

The Great Housing Bubble

Why Did House Prices Fall?

Irvine Renter

TABLE OF CONTENTS

Preface	xiii
Irvine Housing Blog	xiii
The Reservoir of Schadenfreude	xiv
Introduction	xvii
What is a Bubble?	1
Real Estate Only Goes Up	2
Buy Now or Be Priced Out Forever	2
Confirming Fallacies	3
They Aren't Making Any More Land	3
Everyone Wants To Live Here	4
Prices Are Supported By Fundamentals	4
It Is Different This Time	5
The Importance of Financial Bubbles	6
Summary	6
Conservative House Financing	8
Mortgage Interest Rates	9
Types of Borrowers	10
Types of Loans	11
Conventional 30-Year Amortizing Mortgage	12
The Interest-Only, Adjustable-Rate Mortgage	12
Negative Amortization Mortgages	13
Stated Income Loans	16
Downpayments	18
Equity Components	19
Initial Equity	20
Financing Equity	20
Inflation Equity	21
Speculative Equity	22
Mortgage Equity Withdrawal	23
The Fallacy of Financial Innovation	26
Summary	28
Fundamental Valuation of Houses	29
Ownership Cost Math	30
Mortgage Payment	31
Property Taxes	31
Homeowners Insurance	31
Private Mortgage Insurance	32
Special Taxes and Levies	32
Homeowner Association Dues and Fees	32
Maintenance and Replacement Reserves	33
Tax Savings	33
Hidden Savings	33

THE GREAT HOUSING BUBBLE

Lost Downpayment Interest	34
Running the Numbers	34
Price-to-Rent Ratio	36
Investment Value	37
Discount Rates	38
Appreciation and Transaction Fees	40
Inflation Premium	44
Renting Versus Owning	46
Summary	47
Valuation of Lots and Raw Land	48
Land Price as a Residual Value	48
Individual Lots	49
Multiple Lots	49
Density and the Value of Land	51
House Price and the Value of Land	51
Irvine’s Woodbury	51
Landowners Capitulate	53
Summary	53
The Credit Bubble	54
Structured Finance	57
Systemic Risk in the Housing Market	60
Mortgage Default Losses	61
Risk Synergy	62
Creditworthiness Risk	62
High CLTV Defaults	63
Fraud and Misrepresentation Risk	63
High DTI Defaults	64
Investment Perception Risk	64
Resale Value Risk	65
The CDO Market Solution	66
Visualizing the Bubble	67
Responsibility for the Bubble	68
Summary	70
The Housing Bubble	71
Price Measurements	72
Price-To-Income Ratios	75
Price-To-Rent Ratios	77
Debt-To-Income Ratios	78
Affordability Limits	81
The Bubble Bursts	87
The Credit Crunch	93
100% Financing	95
Rising Interest Rates	96
Summary	97

TABLE OF CONTENTS

Bubble Market Psychology	99
Speculation or Investment?	99
Leverage and Debt	100
Why Speculators Fail	101
Two Kinds of Real Estate Investors	102
Buyer Support Levels.....	103
Trading Houses.....	104
Houses as Commodities	106
Mortgages as Options.....	107
The Stages of Grief.....	108
Efficient Markets Theory	109
Behavioral Finance Theory	110
Psychological Stages of a Bubble.....	111
Precipitating Factor	111
Enthusiasm Stage	112
Greed Stage	113
Denial Stage	113
Fear Stage.....	114
Capitulation Stage	115
Despair Stage	116
Bubbles as Cultural Pathology	117
Appreciation is Income	118
Credit is Savings	118
Debt is Wealth.....	119
It's a California Thing.....	119
The California Social Contract.....	120
Bailouts and False Hopes	122
Hope Now?	123
Forgiveness of Debt	124
Housing and Economic Recovery Act of 2008	124
Zero Coupon Notes	125
Let Markets Work	127
Summary	128
 Future House Prices	 130
How Far to Fall.....	131
Price Action.....	132
Price-to-Rent Ratio.....	137
Price-to-Income Ratio	140
Hyperinflation	143
An Educated Guess	145
Price Decline Influences.....	148
Debt-to-Income Ratios	148
Higher Interest Rates	150
Future Loan Terms	153
Unemployment.....	154
Foreclosures	156

THE GREAT HOUSING BUBBLE

Decrease in Home Ownership Rates	158
Doomsday Scenario	159
Lingering Problems	161
Summary	162
Buying and Selling During a Decline	163
Selling for Less.....	164
Paying off a Mortgage.....	164
Short Sale	166
Foreclosure.....	167
Recourse vs. Non-Recourse Loans.....	167
Judicial vs. Non-Judicial Foreclosure	168
Tax Implications.....	168
A Buyer's Market.....	168
Pay the Lowest Possible Price.....	169
The First Offer is the Best Offer	169
Other Techniques	171
Summary	171
Preventing the Next Housing Bubble	173
Necessary Intervention	173
Economic Problems	173
Personal Problems.....	175
Addressing the Cause	176
What did not cause the bubble?.....	177
What did cause the bubble?.....	179
Market Solutions	181
Regulatory Solutions	183
Summary	188
Bibliography.....	189
Index	198
End Notes.....	203

LIST OF EQUATIONS, TABLES AND FIGURES

Equation 1 - Cost of Ownership for 2006 Median Property in United States	34
Equation 2 - Value of Hypothetical 100-Lot Subdivision.....	50
Equation 3 - Valuation of Woodbury Community at Peak House Pricing.....	52
Equation 4 - Valuation of Woodbury Community after 50% House Price Decline.....	53
Table 1 - Top Subprime Lenders 2006	xviii
Table 2 - Loan Type and Borrower Type Matrix.....	11
Table 3 - Appreciation Premium and Holding Period using an 8% Discount Rate.....	42
Table 4 - Appreciation Premium and Holding Period using a 12% Discount Rate.....	43
Table 5 - Inflation Premium from Rental Savings.....	44
Table 6 - Inflation Premium from Rental Savings with 7 year Ownership Period.....	45
Table 7 - Interest Rates and House Values	82
Table 8 - Financing Terms and Conditions in Irvine, CA, 2006.....	83
Table 9 - Increasing Interest Rates Impact to House Prices	96
Table 10 - Summary of Predictions for National Home Prices.....	146
Table 11 - Summary of Predictions for Irvine, California Home Prices.....	147
Table 12 - National Payments and Prices at Various Debt-to-Income Levels	149
Table 13 - Irvine Payments and Prices at Various Debt-to-Income Levels.....	150
Table 14 - Impact of Rising Interest Rates on Prices.....	152
Table 15 - Loan Amounts based on Amortization Method and Debt-to-Income Ratio ..	153
Figure 1 - Ratio of House Price to Income in California, 1980-2006	5
Figure 2 - Components of Mortgage Interest Rates	9
Figure 3 - Interest-Only and Negative Amortization Purchases, 2000-2006	14
Figure 4 - Private Builder Low/No Documentation Loans as % of Total, 2006	17
Figure 5 - National Home Ownership Rate, 1984-2005	18
Figure 6 - Types of Equity.....	19
Figure 7 - Negative Amortization Loan Equity Curve.....	21
Figure 8 - Peak Buyer, No Downpayment, Negative Amortization Loan.....	23
Figure 9 - Mortgage Equity Withdrawal, 1991-2006.....	24
Figure 10 - National Rent-to-Income Ratio, 1988-2006	30
Figure 11 - National Price-to-Rent Ratio, 1988-2007.....	37
Figure 12 - Percentage Held of Household Mortgage Debt, 1971-2006.....	55
Figure 13 - Subprime Originations, 1994-2006	56
Figure 14 - Structure of a Collateralized Debt Obligation	58
Figure 15 - National S&P/Case-Shiller Home Price Index, 1987-2007.....	73
Figure 16 - Los Angeles S&P/Case-Shiller Index, 1987-2007	74
Figure 17 - Median Home Prices, 1968-2006.....	75
Figure 18 - National Ratio of House Price to Income, 1986-2006.....	76
Figure 19 - Price-To-Income Ratio in California, OC and Irvine, 1986-2006.....	77
Figure 20 - National Price-to-Rent Ratio, 1988-2007.....	78
Figure 21 - Debt-To-Income Ratio and Mortgage Interest Rates, 1997-2006.....	79
Figure 22 - Debt-To-Income Ratio, California 1986-2006	80
Figure 23 - Affordability / Demand	81
Figure 24 - Market Rally Supply and Demand	84
Figure 25 - The Housing Market Pyramid	85
Figure 26 - Affordability Limit.....	86
Figure 27 - Adjustable Rate Mortgage Reset Chart	89
Figure 28 - ARM Reset through Foreclosure to Final Sale.....	90
Figure 29 - Total Home Equity, 1985-2006.....	92
Figure 30 - Personal Savings Rate, 1952-2007.....	94

THE GREAT HOUSING BUBBLE

Figure 31 - Speculator Emotional Cycle.....	102
Figure 32 - National Homeowner Vacancy Rate, 1986-2007	105
Figure 33 - Efficient Markets Theory	109
Figure 34 - Behavioral Finance Theory	110
Figure 35 - Psychological Stages of a Bubble Market	112
Figure 36 - National Projections from Historic Appreciation Rates, 1984-2012	133
Figure 37 - Irvine, CA, Projections from Historic Appreciation Rates, 1984-2026.....	134
Figure 38 - Growth in Income and House Prices, 1981-2006.....	134
Figure 39 - Declining Interest Rates, 1984-2006	135
Figure 40 - National Projections based on S&P/Case-Shiller Indices.....	136
Figure 41 - Los Angeles Projections based on S&P/Case-Shiller Indices	137
Figure 42 - Projected National Price-to-Rent Ratio, 1988-2021	138
Figure 43 - National Projections based on Price-to-Rent Ratio, 1988-2021	138
Figure 44 - Projected Orange County, CA Price-to-Rent Ratio, 1983-2020.....	139
Figure 45 - Orange County Projections based on Price-to-Rent Ratio, 1988-2020.....	140
Figure 46 - Projected National Price-to-Income Ratio, 1988-2015.....	141
Figure 47 - National Projections based on Price-to-Income Ratio, 1986-2015.....	141
Figure 48 - Projected Irvine, California Price-to-Income Ratio, 1986-2030.....	142
Figure 49 - Irvine, California Projections from Price-to-Income Ratio, 1986-2030	142
Figure 50 - CPI Adjusted Median Home Prices, 1986-2006.....	143
Figure 51 - National Inflation Rate, 1961-2007.....	144
Figure 52 - Inflation-Adjusted Projections for Los Angeles, 1987-2012.....	145
Figure 53 - National Median House Price Prediction, 2004-2019	146
Figure 54 - Irvine, California, Median House Price Prediction, 2004-2025	147
Figure 55 - National Mortgage Obligation Ratio, 1980-2007.....	149
Figure 56 - Mortgage Interest Rates, 1972-2006	151
Figure 57 - Mortgage Interest Rates, 1986-2006	152
Figure 58 - National Unemployment Rate, 1976-2008.....	154
Figure 59 - California Unemployment Rate. 1976-2008	155
Figure 60 - NODs and Trustee Sales as a % of Total Sales,	157
Figure 61 - Projected NODs and Trustee Sales as a % of Total Sales,	158
Figure 62 - National Home Ownership Rate, 1984-2005	159
Figure 63 - National Doomsday Scenario.....	160
Figure 64 - Irvine, California, Doomsday Scenario	161

Preface

I work as a development consultant in the real estate industry in Southern California. My education and experience has acquainted me with a variety of real estate markets, but residential real estate is the one with which I am most familiar. I am not a realtor or a mortgage broker, and my livelihood, though dependent upon the real estate industry, it is not dependent upon facilitating a home-sale transaction. What is presented here is both historical account and unbiased analysis. My observations of the residential real estate market are not tainted by any need or desire to convince anyone they should buy a house. In fact, one of my motivations for writing about the Great Housing Bubble is to convince people *not* to buy a house when prices are inflated and save them from financial ruin. It saddens me to watch homebuyers get caught up in the bubble mythology and enter into a financial transaction that will have a strongly negative impact on their financial lives. People who have already made that decision cannot be helped except at the expense of a naïve buyer. Sellers have the marketing machine of the National Association of Realtors to help them. Buyers have few sources of unbiased information to assist their decision. Part of the purpose of this writing is to educate both buyers and sellers on the realities of the residential real estate market.

One of the difficulties of writing a book on the Great Housing Bubble in 2008 is that the bubble has not played itself out yet. There is a necessary change in tense required when speaking of events prior to 2008 and those projected to occur during and after 2008. Someone reading this in 5 years may look back on it as history, but for those of us living it now, it is a history not yet lived. Much of what is presented here may not come to pass, or it may not happen in the way hypothesized in this book. History will judge whether this is prescient, or if it is “a tale told by an idiot, full of sound and fury, signifying nothing.”¹

Irvine Housing Blog

I discovered Real Estate Bubble Blogs in November of 2006.² Many were in existence much earlier, but I was not a big reader of blogs prior to this time. I

THE GREAT HOUSING BUBBLE

first discovered the Irvine Housing Blog when my wife found a series of interesting posts on people who were attempting to sell properties for a quick profit (flipping,) and they were getting burned. I was quickly hooked. From the blogroll (links to other blogs) I was able to locate several other bubble blogs, and I quickly became a regular reader and commenter on several blogs in this community.

In February of 2007, I was asked to write for the Irvine Housing Blog. I had a great deal of pent-up energy for writing about the housing bubble. Over the months that followed I wrote a series of analysis posts which became the structure of this book. Daniel Gross, a freelance writer published in Slate Magazine, the Washington Post and Newsweek, characterized the writing as follows (Gross, *The Real Morons of Orange County*, 2007): "IrvineHousingblog, brilliantly drives home the same point with daily dispatches. The blog is a guide to the seventh circle of real estate hell – people who buy houses on spec with no money down. A typical entry chronicles the purchase price, tracks down the amount of debt on the property, and then calculates how much each party – the buyer, the first mortgage holder, the second mortgage holder – stands to lose assuming the seller receives the asking price."

The Reservoir of Schadenfreude

The readers of the Irvine Housing Blog have a voracious appetite for profiles of losing properties. They are not alone. Why do people get so much pleasure from seeing would-be real estate moguls lose a great deal of money? I can think of no other human endeavor that has engendered so much pleasure in the misfortune of others by otherwise caring, compassionate people. In my opinion, the outpouring of schadenfreude we are seeing as the housing bubble deflates is a mixture of Greek tragedy and bad karma. In short, bubble participants should have seen it coming, and they are getting what they deserve.

Schadenfreude is not a spiritually uplifting emotional response. Most religious traditions would counsel us against it. In Buddhist teaching, people are taught to cultivate feelings of compassion for the misfortune of others – feeling empathy and sadness for the slings and arrows of outrageous fortune when they impact another.³ The near enemy of compassion is pity: it masquerades as compassion, but it has an element of separateness which detracts from the sense of Oneness with all things. Joy is good: Sympathetic joy, the joy in the happiness of another, is another pillar of a spiritual existence; however, joy in the misfortune of another – schadenfreude – is not a skillful behavior leading to happiness. Even knowing that, many of us feel this joy anyway. Why is that?

I recognized financing terms were creating artificially high prices early on. By 2004, I was telling people I knew that this was a problem which would cause a market crash. Most people looked at me like I was crazy. "Real estate always goes up," I was told. "The government would never allow prices to crash," I was told. "If you do not buy now you will be priced out forever," I was told. This is the intoxicated language of real estate junkies who have overdosed on the real-estate-appreciation kool aid. If these statements had been offered in a defensive

PREFACE – THE RESERVOIR OF SCHADENFREUDE

manner of someone who is being made to realize they made a serious mistake, I could have felt sympathy for them; I would have been able to disarm their defensiveness and helped them see the light. However, what I generally got was a smug assuredness of someone who truly believed he was right and I was wrong; not just that I was wrong; I was a stupid, cowardly fool who did not have the brains or the bravery to take the free money being given out. This was particularly surprising given my line of work. It was as if a patient after getting a diagnosis of cancer told the doctor that the physician did not understand the tissue growth was a natural, healthy process. The buyers caught up in The Great Housing Bubble did not recognize the financial cancer even when an expert in the field told them how dangerous it was.

During the bubble rally, those of us who chose not to participate were labeled as “bitter renters.” It was suggested we were envious of the good fortune of homeowners as their property values rose, as they took on insane amounts of debt, and as they blithely financed a lifestyle well beyond their means. This was undoubtedly true for some, but in my opinion, this is not the primary reason so many derive so much pleasure from the misfortune of those now suffering from declining property values. These same people who chided us for being envious actually wanted us to be envious: they wanted us to know they were the winners in our competitive society; they wanted us to view them as superior. This act of putting themselves above us created a separation which prevented us from feeling sympathetic joy for their good fortune, and it prevented us from feeling compassion for them when they fell.

