2008 to 2019, and then 2020, to 2024. And in the past I said, we would have the weakest housing recovery ever. And recovery is not prices. It's new home sales, it's housing starts, it's mortgage demand, mortgage debt. Mortgage debt, adjusting to inflation has not been positive from the peak of the housing bubble years. So, you kind of work your household information, right, all the way up until years 2020 to 2024.

So, the theme is that Americans are very easy to understand. They rent, they date, they mate, they get married. Three and a half years after marriage, they have kids. Housing was always going to be a year's 2020 to 2024 story. So, we work our way all the way up to 2020. And then here's the first two months of 2020. Housing authentically broke out in February of 2020. Housing starts, permits, purchase obligation, everything kind of broke out of the pre-cycle trends. We got that data in March, which means we're dealing with COVID right in the heat of COVID.

So, then, going back to the premise, demographics is economic years 2020 to 2024, as the biggest housing demographic has ever, right now, currently ages 28 to 34. You have good replacement buyers. There is one problem though. Total inventory in America, if you go back to four decades, is usually two to two and a half million. That's the active listings if you want to use the NAR data. The only time in history where we really broke out of that trend was the 2006 to 2011 period. That was forced credit selling and a big, a real key thing to my work is credit risk profiling. You know, in 2005, 2006, 2007 and 2008 people were filing for foreclosures, bankruptcies.

Then the job loss recession happened because the financial debt boom that we saw in residential lending was enormous, something we've never seen in history. And those debts were what I call what I call exotic loan debt structures. They're not really designed to be fixed long-term products. So, after the housing credit crash post-2010, we ended up facilitating the best loan profiles ever in history. So, when you think of housing or credit, you think of fixed debt product, rising wages every year. So, from 2010 and on all the way down to 2021, we've got three refinance waves. People are staying in their homes much longer from 1985 to 2007 - it was five to seven years. From 2008 to 2022, it's about 11 to 13 years. In some parts of the US it's 15 to 18 years. I've been in my house for 18 years.

So, here comes 2020. Everyone went into housing crash, world depression, everything. You know, by April 7th, I wrote *America is Back Recovery Model* for HousingWire, which everyone thought was crazy back then. Even HousingWire thought about maybe we shouldn't publish this. It was a recovery model designed with dates and things to track. Because what I think the mistake a lot of people made, even my economic friends, they saw the 20 to 30 million people that were unemployed, and the 5 million in forbearance, they forgot that there was 133 million people working still. So, you don't, you know, it's not like you need 60 or 70 million people to buy homes each year, right? You've roughly need about 4 million mortgage buyers, you got about 15 to 20% cash buyers. So, housing should be okay, just give it like six to eight weeks. We had a V-shaped recovery.

But by the summer of 2020, we had a problem. And this was the hard thing to kind of explain to people. Total inventory collapsed to all-time lows. We never even had the seasonal bump in 2020 that we do every year. And then we're heading into 2021 with all-time lows with this major demographic patch and low rates. And so what it did is facilitated really unhealthy home price growth. And something I even talked about and warned about in early 2021, even wrote an article saying listen, we actually really do need mortgage rates to rise because this could get bad. Everyone was stuck on this forbearance crash kind of thing. Even though demand was stable, they thought forbearance would crash the market, never was going to be the case.

In fact, in the summer of 2020, I labeled the term *forbearance crash rogues,* knowing that a certain group of individuals would stay on their YouTubes and just basically say forbearance. So, my job is to document why that wasn't the case on HousingWire. But as you can see, home price growth really accelerated in 2020. And then 2022 came and this is where I created the *savagely unhealthy housing market*. Every October, you have this seasonal dive in inventory, right? Inventory usually rises in spring and summer, fades in the fall and winter. We are already working from all-time lows. And by October we weren't even close to even having anywhere back to any kind of normal inventory and mortgage demand had been picking up. So, we were going to start 2022 in a very bad spot.

So, during the years 2020 to 2024, I said as long as home prices just grew at 23%, five years, which is like 4.6% nominal each year, we would be okay. But this period in time, there's a potential of home prices growth accelerating. So, we saw that in 2020, we saw that in 2021. Then January and February came. And you just saw -- you saw an economy, you saw a country just simply have too many people chasing too few homes and mortgage rates were low. So, I had already lost my price growth model, and we were seeing multiple bids everywhere. So, at that point, I said, uh-uh.That's it, I'm done. Nothing else matters to me unless rates rise and get us off of this extreme low inventory because we were at risk of having a really bad inflationary period for housing for 2022. And since we had started the year at all-time lows, it wasn't going to be a good year.

So, I coined it *savagely unhealthy* because housing doesn't move like stocks. I think so many people are stuck back into the housing bubble years where the velocity of inventory, right, skyrocketed in 2006. Well, that was a credit boom, a credit bust, forced selling. We had all these things, none of them were here. So, here's rates rising, right? Rates, I always had a line in the sand, I said the housing market will change once the 10 year yield gets above 1.94%. That's really 4% plus mortgage rates. In 2022, part of the forecast was that this could possibly happen this year, because global yields should rise. And there we go, rates shot up. So, all this price inflation you had in 2020, 2021, and 2022 early. And then you had total mortgage payments, principal, taxes, insurance just skyrocket up, which is the biggest housing inflation hit. But prices are still rising on a year over year basis because we're working from all-time lows.

So, the levels that I've focused on just to get back to normal is total inventory between 1.52 to 1.93 million. Once we get back there, which is basically the 2019 levels, which was the four decade low before 2020, that's enough inventory to keep the market somewhat balanced and sane and get us off of that. So, rates got up.

Now that we're in August, we saw the existing home sales report yesterday. Home sales down big year over year, price is still going. That's the savagely unhealthy part because the velocity of inventory is much different than people think. It takes time for that to kind of work itself out. And we're still -- there's parts of the area that are cracking into the 2019 levels, which I then consider to be healthy. But until we get the total market back up there, which I think we can have in 2023, you can see this unbelievable dynamic of double digit declines in sales and double digit home price growth on a year over year basis, which actually goes back to the previous expansion.

