

# Principles of Macroeconomics

Econ 2  
Lecture 1:  
Course Introduction





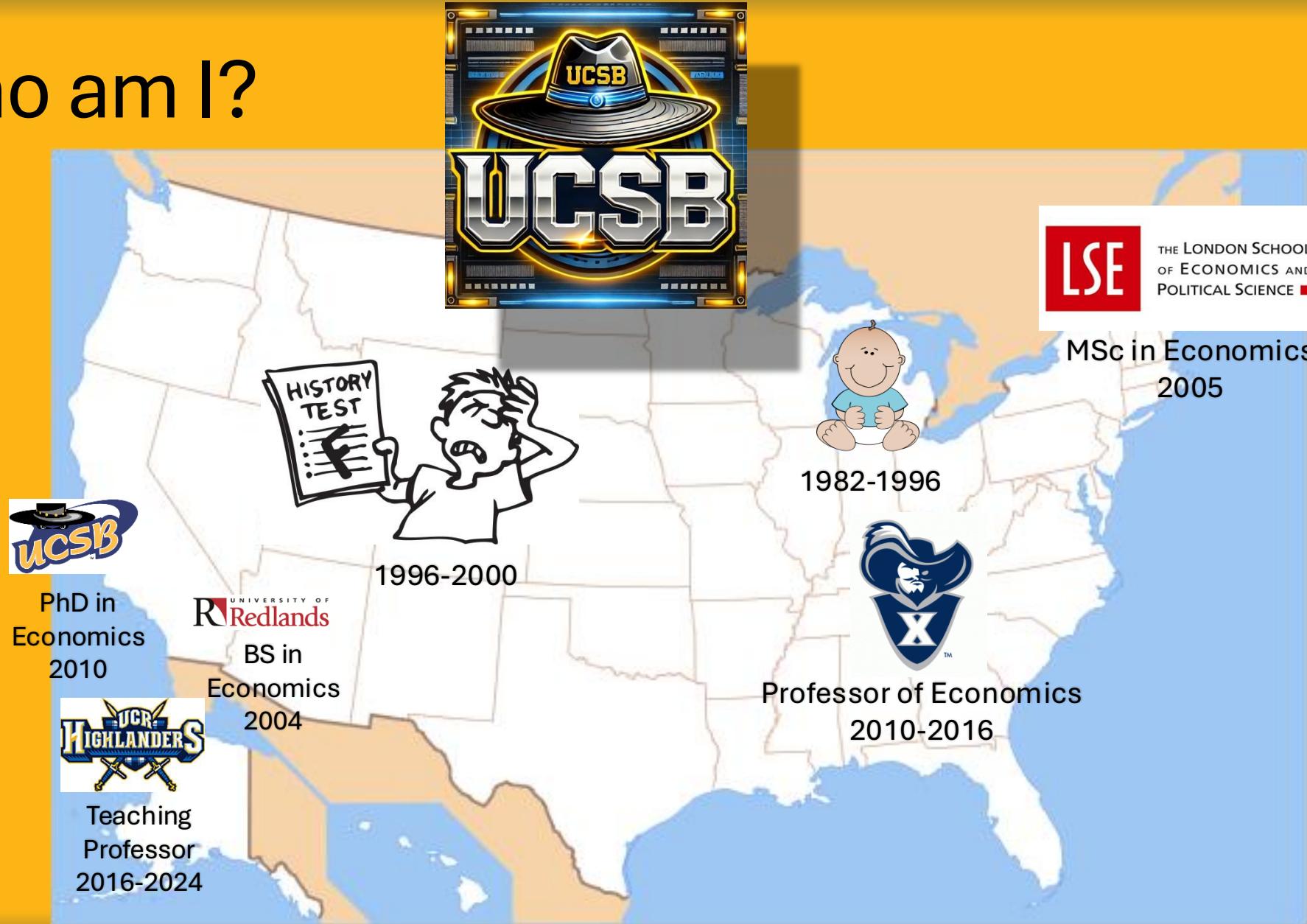
# Who am I?



Personal  
Website

- Professor: Matt Lang
- Research Interests: Health Economics, Mental Health, Education Policy, Crime, Blockchain Technology
- Teaching Experience: Principles of Macro and Microeconomics, Stats, Econometrics, Game Theory, Health Economics, Macro, Macro, and more Macro!
- Unlikely Fact: Started playing ice hockey at 4 years old. Married another economist!
- Office Hours (Course Material): North Hall 3032
- “Coffee Hours” (Any Topic): UCSB Campus/TBD
  - Random Sign-Up Times
- Email: langm@ucsb.edu

# Who am I?

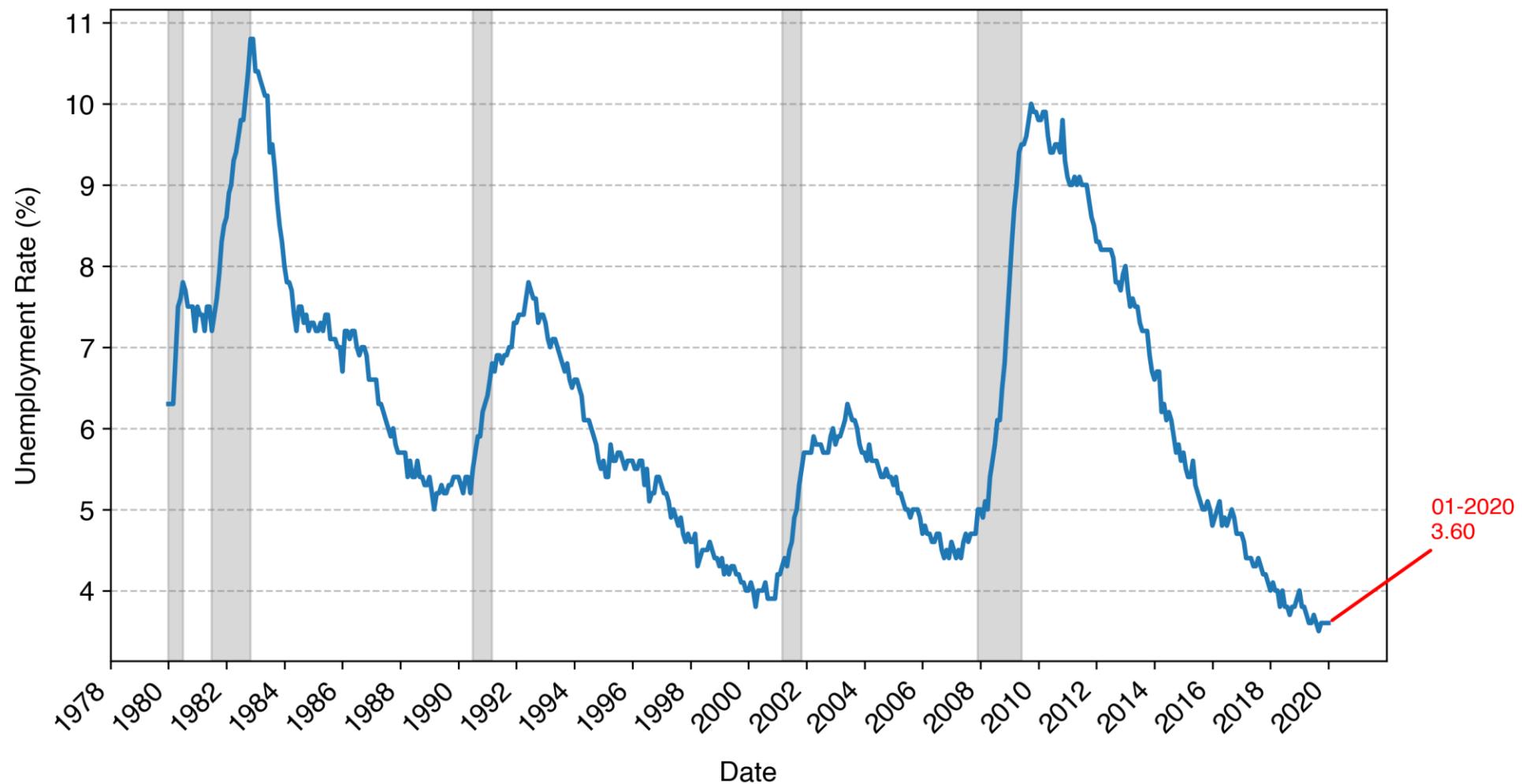


# Course Overview

- Explore and understand fluctuations in the economy as a whole and assess economic policies in an **analytical** and **unbiased** way
  - Theory
  - Data
  - Conversation
- Course Guided by 3 Principles:
  - High Standard of Living
  - Stable Prices
  - Full Employment