In our collective unconscious which manifests in our dreams and our mythology, water is often symbolic of our emotions or our emotional state. Have you noticed people are often categorized as deep or shallow? If you are in debt you often feel “underwater.” Anger is much like water: if not given an outlet, it will fill a reservoir until it reaches a breaking point and is expressed in a flood of emotional rage. Each encounter with a pathologic, kool-aid-drinking housing bull during the bubble rally has added to this reservoir, and reveling in failed flips is an outlet for this pool of toxic emotional waste.

There is an element of tragedy in every disaster, but financial bubbles are some of the most interesting because they are completely man made. They are created by the accumulation of individual decisions of buyers who are motivated by greed, foolish pride, and a false sense of security. Each of these people should have known better. Many of them were warned of their impending doom by those who saw trouble brewing, and yet, many chose to go down the path to the Dark Side. Newton’s Third Law states, “For every action, there is an equal and opposite reaction.” The Law of Karma states, “For every event that occurs, there will follow another event whose existence was caused by the first, and this second event will be pleasant or unpleasant according as its cause was skillful or unskillful.” It became obvious as the crash began; the behavior of buyers during the bubble rally was not skillful. Whether it is Newton’s Third Law, Karma, or a Calvinist form of retributive justice, as this bubble deflates, many of the participants in this bubble are about to experience a great deal of hardship. Like many others, I will enjoy their suffering until my reservoir of schadenfreude is emp-

THE GREAT HOUSING BUBBLE

tied. For the sake of my own personal spiritual well being, I hope this happens soon so I can regain my normal emotional balance and rekindle my feelings of compassion for my fellow human beings.

Introduction

Why did house prices fall? This is the fundamental question to most Americans, and to those who lent them money. Most homeowners did not care why residential real estate prices rose; they assumed prices always rose, and they should simply enjoy their good fortune. It was not until prices began to fall that people were left searching for answers. This book examines the causes of the breathtaking rise in prices and the catastrophic fall that ensued to answer the question on every homeowner's mind: "Why did house prices fall?"

Even though the decline is nowhere near over in 2008, already the Great Housing Bubble witnessed the largest decline in house prices since the Great Depression. The asset bubble for the Great Depression was the stock market while the asset bubble for The Great Housing Bubble was residential real estate. The title of the book, the Great Housing Bubble, is an allusion to the Great Depression of the 1930s. Both of these dramatic events were the result of a wild expansion of credit and a subsequent crash in asset prices that stressed the banking system and led to a dramatic economic slowdown.⁴

The book is arranged into 10 chapters. The first 4 chapters provide background information and are used to define terms and provide a broad conceptual understanding of residential real estate economics, chapters 5 through 8 discuss the structural and psychological factors that inflated and deflated the bubble, and the final two chapters describe methods of coping with the housing bubble. Chapter 1 is a general description of financial bubbles as a psychological phenomenon and the unique beliefs of residential real estate bubbles. Chapter 2 details the financing environment surrounding residential real estate. It defines and categorizes the types of borrowers and the types of loan programs available, and it illustrates how financing impacts the wealth of individual owners and the economy as a whole. Chapter 3 summarizes the mathematics determining the value of residential real estate and examines issues pertaining to the rent-versus-own decision, and chapter 4 delves into the fine points of determining the value of individual lots and raw land. Chapter 5 illuminates the credit bubble (which was largely responsible for the real estate bubble) with rigorous detail on the structure of the secondary mortgage market and how the expansion of credit

THE GREAT HOUSING BUBBLE

through this market inflated the housing bubble. Chapter 6 looks at the housing bubble, its various measurements, and explains why the bubble burst. Chapter 7 is a review of the psychology of real estate bubbles. Financial bubbles are primarily psychological phenomenon, and the various aspects of investor psychology are explored to see how they shape the market. Chapter 8 is a projection of future house prices based on the data and conditions as they existed in early 2008. Chapter 9 contains advice for both sellers and buyers who plan to be active while prices are declining. Chapter 10 is a review of the causes of the bubble and proposals for reforms to prevent residential real estate bubbles from happening again.

The examples and data used in the analysis are national in scope, and they are also focused on the local residential real estate market in Irvine, California. The Great Housing Bubble is a national phenomenon; however, the national statistics soften the extremes and make the rise and fall look less remarkable. In some local markets, the prices changes are truly extraordinary, and it is through examining these markets that the story of the bubble is best told. A fine exemplar of the Great Housing Bubble is Irvine, California. Irvine is a large, master-planned community of over 200,000 residents. The high incomes of Irvine residents are reflected in the rental rates for properties which are consistently near the highest in the nation. High incomes and rents translate into high real estate prices, even at the bottom of down cycles. When reviewing the properties in Irvine and the price tags attached to them, it is not uncommon for outsiders to believe a decimal point has been misplaced. The lessons learned from the Irvine experience are universal. Though many the examples from this work focus on Irvine, this is a book about the Great Housing Bubble of which Irvine was both a catalyst and one of its biggest participants.

Table 1 - Top Subprime Lenders 2006

Rank	Lender	Market Share %
1	Wells Fargo	13.0%
2	HSBC Finance	8.3%
3	New Century	8.1%
4	Countrywide Financial	6.3%
5	CitiMortgage	5.9%
6	WMC Mortgage	5.2%
7	Fremont Investment	5.0%
8	Ameriquist	4.6%
9	Option One	4.5%
10	First Franklin	4.3%
11	Washington Mutual	4.2%
12	Residential Funding	3.4%
13	Aegis Mortgage	2.7%
14	American General	2.4%
15	Accredited Lenders	2.3%
Top 15 Lenders		80.2%

Source: Inside B&C Lending

INTRODUCTION

The epicenter of the Great Housing Bubble is located in Irvine, California. One of the primary causes of the bubble was the lowering of lending standards and the extension of credit to people who could not handle the responsibility: Subprime borrowers. The word “subprime” has become indelibly linked to the Great Housing Bubble. It is one of the causal factors that make the bubble unique, and the collapse of subprime is widely regarded as the pin-prick which began the bubble’s deflation. Irvine, California, is the center of the subprime universe. Three of the top ten subprime lenders, New Century, Ameriquest, and Option One, are (or were) headquartered in Irvine. Most subprime lenders have processing offices in Irvine due to the large number of trained personnel living in the area. Irvine’s New Century Financial, formerly the second largest subprime operator, is heralded as the poster child of the bubble. The company name “New Century” implies a new era and a new paradigm. It embodies the fallacious beliefs and ideas that inflated the Great Housing Bubble.

Volatility in real estate prices is not new to California. During the 1970’s, real estate prices detached from typical valuations of three-times yearly income seen in the rest of the country. Once residents realized they could push up prices in their real estate markets to dizzying heights, they have been doing it ever since. Greed springs eternal. The Great Housing Bubble is the third such bubble in the last 30 years, and it is the largest of all. The detachment from traditional measures of valuation was so extreme that it is difficult for many to comprehend. Each time the bubble bursts, the crash is incorrectly blamed on some outside force, and each time the rally is thought to be different than the rally in previous cycles. It never is.

What is a Bubble?

A financial bubble is a temporary situation where asset prices become elevated beyond any realistic fundamental valuations because the general public believes current pricing is justified by probable future price increases. If this belief is widespread enough to cause significant numbers of people to purchase the asset at inflated prices, then prices will continue to rise. This will convince even more people that prices will continue to rise. This facilitates even more buying. Once initiated, this reaction is self-sustaining, and the phenomenon is entirely psychological. When the pool of buyers is exhausted and the volume of buying declines, prices stop rising; the belief in future price increases diminishes. When the remaining potential buyers no longer believe in future price increases, the primary motivating factor to purchase is eliminated; prices fall. The temporary rise and fall of asset prices is the defining characteristic of a bubble.

The bubble mentality is summed up in three typical beliefs:

1. The expectation of future price increases.
2. The belief that prices cannot fall.
3. The worry that failure to buy now will result in permanent inability to obtain the asset.

The Great Housing Bubble was characterized by the acceptance of these beliefs by the general public, and the exploitation of these beliefs by the entire real estate industrial complex, particularly the sales mechanism of the National Association of Realtors.

Speculative bubbles are caused by precipitating factors.⁵ Like a spark igniting a flame, a precipitating factor serves as a catalyst to begin the initial price increases that change the psychology of market participants and activates the beliefs listed above. There is usually no single factor but rather a combination of factors that stimulates prices to begin a speculative mania. The Great Housing Bubble was precipitated by innovation in structured finance and the expansion of the secondary mortgage market, the lowering of lending standards and the growth of subprime lending, and to a lesser degree the lowering of the FED funds rate. All of these causes are discussed in detail in later sections.

THE GREAT HOUSING BUBBLE

Real Estate Only Goes Up

The mantra of the National Association of Realtors is “real estate only goes up.” This economic fallacy fosters the belief in future price increases and the limited risk of buying real estate. In general real estate prices do increase because salaries across the country do tend to increase with the general level of inflation, and it is through wages that people make payments for real estate assets.⁶ When the economy is strong and unemployment is low, prices for residential real estate tend to rise. Therefore, the fundamental valuation of real estate does go up most of the time. However, prices can, and often do, rise faster than the fundamental valuation of real estate, and it is in these instances when there is a price bubble.

Greed is a powerful motivating factor for the purchase of assets. It is a natural response for people to desire to make money by doing nothing more than owning an asset.⁷ The only counterbalance to greed is fear. However, if a potential buyer believes the asset cannot decline in value, or if it does, it will only be by a small amount for a very short period of time, there is little fear generated to temper their greed.⁸ The belief that real estate only goes up has the effect of activating greed and diminishing fear. It is the perfect mantra for creating a price bubble.⁹

Buy Now or Be Priced Out Forever

When prices rise faster than their wages, people can obtain less real estate with their income. The natural fear under these circumstances is to buy whatever is available before there is nothing desirable available in a particular price range. This fear of being priced out causes even more buying which drives prices higher. It becomes a self-fulfilling prophecy. Of course, the National Association of Realtors, the agents of sellers, is keen to exploit this fear to increase transaction volume and increase their own incomes. If empirical evidence of the recent past is confirming the idea that real estate only goes up, the fear of being priced out forever provides added impetus and urgency to the motivation to buy.

Just before the stock market crash signaling the beginning of the Great Depression, Irving Fisher, a noted economist at the time, was quoted as saying “Stock prices have reached what looks like a permanently high plateau.”¹⁰ Of course, stock prices dropped significantly after he made this statement. This sentiment is based on the idea that inflated prices can stay inflated indefinitely. However, when valuations cannot be pushed up any higher, prices cannot rise at a fast rate. In residential real estate markets, the rate of price increase would only match inflation because wages and inflation are closely correlated. If the rate of price increase does not exceed ordinary investments, people lose their enthusiasm for residential real estate as an investment, and they begin to look for alternatives: people choose to rent rather than own. Also, when the quality of units available for rent at a given monthly payment far exceeds the quality of those available for sale at the same monthly payment level, people choose not to bid on the property and they rent instead. One sign of a housing bubble is a wide

Conservative House Financing

When people decide they want to buy a house, they figure out how much they can afford, then they search for something they want in their price range. For most people, what they can “afford” depends almost entirely upon how much a lender is willing to loan them. Lenders apply debt-to-income ratios and other affordability criteria to determine how much they are willing to loan. Buyers are generally limited in how much they can borrow because lenders are wise enough not to loan borrowers so much that they default. Borrowers behave much like drug addicts – they will borrow all the money a lender will loan them whether it is good for them or not. Most borrowers are not wise to the differences between the various loan types, and they have limited understanding of the risks they are taking on.

The vast majority of residential home sales have lender financing. The interest rates and various loan terms have evolved over time. After World War II a series of government programs to encourage home ownership spawned a surge in construction and the evolution of private lending terms resulting in the 30-year conventionally amortized mortgage. This mortgage generally required a 20% downpayment, and allowed the borrower to consume no more than 28% of their gross income on housing. These conservative terms became the standard for nearly 50 years. Lending under these terms resulted in low default rates and a high degree of market price stability.

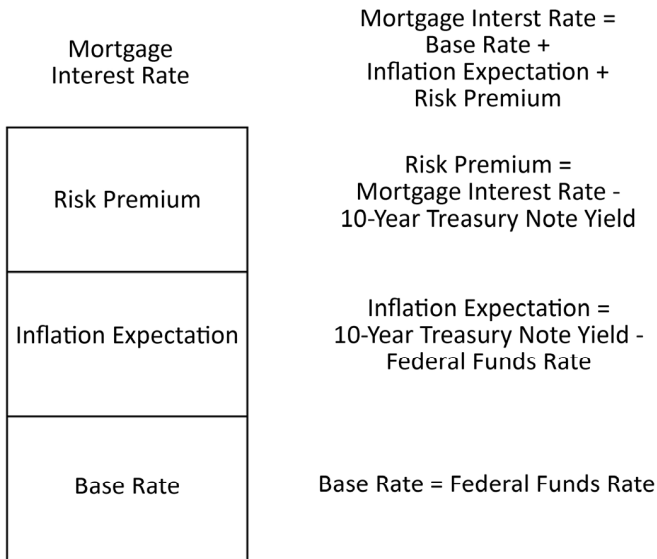
There were experiments with various forms of exotic financing during this period, particularly in markets like California where price volatility required special terms to facilitate buying at inflated pricing. The instability of these loan programs was demonstrated painfully during the deep market correction of the early 90s in California characterized by high default rates and lender losses. Rather than learn a difficult lesson regarding the use of these alternative financing terms from this experience, lenders sought out ways of shifting these risks to others through a complex transaction called a credit default swap. Once lenders and investors in mortgages thought the risk was mitigated, these unstable loan programs were brought back and made widely available to the general public resulting in the Great Housing Bubble.

CONSERVATIVE HOUSE FINANCING

Mortgage Interest Rates

Mortgage interest rates are the single-most important factor determining the borrowing power of a potential house buyer. When rates are very low, a borrower can service a large amount of debt with a relatively small payment, and when interest rates are very high, a borrower can service a small amount of debt with a relatively large payment. Mortgage interest rates are determined by market forces where investors in mortgages and mortgage-backed securities bid for these assets. The rate of return demanded by these investors determines the interest rate the originating lender will have to charge in order to sell the loan in the secondary market. Some lenders still hold mortgages in their own investment portfolio, but these mortgages and mortgage rates are subject to the same supply and demand pressures generated by the secondary mortgage market.

Figure 2 - Components of Mortgage Interest Rates



Mortgage interest rates are determined by investor demands for risk adjusted return on their investment. The return investors demand is determined by three primary factors: the riskless rate of return, the inflation premium and the risk premium. The riskless rate of return is the return an investor could obtain in an investment like a short-term Treasury Bill. Treasury Bills range in duration from a few days to as long as 26 weeks. Due to their short duration, Treasury Bills contain little if any allowance for inflation. A close approximation to this rate is the Federal Funds Rate controlled by the Federal Reserve. It is one of the reasons this activities of the Federal Reserve are watched so closely by investors. The closest risk-free approximation to mortgage loans is the 10-year Treasury Note. Treasury Notes earn a fixed rate of interest every six months until

Fundamental Valuation of Houses

The fundamental value of all housing prices is equivalent rents. Rents define the fundamental value of real estate because rental is a direct proxy for ownership; both rental and ownership provide for possession of property. Equivalent rents are a major component of the United States Government's Consumer Price Index (CPI).⁴⁶ According to the US Department of Labor, "This approach measures the change in the price of the shelter services provided by owner-occupied housing. Rental equivalence measures the change in the implicit rent, which is the amount a homeowner would pay to rent, or would earn from renting, his or her home in a competitive market. Clearly, the rental value of owned homes is not an easily determined dollar amount, and Housing survey analysts must spend considerable time and effort in estimating this value." Prior to the first California housing bubble in the late 1970s, the housing cost component of the CPI was measured using actual price changes in the asset. When this bubble created an enormous distortion in this index, the rental equivalence model was constructed. It has been used to smooth out the psychologically-induced housing price bubbles ever since.

An argument can be made for the real cost of construction as the fundamental valuation of houses. If house prices in a market fall below the cost of new construction, no new houses will be built because a builder cannot make a profit. If there is continuing demand for housing, the lack of supply will create an imbalance which will cause prices to increase. When new construction becomes profitable again, new product will be brought to market bringing supply and demand back into balance. If demand continues to be strong, builders will increase production to meet this demand keeping prices near the real cost of construction.