We've had times where rates rise, sales fall negative year over year, but prices are still rising. But we're talking about single digit year over year price gains, we're not talking about what we've seen already. The Case-Shiller is going to lag a little bit. Of course, it's still going to show about 18-19% home price growth. So, that became the savagely unhealthy housing market because that was my biggest fear about this period, that if inventory channels have been falling since 2014, which it has slowly, every year inventory has been falling, you run into this demographic patch. If for some reason, inventory breaks all-time lows, we could be stuck here long enough to create a lot of price damage. And it happened.

So, for me, it's you know, we got to get a balanced market. There's no other mechanism to create balance in housing without -- it's just basically higher rates. Higher rates traditionally work, they're just going to take longer than people thought. And we're sitting here almost in August, and we're still showing 13% year over year home price growth, with sales noticeably declining. Not good, not a normal thing, but that's where people should have been worried about during this period.

Adam: **00:11:43** Right. So, it seems like there's multiple things that impact demand. And so I want to sort of fixate a little bit on the two -- so, the normal inventory is about 2.5 million homes for sale. You're saying we're currently well below 1.5 million. If we get back to somewhere between 1.5 and say 1.9, something I believe was your range, we get back to something that more resembles equilibrium. Why would you expect to see house prices, either the gains in house prices moderate, or maybe even housing prices begin to normalize relative to incomes, for example, even if we move from current inventories to the lower inventory levels of kind of the 1.5 to 1.9 range that you're targeting to start seeing an impact.

Logan: **00:12:42** So, whenever rates rise, it cools the growth rate of pricing. In 2013, home prices were up double digits, and then rates went to just 4%. And then we saw nominal home prices come down to about low single digits. In 2018 and 19, mortgage rates got up to 5%. Total inventory didn't grow, really. But the growth rate of pricing came down so much that if you adjust it to inflation, the equivalents of rent, we actually had briefly negative real home prices in 2019. Which I remember being at a conference and I was showing that chart, I was like, "My God, this is great. Look, we have negative real home prices." And everyone was like, I can't sell my house fast enough. So, nobody really liked it but me. But I was thinking that was like the most perfect time because it was a very balanced market. So, in that inventory level was just 1.52 to 1.93, 2018 and 19.

So, historically, it's always happened where the growth rate or pricing cools down housing. The difference has been always that whenever rates rise, and we see a slowdown in housing, they may fall. And that's always balanced out the supply and demand dynamics. So, we see sales pick up when rates fall, but that was working from a very normal equilibrium of home price growth and wage growth. Okay. We shattered everything during 2020 to 2021 in the early -- and then now 2022, obviously. And then again, that's the fear. So, just following historical trends, because the growth rate of pricing is so obscene, higher rates won't work. And we're seeing it. We're seeing inventory growth, we're seeing inventory growth in the places that had the biggest price growth.

I mean, we sit and think about it, like Austin home prices went up 100% in two years, something like that. That's not normal. And the crazy part is, this is the big debate I have with everyone. Demand was good, demand was solid, there were more homes being bought. It was nothing like the credit boom of 2002 to 2005. So, how I explained to people this, the inventory was the bigger factor here. During the housing bubble years we had more sales, more inventory, less home price growth. Here in 2020 and on, 2020 existing home sales were only 130,000 more than 2017 levels. So, there's not like this big sales or credit boom. It's just inventory cracked, where we created forced spinning. So, we had fewer sales during this period, fewer inventory, but the price growth was so much hotter during this time, and that was always the fear, that if inventory cracked and we just have a little bit more people now looking now than in the previous cycle, people are going to go in and buy homes because everyone needs shelter.

And then the secondary factor is that and this was even harder to explain to people, rent inflation was going to take off. And so people are thinking rent inflation, nobody can pay their rents, everything. So, now summer 2020, rent inflation is about to pick up, especially in the cities. You had a little blip there where you had supply and people were getting good deals, and then rent inflation took off. Because why? Economics is demographics. You have a lot of people that need shelter, rental vacancies have been falling, supply has been falling. So, we just got caught in a very, very bad spot. And we're all paying for it with this savagely unhealthy home price growth.

Adam: **00:16:10** Right. I mean, it seems to me, you've listed a bunch of different things that sort of should impact the rate of price growth. So, you mentioned demographics, obviously. So, I'm interpreting that as, basically the ratio between people who are seeking household formation. So, sort of young people who are getting married, want to start a family, buying homes. And at the other end, you have people that are supplying homes, which I guess, are home builders and owners of existing properties, which I guess are people that are downsizing, or obviously passing away or moving on to stages of their lives where they just don't need the same home, right, and that sort of facilitates housing turnover.

Logan: **00:16:58** When you think of housing demand, you always have to think of, there's the first time homebuyers, there's the move up, buyers move down buyers, cash buyers and investors, you have to put them all in the hole. So, how I phrased the years 2020 to 2024, don't think of like a credit or sales boom, just think of really good replacement buyers. And when you think of replacement buyers that every year, there's -- this group needs something, we just have a lot more of the younger group in right now than we've had in previously. And millennials were always the biggest homebuyers in America. They just have a little bit more in this period. So, everyone needs shelter and there's just not a lot of products out there for rent or home buying.

So, it could facilitate the classic shortages, it could facilitate inflation, you have too many people chasing too few goods. And then you have to force bidding action. That's what you never want to see. You never want to be force bidding for shelter. It's not the healthiest thing ever. And then you see the consumers index for the buyer home, it's the worst ever. Right? It was the worst ever and 2020-2021. But people, it's not like they didn't want to buy homes, they just hated bidding for it. So, a lot of these surveys we see, people have to buy food and gas, they just don't have to be happy about it because of the price. That explains a lot of the survey indexes for housing.

Adam: **00:18:15** Right. Right. But it seems to me that people that are just moving up or moving from one house to another, they don't require new homes, right? They're shifting from one residence to another one. What really matters, it seems to me, is those that are moving sort of out of the housing market, sort of towards the end of life, maybe. And those that are moving into the housing market, which is kind of primarily household formation. Right? It seems to me that drives the majority of kind of the supply-demand equation.

But then on the other side, of course, you've got the availability of credit, affordability, affordability being a combination of credit terms, the price of the actual home, and of course, the rates, right, the mortgage rates. So, I mean, it seems like a relatively complicated model. How are you allowing all of these different variables to impact these expectations?