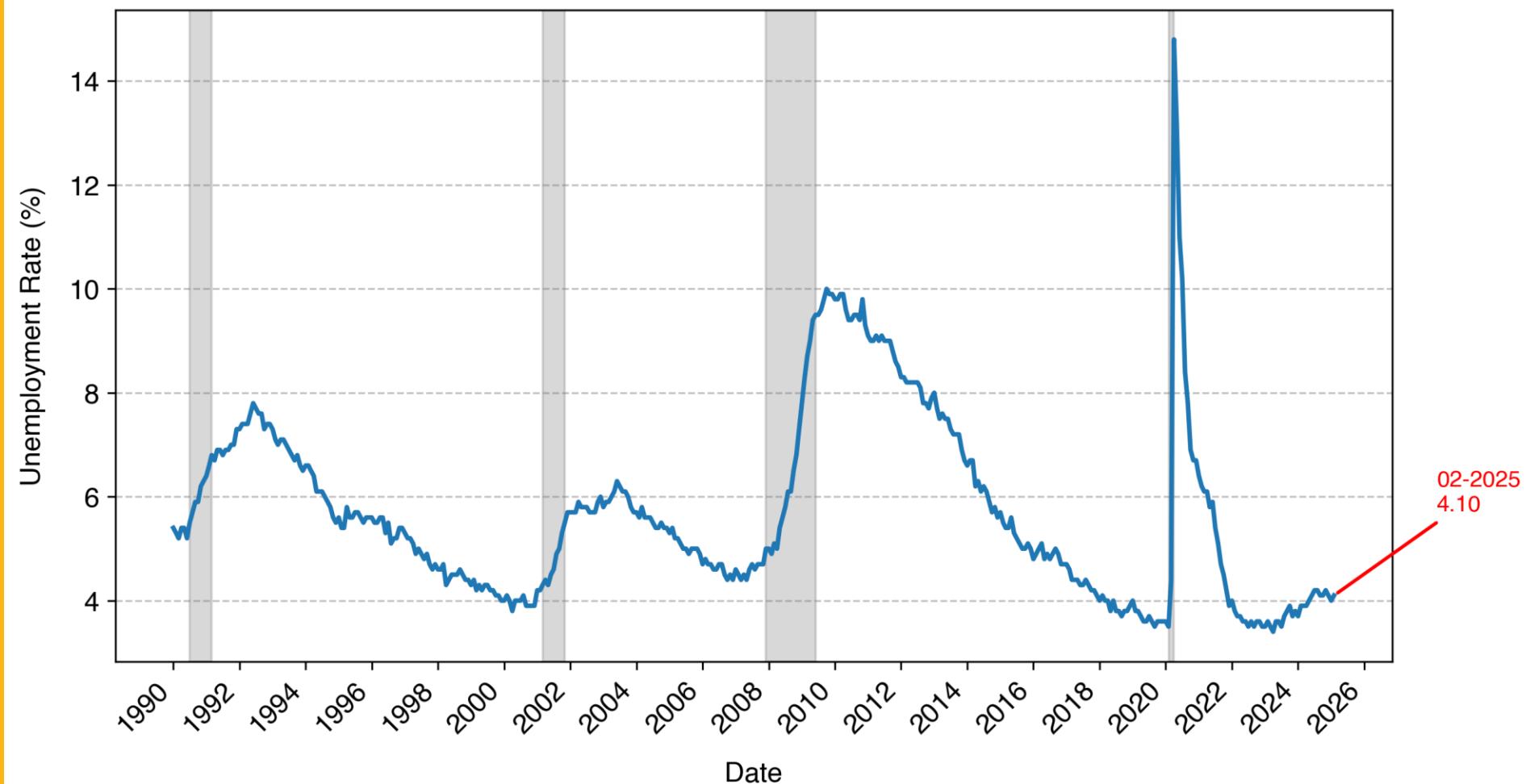


## Unemployment Rate, 1980 - 2020



Source: U.S. Bureau of Labor Statistics

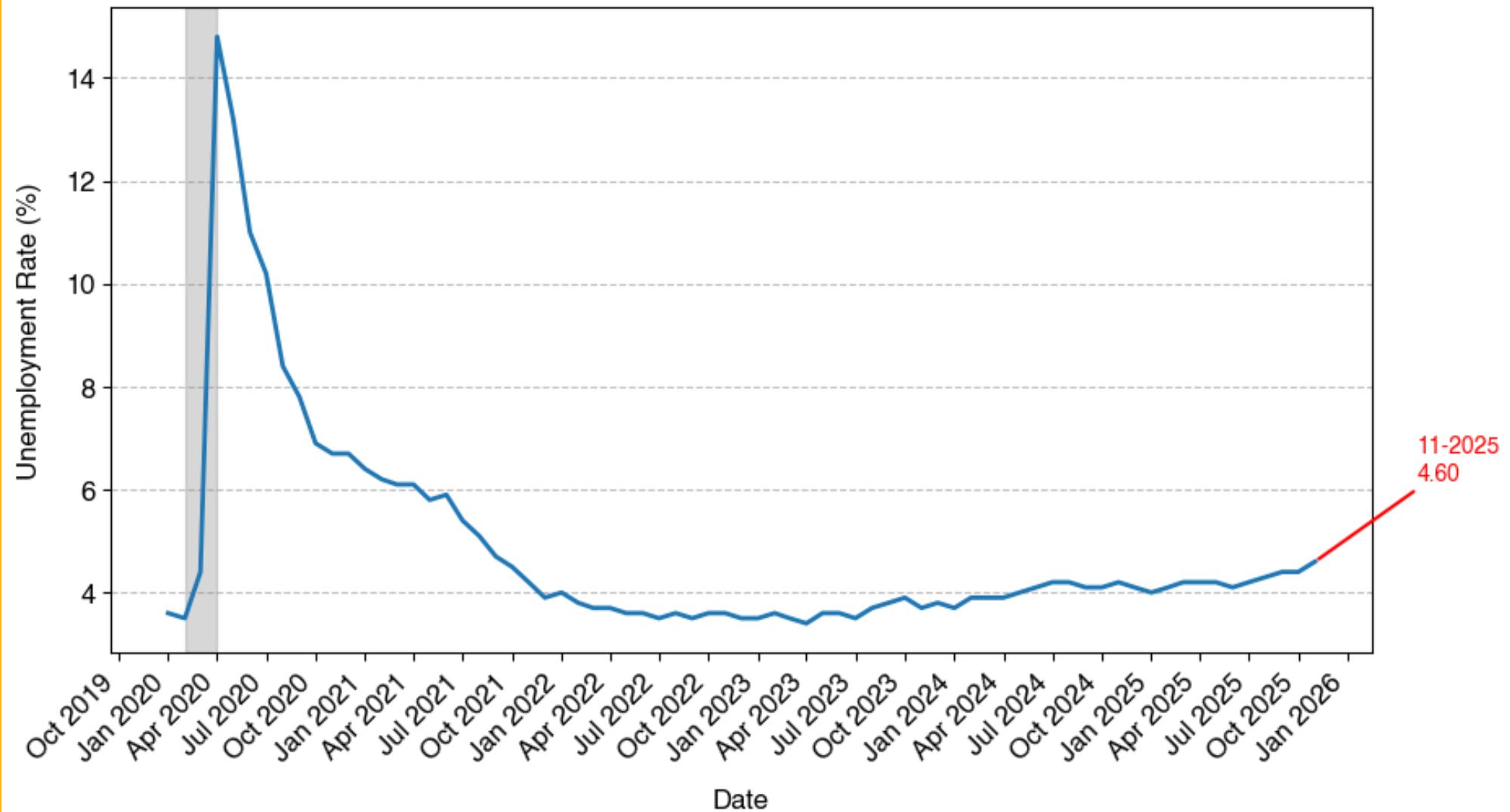
## Unemployment Rate, 1990 - Present



Source: U.S. Bureau of Labor Statistics

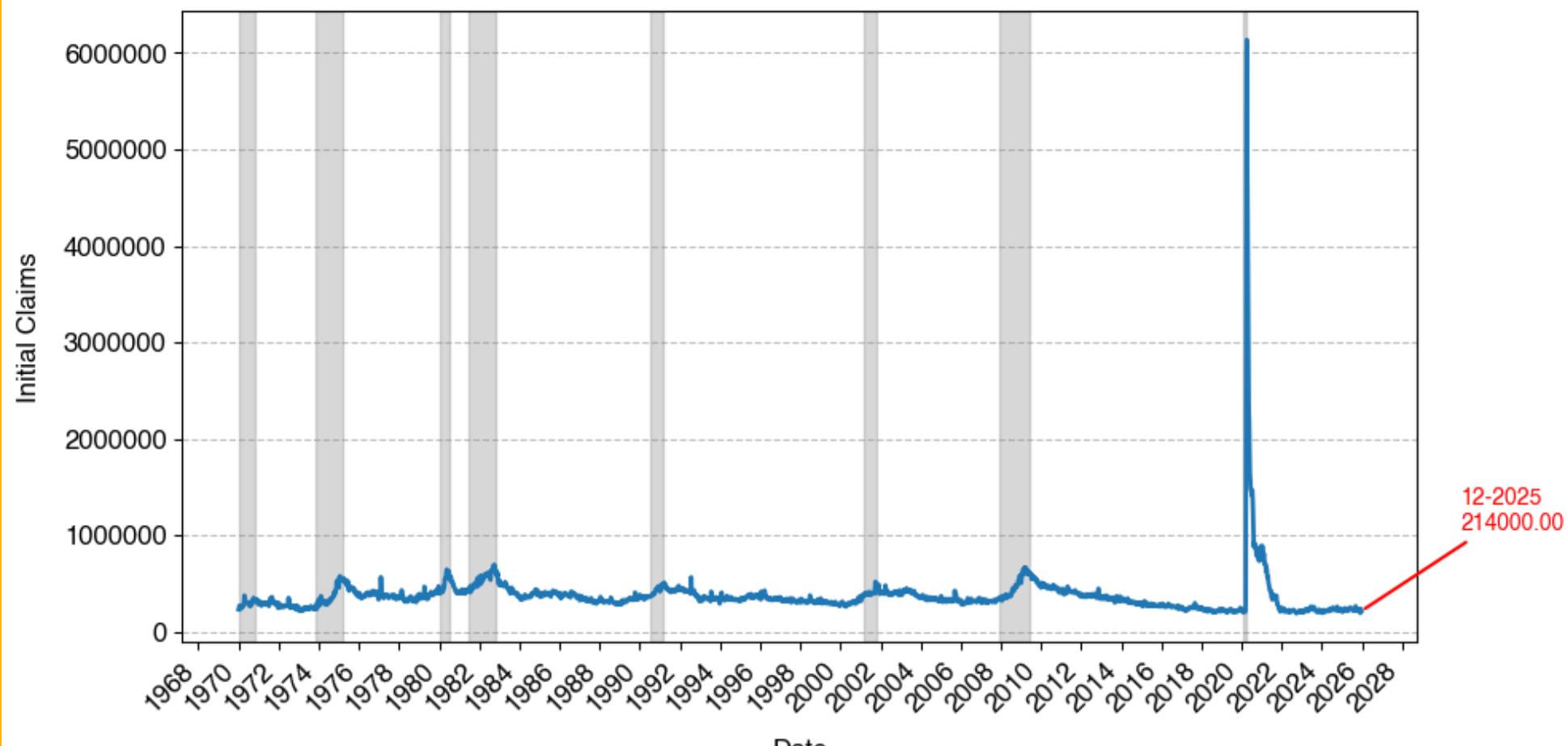
02-2025  
4.10

## Unemployment Rate, 2020 - Present



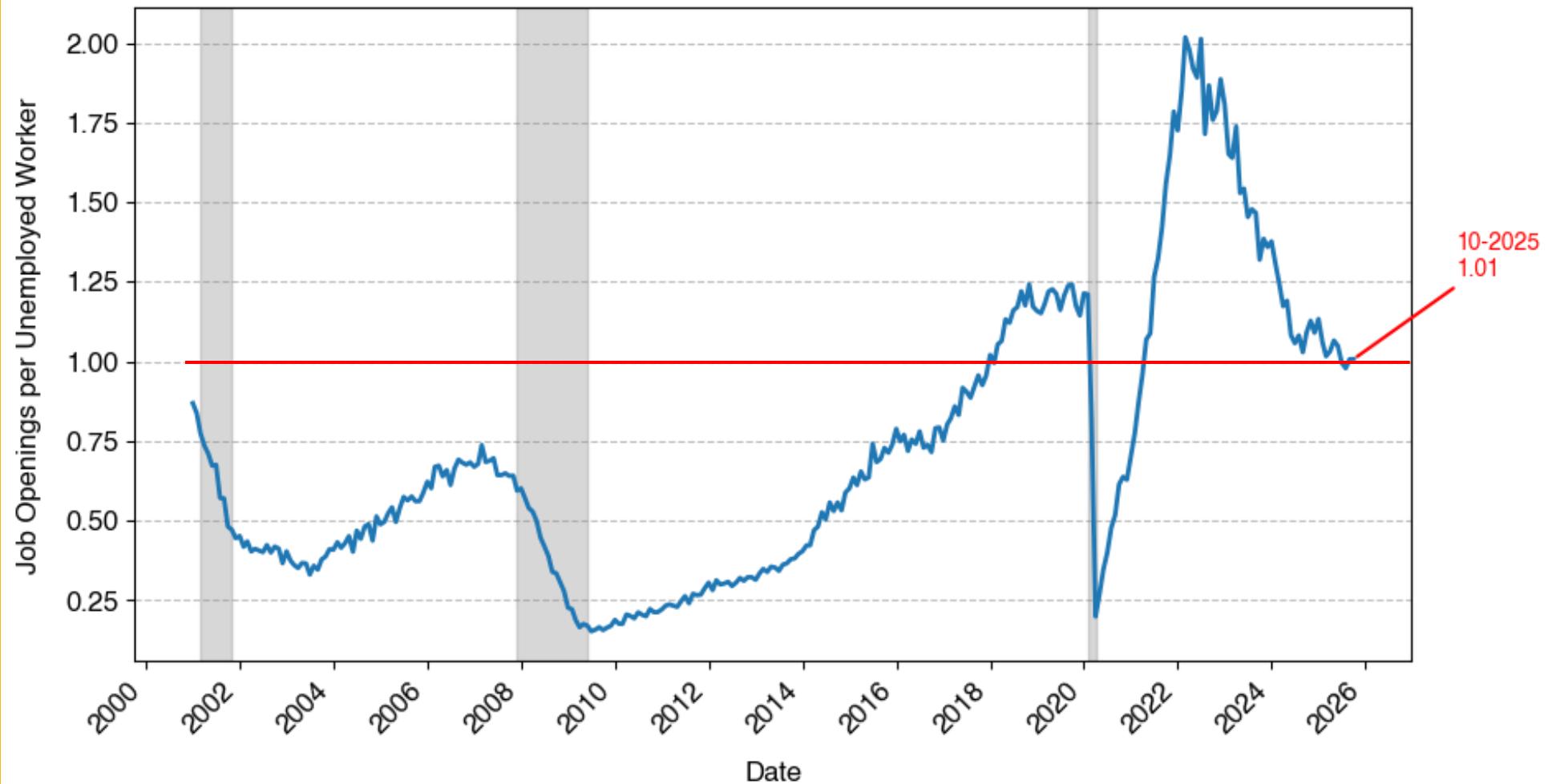
Source: U.S. Bureau of Labor Statistics

## Initial Unemployment Claims, 1970 - Present



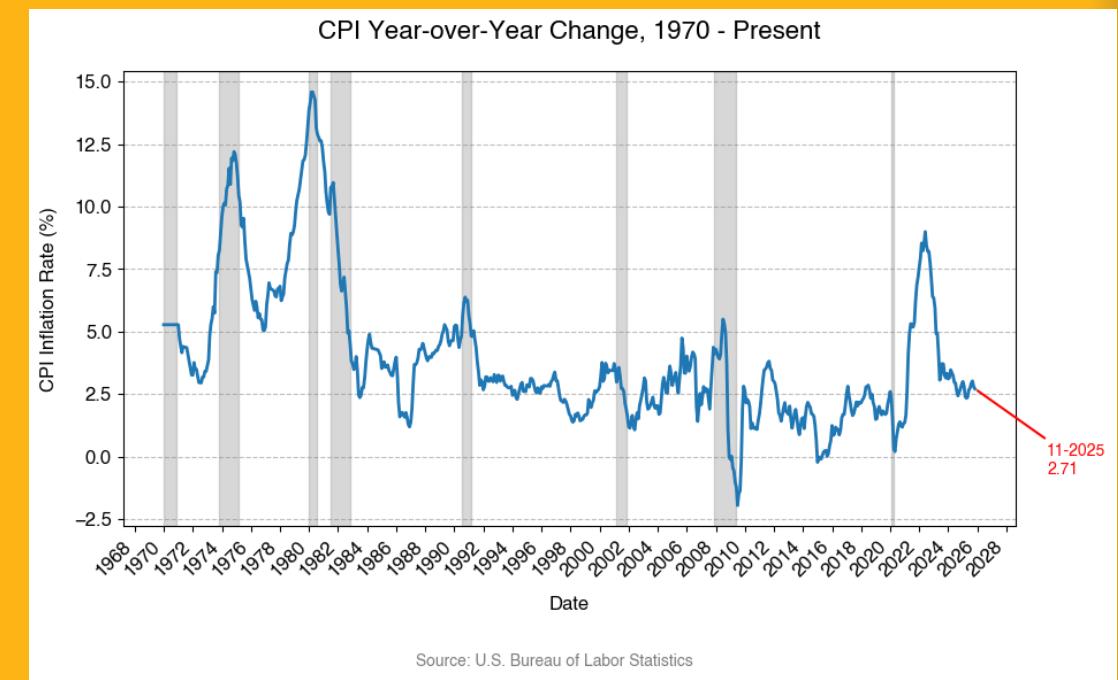
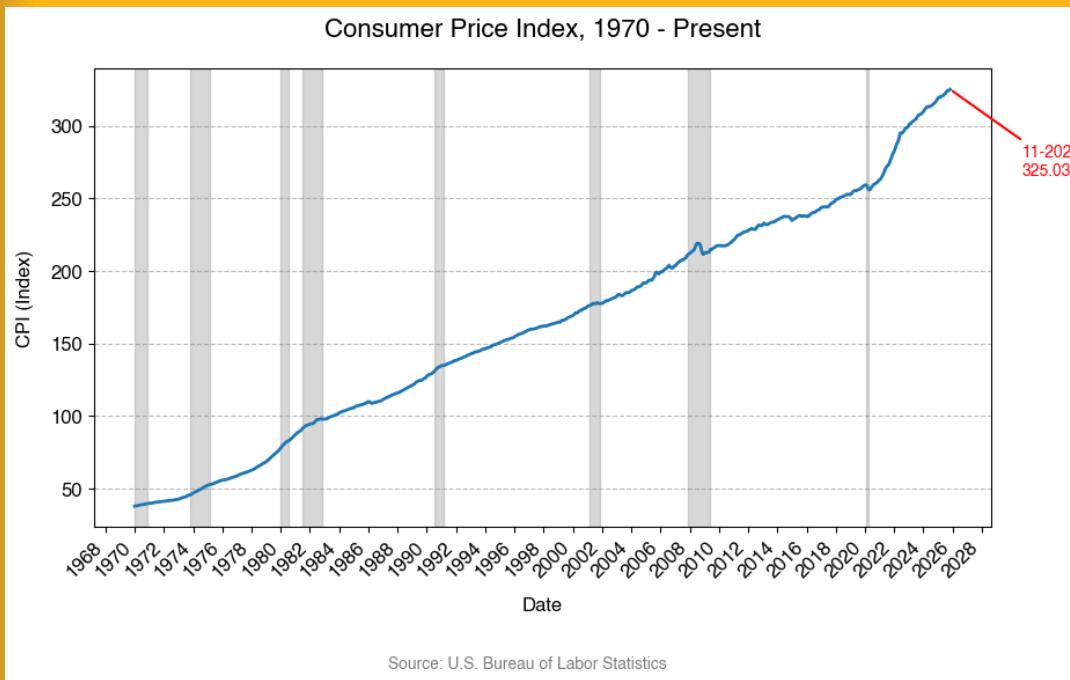
Source: U.S. Employment and Training Administration