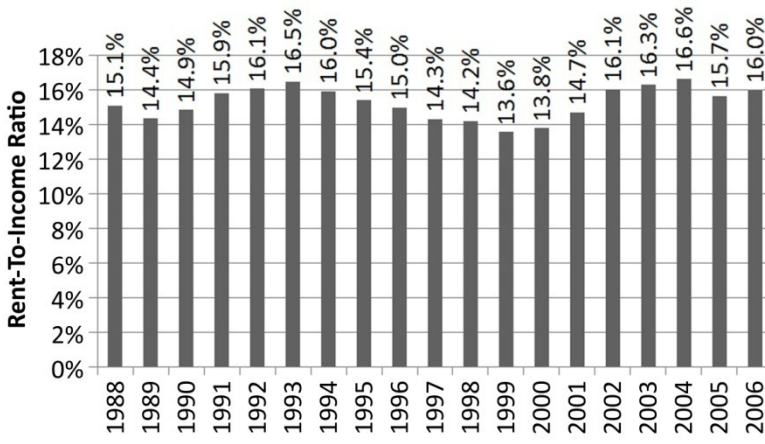
Based on a theory of rational market participants, one would expect that when prices go up and the cost of ownership exceeds the cost of rental, people choose to rent rather than own, and the resulting drop in demand would depress home prices: The inverse would also be true. Therefore, the proxy relationship between rental and ownership would keep home prices tethered to rental rates. However, this is not the case.⁴⁷ If there were only a consumptive value to real

THE GREAT HOUSING BUBBLE

estate, the cost of ownership and the cost of rental probably would stay closely aligned; however, since there is an opportunity to profit from speculative excesses in the market, rising prices can lead to irrational exuberance as buyers chase speculative gains.

Rental rates tend to keep pace with wages because people normally pay rent out of current income. As people make more money, they compete for the available rentals and drive prices up at a rate about 1% greater than the overall rate of inflation.⁴⁸ There are times when supply and demand issues in local markets create fluctuations in this relationship, but as a rule, rents track wages pretty closely. Since house prices are tied to rents, and rents are tied to wages, house prices are indirectly tied to wages. When house prices increase faster than wage growth, the price levels become unsustainable, and if the differential is too great, a bubble is inflated.⁴⁹

Figure 10 - National Rent-to-Income Ratio, 1988-2006



Source: US Census Bureau

Ownership Cost Math

A useful way to look at the cost of housing is to evaluate the total monthly cost of ownership. There are 7 costs to owning a house. Although some of these costs are not paid on a monthly basis, they can be evaluated on a monthly basis with simple math. These costs are:

1. Mortgage Payment
2. Property Taxes
3. Homeowners Insurance
4. Private Mortgage Insurance
5. Special Taxes and Levies
6. Homeowners Association Dues or Fees
7. Maintenance and Replacement Reserves

Valuation of Lots and Raw Land

The valuation of land used for residential housing is mysterious and often misunderstood.⁵⁹ The valuation of lots and raw land requires a detailed knowledge of construction and marketing costs as well as a good estimate of the sales price of the final product: a residential housing unit. In short, the value of a lot is the total revenue (sales price of the home) minus the costs of production and the necessary profit. Land value is a residual calculation.

Irvine, California has been almost entirely developed by a single land owner, The Irvine Company, as a large, master-planned community. The development has been wildly successful. The median income of buyers on The Ranch is 30% above the Orange County median. This translates into higher home prices and higher land values. The Irvine Company makes a profit by selling its land to builders who build and sell houses in the community. Once the forces governing land value are understood, it becomes obvious why the Irvine Company is protective of house prices in Irvine, and why The Irvine Company wants to maximize salable density on its land holdings like any other developer would.

Land Price as a Residual Value

The value of a piece of land is whatever is “left over” after all the other costs of production and profits are subtracted from revenue. This is a key point. Land for residential home use has no intrinsic value. It is a commodity useful for the production of houses just like lumber or concrete. A finished lot is a manufactured product, and it is subject to many of the same market forces as commodity markets. If land or lots become scarce, the price increases; if this commodity is plentiful, the price decreases. If the sales price of the final product increases revenue – like in a bubble – the value of land increases; however, if revenue decreases – like after a bubble – the value of land decreases. For a given price level, if the cost of house construction increases, the value of land decreases; if the cost of house construction decreases, the value of land increases. This last point is often confusing as the inverse relationship between building cost and land value does not seem intuitive, but since land value is a residual calcula-

VALUATION OF LOTS AND RAW LAND

tion, this relationship is the reality of the marketplace. The value of a piece of land used for residential housing is directly tied to the revenues and costs of house construction.

Individual Lots

The equations which govern the valuations of large parcels are very similar those which determine the value of an individual lot; therefore, to better understand the valuation of large parcels, one should fully understand how to evaluate an individual lot. The market value of an individual lot is equal to the revenue it could generate when a residential housing unit is built on it minus the cost of creating that revenue (construction cost, marketing, profit, and other costs). Sales revenue will largely be determined by what can be built on the lot and how much that unit would sell for in the market. The dimensions of the lot, building codes, and the local zoning ordinances create constraints on what can be built. Most often there is some variety in choices available to construct on a given lot. Each of these options has a revenue potential and an estimated cost. Builders produce the combination which yields the greatest profit.

Imagine a 6,000 Square Foot (SF) lot that is 60' wide by 100' deep. A typical lot such as this would have a front setback of 20', side setbacks of 5', and a rear setback of 30' leaving a 50' wide by 50' deep building envelope for the house foundation. This site could comfortably accommodate a 2,000 SF single-story house (some area is lost by not making the house a perfect rectangle). For the sake of making the calculations easy to follow, assume this house could sell for \$1,000,000 (peak prices in Irvine were around \$500 / SF).

An individual speculator would be paying retail prices for house construction. This would be upwards of \$150 SF. The cost of construction would be around \$300,000 ($2000 * 150 = \$300,000$). There would be a 6% sales commission ($1,000,000 * 0.06 = \$60,000$), plus financing costs, overhead costs, and other miscellaneous costs which will add up to about 10% of the project cost ($1,000,000 * 0.1 = \$100,000$). Therefore, your revenue minus expenses would be $\$1,000,000 - \$60,000 - \$100,000 - \$300,000 = \$540,000$. This is how much money would be available to pay for a lot at the breakeven point. Since a speculator would want to make a profit, the lot is discounted from \$540,000 until an amount is reached to compensate for the risk and the headaches that go along with the project. Perhaps the speculator would want to make \$120,000 (approximately 12% of sales price) in order to do this work? If so, the speculator would be able to offer \$420,000 ($\$540,000 - \$120,000 = \$420,000$) for the lot. If they are the highest bidder, they get the lot, and the project is theirs. (This same basic calculation also works for tear-down projects known as "scrapers").

Multiple Lots

Production homebuilders control the price of larger parcels with multiple lots because they have the larger sums required to complete the purchase, and they can bid higher than individuals and still make a healthy profit. Production builders have a much lower construction cost than any individual because they

The Credit Bubble

The Great Housing Bubble was not really about housing; it was about credit. Most financial bubbles are the result of an expansion of credit, and the Great Housing Bubble was no exception. Housing just happened to be the asset class into which this capital flowed. It could have been stocks or commodities just as easily, and if the government gets too aggressive in its actions to prevent a collapse in housing prices, the liquidity intended to prop up real estate prices will likely flow into some other asset class creating yet another asset price bubble.

The root causes of the Great Housing Bubble can be traced back to four interrelated factors:

1. Separation of origination, servicing, and portfolio holding in the lending industry.
2. Innovation in structured finance and the expansion of the secondary mortgage market.
3. The lowering of lending standards and the growth of subprime lending.
4. Lower FED funds rates as an indirect and minor force.⁶⁴

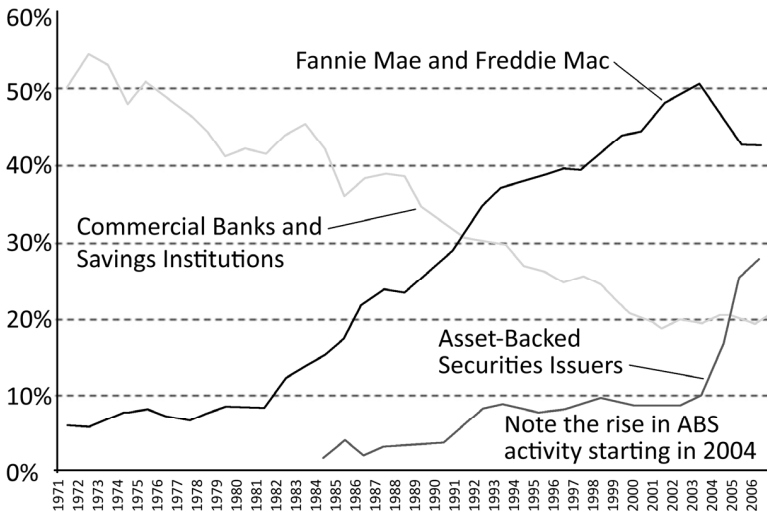
The Federal Home Loan Mortgage Corporation, also known as Freddie Mac, was created by Congress in 1970 to make possible a secondary mortgage market to provide greater liquidity to banks and other lending institutions to facilitate home mortgage lending. The Federal National Mortgage Corporation, also known as Fannie Mae, was originally created by the Federal Housing Authority (FHA) in 1938. In the beginning, Fannie Mae would securitize FHA loans, and it was the first to create a secondary mortgage market. In 1968, the company was privatized to remove its debt from the balance sheet of the Federal Government. Fannie Mae's role in purchasing FHA loans was replaced by the Government National Mortgage Association, also known as Ginnie Mae. Both Freddie Mac and Fannie Mae are private corporations that have the implied backing of the Federal Government even though their activities are explicitly not guaranteed (until they were taken into conservatorship in September 2008). Collectively Freddie Mac, Fannie Mae and Ginnie Mae are known as

THE CREDIT BUBBLE

Government Sponsored Entities or GSEs, and they are responsible for maintaining a secondary market for mortgage backed securities.

Fannie Mae and Freddie Mac buy and sell mortgage loans to create a secondary market.⁶⁵ Mortgage originators bring groups of loans to the two companies which will either buy the loans to hold in their own portfolios, or they will bundle these loans together into securities in a process known as a “swap.” In a swap program, the originator provides the group of loans, and Fannie Mae and Freddie Mac promise the originator they will receive payments from the pool – whether Fannie Mae and Freddie Mac receive said payments or not. This guarantee is tantamount to insurance as the two companies are taking on all risk of default for a small annual “guarantee fee,” usually equal to 20 basis points (0.2% of the guarantee amount). Fannie Mae and Freddie Mac have strict loan origination guidelines because of the insurance they are providing. In the terms of the mortgage industry, “conforming” loans are those loans that meet the underwriting standards of Fannie Mae and Freddie Mac. In the later stages of the rally in The Great Housing Bubble, more and more mortgage loans were being originated that did not conform to Fannie Mae’s and Freddie Mac’s standards. The asset-backed securities (ABS) market packages these non-conforming loans into collateralized debt obligations and garnered significant market share. Despite their more conservative lending standards, Fannie Mae and Freddie Mac guaranteed many loans that performed poorly in the fallout of The Great Housing Bubble. They guaranteed many exotic loan types with inflated appraisals and committed many of the same errors as asset-backed securities (ABS) issuers during the bubble.

Figure 12 - Percentage Held of Household Mortgage Debt, 1971-2006



Source: OFHEO, Federal Reserve, Credit Suisse analysis

As the secondary mortgage market continued to grow, lending institutions began to sell the loans they originated rather than keeping them in their own

The Housing Bubble

Prices went up a large amount during the Great Housing Bubble, but what makes this price increase a bubble? To answer this question it is necessary to accurately measure price levels and review historic measures of affordability to establish these price levels are not sustainable.⁷⁵ Measuring house prices is not a simple task, and there are many methods market watchers use to evaluate market prices. These include the median, the average cost per square foot, and the S&P/Case-Shiller indices. Price levels in financial markets represent the collective result of individual actions. There are techniques to measure the actions of the individual market participants and their impact on house prices. These measures are debt-to-income ratios and price-to-income ratios. The amount of debt people are willing to take on compared to the income they have available is their debt-to-income ratio. The amount of money people are able to put toward the purchase of residential real estate compared to their income is their price-to-income ratio. These ratios are important because they show how much people are borrowing and spending from their earnings to acquire real estate. When these ratios break with historic patterns, they signify a housing bubble.

There is a point where people are not able to bid up prices any higher because they do not have the savings or the borrowing power to pay more. This affordability limit determines where bubble rallies end; however, this limit is not predetermined or in a fixed location. The purpose of exotic financing programs is to expand this limit and bring more customers to the market and generate fees for the lenders. Unfortunately, these products have continually proven to be unstable, and the high default rates and lender losses inevitably lead to a contraction of credit known as a credit crunch. Interest-only and negative amortization loans created the housing rally and their elimination due to borrower default created the housing crash. As mentioned previously, the housing bubble was a credit bubble.

THE GREAT HOUSING BUBBLE

Price Measurements

There is no perfect measure for any broad financial market activity. Markets for stocks, bonds and other securities are the most widely reported and measured financial markets. It is relatively easy to measure activity in these markets because all sales are recorded at a few central exchanges and the “products” are uniform (one share of stock is equal to another). In contrast, real estate markets are much more difficult to evaluate.⁷⁶ Real estate transactions are recorded into the public record in thousands of locations across the country. Keeping an organized database of these records is such a daunting task that the title insurance industry has taken this responsibility as part of its business model, and many people are devoted to the arduous task of obtaining and organizing these records on a daily basis. Real estate does not have the uniformity of stocks or other financial instruments. Each property has unique qualities that differentiate it from all other properties making like-kind comparisons very difficult. Geographical location is a major influence on the value of real estate. Even if two properties could be found with identical physical characteristics, the values of these properties could vary considerably based on where they are located. Ideally, a market measure would record the changes in sales prices of identical assets or in the case of an index, a group of similar assets. The unique nature of real estate assets makes it difficult to use standard measures of reporting utilized in other financial markets.

Due to the problems of asset uniformity and variability based on location, real estate markets are typically measured using some form of median pricing over a specified geographic area. The median is a statistical measure of central tendency where half the data points are above and half the data points are below. For instance, in a list of 5 numbers sorted by size (\$100,000, \$200,000, \$300,000, \$500,000, \$900,000,) the third number in the list (\$300,000) would be the median because it has two numbers that are larger and two numbers that are smaller. The median (\$300,000) is used rather than an average (\$400,000) because a few very expensive properties can increase the average significantly, and the resulting number does not represent the bulk of the price activity in the market.

One of the problems with a median as a measure of house prices is a lag between when a top or a bottom actually occurs and when this top or bottom is reflected in the index. During the beginning of a market decline, the lower end of the market has a more dramatic drop in volume than the top of the market. This causes the median to stay at artificially high levels not reflective of pricing of individual properties in the market. In other words, for a time things look better than they are. At the beginning of a market rally, transaction volume picks up at the bottom of the market at first restarting the chain of move ups. During this time, the prices of individual properties can be moving higher, but since the heavy transaction volume is at the low end, the median will actually move lower.

The median is a good measure of general price activity in the market, but it does have a significant weakness: it does not indicate the value buyers are ob-

Bubble Market Psychology

Financial markets are driven by fear and greed: two basic human emotions. Rationality and careful analysis are not responsible for, or predictive of, current or future price levels in markets exhibiting bubble pricing as the emotions of buyers and sellers takes over.⁸⁸ The psychology of speculation drives bubble markets, and because of the nature of fear and greed, most speculators are doomed to lose their money. In contrast, true investors are not subject to the emotional cycles of the speculator, and they are more able to make rational decisions based on fundamental valuations. Of course, many investors also miss the excitement of a runaway price rally in a speculative bubble. The Great Housing Bubble was inflated by people trading houses. Residential real estate took on the character of a commodity, and it became subject to the same chaotic price gyrations as a speculative commodities market. This behavior was caused by lenders who provided the financing terms which enabled speculators to use mortgages as option contracts with the risk of loss being transferred to the lenders.

With any loss, an individual must go through a grieving process. Since markets are the collective actions of these individuals, markets experience the same psychological stages which are apparent in the price action. Efficient markets theory attempts to explain market price action through the collective action of rational market participants. This theory fails to explain the irrational behavior exhibited in bubble markets. Behavioral finance theory seeks to explain irrational exuberance. The price action in a bubble has other impacts on the beliefs and behaviors of individuals and society as a whole. These beliefs and behaviors may become pathological in nature leading to suffering and social problems. As with any form of mass hardship, there are calls for government action which lead to proposals for bailouts and false hopes among the populace.

Speculation or Investment?

Owner-occupied residential real estate is viewed by many people as a good investment.⁸⁹ Realtors often use this idea as part of their sales pitch. As men-

THE GREAT HOUSING BUBBLE

tioned previously, this view is fallacious and it is one of the beliefs responsible for creating an asset price bubble. To understand why houses are not a great investment in most circumstances, one needs to understand the difference between investment and speculation.