Logan: **00:19:19** For me, for my work was setting a specific period of price growth just for this five year period. If the price growth broke, then I go back to my secondary, is the ten year yield. Once the ten year yield breaks, once you get 4% plus mortgage rates, if the price growth model breaks, you're going to have the biggest housing inflation hit in recent modern day history. We're having payments of people go up 40, 50, 60, 70%. Right? That's because we had a deviation from historical norms on price growth. So, what happened in the previous expansion was that price growth wouldn't be that hot. You know, it'd go up a little bit, down a little bit. It was roughly in space with wages, so you didn't have that kind of fear. Here, you just had straight vertical pricing, not what you want to see. And we had it for two, even right now, when you look at it, it's two and a half years. So, that is an affordability hit. And when we think about supply, why does supply stay between two to two and a half million if you go back to 1982.

A traditional seller, primary resident, is a buyer of a home. So, when they list their homes, they're going to see and go wherever rates are six and a half, five and a half, where they feel comfortable that they can get a loan and buy another property. So, in a sense, that's a wash. They get a buyer for their house and then they buy another home. So, the inventory channels stay kind of normal. What higher rates do is that it typically, it slows demand enough where the days on market. The days on market is the real issue here. Even yesterday, existing home sales report, the year over year days on market fell from 17 days to 14 days. That is a bad thing. I always say whenever days on market are a teenager or less, it's never a good thing. We need to get these people to college and get them out renting. You need 30 days, so people have choices.

So, what happens is that was such a big affordability hit that you know, even for the new home sales sector in March when it happened, I said this sector is in risk. It'll be more evident in a few months. You know, just in the month of June, I already raised the recession red flag for the builders, because traditionally, when rates rise, the builders know this. They're going to go, "Hmm. Okay. Well, we're just going to slow things down a little bit, because we just want to sell our product." And that's why the two things that I thought that could really mess this five year period up is price growth, with rates rising. Price growth, if we just grew at 3-4%, every year 2020-2021. Whenever rates rise, it does impact demand, but it wouldn't be so bad, right? Because wages grow, the hit wouldn't be so bad. That did not happen here. We just got blown out of the water. And even today, we still have double digit year over year home price growth, even though sales are falling dramatically. That's the savagely unhealthy aspect.

Adam: **00:22:16** So, given that we know that there's such a deficit of residential units, why are we seeing such a slowdown in building? Right? I mean, don't the builders recognize that yes, obviously, prices are high and yes, rates are high. And therefore, buyers are going to have to pay up. But they're still a -- there's a group of people that require shelter, as you say. And there's a massive deficit of units, and therefore there's an arbitrage that they can fill.

Logan: **00:22:49** This is where my work is probably different than other housing economists. I actually believe the builders built accordingly to their demand curve. So, in the previous expansion, everyone said we stopped building homes. Well, people forget, we had the weakest housing recovery ever, new home sales missed estimates in 2013, 2014, and 2015. And in 2018, when mortgage rates got to 5%, they had a supply spike. So, I kind of have this model with the builders, as long as inventory is kind of -- the three month average is below six and a half months, the builders will build. It's really when they're under 4.3 months that their life is great, they'll do whatever. But it's really rare, actually. We didn't have it under 4.3 months in the previous expansion. We had it for a very brief time in this recovery.

So, the builders only build what they can sell. They don't care about the existing home sales market. That is their competition, right? So, whenever they're -- that inventory grows, those are cheaper homes with a geographical advantage everywhere that impacts their business model. So, I thought the builders built very accordingly. In fact, one of my big forecast calls in the previous expansion is like we're never going to get to 1.5 million total housing starts in the four years years 2020 to 2024. Doesn't matter what people believe in terms of how much you need to build, the builders do not operate that way.

So, every decade that goes on, they see this massive existing home sales market, that's their competition. And if that inventory rises, it impacts their demand. It was different in the 60s and 70s, because they didn't have this existing home sales competition. But we're now in the 21st century. So, whenever rates rise, and they see that slowdown, they pause. In fact, in 2018, they paused for like 30 months, right? Even just that brief supply spike when one of the builders' CEOs said it was the worst fourth quarter since the great financial crisis. It really wasn't. New home sales were still low and housing starts were still low. But they are very mindful because they have to protect their profit margins.

And what the builders did really in 2020 on, you can see this, they had so much pricing power, that they pushed it onto the consumers because they could. And they made as much money as they can, even with lumber prices and everything so much, their profit margins were really good. And now, when rates rise, that's going to happen, right? They're going to hold back because they're worried about their profit margins. That's historically what would happen.

So, in March, I said, new home sales and risk. I have already raised the recession red flag, the builders confidence now has collapsed more noticeably, just recently. That looks all perfectly normal to me, because you have to think of them as a business not as a provider of shelter for the existing home sales market or for the general public, because deflationary aspects would impact their business models. So, the builders have basically done exactly what I thought they would do post-2010. And even now, as so much of my work over the years has been when rates rise, they'll slow down, when rates rise -- you're never going to see a construction boom, like people want. Because as long as they're there, they're going to make sure to build enough to sell. They're never going to oversupply a market there.

I mean, their real bread and butter is single family homes. But now you see multi-family construction is picking up more recently. So, that's a little bit different. But that single family residence, boy, that's already declining. They've kind of given up on that for the cycle. Until rates fall again, they're going to go very, very slow on construction.

Adam: 00:26:31

So, is there a level of inventory of both existing homes and expected new builds that would begin to make the builders start to become enthusiastic about building again? I mean, it seems like -- are they only using the change in rates to model demand? That's it?

Logan: 00:26:55

Yeah. They're using rates, because if you think about it, the new home sales sector is really mortgage - demand driven. It's an older buyer. It doesn't have the kind of 20 to 25% cash buyer in there. So, they have to tightly manage, whenever rates rise; same thing happened in 2013 and 14. Rates rose, whoa, they slow things down. In 2018, boy, they just kind of pause on construction. And here, the builders' confidence has already fallen like a waterfall, right? So, they just know that, well, we have a problem, it took forever for us to build a home. So, some of these people that went into contract at three, three and a half percent. Now that their home is ready, five and a half 6%, they can't qualify for loans.