## Job Openings per Unemployed Worker, 2001 - Present

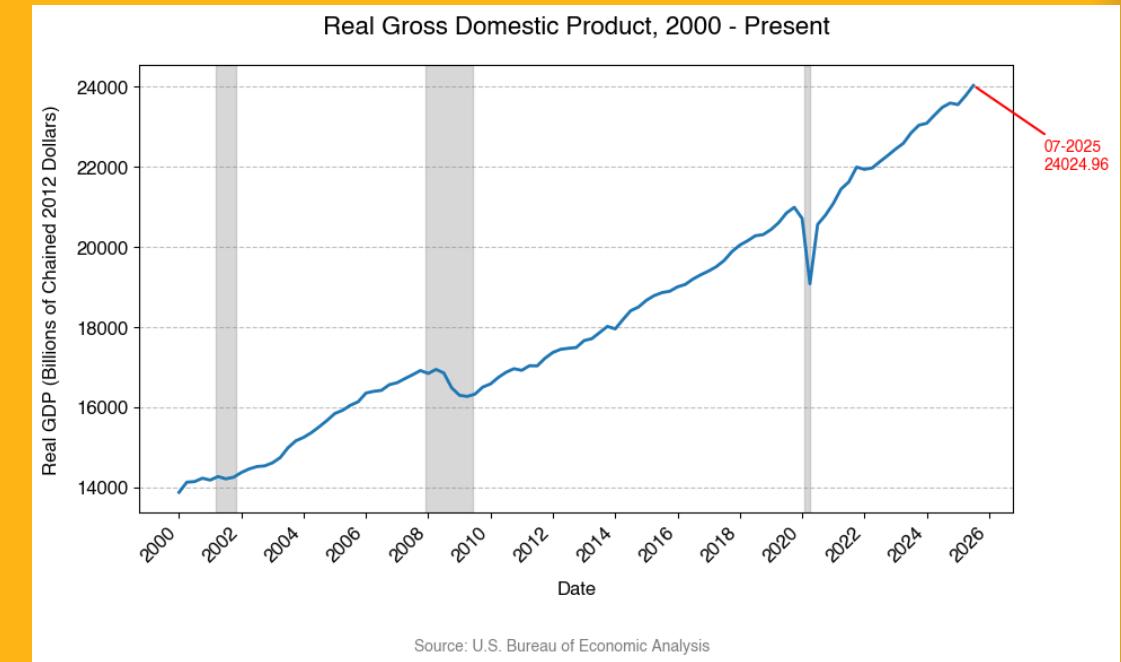
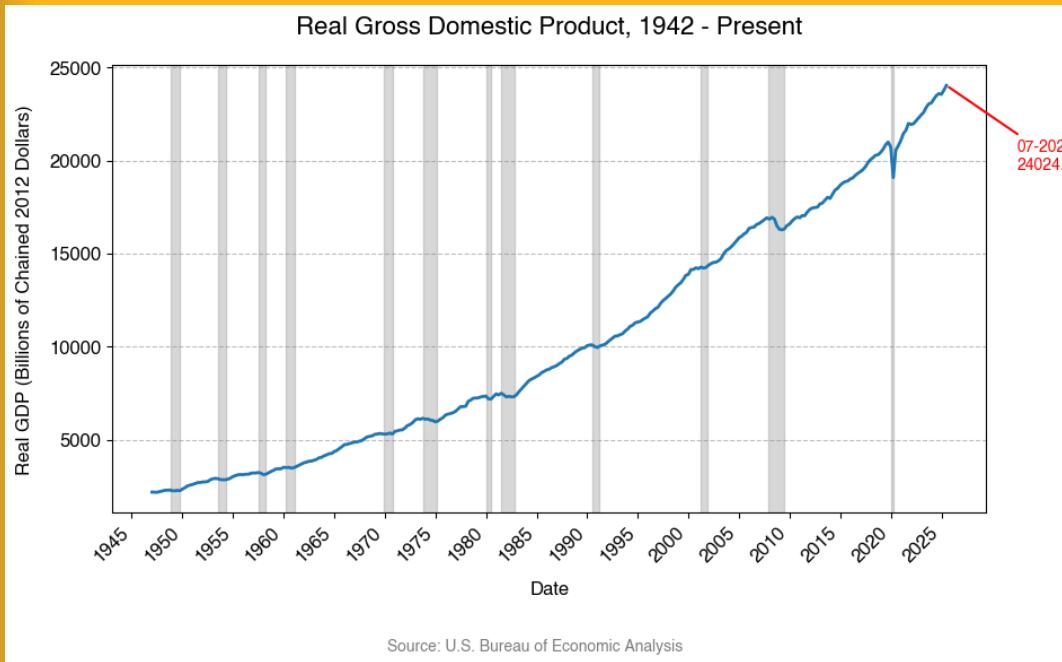


Source: U.S. Bureau of Labor Statistics

# CPI/Inflation, 1970 – Present



# Gross Domestic Product



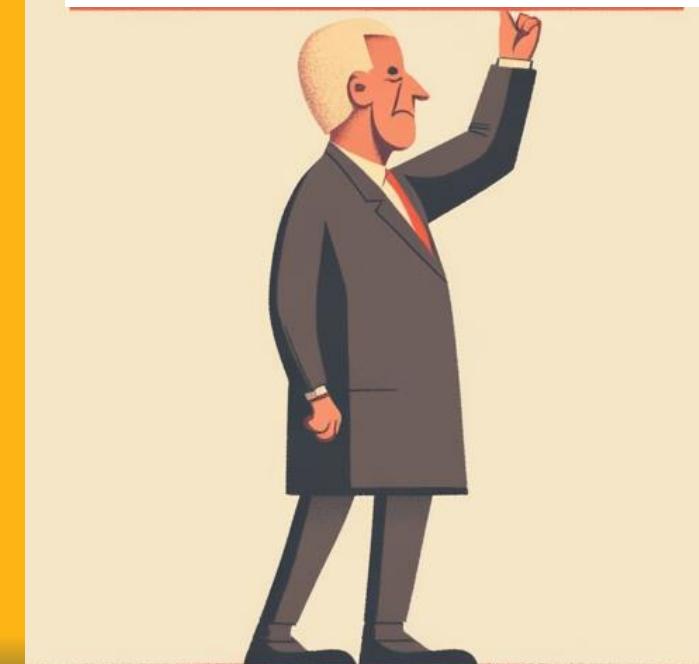
# Course Materials



- **Textbook with TopHat subscription**
  - Lower fee of \$25 (contact me if you have financial constraints)
  - In-Class Questions
- **Textbook Written by...me!**
  - In the process of updating the book
  - Need your feedback!
- **Traditional Textbooks...dated, but:**  
**Macroeconomics: Principles & Applications by Hall & Lieberman (cheap on Amazon, used)**