An investment is an asset purchased to obtain a predictable and consistent cashflow. This would include things such as bonds and rental properties or even cash in a savings account. The value of the asset is based on the cashflow, and this value can be determined in a number of ways. For a “point in time” analysis simple division will yield the rate of return (return = income / investment). Risk is evaluated by comparing the rate of return of the investment to the safe return one can obtain in a savings account or government bonds. For more complex financial structures the value can be determined by a process known as discounted cashflow analysis. The sales price at the time of disposition is often not a major factor in the investment decision, particularly if the eventual disposition is many years in the future. In fact, true investments need never be sold to be profitable. As Warren Buffet noted, “I buy on the assumption that they could close the market the next day and not reopen it for five years.”⁹⁰ In contrast to investment, speculation is the purchase of an asset to sell at a later date at a higher price (Actually, you can also speculate by selling first and buying later in a process known as “selling short”). Speculative assets are not valued based on cashflow but instead are valued based on the perceived probability of selling later for a profit. Houses can be purchased as an investment at the right price, but most often when people purchase a property they are engaging in speculation based on the belief they will be able to sell the house for a profit at a later date.

Since 1890 houses have appreciated at 0.7% over the general rate of inflation. Over the long term house values are tied to incomes because most people buy houses with mortgages for which they must qualify based on their income. Inflation keeps pace with wage growth because people will bid up the prices of goods and services with their available income. Therefore, over the long term house prices, wages and inflation all move in concert. There are short-term fluctuations in this relationship due to variations in financing terms, migration patterns, employment, local limits on construction and irrational exuberance, but any such deviations from the mean will be corrected over time by market forces. As an investment, houses serve as a hedge against the corrosive effect of inflation, but over the long term appreciation much in excess of the general rate of inflation is not possible. In this regard, houses are little better than savings accounts as an asset class, and they are inferior to stocks or bonds in the long term.

Leverage and Debt

As a speculative investment, residential real estate has the potential to make or lose vast sums of money due to the impact of financial leverage (debt). Houses are typically leveraged at 80% of their value. During the Great Housing Bubble, this leverage was often provided at 100% by various lenders. Leverage is a powerful ally when prices increase, but leverage works just as strongly against

Future House Prices

For all our wisdom and collective experience, none of us knows what the markets will do next. Like an ocean current or a raging river, a financial market charts its own course. It is fickle and feckless and flows without regard to our hopes and dreams. The ebbs and flows of financial markets are meaningful to us, but in reality they are just movements in price; nothing more. Price rallies make homeowners blissful and renters bitter, while price declines make homeowners gloomy and renters gleeful. These feelings and emotions are independent of movements in price. The market just moves, that is all it does. It is benign, yet dangerous; it is indifferent, yet demonstrative; the market is a paradox which we must simply accept.

During the rally of the Great Housing Bubble, buyers did not concern themselves with the day they were going to become sellers. Why would they? There was an endless demand for properties, and buyers were paying whatever was asked. If they wanted a price above current market values to pay off a loan, all they had to do was wait. Once the bubble burst and home prices started to decline, the conditions people were accustomed to during the rally dramatically changed. Anyone considering buying a home in the aftermath of a crash should think about the buyer who is going to buy their home from them at some point in the future, and more specifically, what debt-to-income ratio and loan terms this future buyer will utilize. This is important, because the amount of money this take-out buyer will pay for the home is completely dependent upon these variables. At most, a house is only worth what a buyer can pay for it. In a declining market with few qualified buyers, many of those qualified buyers will only make offers if the deal is exceptional or simply wait for further price declines.

In a market environment where prices are detached from fundamental valuations, bubble buyers face a daunting challenge just to break even on their purchase when the time comes to sell it. A future buyer must have favorable borrowing terms allowing for a high degree of leverage or they may not be able to borrow the prodigious sums borrowers during the bubble rally were able to obtain. If a future buyer is not able to borrow as much with their income as bubble buyers, then wages must increase over time to permit future borrowers to

FUTURE HOUSE PRICES

borrow the same sum and allow a bubble buyer to avoid a loss. Unfortunately, it will take many years for wages to catch up to bubble prices. Even when this occurs, and a seller can recover their purchase price, inflation will have diminished the value of those dollars. If the prices are adjusted for inflation, many bubble buyers will never see an inflation adjusted breakeven price.

How Far to Fall

This book was written as the market crash was just beginning, and although there was already significant history to discuss, the price levels where the markets ultimately found stability had not yet been reached. The remainder of this chapter is a projection of what should happen if the residential real estate market responds as history would suggest. There will undoubtedly be unexpected twists and turns that impact the various variables influencing housing prices, and changes to these variables will change the timing and the depth of the crash. The projections and discussion which follows is based on first a return to historic norms and finally a look at what could happen if the crashing market causes an “overshoot” of fundamental valuations as often occurs in the collapse of a financial bubble.

All methods of predicting future price action rely on the same basic premise: prices are tethered to some fundamental value, and although prices may deviate from this value for extended periods of time, prices eventually return to fundamental valuations. This premise has been reinforced by market observation; in fact, many estimates of fundamental value are based on market action. Since many market participants believe in buying and selling based on fundamental values, there is also an element of self-fulfilling prophecy contained therein. The efficient markets theory is based on this idea, and although the behavioral finance theory is needed to explain the wide deviations from fundamentals real-world prices exhibit, both theories share the same notion of an underlying fundamental valuation on which prices are ultimately based. The challenge to market prognosticators is to select a fundamental valuation to which prices will return, and then extrapolate a period of time in which the return of prices to fundamental valuation will take place.

There are a number of ways to project how far and how fast prices will fall. One is to look at the price charts themselves and try to project reasonable trend lines to approximate bottoming valuations. This is not an accurate methodology as it is based on the assumption of a repetition of past performance without examining the reasons for this past performance; however, it does serve as a useful rough estimate. A more accurate and detailed method is to examine the variables that determine market pricing and see how changes in these variables impact resale values. This process involves assessing current fundamental values to make a statement as to where prices should be – and would have been if there had not been a residential real estate bubble – then estimating how long it will take for these variables to return to their historic norms. Also, there are a number of exogenous forces that act on market pricing in an indirect manner. These include debt-to-income ratios, availability of credit and changes in loan terms,

Buying and Selling During a Decline

During the bubble price rally, sellers and realtors, the agents of sellers, had everything going their way. It was easy to price and sell a house. A realtor would look at recent comparable sales, and set an asking price 5% to 10% higher and wait for multiple bids on the property – some of which would come in over asking. The quality of the property did not matter, and the techniques used to market and sell the property did not matter either. As far as buyers and sellers were concerned house prices always went up, so the sellers were thought to be giving away free money; obviously, the product was in high demand. As the financial mania ran its course, buyers became scarcer; all the ones who could buy did buy. The buyer pool was seriously depleted leaving prices at artificially high levels. When the abundance of sellers became greater than the number of available buyers qualifying for financing, prices began to fall.

Residential real estate markets generally move very slowly and trend in a single direction for long periods of time. Once these markets reach an inflection point, the direction of price movement changes, and the balance of negotiating power shifts from an advantage to one side to an advantage for the other. However, most market participants do not recognize this change for some time. Sellers continue to price and attempt to sell using tactics that worked during the rally, and they find they are unable to sell their properties. It often takes two years or more before sellers accept the reality of the new market and adjust their attitudes and behaviors to the new dynamics of a buyer's market.

In a buyer's market, buyers have the upper hand, and sellers need to adjust their pricing tactics to reflect this fact. During a rally, many buyers must compete with each other for the property of a few sellers. In a price decline, many sellers must compete with each other for the money of a few available buyers. It is common for sellers to ask their realtor to find a buyer who will appreciate the "unique qualities" of their property. Every seller thinks their property is the finest in the neighborhood and certainly commands a premium 5% to 10% more than their neighbors. These fantasies are reinforced by the behavior of buyers during the rally. At the risk of losing the listing, the realtor must find a diplomatic way to convince a would-be seller their property is average at best and needs

THE GREAT HOUSING BUBBLE

to be priced accordingly. It is a difficult challenge for an experienced realtor to persuade an owner her castle is a cottage. Failure to educate the sellers to the reality of the market wastes the seller's time and the realtor's resources. Experienced realtors who thrive in bear markets earn their commissions.

Selling for Less

Sellers in declining markets must compete on price. Only the best properties can command prices equal to recent comps. In a buyer's market, there are no premiums: getting the price of recent comps reflects a premium because prices are declining. Properties with negatives must price 10% or more below recent comps to attract the attention of buyers. There are many books and articles written about staging a property and various techniques a seller should employ to sell their home. Most of these writings pander to the ego and false hopes of sellers who refuse to compete on price. No amount of sales and marketing is going to convince a buyer to overpay in a buyer's market. Price is the ultimate amenity.

Paying off a Mortgage

Once a price decline gets underway many buyers who were late to the price rally find they are in a property worth less than they paid for it. As prices continue to fall, many find themselves "underwater" owing more on their mortgage than their property is worth. When these late buyers want to become sellers, they cannot sell and pay off the mortgage balance with the proceeds from the sale. Then they have a real problem. It is a problem with only 4 plausible solutions:

1. The borrower can keep making the mortgage payments until prices go back up. This is the "hold and hope" strategy. If the borrower uses exotic financing – which most buyers did in the later stages of the Great Housing Bubble – it may be difficult to continue making mortgage payments because these payments are likely to increase substantially. If the property is not owner-occupied, the borrower may try to rent it out to cover expenses; however, this is generally not feasible. Buyers who purchased during the mania paid too much money relative to prevailing rents and available income. If this were not the case, it would not have been a financial mania. Since the payments are too high, renting the property does not cover the expenses. Renting out the property lessens the pain, but it does not make it go away. Also, since housing market corrections often last 5 years or more, it may be a very long time before prices recover to peak bubble levels. Keeping the property is a "death by a thousand cuts," or perhaps a death by a thousand payments.
2. The borrower can write a check at the closing to pay off the portion of the mortgage not covered by the proceeds from the sale. Many people do not have the amount necessary in savings, as few thought such a loss was even possible, and even fewer are willing to go through with the

Preventing the Next Housing Bubble

The pain of the deflation of a housing bubble cannot be avoided by trying to keep the bubble inflated, or by trying to deflate it slowly.¹³⁷ The only way to avoid these problems is to prevent the bubble from inflating in the first place through some form of intervention in the mortgage market. Intervention can take the form of a market-based intervention demanded by investors and ratings agencies, and it can also come about through direct government regulation.¹³⁸

Necessary Intervention

The regulated free-market system in place at the turn of the millennium allowed the creation of the Great Housing Bubble. Some combination of market-based and regulatory reforms is necessary to prevent the same circumstances that created the bubble from creating another one; it is imperative to prevent the next bubble in order to avoid the problems from the bubble's deflation.¹³⁹ The kind of intervention proposed here is not a bailout plan. A substantive bailout plan to rescue homeowners would be fraught with problems and unintended consequences. In September of 2008, the banking system neared collapse due to the problems of the fallout, and a banking system bailout became necessary. This outcome argues more forcefully for an intervention to prevent future bubbles from occurring in the housing market.

Economic Problems

The foremost problem resulting from the deflation of the Great Housing Bubble was the imperilment of our banking and financial system. The Great Depression was precipitated by the collapse of margin trading and the subsequent decline of the stock market beginning in 1929; however, this decline is not what made the Great Depression so severe. The policies responding to the upheaval caused many banks to fail, and it was the failure of banks that led to the dramatic decline in business activity and asset deflation of the Great Depression. To prevent a repeat of those problems, Congress passed a number of bank-

THE GREAT HOUSING BUBBLE

ing reforms granting the Federal Reserve broad powers over our currency and effectively abandoned the gold standard. One of the most successful of these policies was the establishment of the Federal Deposit Insurance Corporation (FDIC) to guarantee the safety of deposits in banking institutions and prevent panic-induced, mass depositor withdrawals (aka “bank runs”) from decimating our banking system. Since the FDIC has been in effect, mass depositor withdrawals at American banks have been relatively uncommon. Just as the deflation of the stock market asset bubble of the Great Depression imperiled the banking system, the deflation of the Great Housing Bubble endangered the banking system because the bank losses were so severe that most became insolvent and many went bankrupt or were taken over by other lenders. Whenever the banking system is put in jeopardy, economic growth is curtailed, and other major economic problems may develop.

Another source of economic problems caused by housing market bubbles is the immobility of workers. These problems were witnessed in the deflation of the coastal bubble during the early 1990s, and they occurred again in the deflation of the Great Housing Bubble. When people owe more on their mortgage than their house is worth, they could not move freely to accept promotions or work in other areas. In such circumstances the borrower had limited options. The borrower could have tried to rent the property, but those who bought at bubble prices paid in excess of its rental value so renting the property did not cover the costs of ownership. They were losing money each month trying to keep the house. If they tried to sell the house to avoid the monthly loss, they could not get enough money in the sale to pay off the debt. The borrower would either pay the lender the difference or accept the negative consequences of a short sale or foreclosure. Most often they chose the latter option. Since none of the options available to borrowers were very palatable, many passed on promotions or other opportunities because they were trapped in their homes. Employers also faced difficulties when house prices were much higher than local incomes. When an employer wanted to expand and hire new people, the potential new employee was repelled by the high house prices and either demanded a higher wage or refused to accept employment. Both circumstances were detrimental to the economy when an employee was trapped in their home and could not move and when an employer could not attract new employees because local house prices were very high.

Like all financial bubbles, the bubble in residential real estate caused the inefficient use of capital resources. When prices rose, it signified an increase in demand, and the supply chain went to work to deliver more supply to meet this demand and capture the profits from increased prices. When the demand was artificial, as was the case in a bubble, the market became oversupplied, and this supply was not of the type or quantity the market really needed. For instance, in the NASDAQ stock market bubble, billions of dollars of investment capital flowed into internet companies. This money went into all forms of unproductive uses which ultimately provided little or no return on the investment capital. In the Great Housing Bubble, the inflated prices prompted builders to construct many large houses known as McMansions. The economics favored this because

PREVENTING THE NEXT HOUSING BUBBLE

the largest homes had the lowest cost per-square-foot to construct, and these houses obtained some of the highest revenues per-square-foot on the market. The result was entire neighborhoods of homes that were very resource wasteful. If the construction resources had been allocated based on true market need, which would have happened in the absence of price bubble distortions, fewer construction resources would have gone into each home, the ongoing cost of maintenance would have been reduced, and fewer total homes would have been built. The temporary demand of construction resources in a financial bubble also impacted human resources. There was a nationwide increase in construction employment to meet the bubble demand. When the bubble burst, many of these people were laid off causing both economic and personal turmoil.

Financial bubbles also witnessed the birth, growth and death of unsustainable financial models. The NASDAQ bubble had internet companies, and the Great Housing Bubble had subprime lending. The subprime lending model was profitable despite a 10% to 15% default rate among its customers. The industry was able to sustain this rate of default because the default losses they sustained were small as long as prices were rising. As soon as prices stopped rising, their loan default rates increased, and their default losses drove the entire industry into oblivion.¹⁴⁰

In the aftermath of the coastal housing bubble of the early 90s, the economy experienced a period of diminished consumer spending because many homeowners who bought during the bubble and did not go into foreclosure were making payments that represent a high percentage of their income. The extra money going toward their mortgage payment, the money in excess of normal debt-to-income guidelines was money the borrower did not have available to spend on other things. The diminished discretionary spending income from this population of borrowers slowed economic growth in an economy heavily dependent upon consumer spending such as the United States.¹⁴¹ Many borrowers during the Great Housing Bubble became accustomed to supplementing their income through mortgage equity withdrawal. When house prices fell, mortgage equity withdrawal was curtailed. This forced many to adjust their lifestyles to live within the money provided by their wage incomes after paying the large debt-service payments. This loss of spending power was not just difficult an economic problem, it was a deeply personal problem for those who wished to spend freely.

Personal Problems

The economic problems caused by asset price bubbles often lead to personal problems in the wake of the deflating bubble. Statistics about unemployment, foreclosure and bankruptcy are impersonal. The events that result in any one of these outcomes was anything but impersonal: these things happened to real people who had very real emotional responses. Many people during the fallout of the Great Housing Bubble experienced all three. Any one of these outcomes can lead to depression, suicide, divorce and a whole host of traumatic personal

THE GREAT HOUSING BUBBLE

problems. All of it was preventable if the bubble was not allowed to inflate in the first place.

The volatility of price action during a bubble had a profound and capricious impact on people's financial lives. Many people became enriched by fortuitous timing. Some of these people were market savvy individuals who knew when to buy and sell in a volatile market; however, since the mindset of a successful trader was rare, and since most housing market participants were amateurs with emotional responses almost guaranteed to produce a loss, the majority of bubble participants lost a great deal of money. Some were lucky. Some people bought and sold at the right time due to life circumstances beyond their control. Those who transferred out of bubble markets for their careers and sold their houses at the peak reaped huge windfalls. Of course, for every seller who reaped a windfall, there was a buyer who faced major financial difficulties. The unequal distribution of gains and losses from bubble market volatility is not a positive feature.