So, the cancellation rates were going to pick up naturally. And then they have all -- actually that 7.7 months of supply, they have six months, and that is actually just starting, right? They have about 2.2 months of kind of homes that are being finished. Their actual product is actually less than one month. So, they're going to take it very slow, because they know they are very rate sensitive. And that happened in 2013-14. That happened in 2018, and 19. And now the builders' confidence has just collapsed, and they're going to go, "Okay, we're just going to take it slow. We're going to make sure we sell everything. We're giving good incentives." Because it's actually a very small marketplace compared to the existing home sales. And they manage it well, in that sense. And they're not working from a very high level.

I mean, new home sales right now are currently is below the 2000 recession. We're basically at 1996 levels. So, they know what they're doing, but they also know they're very rate sensitive. And with all the home price growth gains that we've seen since 2020, it's more problematic for them.

This actually shows up in the builders' survey confidence, and I always thought that builders' survey confidence is the best survey we have, because it's really profit driven. Some of these surveys have kind of ideological takes on them, but the builders' confidence index has been falling, falling, falling, boom, it just collapsed in the last one. Expect that to keep on collapsing. Then when rates come back down, they'll be, the builder stocks in itself will rally and they have potentially more buyers and just kind of look at it in that light, and it kind of makes sense why they're very, very rate sensitive, much more than the existing home sales market.

Adam: **00:29:19** Okay. I mean, so the housing market is savagely unhealthy. People need shelter. Young people, as you mentioned, right, there's a demographic wave of, I guess, Millennials that are seeking to form households and get on with the normal cycle of life. The builders aren't building, higher rates makes it harder for existing owners to move, right, because you've locked into a mortgage at a low rate. When you move, you need to then get a new mortgage at a new higher rate. That's obviously highly disincentivizing for existing owners to move. So, I mean, at what point -- I guess there's something that's kind of missing for me here, because it seems to me that there's going to -- all of the factors are in play for there to continue to be a major deficit of units available. The homebuilders are suggesting that they have no confidence that prices are, well, that demand is going to remain strong for the units that they're building. And there's no evidence that we're seeing an increase in total supply, combining both existing homes and new homes on the market. So, like, under what circumstances do you foresee housing price growth moderating and or normalizing relative to median incomes, for example?

Logan: **00:31:03** It should be more apparent in the second half of 2022. But really, it'll perk itself in 2023 as long as rates stay high. If rates come back down that variable changes. But here's the thing with the mortgage rate lock down: 13% of the country have less than 3%, or under mortgage rates. About 38% have between rates between three to 4%, and another 30% roughly have rates between four to 5%. So, majority of the country have low rates, but people naturally list every year. I've always argued that inventory actually grows when we have weakness in demand. So, the last time total inventory grew was 2014. 2014 purchase application data was down 20% year over year on trend. Adjusting to population, it was actually the lowest level ever. Inventory grew - wasn't much. But it grew, the growth rate of pricing went from like 10 to 12% to about 3 to 4%.

Adam: **00:32:03** Is that because investment demand slows down?

Logan: **00:32:07** Well, just mortgage buyers demand slowdown, right? So, the mortgage buyer drives the market. Always. This is one of the reasons why I try to focus people into *don't focus on large institutional homebuyers*. Like, the Wall Street firms went from 0.4% of 2.5%. That's not a very big marketplace. The *eye buyers* are like 1% of all total home sales. So, mortgage buyers actually moved the show. So, whenever mortgage demand gets hit, inventory starts to pick up because the days on market should grow. Now, we're just at that phase right now where we see these, between 18 to 22%, year over year declines in purchase application days. We've saw home sales go from about 6.5 million at the start of the year to about 5.1 million.

Over time, what happens is that inventory builds itself up. Because demand gets weaker, days on market grows, new listings get added on. And even if you had a three and a quarter percent mortgage rates, but you have to move, you're moving right? Now there are some people that can't afford to move anymore now because of the home price growth was so much, and the mortgage rate has risen so much. I mean, I can make a case that there's a 4% spread in mortgage rates. We got to as low as two and a half percent, we got as high as six and a half percent. That is a meaningful increase. That's never happened, if you take the edges of rate moves. So, those people are probably stuck, right? Not ready to go yet. But we're seeing inventory growing on a year over year basis. It's nothing spectacular.

But in certain parts of the US where they had more of the aggressive home price growth, they're already at 2019 levels. Places like Boise, Phoenix, parts of California are already there. Naturally, because demand has slowed down in the inventory, it takes longer to get out. It's just on a national basis. We're not back to normal yet. I do believe we can get there next year between that range, between 1.52 to 1.93 million just because if rates stay this high, demand was slow enough to where the active listings get back because we never had a credit boom. So, I've always said, in fact, one of the things I talked about last year in February of 2021, I said the reason higher rates work is because homeowners are doing really good. You don't have to worry about them. But the growth rate of pricing could really impact demand, if things keep on going as it is. Of course we had like 20% home price growth back then, last year.

So, naturally listings should occur up higher and higher if demand gets weaker. And then we get back to kind of the pre 2020 inventory channels. You know even back in kind of the early 90s, we had 1.52 million to almost 2 million inventory.

Monthly supply went up to about nine months during that period. So, pricing can cool, but it needs demand weakness. What you won't see is the forced credit selling that we saw in 2005 to 2008. And then the job loss recession. Homeowners on paper look great, their mortgage payments as a percentage disposable income is all time lows, their cash flow looks good, the nested equity is the highest ever. Over 40% of homes don't even have a mortgage. So, you don't have that kind of … drop. So, it's basically going to be this unbelievable battle between good demographics, and affordability. And we already see that inventory is increasing, it's just the speed of it is not what people thought. People thought it'd be much faster. But a seller is a traditional buyer, housing moves slow, they have to adjust the pricing. So, this is something to look forward towards the second half of 2022. But really, the spring of 2023.

But the X variable is that five of my six recession red flags, or up. The sixth will be up next month. And then what happens, traditionally, is bond markets go down, mortgage rates go down, that creates buying power. Always remember most Americans are always working. So, the people that get hit first on the labor side tend to be those with the least amount of education, which have renter financial profiles. So, the chunk of homebuyers are always there. But when rates fall their buying power picks up. And that's how we should look about it. That's to me the X variable on it could slow the growth rate of inventory down, possibly pause it, and even reverse it if demand picks up because you have the demographics there. It's just a straight affordability issue at this stage.