# TopHat Interactive Classroom

- Instructions:
- Go to [www.tophat.com](http://www.tophat.com)
- Log in to your existing Top Hat student account or use your school email to create a new account.
- Search for “Introduction to Macroeconomics – Winter 2026”, Join Code: 636856
- Be sure to use your school email and correct ID number so we can accurately identify you!
- If you click “Next” enough, the price should only be **\$25 for a 4-month subscription.**



# Course Grading

- Recent Confusion about Grading in Pre-Major Courses
- Department Grading Guidelines Instituted this Year
  - ~20% of students with A, A- (~140 students)
  - ~35% of students with B's (~245 more students)

## *Economics Department Grading Consistency Statement*

*In this course, grades will be assigned based on the following typical distribution:  
A 20%, B 35%, C+ 10%, C 20%, C- or less 15%*

- Course difficulty is set up to achieve this distribution
- I will not “curve” down, but may curve up and the minimum grade you can receive will still follow a standard grading scale

A: 93 – 100%	B+: 88 - 89%	C+: 78 - 79%	D+: 68 - 69%	F: <60%
A-: 90 - 93%	B : 83 – 89%	C: 73 - 78%	D: 63 – 68%	
	B-: 80 – 83%	C-: 70 – 73%	D-: 60 - 63%	

# Grading Thoughts and Policies

- GPA Requirement for Pre-major courses ↔ Athletic Race
  - Limited spots at the top, not everyone can get an A or B regardless of effort
  - Participation does not guarantee success
  - There are no “do-overs” or extra credit opportunities (30% of the course is “free”)
    - Special assignments are unfair to your peers and creates inequities, please don’t ask
    - Professional environments do not offer make-up work after deadlines
  - Doing the majority of training the night before will lead to a poor performance
    - Coming in stressed in week 9 or later is too late
- Goal is to
  - Reward learning – if you make learning a much as possible your goal, you will do well
  - Prepare you for success in upper division economics courses

# Course Grading

## Baseline Portion (30% of total grade)

### Weekly Lecture Quizzes (10%)

- Starting in week 1, released Wednesdays, due before next lecture (most Mondays)
- Participate in lecture (>50% of in-class questions answered)
  - Each lecture quiz question is worth 0.25% of your total grade, up to 10% (40 questions)
- Do not participate (<50% of in-class questions answered)
  - Each lecture quiz question is worth 0.2% of your total grade, up to 10% (50 questions)

### Discussion Activities (15%)

- Weeks 2, 3, 6, 8, 10
- Top 3 of 5 activities worth 5% each, 15% total
- Gamification/AI in economics

### Participation (5%)

- Don't be a story

## Midterm Exam (30% of total grade)

### Midterm Exam, February 2<sup>nd</sup>

- 30 Multiple Choice Questions
  - ~20 - 23 Questions align relatively closely to Practice Questions, Exams, Quizzes, etc.
  - ~7 – 10 Questions use tools you have learned about on questions that are new/different
  - Ranging from small extensions to difficult applications

- If you miss the midterm with an excused absence, your final may be worth 70% of your total grade

## Final Exam (40% of total grade)

### Final Exam, March 18<sup>th</sup>

- 40 Multiple Choice Questions
  - ~28 to 30 Questions align closely with Practice Questions, Exams, Quizzes, etc.
  - ~10 to 12 Questions use tools you have learned about on questions that are new/different
  - Ranging from small extensions to difficult applications

- If you miss the final exam with an excused absence, you may receive an incomplete for the course and take the final in the fall quarter

# Other Thoughts

- **“What if I have an emergency?!”**
  - First, reassess if it's an emergency: a breakup is not equivalent to a relative being diagnosed with cancer.
  - If it is an emergency, prioritize class appropriately. My experience is that students with the most serious emergencies do not care about their course points, they want support. I am happy to always offer that support!
  - Lots of “drops”...you can still get full credit on quizzes and activities if you start doing them by week 5!
  - If you notify me before the midterm with a documented reason for missing → the final exam may be worth 70% of your grade
  - If you notify me before the final with a documented reason for missing → you will get an incomplete in the course and take the final in the fall quarter
- **Do not let grades impact your self-worth or well-being**
  - Everyone is used to being at the top of their class
  - Employers are becoming frustrated with grade inflation, the lack of problem solving and work ethic of new hires.
  - Interview = Work Assignments = Grades are not an indicator of success
  - I don't know what your plans are for the future, but the likelihood of anyone's grade in their Intro to Macro course making a difference in their outcome in life is nearly 0%. Not figuring out how to prioritize learning can be costly.
  - “If I don't get my C+ bumped up to a B+, I won't get into the major.” That may be the best thing that happens!

# Important Dates

- Lecture Quizzes done on TopHat
  - Due before the first lecture of weeks 2, 3, 4, 5, 7, 8, 9, and 10
  - Last Quiz due before the Final Exam on 3/18
  - Get 40 to 50 questions correct for full credit (10%)
- Discussion Section Activities
  - AI/Gamification Activities in weeks 2, 3, 6, 8, 10
  - Google Form Quizzes (simulate difficult exam questions) in weeks 1, 4, 5, 7, 9
  - Top 3 of 5 Activities needed for full credit (15%)
- Midterm on Monday, February 2<sup>nd</sup> (Week 5)
  - 30 Multiple Choice Questions (30%)
- Final Exam on Wednesday, March 18<sup>th</sup> (9 – 11 am)
  - 40 Multiple Choice Questions (40%)



Federal Reserve is scheduled to meet on:  
January 27<sup>th</sup>/28<sup>th</sup> (1 week after midterm)  
March 17<sup>th</sup>/18<sup>th</sup> (press conference at 11am)

# Discussion Section Activity Example

- Week 2 (Activity #1): Housing Market Analysis
  - In groups of 2-3, choose a state, navigate to the Redfin Data Center
    - <https://www.redfin.com/news/data-center/>
  - Under Monthly Housing Market Data, download chosen state-level data
  - Upload data to Discussion Activities Website:  
<https://matthewdlang18.github.io/macroeconomics-course-website/activities/index.html>
  - Examine 4 housing metrics (price, months of supply, days on market, price drops, sale-to-list)
    - Provide weights for each metric
    - Evaluate if the metric is signaling a balanced, buyers, or sellers market
    - Calculate a value for the health of the housing market
  - Feed data it into AI platform and ask for analysis
  - Compare your analysis to AI
  - Input results onto Google Sheet and TA will aggregate results on a separate webpage
  - Short reflection questions
- Discussion Activities will be posted on Website, Canvas and TopHat before sections

# A Note on AI Usage

- Economics can handle AI differently than other subjects
- Think of this course as having an AI Component and non-AI Component
  - Lecture Quizzes, Exams = Critical Thinking Skills (non-AI)
  - Discussion Activity = What can we accomplish with these new tools? (AI)
- AI is very limited if we do not have the critical thinking skills but combined can be very helpful
- If you find that using it is stopping you from thinking and learning, step away!
- If you have questions or concerns about AI usage, please ask!



# Possible AI Tools Used This Quarter



- Each week in Discussion Section there will be a small group activity merging course topics with an AI activity. You will turn in something by the end of each section.
  - ChatGPT: <https://chatgpt.com>
  - Perplexity: <https://www.perplexity.ai>
  - Claude: <https://claude.ai/new>
  - Google Gemini and Notebook LM (need personal account): <https://gemini.google.com/app> and <https://notebooklm.google.com>
  - Mistral AI: <https://mistral.ai>
  - Probably more! Let me know if you find good ones!
- Course Textbook is Connected to “Ace”
- Top 3 of 5 activities count towards grade

# Additional Resources

- Each week, difficult short-answer questions on the material will be posted
- The questions will be not be covered in your discussion section and instead covered every: TBD
- Review sessions for the midterm and final will also take place at these times
- Textbook! Textbook! Textbook!
- Make up your own extensions of questions!
- Administrative questions should be directed to the professor or Head TA
- Content questions should be asked in-person (lots of office hours)
- Course Discord: <https://discord.gg/jtVkr6A6DY>



# Microeconomic Markets that Represent the Macroeconomy

- Technology
- Alcohol
- Gasoline
- Food
- Housing



# How does the Housing Market Work?

- You budget \$2000 per month for housing. What is the most expensive home/condo you can purchase?

Component	6% Interest Rate		
Home Price	\$417,000		
20% Down Payment	\$83,400		
Mortgage (Amount Borrowed/Principal)	\$333,600		
Monthly Payment for 30 years	\$2,000		
Mortgage Payments (360 Months)	\$720,000		
Interest Paid after 360 Months	\$386,400		
Mortgage + Down Payment	\$803,400		

# How does the Housing Market Work?

- You budget \$2000 per month for housing. What is the most expensive home/condo you can purchase?

Component	6% Interest Rate	3% Interest Rate
Home Price	\$417,000	\$417,000
20% Down Payment	\$83,400	\$83,400
Mortgage (Amount Borrowed/Principal)	\$333,600	\$333,600
Monthly Payment for 30 years	\$2,000	\$1,406
Mortgage Payments (360 Months)	\$720,000	\$506,160
Interest Paid after 360 Months	\$386,400	\$172,560
Mortgage + Down Payment	\$803,400	\$589,560

# How does the Housing Market Work?

- You budget \$2000 per month for housing. What is the most expensive home/condo you can purchase?

Component	6% Interest Rate	3% Interest Rate	3% Interest Rate
Home Price	\$417,000	\$417,000	\$593,000
20% Down Payment	\$83,400	\$83,400	\$118,600
Mortgage (Amount Borrowed/Principal)	\$333,600	\$333,600	\$474,400
Monthly Payment for 30 years	\$2,000	\$1,406	\$2,000
Mortgage Payments (360 Months)	\$720,000	\$506,160	\$720,000
Interest Paid after 360 Months	\$386,400	\$172,560	\$245,600
Mortgage + Down Payment	\$803,400	\$589,560	\$838,600

# How does the Housing Market Work?

Component	6% Interest Rate	3% Interest Rate	3% Interest Rate
Home Price	\$417,000	\$417,000	\$593,000
20% Down Payment	\$83,400	\$83,400	\$118,600
Mortgage (Amount Borrowed/Principal)	\$333,600	\$333,600	\$474,400
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Interest Paid after 360 Months	\$386,400	\$172,560	\$245,600
Mortgage + Down Payment	\$803,400	\$589,560	\$838,600

- Is this ever a good deal? What are we missing?

# How does the Housing Market Work?

30-Year Mortgage vs. Rental Apartment at \$2,000/month

Component	6% Interest Rate	Rental Apartment
Home Price	\$417,000	\$0
20% Down Payment	\$83,400	\$0
Mortgage (Amount Borrowed/Principal)	\$333,600	\$0
Monthly Payment for 5 years	\$2,000	\$2,000
Total Monthly Payments (60 Months)	\$120,000	\$120,000
Monthly Payments + Down Payment	\$203,400	\$120,000
Principle Owed after 5 years	\$310,429	\$0
Sale Price	\$450,000	\$0
Savings after Sale (Renting = 4% US Bond)	\$139,571	\$101,468

# How does the Housing Market Work?

- The home is a place to live AND a place to store your money (investment)
- What are we missing?