Another group of people deeply impacted by bubble market volatility are those who chose not to participate. Some of these people recognized the bubble for what it was, and some could not set aside common sense to accept the fallacious beliefs of bubble mentality. This group was forced to rent during the bubble and subsequent decline. Many of these people would have preferred ownership, preferred to have the freedom to customize a property to their liking, and preferred to obtain the intangible benefits of ownership such as a feeling of community and belonging. These people had to endure the patient "waiting game" and feelings of groundlessness renting can entail.

Addressing the Cause

Before a doctor prescribes a treatment, the patient must first be evaluated and a disease must be diagnosed. Similarly, implementing a new policy in either the public sector or private sector to prevent future housing bubbles can only take place after the causes of the housing bubble are accurately identified. If the root causes are not identified correctly, policy initiatives may not have the desired effect. The Great Housing Bubble was a credit bubble, and some form of restriction of credit must be part of any policy initiative. A common criticism of past initiatives restricting credit availability to homeowners is that these initiatives tended to limit opportunities for home ownership without properly addressing problems with lending practices.¹⁴² The goal of any policy initiative with regards to preventing future housing bubbles is to limit or constrain irrational exuberance without impacting the smooth operation of the financial market. It is no easy task.

Before a policy can be formulated, there needs to be an open discussion of the goal of maximizing home ownership. Owning a home has become synonymous with the American Dream. Every Presidential administration has had the expansion of home ownership as one of its goals. The tax code is structured to give tax breaks to home owners to encourage home ownership. The idea of home ownership is deeply embedded in our culture.

PREVENTING THE NEXT HOUSING BUBBLE

Managing the rate of home ownership is analogous to managing the rate of economic growth. It is not the policy of our government or the Federal Reserve to maximize economic growth. Instead, the Federal Reserve balances economic growth with inflation and tries to manage economic growth to keep it on a sustainable path. This policy grew out of our painful history of economic cycles of boom and bust. It was realized that economic growth must be tempered to a sustainable level to minimize the damage of economic downturns. Similarly, the rate of home ownership should not be maximized. Home ownership will never reach 100%, and this should not be the goal of housing policy. Just as economic growth is tempered by the rate of inflation, home ownership rates are tempered by the rate of default of mortgage loan programs.

The harsh reality is that a certain percentage of the population lacks the desire, discipline or responsibility requisite to be a homeowner. There is a percentage of the population who do not want to be homeowners. Many people require mobility to pursue career opportunities or other goals. Some people like the freedom of renting and do not want the responsibilities of home ownership that go beyond monthly payments. There are some people who simply do not make housing payments consistently. This group is not capable of sustaining home ownership. There may be opportunities for policy initiatives to increase education to make this group smaller, but there will always be some people who cannot or will not do what is necessary to keep a house: make their payments. There is a percentage of the general population who should be renters.

There is a natural, sustainable level of home ownership. Home ownership rates in the United States increased markedly at the end of World War Two as the 30-year fixed-rate mortgage became the commonly accepted vehicle of home finance. In the 60 years that followed, home ownership rates stabilized between 60% and 65% through good economic times and recessions and interest rates ranging from below 6% to above 18%. Subprime lending demonstrated that increasing the home ownership rate through the widespread use of lending programs with high default rates is inherently unstable. Managing the home ownership rate is not a subject of governmental policy. Any legislative initiative to specifically limit home ownership rates would be politically unpalatable; however, either a market-based initiative or a legislative initiative that prevents the widespread use to loan programs subject to high rates of default rates would effectively manage the home ownership rate and prevent painful declines in that rate. Home ownership rates decline as homeowners become renters, a painful process known as foreclosure.

What did not cause the bubble?

There are a wide variety of ideas for preventing future housing bubbles, and all the ideas in the public forum are not discussed here. Some of the more popular are examined to demonstrate why they would not be successful. Most of the ideas that will not work are some form of direct regulation of interest rates, secondary mortgage market activities, price-to-income ratios or investment of equity capital. All regulatory initiatives carry a common problem: there is little

THE GREAT HOUSING BUBBLE

enforcement once a bubble starts inflating. When times are good, there is immense political pressure for regulators to look the other way. When there is no apparent, immediate harm from a given practice, there is only a vague memory of a time long ago when circumstances were quite different and some restrictive law was passed. The law may seem quaint and old-fashioned or simply an obstruction to the wheels of progress. The rationalizations and justifications for ignoring laws are many, and the pressure to do so is intense when powerful lobbying interests are pressuring Congressmen who subsequently pressure government regulators.

Many believe that lower interest rates created the Great Housing Bubble, and the regulation of interest rates would prevent future bubbles. This is wrong on both counts. The lowering of interest rates did help precipitate the bubble by reducing borrowing costs and increasing home prices; however, once house prices started to rise, prices went much higher than the lower interest rates alone can account for. At most, one-third to one-half of the national price increase was due to lower interest rates, and less than 10% of the increase in coastal areas can be attributed to these lower rates. The direct regulation of mortgage interest rates would disrupt the free flow of capital in the mortgage market. If the regulated rate was too low, no money would be made available, and if the rate was too high, excess money would flow into real estate working to create another bubble. No form of mortgage interest rate regulation would prevent a future bubble because interest rates were not responsible for the Great Housing Bubble.

Much of the responsibility for the bubble can be attributed to the flow of funds into the market from hedge funds through collateralized debt obligations. There have also been calls for greater regulation of hedge funds and the secondary mortgage market. Any kind of regulation would likely restrict the flow of money to all mortgages and disrupt the secondary market. Also, regulating hedge funds themselves will prove problematic, if for no other reason, it is difficult to define exactly what a hedge fund is. Also, hedge funds are simply investment vehicles, and it is unclear exactly what they do that other investment entities do not do that causes problems resulting in financial bubbles. Much of the demonization of hedge funds is demagoguery and looking for someone to blame. Many of the problems with the secondary markets will correct themselves as investors stop investing in products that lose money. In fact, one of the greatest challenges in the aftermath of the Great Housing Bubble is going to be getting investors back into the secondary market. One of the market-based solutions proposed herein addresses these issues. Direct legislative intervention to hedge funds and collateralized debt obligations would be more disruptive than productive.

Another proposed solution is to regulate the loan-to-income ratio of the borrower. When 30-year fixed-rate mortgages first came out, mortgage debt was limited to two and one-half times a borrower's yearly income. It was an artificial limit that made sense when interest rates were higher and people were accustomed to putting less money toward housing payments. A legislative cap on the loan-to-income ratio would prevent future housing bubbles, if it was enforced. This would not work for the same reason lenders went away from the two-and-

PREVENTING THE NEXT HOUSING BUBBLE

one-half-times-income standard years ago: it does not reflect changes in borrowing power due to changes in interest rates. This idea of regulating loan-to-income ratios is actually an evolution of the idea of regulating interest rates. If the total loan-to-income ratio is limited, very low interest rates do not cause dramatic price increases, but since low interest rates were not really the cause of the bubble, limiting the loan-to-income ratio is not addressing the real cause of the bubble. Plus, there are ways to get around a cap on home loan borrowing by obtaining other loans not secured by real estate. It would be relatively easy for a borrower to obtain bridge financing to acquire a property and then obtain a HELOC to pay off the bridge financing. In the end, the borrower would have borrowed more than the cap amount thus rendering any cap meaningless. To close the various loopholes, more regulations would be required, and a regulatory nightmare would ensue. A better and more effective method of limiting borrowing is to regulate the debt-to-income ratio. This idea is explored in the next section.

What did cause the bubble?

The Great Housing Bubble was caused by an expansion of credit that enabled irrational exuberance and wild speculation. The expansion of credit came in the form of relaxed loan underwriting terms including high debt-to-income ratios, lower FICO scores, high combined-loan-to-value lending including 100% financing, and loan terms permitting negative amortization. Addressing the conditions of expanding credit is a legitimate focus for intervention in the credit markets. Another major lending problem is unrelated to the terms: low documentation standards. The credit crunch that gripped the markets in late 2007 was exacerbated by the rampant fraud and misrepresentation in the loan documents underwriting the loans packaged and sold in the secondary mortgage market. It is essential to an evaluation of the viability of a mortgage note to know if the borrower actually has the income necessary to make the payments. When investors lost confidence in the underlying documents, the whole system seized up, and it was not going to work properly until the documentation improved to reflect the reality of the borrower's financial situation. Any remedy for the housing bubble must address the issue of poor documentation in order to facilitate the smooth operation of the secondary market.

There are some factors that created the Great Housing Bubble that cannot be directly regulated. One of these is the lax enforcement of existing regulations as described previously. Even though lenders and investors lost a great deal of money during the price crash, their behavior during the bubble was still predatory. Lenders peddled unstable loan programs to borrowers who could not afford the payments. They did not do this to obtain the property as is ordinarily the case with predatory lending; they did it to obtain a fee through loan origination. Since they felt insulated from the losses to these loans being packaged and sold to investors, they were in a position to profit at the expense of borrowers – the definition of predatory lending. Another factor that cannot be regulated is the crazy behavior of borrowers caught up in a speculative mania. It is not possible

THE GREAT HOUSING BUBBLE

to stop people from overpaying for real estate, but it is possible from preventing them from doing so with borrowed money. If people wish to risk their own equity in property speculation, it is their money to lose, but when lender money is part of the equation, the entire financial system can be put at risk, which it was during the Great Housing Bubble. The fickle nature of borrowers became apparent during the decline of the bubble when many borrowers behaved in a predatory manner refusing to make payments on loans they could have afforded to make because the property had declined in value. Borrowers who were grateful to receive 100% financing and what was perceived at the time to be favorable loan terms were not hesitant to betray the lenders when their speculative investment did not go as planned.

The 30-year fixed-rate conventionally-amortizing mortgage with a reasonable downpayment is the only loan program proven to provide stability in the housing market. Many of the “affordability” products used during the Great Housing Bubble and many of the deviations from traditional underwriting standards created the bubble. Mortgage debt-to-income ratios greater than 28% and total indebtedness greater than 36% have a proven history of default. Despite this fact, debt-to-income ratios greater than 50% were common in the most extreme bubble markets.¹⁴³ Limiting debt-to-income ratios is critical to stopping loan defaults and foreclosures. Lower FICO scores was the hallmark of subprime lending. FICO scores provide a fairly accurate profile of a borrower’s willingness and ability to pay their debts as planned. Low FICO scores are synonymous with high default rates. Limiting availability of credit to those with low FICO scores was a historic barrier to home ownership because these people default too much. The free market solved this problem. Subprime was dead. High combined-loan-to-value (CLTV) lending including 100% financing is also prone to high default rates. In fact, it is more important than FICO score. FICO scores are very good at predicting who will default when downpayments are large, but when borrowers have very little of their own money in the transactions, both prime and subprime borrowers defaulted at high rates. Many prime borrowers are more sophisticated financially, and the unscrupulous recognized 100% financing as a perfect tool for speculating in the real estate market and passing the risk off to a lender. The primary culprits that inflated the housing bubble were the negative amortization loan and interest-only loans where lenders qualified buyers on their ability to make only the initial payment. As the Great Housing Bubble began to deflate, Minnesota and some other states passed laws restricting the use of negative amortization loans and required lenders to qualify borrowers based on their ability to make a fully amortized payment. The Minnesota law is a good template for the rest of the nation.

Any proposal to prevent bubbles from reoccurring in the residential real estate market must properly identify the cause, provide a solution that is enforceable, and allow for the unhindered working of the secondary mortgage market. The solutions outlined below are both market-based, meaning it does not require government regulation, and regulatory based, meaning it entails some form of civil or criminal penalties to prevent certain forms of behavior leading to market bubbles. All changes are difficult to implement and the solutions presented here

PREVENTING THE NEXT HOUSING BUBBLE

would be no exception. Any policies which prevent future bubbles will be opposed by those who profit from these activities and homeowners who are in need of the next bubble to get out of the bad deals they entered during the Great Housing Bubble. Despite these difficulties, it is imperative that reform take place, or the country may experience another housing bubble with all the pain and financial hardship it entails.

Market Solutions

The secondary mortgage market was created in the 1970s by the government sponsored entities, Freddie Mac, Fannie Mae, and Ginnie Mae. This market was expanded by the creation of asset-backed securities where mortgage loans are packed together into collateralized debt obligations (CDOs). This flow of capital into the mortgage market is a necessary and efficient tool for delivering money to borrowers for home mortgages. This market must remain viable for the continued health of residential real estate markets. The problem during the Great Housing Bubble was that the buyers of CDOs did not properly evaluate the risk of loss through default on the underlying mortgage notes that were pooled. The reason these risks were not evaluated properly is due to the appraisal methods used to value real estate serving as collateral backing up these loans.

There is one potential market-based solution that would require no government regulation or intervention that would prevent future bubbles from being created with borrowed capital: change the method of appraisal for residential real estate from valuations based exclusively on the comparative-sales approach to a valuation derived from the lesser of the income approach and the comparative-sales approach. Both approaches are already part of a standard appraisal, so little additional work is necessary – other than appraisers will have to focus on doing the income approach properly. In the current lending system, the income approach is widely ignored. This change of emphasis in valuation methods could come from the investors in CDOs themselves. When the fallout from the Great Housing Bubble is evaluated, it is clear that the comparative-sales approach simply enables irrational exuberance because the past foolish behavior of buyers becomes the basis for future valuations allowing other buyers to continue bidding up prices with lender and investor money. Prices collapsed in the Great Housing Bubble because prices became greatly detached from their fundamental valuation of income and rent. This occurred because the comparative-sales approach enables prices to rise based on the irrational exuberance of buyers. If lenders would have limited their lending based on the income approach, and if they would not have loaned money beyond what the rental cashflow from the property could have produced, any price bubble would have to have been built with buyer equity, and lender and investor funds would not have been put at risk. There is no way to prevent future bubbles, and the commensurate imperilment of our financial system, as long as the comparative-sales approach is the exclusive basis of appraisals for residential real estate.

Investor confidence in the market for CDOs and all mortgages was shaken during the decline of the Great Housing Bubble – and rightly so. Investors were

THE GREAT HOUSING BUBBLE

losing huge sums, and nobody clearly understood why. There was a widespread belief these losses were caused by some outside factor rather than a systemic problem enabled by the lenders and investors themselves.¹⁴⁴ For investor confidence to return to this market, investors must first ascertain a more accurate evaluation of potential losses due to mortgage default. This requires an accurate appraisal of the fundamental value of the residential real estate serving as collateral for the mortgage loans that comprise the CDOs. Since the fundamental value of residential real estate, the value to which prices ultimately fall during a price decline, is determined by the potential for rental income from the property, revaluing properties using the income approach would provide a more accurate measure the value of the mortgage note and thereby the CDO.

The ratings agencies who rate the various tranches of CDOs must adopt the method of valuation utilizing the lesser value of the income approach and the comparative-sales approach. The ratings agency's recommendations and ratings carry significant weight with investors, and the ratings agencies clearly made a tragic error in their ratings of CDOs during the Great Housing Bubble. If the ratings agencies properly evaluate the underlying collateral backing up the mortgages that are pooled together in a CDO, investors will regain confidence in the ratings, and money will return to the secondary market. If investors in CDOs recognize the chain of valuation as described, they would be unwilling to purchase CDOs valued by other methods. If investors are unwilling to purchase CDOs where the underlying collateral value is measured using the comparative-sales approach and instead demand a valuation based on the income approach, the syndicators of CDOs will be forced to respond to investor demands or they will not be able to sell their syndications. Investors and the ratings agencies can mandate a new valuation method for residential home mortgages.

The main objection with the rental approach is the difficulty of evaluating market rents, particularly in markets where there may not be many (or any) comparative properties for rent in the market. This is an old problem, one that has been studied in great detail by the Department of Labor Bureau of Labor Statistics.¹⁴⁵ Comparative rents have been collected by the DOL since the early 1980s as part of their calculation of the Consumer Price Index. The problem of irrational exuberance in the late 1970s in coastal markets, particularly California, caused the consumer price index to rise rapidly. Since the CPI is widely used as an index for cost-of-living adjustments, volatility in this measure caused by the resale housing market needed to be urgently addressed. After over a decade of study, the DOL decided to value the change in housing costs by a comparative rental approach rather than a change in sales price approach used previously. This smoothed the index and reduced volatility because the consumptive aspect of housing services were tethered to rents and incomes rather than being subject to the volatility caused by irrational exuberance in the housing market.

The Department of Labor Bureau of Labor Statistics measures the market rental rate in markets across the United States. It breaks down the market into subcategories based on the number of bedrooms, and it does a good job of estimating market rents in the various subcategories. These numbers are updated

PREVENTING THE NEXT HOUSING BUBBLE

each year. The figures from the DOL would serve as a basis for evaluation of market rents, and it may be the only basis in areas where there are few rentals. In submarkets where there is sufficient rental activity, the income approach can use real comparables to make a more accurate evaluation. Appraisers will decry the lack of available data on rentals as many rentals, particularly for single-family detached homes are done by private landlords who do not report these transactions; however, if this method of appraisal were the standard, private companies would spring up to track these transactions and maintain an up-to-date database. Valuing properties based on the income approach may be more difficult than the comparative-sales approach, but when the latter method is fundamentally flawed, ease-of-use is not a compelling reason to continue to rely on it.