Adam: **00:36:46** Yeah. I mean, so we've already had a major affordability shock. And I think part of it too -- Well, actually, I'm curious, is any of your data suggest that there was a, maybe a permanent or semi-permanent shift in the marginal utility of housing, as people sort of, they went through the pandemic, they started to prioritize a little bit more space, they spent a lot more time in their home and therefore recognize the value of having a nicer, larger home. So, do you think that that might have, at the margin, also had an impact on demand and prices?

Logan: **00:37:31** You know, one of my talking points before COVID happened was that I believe the years 2020 to 2024, people we're going to move more. Naturally, in those expensive metro cities, if you need a bigger house for your family, that's why I did kind of the rent date marriage act for so many years. In years 2020 to 2024, people were naturally going to go to areas where they could buy a bigger home, if they needed it. If they already had a bigger home that solves that problem. So, even before COVID, that was the case. Then the work from home model game, which to me is the single biggest housing story of my lifetime. Because everyone traditionally buys a house somewhere near their work. You can have people driving 60 to 90 minutes, but roughly you have to be kind of in the same area.

Here you didn't have to. So, you have people in coastal areas who have a lot of equity going, "Oh, really, I can move to the Midwest? Okay, I'm selling my house." Everywhere is cheap to people who live in California, right? And it just does -- that's just the way it is there. There's so many states out there that we just can't believe you can buy a single family home. So, if you can work, right, and you have a -- you need a bigger home, you're moving. So, that facilitated more housing inflation, because here comes a buyer that has a lot more equity, has a lot more cash. And now they're competing against local people that don't have that kind of equity. And they're smashing them left and right. And seeing that was like whoa, this is a real big deal. So, that is a form of housing inflation that states like California export out to places like Texas, Arizona, parts of the south.

So, that was a big deal. I thought that would have happened anyway. But not to the extent to where you could work from home and basically even though you get paid less than you would have you know maybe live in a city, you still have the unbelievable capacity to buy a single family home in these states. Because when you live in New York and California or even Seattle, you just like, "Oh my God, everywhere is cheap." You know there's no way, you know. Even myself, HousingWire, the company I work for, they're in Texas and our conference in Frisco, Texas, I'm looking everywhere. I said, "What is this?" You know, we have condos here that are twice as much as these big single family homes. Texas is still cheap. So, that is definitely a huge factor that would have happened anyway. But it just happened in a bigger fashion because you can actually move. And that's kind of a one and done deal. That's it. You buy that house and then you're staying in there for like 10 or 15-20 years. And it's a bigger home. So, you're really staying in there. And if you can work from home, you have so many advantages.

So, that to me, was a really big, lifetime event, this work from home model, which I'll be curious to see how this works out over the next two to three years, especially when a recession happens because some companies said no, you can't leave, you can't work from home, you're either here or not. Some companies don't have that kind of labor dynamic, they have to adjust that. So, some companies are already recruiting other people, "Hey, you could come work from home." So, it'll be very fascinating to see over the next few years, because traditionally, what happens in a crisis, stays in a crisis. But this has some long-term implications going out for decades if this is the case.

Adam: **00:41:00** Yeah. Well, it's more of a sort of accelerating a trend that was able to evolve because of technological change, right? So, you can argue that we would see work from home, a shift to work from home over the next decade or so anyway. But obviously, the pandemic massively accelerated that process.

Logan: **00:41:23** Yeah. We were rising from one to three, we're actually heading toward 4% before COVID, which was a big deal. But I mean, of course, when COVID happened, it just blew up higher. So, to me, it's like, I think you can get to about 15 to 22% of the workforce can be worked from home. That might take some time, but that might -- could be the historical trend. That's actually a huge number. Yeah, there's certain sectors that can do this. There's obviously certain sectors that can't, you can't work from home. So, if that occurs, that's a really big deal. And what that does is shifts bigger money into other cities. But of course, what's happened here is that all these areas are where home prices accelerated so much. Right? So, in a sense, work from home was an inflationary factor. Because now you have the person, is just one person, but the person has so much more money than other people. And it's just they outbid a lot of people in local populations. Then those people go into smaller towns because they can't afford. So, there's this interesting dynamic that happened, due to the work from home model.

Adam: **00:42:26** Could that, to some extent -- I mean, if 20% of the population moves to a permanent work from home model, it seems to me that that could go a long way towards alleviating the supply/demand challenges, right? Because it's obviously a lot easier to build new subdivisions in the Midwest than it is to build new subdivisions around big coastal cities, both from a permitting standpoint, and just from a, like amount of available space, less expensive labor, etc., etc., right. Like this, to me seems like at least at the margin, one potential avenue for closing the supply/ demand gap.

Logan: **00:43:10** You know, the coastals are fully lawyered up to fight construction all the time. So, it's always going to be a struggle there. But they're also the coastal areas there -- these are really wealthy -- well to do people, so they kind of run the show. I don't know how much even supply can really impact because home prices are so abnormally high here. Just in my neighborhood, Irvine, California, my zip code is like the average single family home is 2.5 million. So, it just doesn't matter what you build. You can't build a $400,000 single family home here. The prices have gone so much.

But in other parts of the US, yes, you can. It's much easier to do that and it's more inviting to go there. Especially people that make good money, you can make really good money in California and not have a chance to buy a house. But if you make that kind of money in other parts of the US, and you can have a single family home and four to five bedrooms, stuff like that, yeah. Why wouldn't you? Right? So, California has a housing inflation mess. And the only reason prices stay up here really is because the people that own homes here do really well. But there's a segment of the population that just can never buy here. They're always going to be lifetime renters.

In fact even before COVID happened, like 50% of the workforce in Los Angeles were like dual renters in one household. We're not talking about college kids or something. We're talking about people in their 40s and 50s. So, that's one of the ways that they live is you have roommates. Will that alleviate? You know, during COVID people have money, they went and created new households, but it's just tough to get anything done in these coastal areas, especially near water.