Component	6% Interest Rate	Rental Apartment	3% Interest Rate
Wealth after 5 Years	\$139,571	\$101,468	\$153,409
Homeowner Taxes (\$4,500/year)	\$22,500	\$0	\$22,500
Homeowner's Insurance (\$2,500/year)	\$12,500	\$0	\$12,500
Upkeep (\$100/month)	\$6,000	\$0	\$6,000
Realtor Fees (up to 5% of sale price)	\$22,500	\$0	\$22,500
Sale Price of \$440 instead of \$450K	\$10,000	\$0	\$10,000
Extra Costs	<b>\$73,500</b>	<b>\$0</b>	<b>\$73,500</b>
Invest Monthly Savings into 4% bond			\$39,911
Savings Account after Adjustments	\$66,071	\$101,468	\$119,820

# How does the Housing Market Work?

- **A lower interest rate makes buying more affordable!**
  - Decreasing the interest rate can incentivize a homebuyer to purchase a home
- **Home values are important to household wealth**
  - Important later in the term
  - Rising home values increase homeowner wealth
- **Higher home prices make renting more desirable for potential home buyers**
- **Lower home prices make renting less desirable for potential home buyers**



# Demand for Housing



# Supply of Housing

- How is housing supply determined?



# Housing Market Equilibrium



# Explaining Changes in the Housing Market

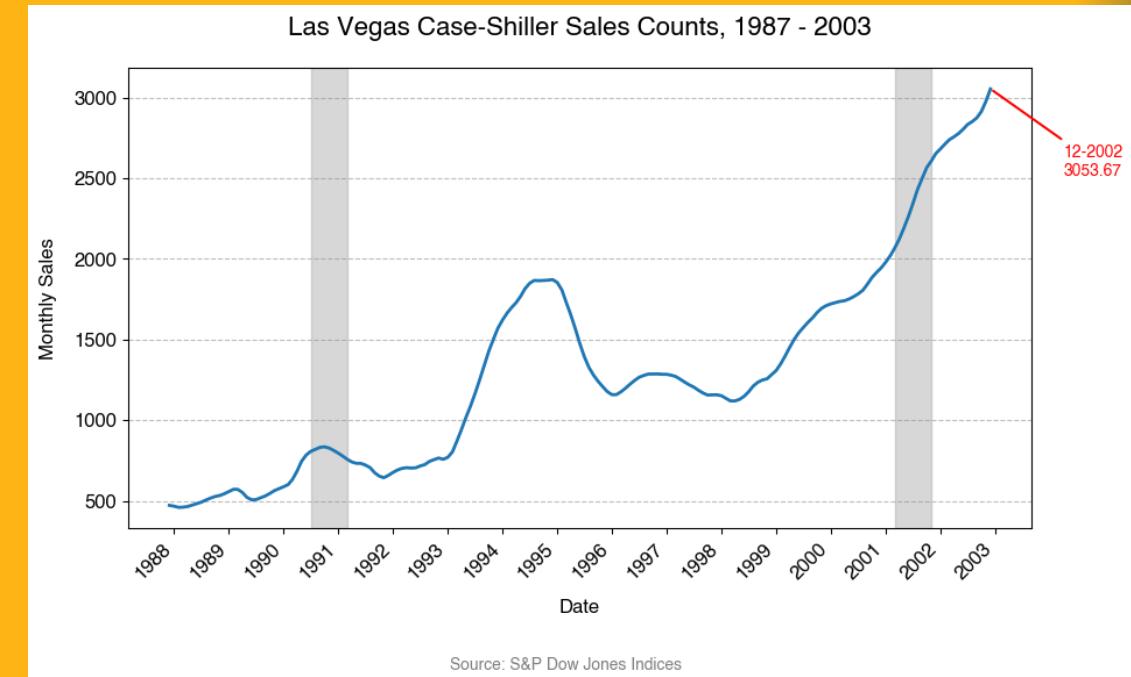
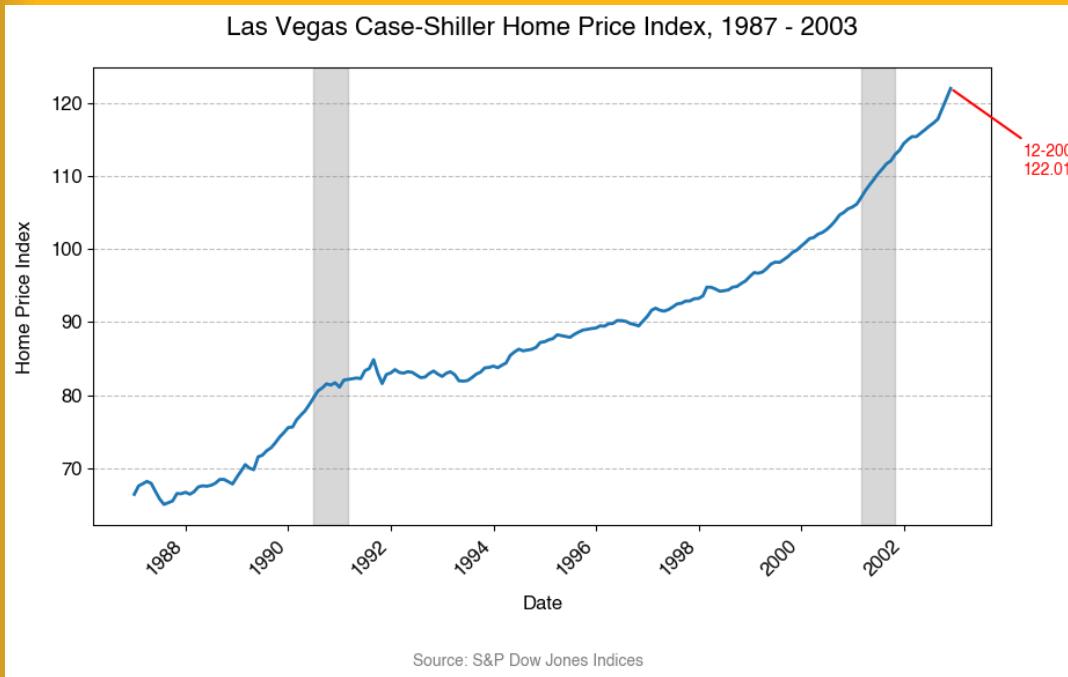
MGM Grand, Las Vegas, 1973



Las Vegas Strip, 2024



# Explaining Changes in the Housing Market



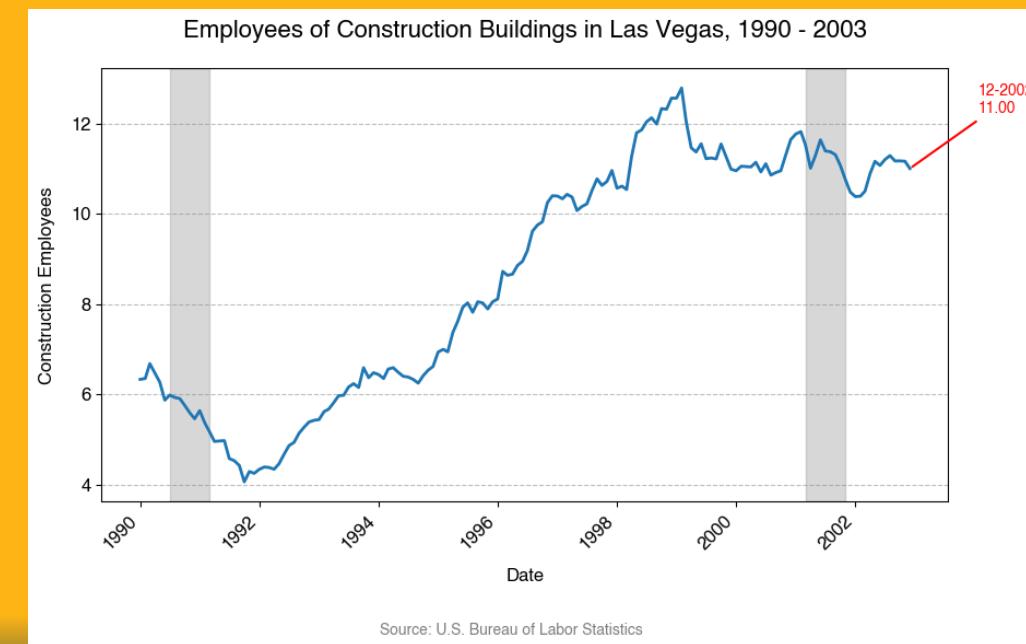
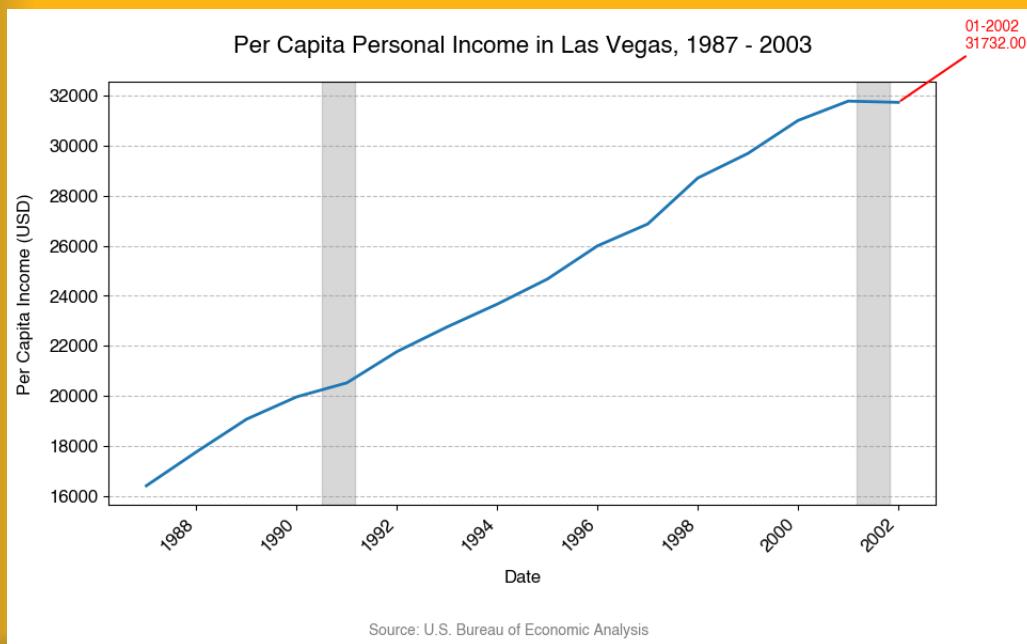
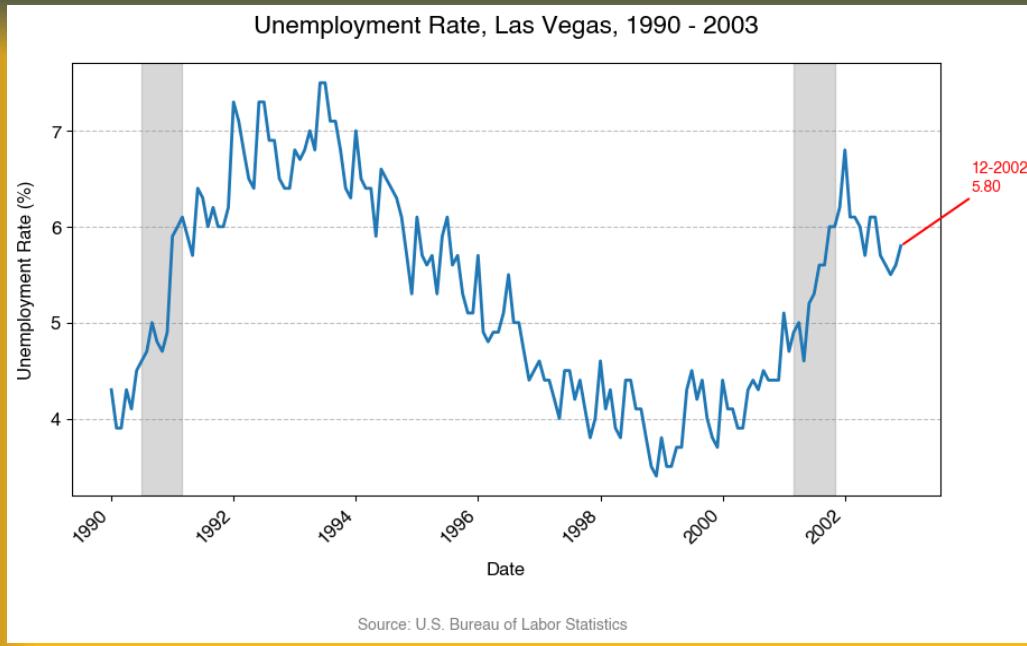
Las Vegas housing prices ~ doubled between 1987 and 2003