There is also the objection that the income approach method of valuing residential real estate has the same problems as the comparative-sales approach because both approaches rely on finding similar properties and making an estimation of market value by adjusting the values of comparative properties. In both approaches the appraiser must explain their reasons for the adjustments to justify the appraised value of the subject property, and this is a potential source of abuse of the system. No system is perfect, but the potential to inflate prices through manipulating appraisals based on the income approach is far less than the potential problems emanating from the comparative-sales approach because the basis of adjustment in the income approach is a properties fundamental value whereas the basis of adjustment in the comparative-sales approach is the prices paid by buyers subject to bouts with irrational exuberance. If lenders start accepting appraisals where the income approach contains adjustments to value that increase the appraised amount 100% – something that would have been required to justify pricing seen during the Great Housing bubble – then the system is hopelessly broken. The main argument for using the income approach is that its basis is the fundamental value whereas the basis for the comparative-sales approach is whatever price the market will currently bear. Prices are not likely to decline below a properties fundamental value where as a property may decline significantly from a point-in-time estimate of market value. Using the income approach lessens the risk to lenders and investors and ensures the smooth operation of the secondary mortgage market. Using the comparative-sales approach exclusively results in the turmoil witnessed during the price decline of the Great Housing Bubble.

Regulatory Solutions

The regulatory solution proposed herein is simple, yet far reaching. It comes in two parts, the first is to limit the amount lenders can loan to borrowers with a rather unique enforcement mechanism, and the second is to increase the penalties for borrowers who commit mortgage fraud. The following is not in legalese, but it contains the conceptual framework of potential legislation that could be enacted on the state and/or federal level. A detailed discussion of the text follows:

THE GREAT HOUSING BUBBLE

Loans for the purchase or refinance of residential real estate secured by a mortgage and recorded in the public record are limited by the following parameters based on the borrower's documented income and general indebtedness and the appraised value of the property at the time of sale or refinance:

- 1. All payments must be calculated based on a 30-year fixed-rate conventionally-amortizing mortgage regardless of the loan program used. Negative amortization is not permitted.*
- 2. The total debt-to-income ratio for the mortgage loan payment, taxes and insurance cannot exceed 28% of a borrower's gross income.*
- 3. The total debt-to-income of all debt obligations cannot exceed 36% of a borrower's gross income.*
- 4. The combined-loan-to-value of mortgage indebtedness cannot exceed 90% of the appraised value of the property or the purchase price, whichever value is smaller except in specially sanctioned government programs.*

Any sums loaned in excess of these parameters do not need to be repaid by the borrower and no contractual provision is permitted that can be interpreted as limiting the borrower's right to exercise this right, make the loan callable or otherwise abridge the mortgage agreement.

This last statement is the most critical. This is how the enforcement problem can be overcome. Regulators are pressured not to enforce laws when times are good, and decried for their lack of oversight when times are bad. If the oversight function becomes a potential civil matter policed by the borrowers themselves, the lenders know exactly what their risks and potential damages are. Any lender foolish enough to make a loan outside of the parameters would not need to fear the wrath of regulators, they would need to fear the civil lawsuits brought by borrowers eager to get out of their contractual obligations. If any borrower could obtain debt forgiveness by simply proving their lender exceeded these guidelines based on the loan documents, no lender would do this, and regulatory oversight would be practically unnecessary. One key to making this work is to prohibit lenders from introducing a "poison pill" to the loan documents that would make borrowers hesitant to bring suit, otherwise lenders would make their loan callable in the event of a legal challenge forcing the borrower to refinance or sell the property. Basically, if the borrower brought suit and won, they would see principal reduction equal to the deviation from the standards, if they brought suit and lost, they would have no penalty. Most of these cases would be decided by summary judgment based on a review of the loan documents thus minimizing court costs.

Another pillar to the system is the documentation of income as part of the loan document package – the "*borrower's documented income*" from the proposed legislation. One of the most egregious practices of the Great Housing Bubble was the fabrication of income by borrowers that was facilitated and promoted by originating lenders. Stated-income loan programs were widespread, and they were the cause of much of the uncertainty in the secondary mortgage market during the initial stages of the credit crunch in the deflation of the bub-

PREVENTING THE NEXT HOUSING BUBBLE

ble. Basically, investors had no idea if the borrowers to whom they had lent billions of dollars were capable of paying them back. Without proper documentation of income, investors lost all confidence in the secondary mortgage market. Stated-income loan programs were one of the first casualties of the credit crunch. These programs should be eliminated totally due to the inherent potential for fraud and the undermining of confidence in the secondary mortgage market stated-income loans create. If lenders can be sued based on the content of the loan documents, and if borrowers can be fined or go to jail for committing fraud or misrepresentation on loan documents, both parties have strong incentive to prepare these documents completely and correctly. Originating lenders will argue this adds to their costs and will result in higher application fees. The amount in question is very small, particularly relative to the dollar amount of the transaction. A small amount of additional expense here will provide huge benefits by assuring investors the borrowers to whom they are loaning money really have the income to pay them back. The benefit far outweighs the cost.

If such a law were passed, agency interpretation and court case precedents will end up defining adequacy in loan documentation. A single W2 does not establish a work history, but 2 years worth is probably excessive documentation. One of the most contentious areas will likely be documenting the income of the self-employed. In theory, the self employed must document their incomes to the US government either through Schedule C reports or corporate K-1s. The argument the self-employed have traditionally made is that these documents understate their income. Since many self employed take questionable tax deductions, there is probably some truth to the claim that tax records understate their income; however, why should the self-employed get to have both benefits? If the self-employed had to use their tax returns as loan documentation, they probably would not be quite so aggressive in taking deductions. A new business without a tax return or with only one year of taxable receipts probably is not stable enough to meet standards of income necessary to assume a long-term debt.

The poor quality of loan documentation during the bubble was a mistake of originating lenders; therefore, in this proposal much of the burden of paperwork and liability for mistakes falls on the lenders. During the deflation of the bubble, lenders paid an enormous price for some of their lax paperwork standards, but much of the problem was also due to borrowers misrepresenting themselves in the loan documents. There were instances where lenders encouraged this behavior, but in the majority of cases, the document fraud was perpetrated by the borrowers. The only recourse available to a lender is a civil suit as there are few criminal penalties associated with loan documentation and almost no enforcement. It can be very difficult and costly for lenders to pursue civil damages, and few lenders attempt it even when they have a strong case. To create a more balanced set of responsibilities, the borrowers must face criminal penalties for fraud and misrepresentation on loan documents. If borrowers know the lender can turn documents over to a prosecutor who will charge the borrower with a crime if they make false material statements, borrowers will be much less likely to commit these acts.

THE GREAT HOUSING BUBBLE

The parameters of the forming limitations on the debt-to-income ratio and combined-loan-to-value are essential to prevent bubbles in the housing market and to prevent the banking system from becoming imperiled in the future. People will commit large percentages of their income to house payments when prices are rising quickly; however, they do this out of fear of being “priced out” and greed to make a windfall from appreciation. These are the beliefs that inflate a bubble. Borrowers cannot sustain payments above the traditional parameters for debt service without either defaulting or causing a severe decline in discretionary spending. The former is bad for the banks, and the latter is bad for the entire economy. This must be prevented in the future. There are a number of reasons why high combined-loan-to-value lending is a bad idea: it promotes speculation by shifting the risk to the lender, it encourages predatory borrowing where borrowers “put” the property to a lender, it promotes a high default rate because borrowers are not personally invested in the property, it discourages saving as it becomes unnecessary, and it artificially inflates prices as it eliminates a barrier to market entry. This last reason is one of the arguments used to get rid of downpayment requirements. The consequences of this folly became readily apparent once prices started to fall.

The payment must be measured against “*30-year fixed-rate conventionally-amortizing mortgage regardless of the loan program used.*” One of the worst loan programs of the Great Housing Bubble was the 2/28 ARM sold to large numbers of subprime borrowers. These borrowers were often qualified only on their ability to make the initial payment, and these borrowers were generally not capable of making the fully amortized payment when the loan reset after 2 years. Regulations like this would prevent a recurrence of the foreclosure tsunami triggered by the use of this loan program. It is also important to ban negative amortization because it would allow the loan balance to grow beyond the parameters of qualification, and it invites property speculation. Perhaps borrowers would not be concerned because they would receive debt forgiveness of the expanding balance. Lenders should be wary of these loans after their dismal performance in the deflation of the bubble, but institutional memory is short, and these loan programs could make a comeback if they are not specifically outlawed. This provision is careful to allow interest-only loans. They are still a high-risk product, but an argument can be made that these loans have a place, and there is no need to completely ban them. They will not have a future as an affordability product capable of driving up prices if the borrower must still qualify for the fully amortized payment.

For the lending provisions to have real impact, they must apply to both purchases and to refinances, thus the clause, “*Loans for the purchase or refinance of residential real estate.*” If the rules only applied to purchases, there would be a tremendous volume in refinances to circumvent the regulations. The caps on debt-to-income ratios, mortgage terms and combined-loan-to-value only have meaning if they are universally applied. The combined-loan-to-value standard is based on the “*appraised value of the property at the time of sale or refinance.*” The new appraisal methods will have impact here. It is important that the records need only be accurate as of the time of the transaction. If a borrower

PREVENTING THE NEXT HOUSING BUBBLE

experiences a decline in their income or if the property declines in value to where they no longer meet the loan standard, it does not mean they can go petition for debt relief.

The regulations would only need to apply to loans "*secured by a mortgage and recorded in the public record.*" People can still borrow money from any source they wished as long as the lender knows they will not have any claim on residential real estate. If a lender wanted to issue a loan secured by real estate outside of the outlined standards, the borrower would not have to pay back that money. If a borrower has non-recorded debts which create a totally indebtedness requiring more than 36% of their gross income, they would not be eligible for a home equity loan even if they met the other qualifications. In such circumstances, it is better to limit borrowing than increase the probability of foreclosure.

Many states have non-recourse laws on their books. These laws serve to protect the borrower from predatory lending because the lender cannot go after other assets of the borrower in the event of default. In theory this should make lenders more conservative in their underwriting; however, the behavior of lenders in California, a non-recourse state, during the Great Housing Bubble was not conservative. These laws do serve to protect borrowers, and they should be enacted for purchase-money mortgages in all 50 states.

Since one of the goals of regulatory reform is to inhibit the behavior of irrational exuberance, the sales tactics of the National Association of Realtors should be examined and potentially come under the same restrictions as securities brokers through the Securities and Exchange Commission. After the stock market crash which helped precipitate the Great Depression, Congress created the Securities and Exchange Commission to regulate the sales activities of securities brokers. There are strict regulations in place governing the representations made concerning the future performance of investment opportunities. These protections were put in place to protect the general public from the false promises made by stockbrokers in the 1920s which many naïve investors believed. The same analogy holds true for Realtors. The National Association of Realtors has launched numerous advertising campaigns suggesting erroneously that residential real estate is a great investment and appreciation will make home buyers wealthy.¹⁴⁶ The mantra of all realtors is that house prices always go up. There are currently no limits to the distortions and outright lies realtors can tell prospective buyers with regards to the investment potential of residential real estate. Buyers are already prone to believe the fallacies of unlimited riches in real estate, and these fallacious beliefs lead to housing bubbles. Realtors should be prevented from making representations concerning the investment potential of real estate. Since the regulatory framework for this kind of regulation and oversight is already in place under the auspices of the Securities and Exchange Commission, Congress would merely need to make Realtors subject to these regulations in order to solve the problem.

The result of these restrictions will be that all homeowners will have at least 10% equity in their properties unless they have borrowed from a government program like the FHA where the combined-loan-to-value can exceed the limits. This equity cushion would buffer lenders from predatory borrowing and a huge

THE GREAT HOUSING BUBBLE

increase in foreclosures if prices were to decline. Home equity in the United States has been declining since the mid 1980s, and it actually declined while prices rose during the Great Housing Bubble due to the rampant equity extraction. The lack of an equity cushion exacerbated the foreclosure problem as many homeowners who owed more on their mortgage than the house was worth simply stopped making payments and allowed the house to fall into foreclosure.

Summary

A future bubble in the housing market must be prevented. The economic and personal problems resulting from the deflation of the Great Housing Bubble must not be inflicted on another generation. Just as those who endured the Great Depression struggled to understand what went wrong and prevent its reoccurrence, we must prevent another bubble in the housing market. There are both market-based alternatives and regulatory-based policies that could serve to prevent the next housing bubble. The market based solution proposed herein is to expand the use of the income approach to property appraisal to tether prices to fundamental values. The regulatory solution proposed herein is a multifaceted approach that limits lending to within certain standards. The policing mechanism is a shift to civil enforcement through allowing borrowers to obtain debt forgiveness for amounts lent outside of the approved parameters.

The Great Housing Bubble was an epic event impacting the lives of nearly every household in the United States and around the world. At first it was a giant house party fueled by excessive borrowing and spending by homeowners. The hangover was not pleasant. As of the time of this writing the full history of the fallout is not yet recorded. The decline in prices to this point has been breathtaking and unprecedented. When the full history is written, and the final impact of the bubble is measured, many will remember the Great Housing Bubble as one of the most important historical events of their lifetime.

Bibliography

- Anderson, R. G., & Gascon, C. S. (2008). *Offshoring, Economic Insecurity, and the Demand for Social Insurance*. St. Louis, MO: Federal Reserve Bank of St. Louis.
- Ashcraft, A. B., & Schuermann, T. (2008). *Understanding the Securitization of Subprime Mortgage Credit*. New York, NY: Federal Reserve Bank of New York.
- Baker, D. (2002). The Run-up in Home Prices: a Bubble. *Challenge* , 93+.
- Baker, K., & Kaul, B. (2002). Using Multiperiod Variables in the Analysis of Home Improvement Decisions by Homeowners. *Real Estate Economics* , 551+.
- Balen, M. (2003). *The Secret History of the South Sea Bubble*. New York, NY: HarperCollins Publishers Inc.
- Bernanke, B. S. (1999). *Japanese Monetary Policy: A Case of Self-Induced Paralysis*. Washington, DC: Institute for International Economics.
- Bernanke, B. S. (2008). Reducing Preventable Mortgage Foreclosures. *Independent Community Bankers of America Annual Convention* (p. 1). Orlando, FL: Board of Governors of the Federal Reserve System.
- Bernanke, B. S., & Boivin, J. (2002). *Monetary Policy in a Data-Rich Environment*. Princeton, NJ: Princeton University.
- Bernanke, B. S., & Gertler, M. (2000). *Should Central Banks Respond to Movements in Asset Prices?* Princeton, NJ : Princeton University.
- Bernanke, B. (2007). The Economic Outlook. *Before the Joint Economic Committee, U.S. Congress* (p. 1). Washington, D.C.: Board of Governors of the Federal Reserve.
- Bikhchandani, S., Hirshleifer, D., & Welch, I. (1998). Learning from the Behavior of Others: Conformity, Fads, and Informational Cascades. *The Journal of Economic Perspectives* , 26.
- Black, A., Fraser, P., & Hoesli, M. (2006). House Prices, Fundamentals and Bubbles. *Journal of Business Finance & Accounting* , 1535+.
- Boucher, M. (1999). *The Hedge Fund Edge*. New York, NY: John Wiley & Sons, Inc.