Rental Markets

Adam: 00:45:02 Yeah. I have roommates too, four of them, but none of them contribute to the rent, sadly. So, speaking of rent, what do you expect for rents in general? And I want to then talk a little bit about how, because it's through rents that increases in the cost of shelter translate to the inflation metrics that we track. Right? So, let's talk about the rental market and what's driving rents? Why is there a lag? What do you expect from rents nationally? And then how do you expect the changes in rents to flow through to inflation metrics over the next several months?

Logan: 00:45:50 So, this was, I think it was the August of 2020, and I did a podcast interview, it was titled *The Cities Aren't Dying*. And it was really about rent inflation is about to take off. I remember talking to the Washington Post in early 2021. And I said, "Listen, CPI inflation is about to take off faster than what people think. And it could stay higher, just because shelter inflation is like 43% of CPI inflation, it's like 25% of it's rent." So, we're about to get a really very aggressive uptick in rental inflation, because everyone's working, people have money, and then the supply isn't there. So, it's going to be a very violent move.

Adam: 00:46:32 It's just that you have to buy or you have to rent, right? So, I mean …

Logan: 00:46:36 Yeah. So, you have to have a choice. Now, rent doesn't traditionally fall really in a big fashion nationally. One of the charts I like to show is, when you look at median rents, at the start of the century, even with two recessions, you didn't see much of a decline. And the reason why is because most people are always working. And when you work, you're not traditionally homeless. So, you have to -- you need shelter, so you rent if you can't own. So, here, again, the biggest housing demographic … ever, not all of them can buy, but they can rent, right? So, shelter inflation took off in a vertical way, not shocking. It's been a theme of my work.

Over time, that growth rate will slow down just because -- I always say, they have to be able to pay that rent. So, it's not like you know, they can't afford it. If they can't afford it, you don't have that kind of rental inflation, right? So, deflationary aspects mean that, okay, people that can't afford it, those rents have to go down. We did not see any of that because people make money, they got more money, they're getting wage growth. And that's the thing that I said to the Washington Post last year. If you get wage growth, rent inflation is going to get worse, right? Because landlords have that kind of pricing power. And that's what happened. So, wage growth is really picking up, we see especially in Atlanta Fed data. That means that shelter inflation is sticky.

And then on top of that, now that rates rose and home prices rose, you have a lot of renters, first time or single renters that are -- there's no way I can buy a house now. So, they're staying in their homes, their rentals longer. So, in that case, shelter inflation is a little bit more sticky. And rent inflation doesn't really have these big collapses. You need like major, major job losses. Even after the great financial crisis, the shelter inflation itself went negative for just like a few months, and then just came back up. So, it's really rare to have deflationary collapses in rent. But we've built a lot of multifamily construction that will come online, that hopefully alleviate it. But it's not one sector that has these really big declines over the decades.

Adam: **00:48:47** Right. So, what are we expecting for rents nationally in terms of …

Logan: **00:48:51** The growth rate should naturally slow just by the laws of big numbers, and more supply is coming on. So, over time, the growth rate should slow. We just have a very abnormal brief time in history that we had this massive demographic … of wages kicked up. So, some of the rent inflation data looks crazy, like 20-30%. That growth rate should slow by just the laws of big numbers, more supply coming in. And you can't really keep on charging 20-30% rent year over year. People don't make that kind of money. So, just by that factor, the growth rate should slow and more supply is coming. Think of this, we have over 142 million units already.

So, when we talk about supply coming in, in relationship to let's say a couple 100,000 apartments coming in, just know that that percentage is low to the total units out there. So, rent inflation growth rate should slow only because the growth rate was way too hot to sustain itself. It's kind of like the housing bubble years. Demand was way too hot. The credit demand could not sustain itself. Credit tightened, that demand collapsed. Here, just the growth rate slows down. But again, people need somewhere to live, majority of people are always working even in a recession. So, it's just a marginal difference of those people that can't pay that rent. And of course, it's much more difficult for renters in an inflationary timeframe.

The best hedge against inflation right now if you're an American is your 3% mortgage rate, right, or all the homeowners, all the people that bought homes in the last 10 years, their fixed debt products. Their wages rise every year. So, this burst of inflation, their total payment of their home is much lower than what it was when they first bought it, and after they refinance, so their cash flow is really good. It helps them alleviate any kind of inflationary issues. The renter does not have that benefit. A lot of my friends I see that are renting they say, "Oh my God, my rent went up this, this, this." So, you get hit on all ends, food prices, energy prices, shelter prices, where homeowner's just sitting there thinking, right, it's pretty chill here, you know?

Adam: **00:50:59** Yeah. And there's not I guess the same -- you know, it's intuitive, but wrong, I guess, to sort of link the cost of rent to the cost of buying, right? Because, as you say, such a large fraction of homeowners have locked in rates, and many of them have locked in lower rates, right? And so they are not feeling pressure to raise rents, because their cost of owning the properties hasn't really gone up much. Right?

Logan: **00:51:35** Well, it's the cash flow. You know, I always tell people, I'm the worst real estate investor ever. Like, I have one real estate property, I paid it off, pay the mortgage off. I've never raised rent in nine years, I didn't even collect rent during COVID. So, on a cash flow basis, I've taken like a huge hit with that. But when you think of cash flow investors, they had a fixed payment and their rent's gone up so their cash flow gets better and better and better. Right? Their mortgage rate does not go up. Right? Especially if they're using a 30 year fixed product. And a lot of these people even have homes that they purchased with cash. So, their cash flow looks great. Like, people tell me why don't investors sell their homes? Are you kidding me? That's how they retire. They just collect the rent. I even ran numbers for myself this year just to see it, and I was like, okay, what if I actually charged what the rent would be? I was like, wow. No wonder everyone does this. Right? The cash flow looks good.

So, yeah, for a lot of those older time kind of investors, boy, their cash flow just got better and better. And here is the biggest rent inflation in years. So, guess what, they're making a little bit more money. They're not giving up on that house because that's where the cash flow is. So, that's a much different than let's say, a flipper, who's trying to remodel a home and then sell it right away. The growth rate of pricing could impact that business, especially if you have to carry over the cost. So, but that segment of the investment society is doing really well. The rent's gone up, and they just get more and more money for that.

Adam: **00:53:12** Yeah, it's just amazing that I guess, owners, property owners just continue to live with lower and lower cap rates on their, and it doesn't really matter except to the marginal buyer.