Las Vegas homes bought/sold increased from 500 per month to 3000 per month between 1987 and 2003

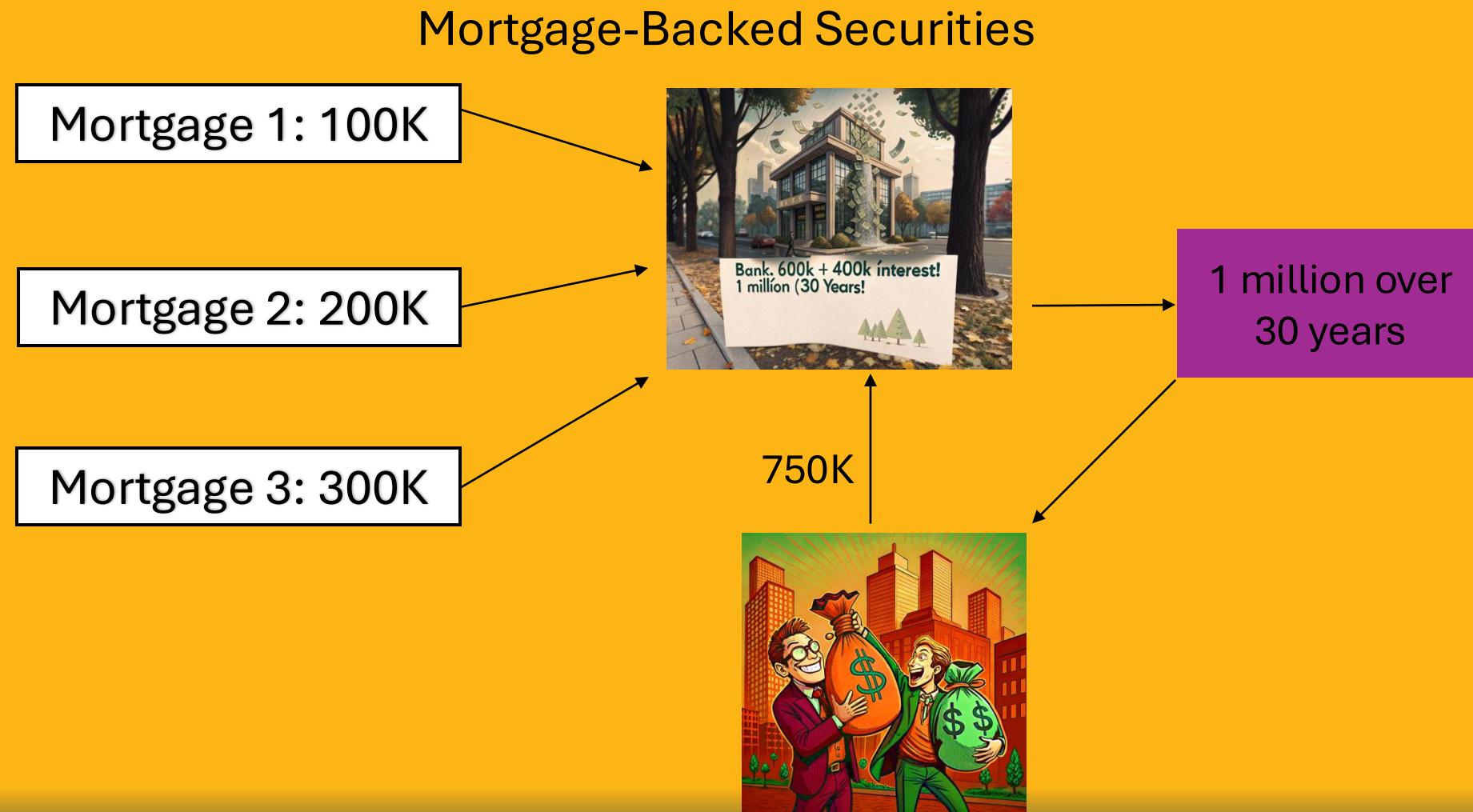
# Housing Market Equilibrium

Q: Between 1987 and 2003, prices and quantity of homes increased. What is the most likely reason for this?

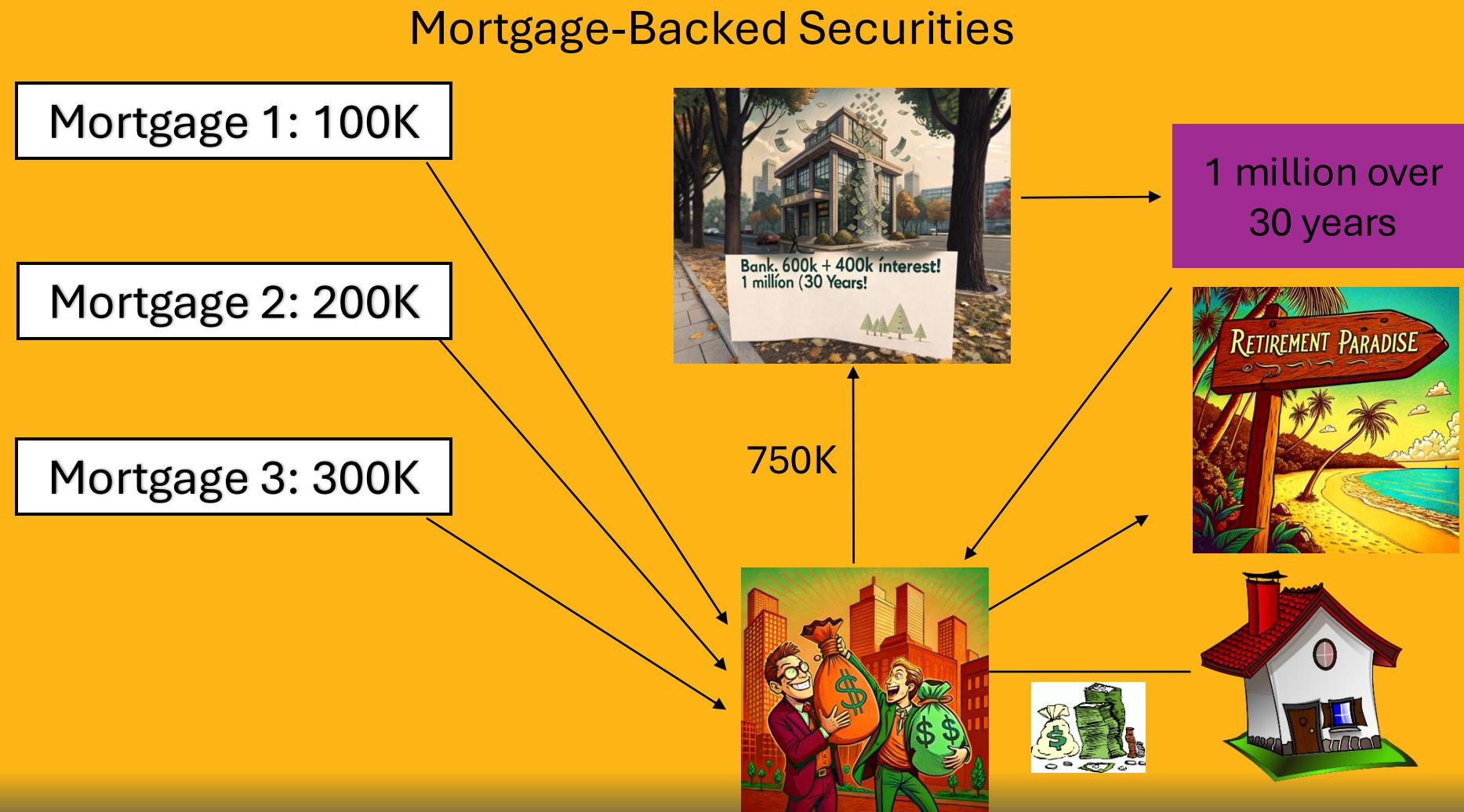




# What happened between 2003 and 2007?



# What happened between 2003 and 2007?



# What happened between 2003 and 2007?

- Banks could sell MBS to investors → more funds to lend
- Constraints to buying a home?
  - **Down-payment**
  - Interest rate
  - Income requirements

**CNN Money**

**YOUR MONEY > Your Home**

[SAVE THIS](#) [EMAIL THIS](#) [PRINT THIS](#) [MOST POPULAR](#)

## Home buying with no money down

If the only thing standing between you and homeownership is a downpayment, consider your options.

December 23, 2003: 5:28 PM EST  
By Sarah Max, CNN/Money Staff Writer

**BEND, Ore. (CNN/Money)** Up until a year ago, photographer Melissa Jansson, 30, planned to rent for the foreseeable future. At that point, the few hundred dollars she had in savings wouldn't even cover her closing costs.

In November, Jansson closed on a \$150,000 home of her own with a 3 percent downpayment she scored through a grant from the state of Oregon for qualified first-time homebuyers. Even better, she found a seller willing to pay all but \$12 of her closing costs.

"Until I heard about the grant program buying a house was a fantasy," said Jansson, who shares her two-bedroom, two-bathroom home with a roommate and ultimately pays only \$40 a month more to own than she did to rent.

**Very little down**

"No-money-down home purchases used to be the kind of thing you only saw on late night TV," said Keith Gumbinger, vice president for HSH Associates.

Now they're in the mainstream.



# What happened between 2003 and 2007?

- Banks could sell MBS to investors → more funds to lend
- Constraints to buying a home?
  - Down-payment
  - **Interest rate**
  - Income requirements

THE WALL STREET JOURNAL.

Latest World Business U.S. Politics Economy Tech Markets & Finance Opinion Arts Lifestyle Real Est

## Teaser Rates On Mortgages Approach 0%

As Lending Frenzy Slows, Banks Add Twists to Lure Homeowners; Many of the Deals Have Pitfalls

By Ruth Simon *Staff Reporter of THE WALL STREET JOURNAL*  
Feb. 15, 2005 at 12:01 am ET

 Share  Resize

Taking a page from credit-card companies and car makers, mortgage lenders are touting loans with rock-bottom introductory rates -- in one case, nearly 0%.