THE GREAT HOUSING BUBBLE

- Boykin, J. H., & Haney, R. L. (1997). *Financing Real Estate*. Prentice Hall College Division.
- Brown, S. J. (2006). How Critical Is the Housing Market? *ABA Banking Journal* , 64.
- Buffet, W. (2002). *Berkshire Hathaway annual report for 2002*. Omaha, NE: Berkshire Hathaway.
- Burdekin, R. C., & Siklos, P. L. (2004). *Deflation: Current and Historical Perspectives (Studies in Macroeconomic History)* . New York, NY: Cambridge University Press.
- BusinessWeek Magazine . (2006, September 11). Nightmare Mortgages. *BusinessWeek* , p. 1.
- Campbell, S. D., Davis, M. A., Gallin, J., & Martin, R. F. (2005). *A Trend and Variance Decomposition of the Rent-Price Ratio in Housing Markets*. Washington, DC: Board of Governors of the Federal Reserve System.
- Cannon, S., Miller, N. G., & Pandher, G. S. (2006). Risk and Return in the U.S. Housing Market: A Cross-Sectional Asset-Pricing Approach. *Real Estate Economics* , 519+.
- Capell, P. (2004). Eight Tips for Buyers Making Competitive Bids. *Real Estate Journal.com* , p. 1.
- Capra, F. (Director). (1946). *It's a Wonderful Life* [Motion Picture].
- Carter, J. (2006). *Mastering the Trade*. New York, NY: McGraw-Hill, Inc.
- Case, K. E., & Shiller, R. J. (2004). *Is There a Bubble in the Housing Market*. New Haven, CT: Cowles Foundation for Research in Economics, Yale University.
- Case, K. E., & Shiller, R. J. (1988). *The Behavior of Home Buyers in Boom and Post-Boom Markets*. New Haven, CT: Cowles Foundation for Research in Economics, Yale University.
- Chambers, M. S., Garriga, C., & Schlagenhauf, D. (2007). *Mortgage Contracts and Housing Tenure Decisions*. St. Louis, MO: Federal Reserve Bank of St. Louis.
- Chambers, M., Garriga, C., & Schlagenhauf, D. E. (2007). *Accounting for Changes in the Homeownership Rate*. St. Louis, MO: Federal Reserve Bank of St. Louis.
- Chomsisengphet, S., & Pennington-Cross, A. (2006). *Subprime Refinancing: Equity Extraction and Mortgage Termination*. St. Louis, MO: Federal Reserve Bank of St. Louis.
- Credit Suisse. (2007). *Mortgage Liquidity du Jour: Underestimated No More*. Credit Suisse Equity Research.
- Crone, T. M., & Nakamura, L. I. (2004). *Hedonic Estimates of the Cost of Housing Services -- Rental and Owner-Occupied Units*. Philadelphia, PA: Federal Reserve Bank of Philadelphia.
- Dalton, J. F., Jones, E. T., & Dalton, R. B. (1999). *Mind over Markets*. Greenville, SC: Traders Press, Inc.
- Daniel, K., Hirshleifer, D., & Subrahmanyam, A. (1998). Investor Psychology and Security Market Under- and Overreactions. 58.

BIBLIOGRAPHY

- Das, S. (2005). *Credit Derivatives: CDOs and Structured Credit Products*. New York, NY: John Wiley & Sons, Inc.
- Davis, M. A., & Palumbo, M. G. (2006). *The Price of Residential Land in Large U.S. Cities*. Washington, D.C.: Federal Reserve Board.
- Davis, M., & Heathcote, J. (2003). *Housing and the Business Cycle*. Washington, DC: Board of Governors of the Federal Reserve System.
- Deming, W. E. (2000). *The New Economics for Industry, Government, Education - 2nd Edition*. Boston, MA: The MIT Press.
- Deng, Y., & Gabriel, S. (2006). Risk-Based Pricing and the Enhancement of Mortgage Credit Availability among Underserved and Higher Credit-Risk Populations. *Journal of Money* , 1431+.
- Dent, H. S. (2006). *The Next Great Bubble Boom*. New York, NY: Free Press.
- Doms, M., & Krainer, J. (2007). *Innovations in Mortgage Markets and Increased Spending on Housing*. San Francisco, CA: Federal Reserve Bank of San Francisco.
- Doms, M., Furlong, F., & Krainer, J. (2007). *Subprime Mortgage Delinquency Rates*. San Francisco, CA: Federal Reserve Bank of San Francisco.
- Douglas, M. (1990). *The Disciplined Trader, Developing Winning Attitudes*. New York, NY: New York Institute of Finance.
- Douglas, M. (2000). *Trading in the Zone*. New York, NY: New York Institute of Finance.
- Engen, E. M., Gale, W. G., & Uccello, C. E. (2004). *Lifetime Earnings, Social Security Benefits, and the Adequacy of Retirement Wealth Accumulation*. Washington, D.C.: Federal Reserve Board.
- Fabozzi, F. J., Davis, H. A., & Choudhry, M. (2006). *Introduction to Structured Finance*. New York, NY: John Wiley & Sons, Inc.
- Fishbein, A. J. (2008). *Piggyback Loans at the Trough: California Subprime Home Purchase and Refinance Lending in 2006*. Washington, D.C.: Consumer Federation of America.
- Fishbein, A. J., & Woodall, P. (2006). *Exotic or Toxic? An Examination of the Non-Traditional Mortgage Market for Consumers and Lenders*. Washington, D.C.: Consumer Federation of America.
- Fisher, J. D., & Quayyum, S. (2005). *The great turn-of-the-century housing boom*. Chicago, IL: Federal Reserve Bank of Chicago.
- Fletcher, J. (2005). *House Poor, Pumped-Up Prices, Rising Rates, and Mortgages on Steroids*. New York, NY: HarperCollins Publishers Inc.
- Frame, W. S., & White, L. J. (2005). Fussing and Fuming over Fannie and Freddie: How Much Smoke, How Much Fire? *The Journal of Economic Perspectives* , 28.
- Gallin, J. (2006). The Long-Run Relationship between House Prices and Income: Evidence from Local Housing Markets. *Real Estate Economics* , 417+.
- Gallin, J. (2003). *The Long-Run Relationship between House Prices and Income: Evidence from Local Housing Markets*. Washington, DC: Federal Reserve Board.

THE GREAT HOUSING BUBBLE

- Gallin, J. (2004). *The Long-Run Relationship between House Prices and Rents*. Washington, D.C.: Federal Reserve Board.
- Ganguin, B., & Bilardello, J. (2004). *Standard & Poor's Fundamentals of Corporate Credit Analysis*. New York, NY: McGraw-Hill.
- Garber, P. M. (1989). Tulipmania. *The Journal of Political Economy* , 26.
- Geary, L. H. (2002, May 21). Riches to Rags: Millionaires who go Bust. *CNN/Money* , p. 1.
- Gerardi, K., Shapiro, A. H., & Willen, P. S. (2007). *Subprime Outcomes: Risky Mortgages, Homeownership Experience, and Forclosures*. Boston, MA: Federal Reserve Bank of Boston.
- Gibbon, E. (1999). *Decline & Fall of the Roman Empire, New Ed edition*. Hertfordshire, United Kingdom: Wordsworth Editions Ltd.
- Green, R. K., & Wachter, S. M. (2007). Praveen Kujal and Vernon L. Smith. *Housing, Housing Finance & Monetary Policy* (p. 64). Jackson Hole, Wyoming: Federal Reserve Bank of Kansas City.
- Greenspan, A. (1996). The Challenge of Central Banking in a Democratic Society. *Annual Dinner and Francis Boyer Lecture of The American Enterprise Institute for Public Policy Research*. Washington, D.C.: Federal Reserve Board.
- Greenspan, A. (2004). Understanding Household Debt Obligations. *Credit Union National Association 2004 Governmental Affairs Conference*. Washington, DC: Federal Reserve Board.
- Grigg, W. N. (2004, May). Will the Housing Bubble Burst? Our Socialist Mortgage System and Easy Money Policy Have Created a Dangerously Inflated Housing Bubble That, If Pricked, Could Take the Economy Down with It. *The New American* , p. 20+.
- Gross, D. (2004, February 27). Alan Greenspan: ARMed and Dangerous. *Slate Magazine: Moneybox* , p. 1.
- Gross, D. (2007, July 26). The Real Morons of Orange County. *Moneybox* , p. 1.
- Haines, C. L., & Rosen, R. J. (2006). Bubble, bubble, toil, and trouble. *Economic Perspectives* , 35.
- Hall, C. (2004). *Timing the Real Estate Market*. New York, NY: McGraw-Hill.
- Haney, R. L., Berens, G., & Miles, M. E. (1995). *Real Estate Development: Principles and Process*. Washington, D.C.: Urban Land Institute.
- Haubrich, J. G., & Lucas, D. (2006). *Who holds the toxic waste? An investigation of CMO holdings*. Cleveland, OH: Federal Reserve Bank of Cleveland.
- Heffernan, S. (2005). *Modern Banking*. New York, NY: John Wiley & Sons, Inc.
- Helbling, T., Conover, E., & Terrones, M. (2003). Chapter II: When Bubbles Burst. *World Economic Outlook* , 61+.
- Himmelberg, C., Mayer, C., & Sinai, T. (2005). *Assessing High House Prices: Bubbles, Fundamentals, and Misperceptions*. New York, NY: Federal Reserve Bank of New York.

BIBLIOGRAPHY

- Hockley, C. A. (2005, June 7). Are CAP Rates Still a Valid Indicator of Value? *RealtyTimes*, p. 1.
- Jaeger, W. (2006). The Effects of Land-Use Regulations on Property Values. *Environmental Law*, 105+.
- Johnson, D., & Halliburton, M. (2007). The Subprime Credit Crunch. *ABA Banking Journal*, 64+.
- Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 33.
- Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1991). The Endowment Effect, Loss Aversion, and Status Quo Bias. *The Journal of Economic Perspectives*, 15.
- Kiyosaki, R. T., & Lechter, S. L. (2000). *Rich Dad, Poor Dad: What the Rich Teach Their Kids About Money--That the Poor and Middle Class Do Not!* Lebanon, IN: Business Plus.
- Kolbe, P. T. (2007, Summer). Affordability in the Single-Family Housing Market. *Business Perspectives*, p. 8+.
- Kornfield, J. (1993). *A Path with Heart: A Guide Through the Perils and Promises of Spiritual Life*. New York, NY: Bantam Books.
- Kornfield, J. (2000). *After the Ecstasy, the Laundry: How the Heart Grows Wise on the Spiritual Path*. New York, NY: Bantam Books.
- Kornfield, J. (1993). *The Inner Art of Meditation*. Louisville, CO: Sounds True.
- Kornfield, J. (1996). *The Roots of Buddhist Psychology*. Louisville, CO: Sounds True.
- Krainer, J. (2003). House Price Bubbles. *FRBSF Economic Letter*, 4.
- Krainer, J. (2006). Residential Investment over the Real Estate Cycle. *FRBSF Economic Letter*, 4.
- Krainer, J., & Wei, C. (2004). House Prices and Fundamental Value. *FRBSF Economic Letter*, 4.
- Kruger, J., & Dunning, D. (1999). Unskilled and Unaware of It: How Difficulties in Recognizing One's Own Incompetence Lead to Inflated Self-Assessments. *Journal of Personality and Social Psychology*, 14.
- Kujal, P., & Smith, V. L. (2003). *Fairness and Short Run Price Adjustment in Posted Offer Markets*. Madrid, Spain: University of Carlos III De Madrid.
- Kujal, P., & Smith, V. L. (1991). *The Endowment Effect*. Madrid, Spain: Universidad Carlos III De Madrid.
- Kuttner, K. N., & Posen, A. S. (2001). *Passive Savers and Fiscal Policy Effectiveness in Japan*. Washington, DC: Institute for International Economics.
- Lacour-Little, M. (2004, March). Equity Dilution: An Alternative Perspective on Mortgage Default. *Real Estate Economics*, p. 359+.
- Leamer, E. E. (2007). Housing Is the Business Cycle. *Housing, Housing Finance and Monetary Policy* (p. 74). Jackson Hole, WY: Federal Reserve Bank of Kansas City.

THE GREAT HOUSING BUBBLE

- Leamer, E. E. (2007). Housing Is the Business Cycle. *Housing, Housing Finance, and Monetary Policy* (p. 73). Jackson Hole, Wyoming: Federal Reserve Bank of Kansas City.
- Lefevre, E. (1994). *Reminiscences of a Stock Operator*. New York, NY: John Wiley & Sons, Inc.
- Leventis, A. (2007). *A Note on the Differences between the OFHEO and S&P/Case-Shiller House Price Indexes*. Washington, D.C.: Office of Federal Housing Enterprise Oversight.
- Libby, R., Libby, P., & Short, D. (2004). *Financial Accounting, 4th Edition*. Columbus, OH: McGraw-Hill.
- Lindsey, L. B. (2007, Spring). Fear and Greed: Why the American Housing Credit Crisis Is Worse Than You Think. *The International Economy*, p. 22+.
- Lowy, M. (1991). *High Rollers: Inside the Savings and Loan Debacle*. Westport, CT: Praeger Publishers.
- Lucas, D. J., Goodman, L. S., & Fabozzi, F. J. (2006). *Collateralized Debt Obligations: Structures and Analysis, 2nd Edition*. New York, NY: John Wiley & Sons Inc.
- Mackay, C., Vega, J. d., & Fridson, M. S. (1996). *Extraordinary Popular Delusions and the Madness of Crowds & Confusion de Confusiones*. New York, NY: John Wiley & Sons, Inc.
- Magee, R. D. (1998). *Technical Analysis of Stock Trends, 7th Edition*. Boca Raton, FL: St. Lucie Press.
- Mankiw, N. G. (2006). *Principles of Macroeconomics*. South-Western College Pub; 4 edition.
- Mankiw, N. G., & Weil, D. N. (1989). The Baby Boom, the Baby Bust and the Housing Market. *Regional Science and Urban Economics*, 24.
- Martin, R. F. (2005). *The Baby Boom: Predictability in House Prices and Interest Rates*. Washington, DC: Federal Reserve Board of Governors.
- McCarthy, J., & Peach, R. W. (2004). *Are Home Prices the Next Bubble*. New York, NY: Federal Reserve Bank of New York.
- McElroy, K. (2004). *Rich Dad's Advisors®: The ABC's of Real Estate Investing: The Secrets of Finding Hidden Profits Most Investors Miss*. Lebanon, IN: Business Plus.
- McMillan, L. G. (2004). *McMillan on Options, Second Edition*. Hoboken, NJ: John Wiley & Sons, Inc.
- McMillan, L. G. (2002). *Options as a Strategic Investment, Fourth Edition*. New York, NY: New York Institute of Finance.
- Miles, R. P. (2004). *Warren Buffett Wealth: Principles and Practical Methods Used by the World's Greatest Investor*. New York, NY: John Wiley & Sons, Inc.
- Minsky, H. P. (1982). *Can "It" Happen Again? Essays on Instability and Finance*. Unknown: M.E. Sharpe.
- Minsky, H. P. (2008). *Stablizing an Unstable Economy*. New York, NY: McGraw-Hill.

BIBLIOGRAPHY

- Mints, V. (2006). *The Mortgage Rate and Housing Bubbles*. Moscow, Russia: Housing Finance International.
- Mortgage Bankers Association. (2007). *National Delinquency Survey*. Mortgage Bankers Association.
- Muellbauer, J. (2007). Housing, Credit and Consumer Expenditures. *Housing, Housing Finance, and Monetary Policy* (p. 63). Jackson Hole, WY: Federal Reserve Bank of Kansas City .
- Myers, D., & Ryu, S. (2008). Aging Baby Boomers and the Generational Housing Bubble: Foresight and Mitigation of an Epic Transition. *Journal of the American Planning* , 1-17.
- Natenberg, S. (1988). *Options Volatility and Pricing Strategies*. Chicago, IL: Probus Publishing Company.
- National Multi Housing Council, National Apartment Association. (2004). *Renting Can Be a Smart Investment*. Washington, DC & Alexandria, VA: National Multi Housing Council, National Apartment Association.
- Orman, S. (2006). *The 9 Steps to Financial Freedom: Practical and Spiritual Steps So You Can Stop Worrying, 3rd edition*. New York, NY: Three Rivers Press.
- Orwell, G. (1950). *1984*. New York, NY: Signet Classics.
- Paulson, H. M. (2007). Current Housing and Mortgage Market Developments. *Georgetown University Law Center* (p. 1). Washington, D.C.: US Department of Treasury.
- Peterson, J. R. (2005). Designer Mortgages: The Boom in Nontraditional Mortgage Loans May Be a Double-Edged Sword. So Far, Most Banks Have Moved Cautiously. *ABA Banking Journal* , 30+.
- Poole, R., Ptacek, F., & Verbrugge, R. (2005). *Treatment of Owner-Occupied Housing in the CPI*. Washington, DC: Federal Economic Statistics Advisory Committee.
- Porter, D., & Smith, V. (1992). *Price Expectations in Experimental Asset Markets with Futures Contracting*. Pasadena, CA: California Institute of Technology.
- Posen, A. S. (2003). *It Takes more than a Bubble to Become Japan*. Washington, DC: Institute for International Economics.
- Posen, A. (2006). *Why Central Banks Should Not Burst Bubbles*. Washington, DC: Institute for International Economics.
- Rappaport, J. (2006). *A Guide to Aggregate House Price Measures*. Kansas City, MO: Federal Reserve Bank of Kansas City.
- Rubino, J. (2003). *How to Profit from the Coming Real Estate Bust*. Rodale.
- Schiller, T. (2007, Fall). Housing: Boom or Bubble. *Business Review* , p. 10.
- Schwager, J. D. (2003). *Stock Market Wizards*. New York, NY: Harper Collins.
- Shakespeare, W. (1603). *Macbeth*. Stratford-upon-Avon.
- Shiller, R. J. (2001). *Bubbles, Human Judgment, and Expert Opinion*. New Haven, CT: Cowles Foundation for Research in Economics, Yale University.