Logan: **00:53:26** I've always said homeowners have it's so good. I mean, it's so many of my charts over the years, it's just like, this is the last group you should worry about. And then on top of everything, their cash flow is good. Their FICO scores are great. They're fixed products, they have no recast rates, they're nested equity positions are so massive right now. There's still $2 trillion in excess savings in the economy from the COVID crisis, so even though the savings rates fall, that's just the stock versus the flow. There's still that access to homeowners. So, homeowners are doing really good. The renter, of course, is different because they don't have that fixed shelter cost.

Disincentives and the Future

Adam: **00:54:03** Right. So, I mean, the only way that we get some sort of -- I mean, I guess what I'm looking at is we've had a major shock to the cost of shelter. We've got disincentives for homebuilders to increase supply. We've got disincentives at the margin for existing homeowners to move, because they're going to have to move from a low mortgage rate to a higher mortgage rate. So, their cost of shelter goes up. How do we equilibrate this market? How do we create a market that is not permanently deleterious to new generations coming up through? I mean, the relative cost of shelter for a Millennial relative to a Baby Boomer or an early Gen Xer is going to be two to two and a half times.

Logan: **00:55:01** So, I made a case recently on why I believe we can get to 2019 inventory levels next year. And currently we're at 1.26 million.

Adam: **00:55:12** Yeah, but even if we do, even if we do, let's say that we moderate the rate of growth, let's say that growth slows to zero, let's say it stays at zero for three or four years, like, it still is going to take many, many years to work off that shift higher in prices. Right?

Logan: **00:55:31** Yeah, it's going to take, I've actually run models on this too. It would need, for me to get my price growth model back, I would need nominal home prices to fall 12 to 18% nationally, to get that back to 20-24 levels. That would mean a job loss recession that means rates stay higher. The government doesn't do anything to help consumers. This is the *"housing dilemma"*. So, much of my work is the housing dilemma is that we've created a system that really is designed to keep home prices up. The one time that we let it go was because of credit expansion boom and bust. In theory, if we wanted to, we could run forbearance programs in every recession, and nobody loses their home ever. We could do that, if we wanted to. I don't think they're going to have to have an open forbearance like we did.

But if we wanted to, we could do that, because recessions don't take that long compared to what it was in the 1800s. And then people will get a job back and they keep their homes. We can do that if we choose to. But there is a price to pay of affordability. And we finally got caught in a very bad -- We got away with it for so long. And the housing crash, if you look at other countries like England, New Zealand, Canada, their home prices are so much higher than their per capita income. We look so cheap compared to the rest of the world.

Adam: **00:57:03** Agreed. Yep.

Logan: **00:57:04**

But they never had the housing crash we did. So, my concern is that this is a difficult problem to solve because the builders need to make money. I would argue that if you really wanted to facilitate something that government basically would have to pay people to build homes during a downturn, to offset the builder's lack of construction. Something that I wrote last year, looking at the history of inventory and building going back decades, all the old stock of homes that we have that need to be torn down and re-build. There's all these different variables in there. And it's just very hard, right? It's just a very hard thing. Because for us to get price declines, you need demand to really get weak. If there's a job loss, recession, people lose their homes. You need something like that, to balance it out.

And once that forbearance came in, and it was such a successful program. If things ever got into a really bad state for the US economy, or there's some kind of other shock, they in a sense, could always fall back on that, which means more people stay in their homes. The only way longer term is, to me, it's the Baby Boomers dying. There was this marketing material in the last decade, they call it *the silver tsunami*, that all Baby Boomers were going to sell their homes starting in 2015 to Millennials that can't buy, which means they have to drop their prices around 50 to 70%. That was never the case, it was a grifting marketing tactic. But in time, the Baby Boomers will die. There is no Dorian Gray labor market so there's no -- you can live in your house forever. That shift of housing has to go somewhere. But this is a death premise. Right? As that's coming down the line.

This is also one of the reasons why I've always said you're never going to have a construction boom, because toward the end of this decade, we're going to get a lot of Baby Boomers passing off, giving their homes to their children, which means it's a wealth transfer. Whatever they do with it, that's their thing. That won't change ever. That's just years down the line. My work from years 2020 to 24, it stops in 2024 for a reason. The demographic push for the Millennials, that little bump that we had, kind of goes away, we just go back to trend. And if more people are dying, you get a little bit more supply. That to me changes some of the dynamics. We are still early in that process but nobody escapes death. You don't take your homes with you to the grave. So, that is something down the line that we can think about maybe for more supply. It's just not something that's happening.

Adam: **00:59:47**

Well, I mean, my parents are early boomers. They are currently 71 and 72. So, given you know, median mortality, they are still -- they've still got at least a decade more of healthy lifestyle and another five years of needing more health care, or maybe they need to move into an assisted living, that sort of thing. But, I mean, it seems -- and they're early boomers. Right? So, we're not going to see, I think at the margin, a major supply of new homes from boomers for the next 10, 15, 20 years.

Logan: **01:00:28** Yeah. The boomers didn't downsize either. You know, a lot of … they love their homes. See, that's one of the things about us in America, we love our house. We have TV shows to tell us what to do with our house and how to fix it up and are great. It's our thing. You don't turn over something that you spend that much money and time on unless you really need to. That's why I've always tried to stress to people, if you look at total inventory in America, it was slowly falling every single year, every single year. People were saying, "Oh, we're on the verge of a crash."

And then here comes the biggest housing demographic patch ever in history. Oh, boy, lowest mortgage rates. Oh, we just broke the all-time lows in inventory with this big demo-- what did people think were going to happen? We're going to have like a 40, 60, 70% home price? No. The exact opposite happened, the most historical housing inflation in recent modern day history. We all lived through it. When we all die, we all could say that we experienced it. Hopefully, we never see anything like that ever again. But we paid the price finally, for not having enough product out there. Not just for home buyers, but for renters as well. And then we got hit on both ends. And getting hit on both ends is painful.

Adam: **01:01:42** But there's a structural disincentive, right, the home builders also want the home prices to continue to rise. Right.

Logan: **01:01:48** That's how they make money.

Adam: **01:01:50** Yeah, there's nobody that can affect the supply of homes, who wants home prices to fall. And so it seems like there's a structural, it's almost structurally intractable to determine how you get the right level of supply to bring housing prices back into a range that wouldn't be excessively onerous on new home buyers.