Most of these loans are so-called option adjustable-rate mortgages, which carry an initial rate as low as 1%. One key and unusual feature: Borrowers get up to

# What happened between 2003 and 2007?

- Banks could sell MBS to investors → more funds to lend
- Constraints to buying a home?
  - Down-payment
  - Interest rate
  - **Income requirements**
  - **Alt-A Loans**
    - **No documents**
    - **NINJA Loans (no income, no job or assets)**

Year	Share of Alt-A loans (in %)
2001	2.8
2002	2.5
2003	2.3
2004	7.7
2005	13.8
2006	15.9

# What happened between 2003 and 2007?

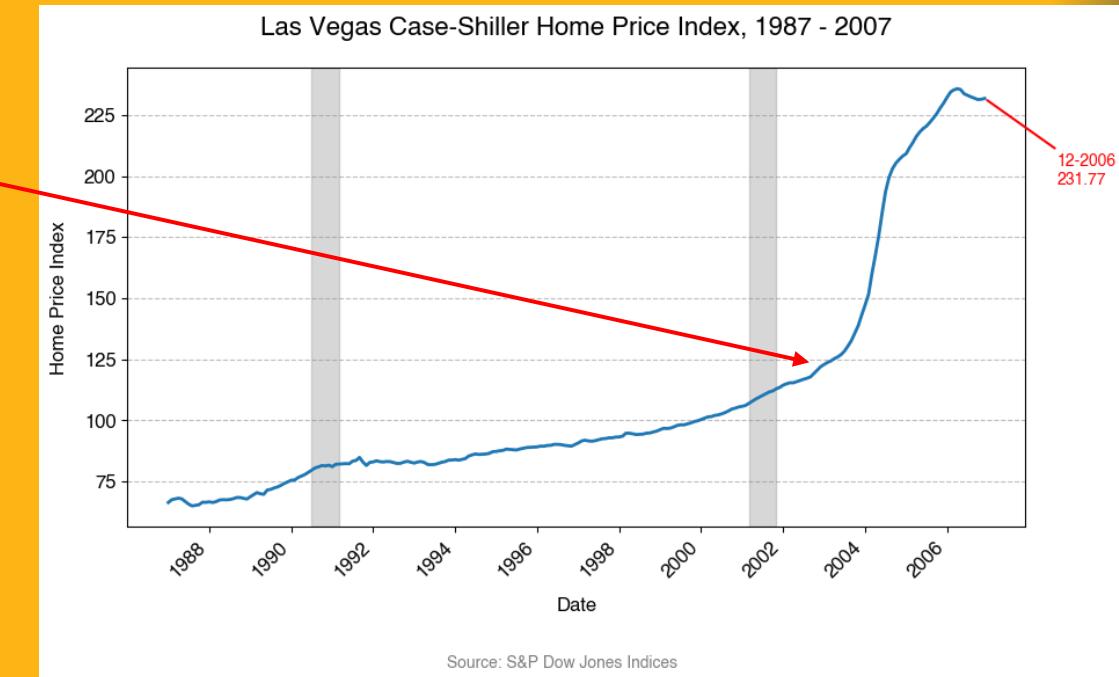
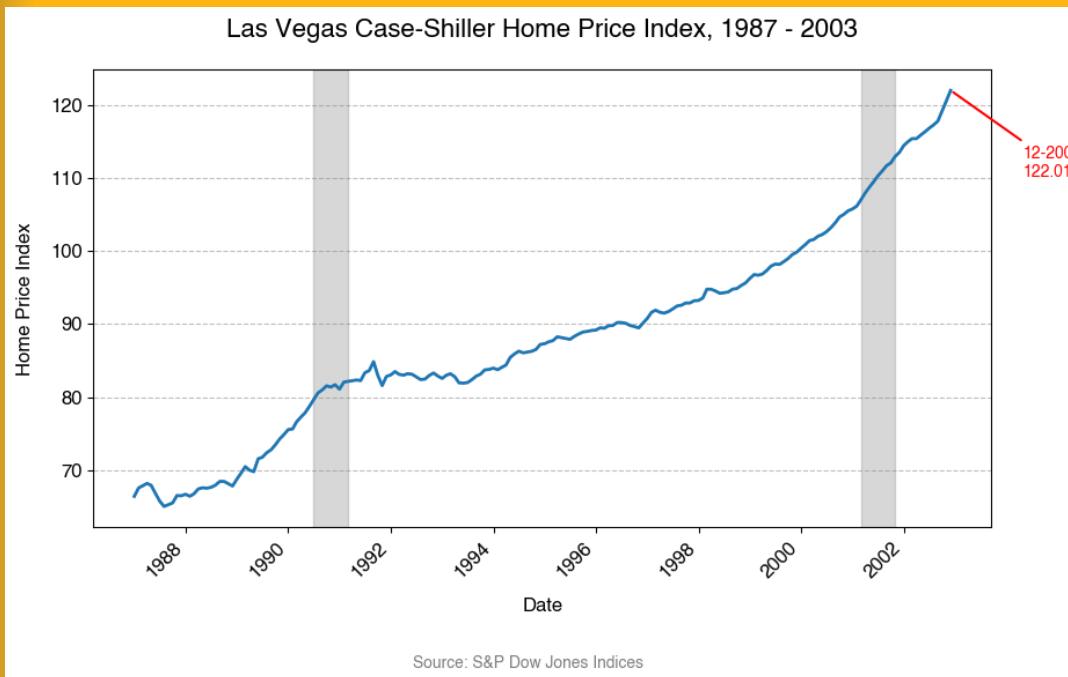
- No down-payment, low interest rate, limited income requirement?
- Buy a home, wait for the price to increase, sell the home, profit, repeat
- Buying an asset with the purpose of reselling (not using) = speculation



A screenshot of the TopShot NFT marketplace. At the top, there are navigation links: TOPSHOT BETA, PACKS, MARKETPLACE, PLAY, and FAST BREAK. A search bar at the top right contains the text "Rookie Debut, Trade-Ins, Lakers". Below the navigation, there is a grid of small thumbnail images. In the center, a larger image shows LeBron James performing a dunk. The image has a purple border. To the right of the image, there is a detailed card for the NFT: "LEBRON JAMES" (Dunk - Oct 11 2020, 2020 NBA Finals (Series 1), Legendary #2369, 10 Moments burned). Below the card, it says "OWNED BY @easyaces" and "Top Sale: \$230,023.00 Recent Sales: 10 sold in the last 24 hours".



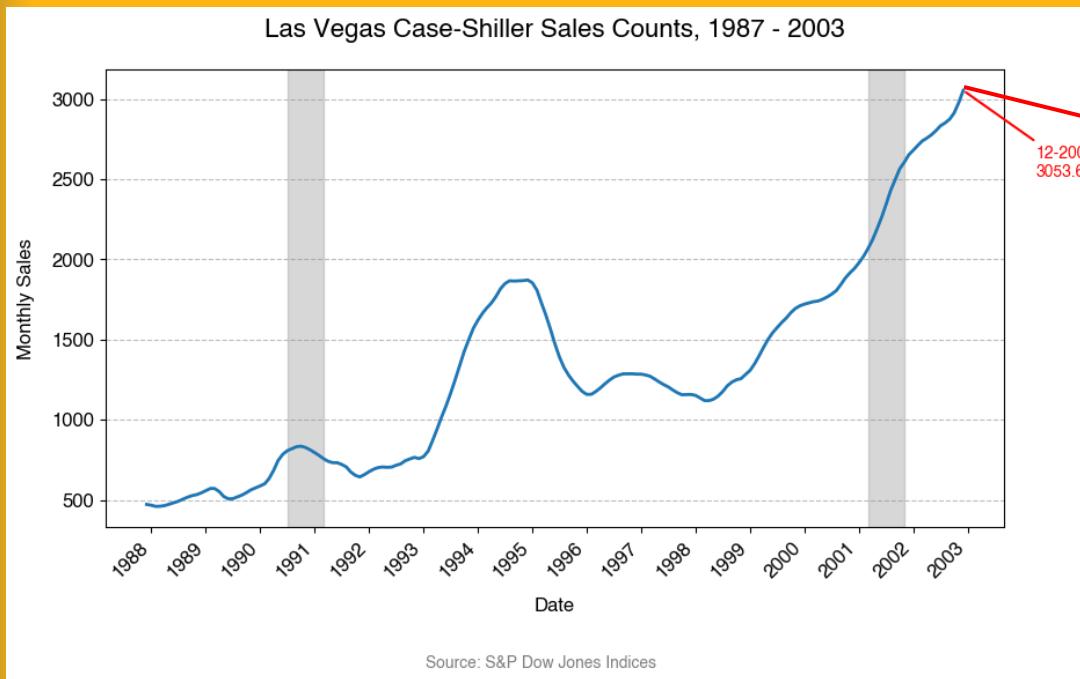
# Explaining Changes in the Housing Market



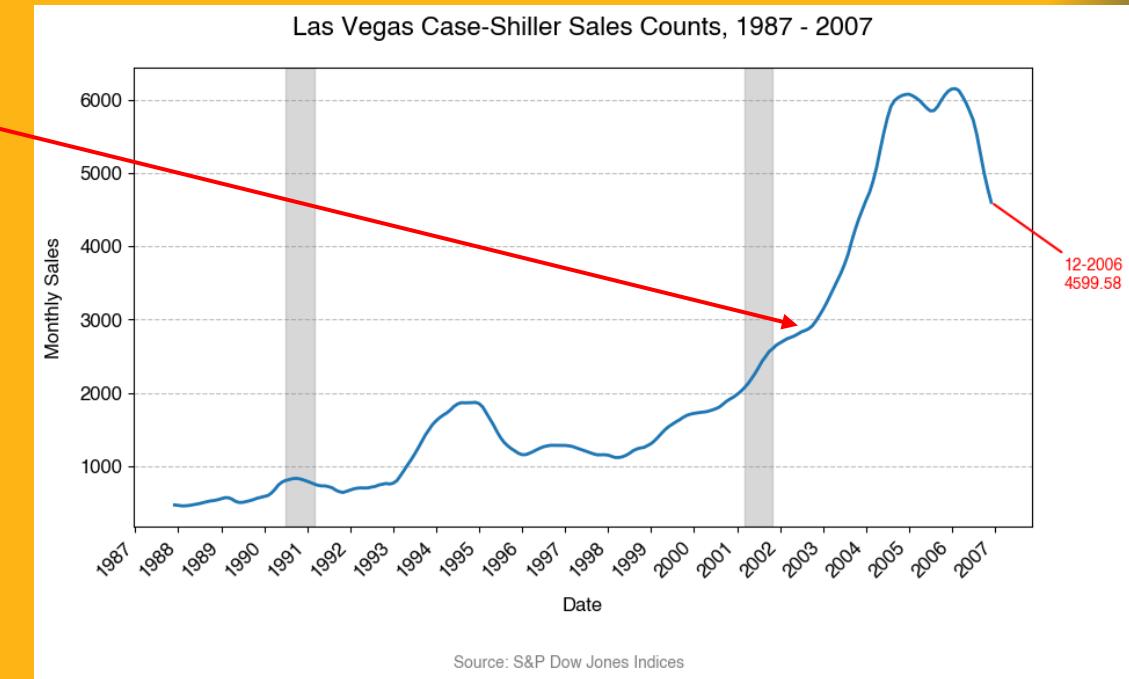
Las Vegas housing prices ~ doubled between 1987 and 2003 (16 years)

Las Vegas housing prices ~ doubled between 2003 and 2007 (4 years)

# Explaining Changes in the Housing Market



Las Vegas homes bought/sold increased from 500 per month to 3500 per month between 1987 and 2003

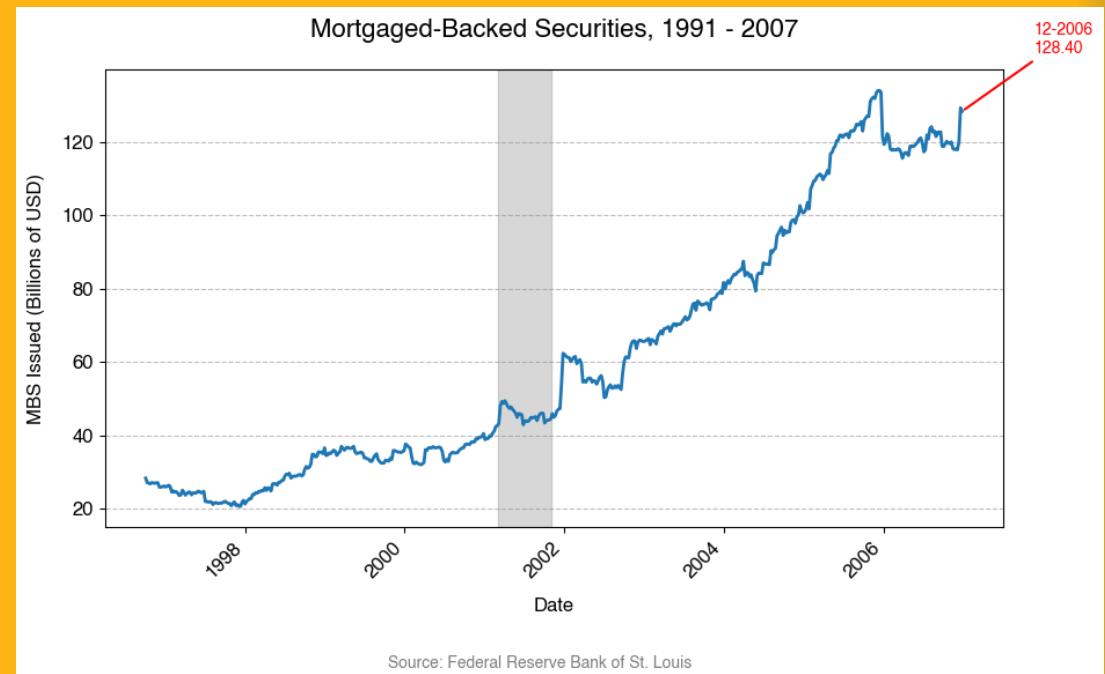


Las Vegas homes bought/sold increased from 3500 per month to 7000 per month between 2003 and 2005/2006