Logan: **01:02:17** Yeah. The only thing I say is that recently, home price growth went up so much that the demand weakness could create natural inventory. But it's very -- again, you would need supply to really take off and demand to really stay weak for a while, and then you could see price declines. But again, you look at the history of nominal home price declines, it's rare, it does happen. You don't have a credit boom and bust here, but you've had an accelerated home price growth. Me, for myself, I'm like, how do I get my 12 to 18% decline in two and a half years. Man, that's going to be tough, right? But we try to model things out, I think about the economy. But then we have to incorporate recessions, rates going down, jobless, there's all these different live variables that we have to track for housing economics.

But man, the damage was done. That was a brutal two and a half year period. And even recently, I wrote an article for HousingWire, "Home sales are down, but why are home prices up?" And it's designed to show people that boy, this was always in the works. And people just don't sell their homes to be homeless. It is a fascinating concept. Some people tried to convince me on but they don't do that, especially when they're working. If you told your wife or your husband that or your kids, your kids would throw every toy they had. They're like, "Dad you're working. What's your problem? Stop being a little wimp." So, people don't sell their homes to be homeless, or people don't sell their homes to rent at a higher cost unless they need to move for a job or something like that.

So, the distributional shift of inventory has changed post - 2008, which makes it a little bit more problematic for housing inflation. And it was awful to see. Hence the savagely unhealthy housing market just because the worst fear I had is us getting stuck, getting stuck at this low level for a duration of period of times, it happened. And rates didn't get up high enough to really change the cycle. So, we're working our way back to normal. But again, it's just housing moves much slower than the stock market.

End miniriff here

Adam: **01:04:14** Do you have children?

Logan: **01:04:16** No.

Adam: **01:04:17** Oh, okay. I mean, I have three children. And I mean, I have to tell you that one of the things that I worry about fairly consistently is where are they going to live? Right? How are they going to be able to afford to form families and have a reasonable life even with decent jobs? Right? I mean, do you have any thoughts on what happens there?

Logan: **01:04:44** A lot of people didn't think Millennials could buy homes, but Millennials have been the biggest homebuyers for the last few years. Dual household incomes solve a lot of housing inflation issues for people especially if they have two good jobs, or we call them DICE, Double Income College Educated. So, this is why Millennials are the biggest homebuyers. Especially last year, they were the biggest homebuyers. But there's a certain group of American households that just don't make enough to buy a house. So, they have to rent or they have to move to somewhere cheaper.

So, we saw that dynamic, of course, even with people who make good money. They could buy more of what they want in other cities. I expect that to be the case for certain households always out there. But yeah, it's a housing dilemma, it's a problem, and there's no real quick, easy solutions. I was hoping that 3D printing would be more prevalent or something of that nature, but it hasn't really taken off the way I thought it would. So, we just have to deal with it one day at a time on the economic side and see where we take it from there.

Recession Indicators

Adam:	**01:05:54**	Gotcha. And on the economy side, maybe let's just finish with -- you said you've got five of your recession indicators are firing.
Logan:	**01:06:05**	Yeah. Five of my six recession red flags are up. Of course, you know, we're coming from the longest economic and job expansion ever in history. So, only three of my recession red flags are up before COVID, but COVID was a shock, very brief recession, fast recovery. The last time I had six recession red flags up was in late 2006. So, there is a lag impact. It depends on what's happening in the cycle. So, my sixth one will be raised next month. And traditionally, my work is boring progression economic model work. It just basically shows you an economy expanding, going into recession, expand and the historical data lines that go around it. We adjust the variables to what we're dealing with right now. Of course, the Russian invasion was a new variable for this year. We try to incorporate everything. But the reason I think you have to be an economic person to be a housing person is that traditionally, mortgage rates fall into a recession. So, you have to weigh that into the housing discussion just like you, in a recovery, you will have to weigh up rising mortgage rates as well. So, that's going to be the interesting aspect. Because when my sixth recession red flag is up then I talked about the economic cycle much differently. But it could be three months, we go into recession or it could be 15 months. But there's different things to look for. But traditionally speaking, if you go back decades, there's certain things that always happen before a recession. You have to block out all the noise, you have to be unhuman, you just have to look at numbers, right. Numbers are the closest thing to the handwriting of God. Just get people, get the human element out of it and just follow that data. It is terribly boring, I know. It's not very exciting. That's why I don't have a YouTube page. So, it's just here to design because if economics is done right, it shouldn't be terribly boring. You always want to be the detective, not the troll and let the numbers guide you to this eventuality. And then at that point, then you have to create a recovery model because it never stops. That's why I'm not, you know, recession forecaster, my models don't ever stop, they just continuously move just like economics. It's like human life, it continuously moves day in and day out. It doesn't have a set date.
Adam:	**01:08:14**	So, what's the sixth shoe to drop then?
Logan:	**01:08:17**	The sixth red flag is leading the economic index. It's a set of 10 different variables. Traditionally, it falls four to six months before every single recession. I kind of knew it peaked out a few months ago. Today, actually came out today, another leg lower. It's on the third month of it. But I always say I have to wait four to six months before I raise it. I mean, I could, in theory, raise it today if I

		wanted to. But I'll wait till next month, and then we just talk about it. And when you see it in the data lines, you can see it. Whoa. But it really does fall before every single recession, you get to certain stages of the economic expansion. Of course COVID-19 was an anomaly. The US economy was actually getting better toward the end of 2019 and 2020 data actually was looking good. But that was a shock and a faster recovery much different. It's more of a traditional cycle right now.
Adam:	**01:09:05**	Gotcha. Okay. Well, Logan, thank you so much. That was a whirlwind tour, I have to say that I haven't really gotten into the stock and flow of the housing market in that way. I obviously watch it closely, but this was a very interesting and novel take. So, I really appreciate you sharing with me and with those of us who are listening in the background. And maybe we'll have you on next year to evaluate how things went.
Logan:	**01:09:32**	Yeah, perfect. Always remember, be the detective not the troll. Follow the numbers. It'll guide you there.
Adam:	**01:09:38**	I like it. All right. Thanks, Logan.
Logan:	**01:09:40**	Thank you.
Adam:	**01:09:41**	Have a great day.