Decreased back to 4600 per month by 2007

# What happened between 2003 and 2007?

- Investors piled into MBS
- MBS split into different levels of risk (Collateralized Debt Obligations, CDO)
- Financial firms insured MBS with Credit Default Swaps (CDS = insurance if MBS fails)
  - Possible for pension funds and “safe” investors to join
  - Did not need to own MBS to purchase CDS
- By 2006, price growth muted, sales falling
- Adjustable-Rate Mortgage (ARM) teaser rate ends

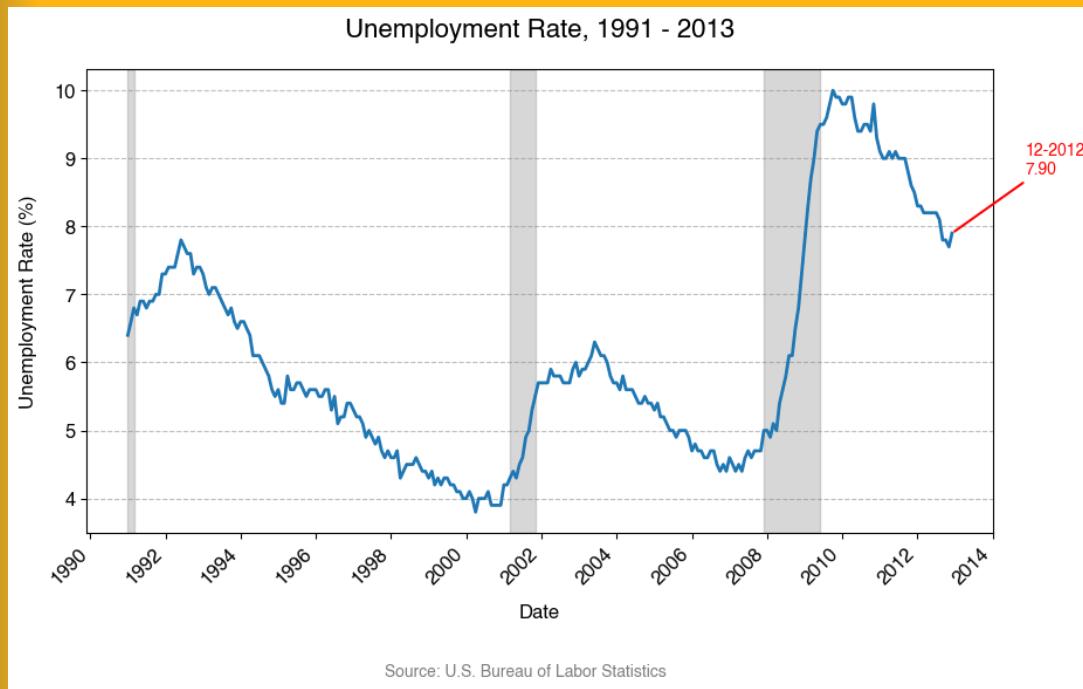


# What happened between 2003 and 2007?

- Speculators?
- Those with multiple homes?
- Those thinking about buying?

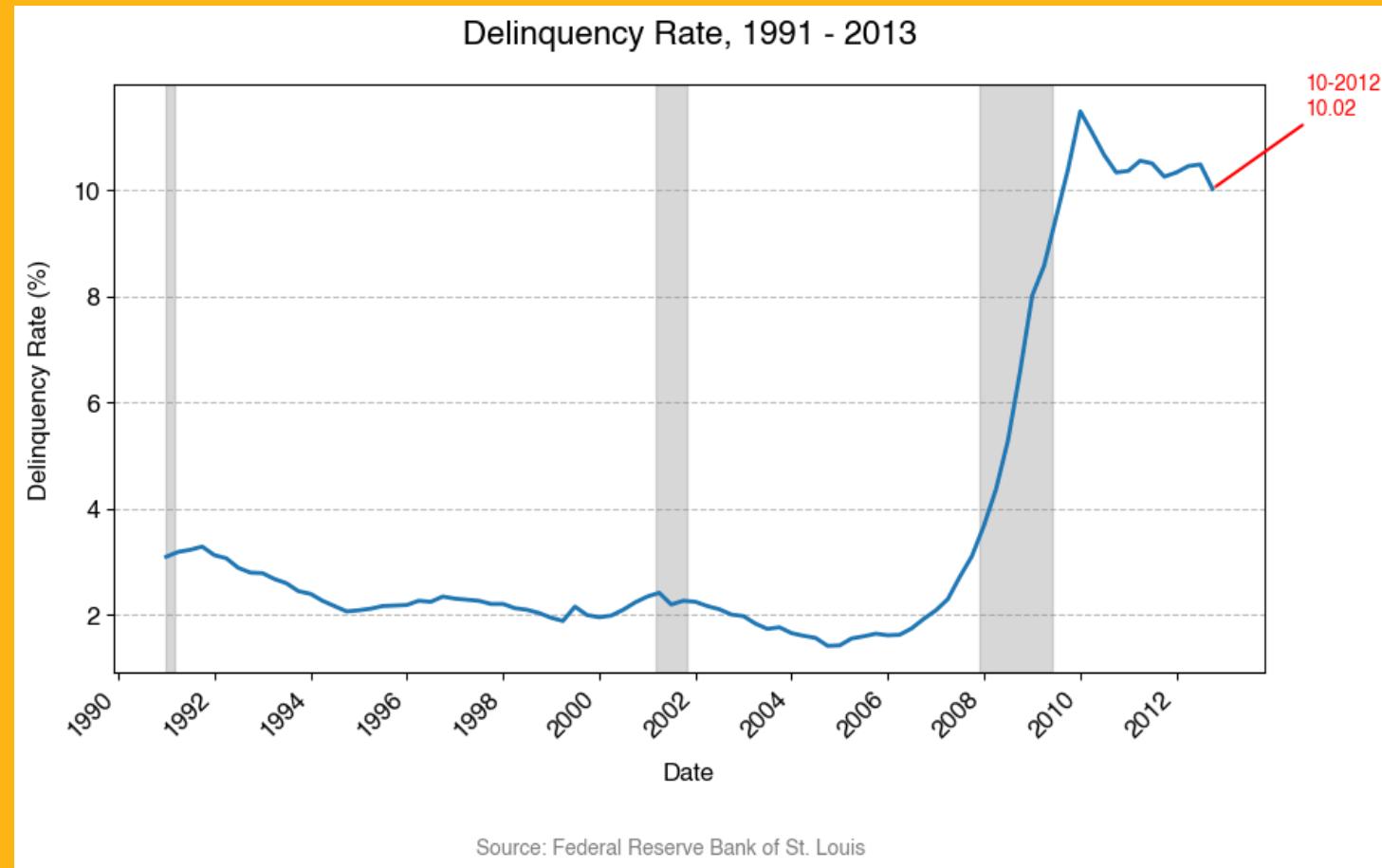


# What happened after 2007?



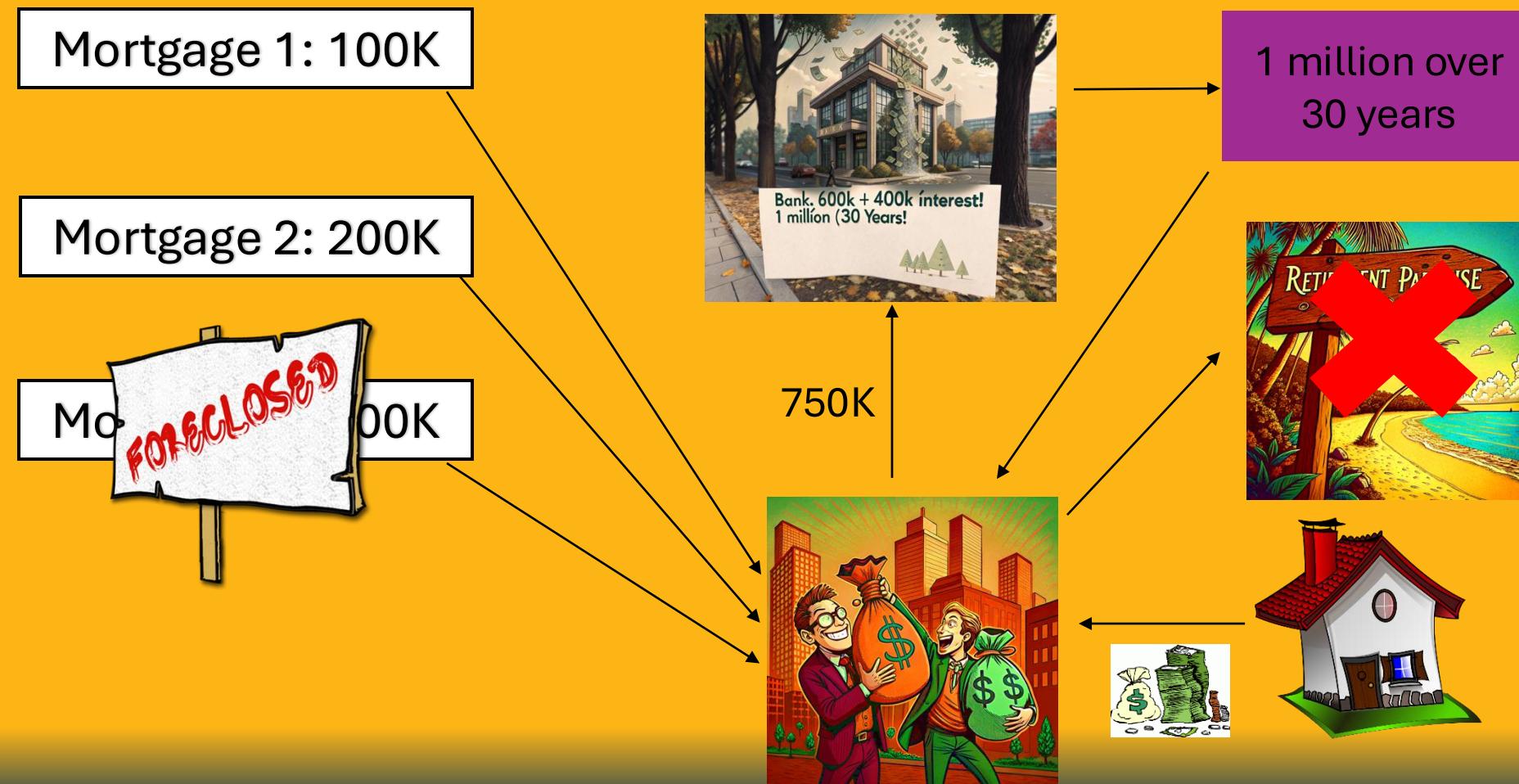
- Stagnant home prices + rising ARM
- Many homes owned by those with:
  - Low down-payment/no equity in home
  - Current home price below principal of the loan
  - Cost of holding home increasing
- Unemployment rising

# What happened after 2007?



# What happened after 2007?

- Mortgage-Backed Securities



# What happened after 2007?