THE GREAT HOUSING BUBBLE

- Shiller, R. J. (2002). *From Efficient Market Theory to Behavioral Finance*. New Haven, CT: Cowles Foundation for Research in Economics, Yale University.
- Shiller, R. J. (2007). *Historic Turning Points in Real Estate*. New Haven, CT: Cowles Foundation for Research in Economics, Yale University.
- Shiller, R. J. (2004). *Household Reaction to Changes in Housing Wealth*. New Haven, CT: Cowles Foundation for Research in Economics, Yale University.
- Shiller, R. J. (2005). *Irrational Exuberance*. Doubleday.
- Shiller, R. J. (2007). *Understanding Recent Trends in House Prices and Home Ownership*. New Haven, CT: Cowles Foundation for Research in Economics, Yale University.
- Shiller, R. J., & N. Weiss, A. (1998). Moral Hazard in Home Equity Conversion. *AREUEA–ASSA session* (p. 29). Chicago Illinois: AREUEA–ASSA session.
- Shiratsuka, S. (2003). *Asset Price Bubble in Japan in the 1980s: Lessons for Financial and Macroeconomic Stability*. Tokyo, Japan: Institute for Monetary and Economic Studies -- Bank of Japan.
- Shleifer, A. (2000). *Inefficient Markets: An Introduction to Behavioral Finance*. Oxford University Press, USA.
- Sinai, T. (2008). *The Inequity of Subprime Mortgage Relief Programs*. Washington, DC: FreedomWorks Foundation.
- Smith, V. L. (2000). Exchange, Economic Theory, and the Hayek Critique. *Encyclopedia of Cognitive Science* , 42.
- Smith, V. L. (2004). Human Nature: An Economic Perspective. *Daedalus* , 67+.
- Smith, V. L., & Porter, D. (1992). *Price Expectations in Experimental Asset Markets with Futures Contracting*. Pasadena, CA: California Institute of Technology.
- Smith, V. L., Suchanek, G. L., & Williams, A. W. (1988). Bubbles, Crashes, and Endogenous Expectations in Experimental Spot Asset Markets. *Econometrica* , 56.
- Soros, G. (1994). *The Alchemy of Finance: Reading the Mind of the Market*. New York, NY: John Wiley & Sons, Inc.
- Soto, J. H. (2006). *Money, Bank Credit, and Economic Cycles*. Ludwig von Mises Institute.
- Sullivan, P. (2006, January 20). William 'Bud' Post III; Unhappy Lottery Winner. *Washington Post* , p. 1.
- Susanne Cannon, N. G. (2003). *Risk and Return in the U.S. Housing Market: A Cross-Sectional Asset-Pricing Approach*.
- Talbott, J. R. (2006). *Sell Now! The End of the Housing Bubble*. New York, NY: St. Martins Press.
- Talbott, J. R. (2003). *The Coming Crash in the Housing Market*. New York, NY: McGraw-Hill, Inc.
- Taleb, N. N. (2007). *The Black Swan: The Impact of the Highly Improbable*. New York, NY: Random House.

BIBLIOGRAPHY

- Thompson, E. A., Treussard, J., & Hickson, C. R. (2004). *Predicting Bubbles and Bubble-Substitutes*. Los Angeles, CA: Department of Economics UCLA.
- Tversky, A., & Kahneman, D. (1991). Loss Aversion in Riskless Choice: A Reference-Dependent Model. *The Quarterly Journal of Economics* , 27.
- Vitale, J. (1998). *There's a Customer Born Every Minute: P.T. Barnum's Secrets to Business Success*. AMACOM.
- Wallace, G., Ellichehausen, G., & Staten, M. (2005). *Are Legislative Solutions to Abusive Mortgage Lending Practices Throwing Out the Baby with The Bath? Guidance From Empirical Research*. Washington, D.C.: Georgetown University.
- Wallace-Wells, B. (2004, April). There Goes the Neighborhood: Why Home Prices Are about to Plummet-And Take the Recovery with Them. *Washington Monthly* , p. 30+.
- Wolff, M. (1998). *Burn Rate: How I Survived the Gold Rush Years on the Internet* . New York, NY: Simon & Schuster.
- Zuckoff, M. (2005). *Ponzi's Scheme: The True Story of a Financial Legend*. New York, NY: Random House.

Index

1
100% financing, 12, 34, 41, 63, 67, 86,
89, 92, 94, 95, 101, 107, 108, 126,
128, 165, 179, 180

2
2/28, 13, 89, 186

3
30-year conventionally amortized
mortgage, 8

8
80/20, 18, 32

A
ABS, 55, *See* asset-backed securities
Adjustable Rate Mortgage Reset Chart,
89
adjustable rate mortgages. *See* ARMs
affordability, 4, 5, 8, 13, 65, 71, 73, 79,
81, 82, 85, 86, 95, 97, 113, 127, 153,
180, 186
Aggregate home equity, 92
Alan Greenspan, 6, 25, 69, 70
Alt-A, 11, 17, 88, 92
American Dream, 176
Ameriquest, xviii, xix
amortization schedule, 10, 11, 14, 35

appraisal fees, 40
appreciation, xv, 5, 7, 19, 21, 31, 37,
38, 39, 40, 41, 43, 45, 46, 64, 68, 77,
80, 87, 95, 100, 102, 103, 104, 107,
117, 118, 119, 121, 122, 125, 126,
133, 134, 135, 136, 145, 147, 148,
149, 153, 155, 157, 160, 161, 162,
186, 187
asset-backed securities, 55, 57, 58, 181
average cost per-square-foot, 73

B
bailouts, 99, 122
bankruptcy, 6, 7, 12, 67, 93, 115, 117,
119, 129, 166, 169, 175
bear market, 38, 109, 114
bear rally, 114
Behavioral finance theory, 99, 128
Ben Bernanke, 124, 143
Bill Clinton, 162
brokerage commissions, 40
Bureau of Labor Statistics, 37, 182
burn rate valuation, 4
buy and hold, 104, 111
buy and hope, 104
buyer exhaustion, 85

C
call option, 107
capitulation stage, 115, 116, 117
Case-Shiller index, 74, 136, *See*
S&P/Case-Shiller
Cashflow investors, 39
Cashflow Investors, 102, 103, 157

INDEX

CDO, 57, 58, 59, 61, 64, 65, 66, 67, 182
Charles Ponzi, 120, *See* Ponzi Scheme
CLTV, 63, 107, 180
collateral, 23, 31, 60, 61, 65, 87, 94, 96, 143, 181, 182
collateralized debt obligation. *See* CDO
combined-loan-to-value, 62, 63, 179, 180, 184, 186, 188, *See* CLTV
commodities, 39, 54, 99, 106, 128
commodities exchange, 106
Community Facilities District, 32
comparative-sales approach, 65, 66, 67, 181, 182, 183
conspicuous consumption, 92, 119
Consumer Price Index. *See* CPI
consumptive value, 25, 29, 37
Conventional mortgage, 11, 83
cost approach, 65
cost of ownership, 4, 20, 22, 29, 30, 32, 33, 34, 35, 36, 40, 44, 46, 47, 80, 103, 104, 105, 137, 138, 140, 162
counter-offer, 171
covenants, conditions, and restrictions, 32
CPI, 29, 143, 182
credit crunch, 18, 28, 35, 60, 71, 88, 93, 114, 115, 179, 185
credit default swaps, 58
Credit ratings, 60
Credit Suisse, 89
cultural pathology, 117, 119, 128

D

debtor's prisons, 161
debt-to-income, 8, 27, 62, 64, 69, 71, 78, 79, 80, 82, 83, 87, 88, 94, 130, 132, 135, 148, 149, 150, 153, 162, 175, 179, 180, 184, 186, *See* DTI
debt-to-income ratio, 8, 62, 64, 71, 80, 130, 148, 149, 150, 153, 179, 184, 186
default rates, 8, 15, 16, 22, 26, 27, 61, 62, 63, 64, 71, 79, 88, 89, 91, 95, 97, 154, 175, 177, 180
deflation, xix, 12, 24, 60, 94, 97, 128, 132, 143, 159, 162, 173, 174, 185, 186, 188, *See* Monetary Deflation
demand curve, 81, 84
denial stage, 113, 114, 115

Department of Labor, 29, 37, 182
Department of Treasury, 125
despair stage, 116, 117
Developers, 51
discount rate, 38, 39, 41, 45
discounted cashflow analysis, 38, 45, 100
document stamps and taxes, 40
downpayments, 18, 28, 63, 87, 92, 95, 107, 108, 116, 180
downward spiral, 87, 103, 116
DTI, 64, 80, 83, 149, 150, 153

E

Economic Stimulus Act of 2008, 124
efficient markets theory, 109, 110, 111, 131
enthusiasm stage, 112, 113, 115
entitlement process, 3, 84
entry-level buyers, 85, 86, 95
equity, 5, 6, 19, 20, 22, 23, 24, 25, 26, 28, 33, 57, 58, 59, 64, 69, 85, 87, 92, 101, 103, 107, 114, 118, 119, 121, 126, 127, 155, 156, 160, 162, 165, 167, 175, 177, 180, 181, 187, 188
equity tranche, 58, 59
equivalent rents, 29, 47
exotic financing, 5, 8, 71, 76, 77, 83, 96, 120, 127, 138, 140, 141, 153, 155, 162, 164

F

Fair Isaac Corporation, 10, 60, *See* FICO
false hopes, 99, 128, 164
Fannie Mae, 54, 55, 124, 181
FDIC, 174
fear and greed, 99, 149
fear stage, 114, 115
FED, 2, 6, 25, 54, 68, 124, 144, 151, 152, *See* Federal Reserve
Federal Deposit Insurance Corporation. *See* FDIC
Federal Funds Rate, 9
Federal Government, 25, 54
Federal Home Loan Mortgage Corporation. *See* Freddie Mac
Federal Housing Authority. *See* FHA

THE GREAT HOUSING BUBBLE

Federal Housing Finance Regulatory
Reform Act of 2008, 124, 125

Federal National Mortgage

Corporation. *See* Fannie Mae

Federal Reserve, 9, 25, 56, 60, 67, 69,
94, 143, 144, 145, 149, 162, 174,
177

FHA, 54, 125, 188

FICO, 10, 56, 60, 62, 67, 166, 179, 180

financial bubble, 1, 27, 70, 131, 156,
175

financial innovation, 6

Fitch Ratings, 60

fixed-rate conventionally-amortized
mortgage, 12, 28

floplords, 105, 106

foreclosure, 6, 13, 27, 32, 53, 57, 61,
62, 63, 65, 68, 88, 89, 91, 105, 106,
109, 115, 116, 117, 125, 126, 127,
132, 153, 155, 156, 157, 158, 160,
161, 165, 166, 167, 168, 172, 174,
175, 177, 186, 187, 188

Foreclosure Prevention Act of 2008,
124, 125

fractional reserve banking system, 59

Freddie Mac, 54, 55, 124, 181

fundamental value, 29, 36, 37, 40, 46,
47, 110, 116, 131, 133, 137, 150,
182, 183

G

Generally Accepted Accounting
Principles, 15

George Orwell, 117

George Soros, 58

Ginnie Mae, 54, 181

Government National Mortgage

Association. *See* Ginnie Mae

Government Sponsored Entities. *See*
GSEs

Great American Dream, 65

Great Depression, xvii, 2, 26, 143, 173,
187, 188

greed stage, 113, 115, 116

grieving process, 99, 108, 114

GRM, 36

Gross Rent Multiplier. *See* GRM

GSEs, 55, 66, 124, 125

guarantee fee, 55

H

HELOC, 33, 179

herd mentality, 111

HMDI, 33

HOA, 35

home equity lines of credit, 23, 24, 64,
69, 87, 121, 167

Home Mortgage Interest Deduction.
See HMDI

home ownership rates, 61, 132, 158,
177

homeowners associations. *See* HOA

Homeowners insurance, 31

HOPE for Homeowners Act of 2008,
124, 125

Hope Now, 123

Housing and Economic Recovery Act
of 2008, 124

Hyman Minsky, 120

I

income approach, 65, 66, 67, 181, 182,
183, 188

Inflation, 10, 19, 21, 22, 38, 44, 45,
100, 144, 145, 146, 147

inflation hedge, 19

inflation premium, 9, 10, 45, 46

inspection fees, 40

interest rate reset, 11

Interest-Only loan, 11

interest-only, adjustable-rate mortgage.
See IO ARM

investment premium, 37, 38, 39, 40, 41

investment value, 37, 38, 39, 40, 41,
43, 46, 87, 104, 127

IO ARM, 12, 13

irrational exuberance, 22, 30, 47, 65,
67, 70, 76, 83, 97, 99, 100, 132, 138,
140, 176, 179, 181, 182, 183, 187

Irvine Housing Blog, ii, v, xiii, xiv, 204

Irving Fisher, 2

It's a Wonderful Life, 127

J

James Carville, 162

judicial foreclosure, 168

INDEX

K

Karl Case, 73
kool aid, xv

L

Lake Wobegon effect, 27
land tsunami, 91
land value, 48, 49, 51, 52
landlords. *See* floplords
leverage, 37, 41, 100, 106, 130
liar loans. *See* stated-income
lien, 23, 32, 58, 167
liquidity, 25, 38, 54, 57, 69, 85, 96,
106, 123, 143, 144
Loan documentation, 16
loan-to-value, 18, 65, 69, 93, 95, 108,
165, 186, 187. *See* LTV
lowballing, 170
LTV, 95

M

MBS, 150
McMansions, 174
median, 24, 48, 51, 52, 71, 72, 73, 74,
79, 81, 83, 119, 136, 153, 156, 160
Mello Roos, 32, 35
MEW, 23
mezzanine tranche, 58, 59
Minnesota, 119, 180
Minnetonka, Minnesota, 119
Minsky Moment, 120. *See* Hyman
Minsky
monetary deflation, 59
Moody's, 60
mortgage application fees, 40
Mortgage Backed Securities. *See* MBS
mortgage default losses, 61
Mortgage Equity Withdrawal. *See*
MEW
Mortgage Forgiveness Debt Relief Act
of 2007, 168
Mortgage interest rates, 9, 10, 57, 96,
151
mortgage payment, 12, 31, 35, 44, 175
mortgage-backed securities, 9, 60
move-up, 20, 85, 127
must-sell, 12, 93, 103, 132, 156, 157,
162

N

NASDAQ, 24, 159, 174, 175
National Association of Realtors, xiii,
1, 2, 40, 187
Negative Amortization loan, 11, 12
net present value, 38, 43
New Century, xviii, xix, 69, 93, 155
non-recourse, 107, 167, 187
Notice of Default, 91
Notice of Trustee Sale, 91

O

off-balance-sheet investment, 123
Option ARM, 13, 14, 15, 16, 26, 27,
83, 88, 105, 119, 153, 154
option contracts, 99, 107, 108
Option One, xviii, xix
Orange County, 48, 79, 81, 119, 135,
138, 139, 140, 155, 156
owner-occupied, 29, 66, 158, 164
ownership period, 40, 46

P

payment recast, 11
PE Ratios, 36
peak-to-trough, 138, 140, 141, 142
pergraniteel, 25
poison pill, 184
Ponzi Scheme, 120
Pottersville, 127
precipitating factor, 1, 56, 111
predatory borrowing, 165
prepaid interest points, 40
price volatility, 8, 39
price-to-income, 71, 75, 76, 78, 140,
141, 142, 162, 177
price-to-rent, 36, 78, 103, 137, 138,
139, 140, 162
Prime, 11, 62, 88, 92, 97
private mortgage insurance, 31, 32
Production homebuilders, 49
Property taxes, 31
pulled forward, 95
purchase-money mortgage, 107
put option, 107

THE GREAT HOUSING BUBBLE

R

rating agencies, 60, 61, 62
real estate broker, 40
real estate investment trust. *See* REIT
Real Estate Owned, 91, *See* REOs
Realtors, 99, 169, 187
recession of 2001, 24, 25
recording fees, 40
regulated free-market, 173
REIT, 93
Rent Savers, 102, 103, 140, 157, 158
rent skimming, 106
Rental equivalence. *See* Equivalent Rents
rental equivalent value, 22, 41, 45, 80, 87
rental parity, 36, 158
rental properties, 100, 103, 105
rent-to-income, 78
REOs, 91, 93, 132
retirement savings, 20, 33
return on investment, 37, 38, 39, 107
risk premium, 9, 10, 96, 150
risk synergy, 62
riskless rate of return, 9, 10, 96
Robert Shiller, 73
Roman Empire, 25

S

S&P/Case-Shiller, 71, 73, 74, 136, 137, 145, 146, 147
Savings and Loan, 26, 123
Schadenfreude, xiv
scrapers, 49
secondary mortgage market, xvii, 1, 9, 54, 55, 60, 66, 67, 70, 122, 124, 177, 178, 179, 180, 181, 183, 185
selling short, 100
senior tranche, 58, 59
special assessments, 33
speculative mania, 1, 20, 67, 105, 180
St. Joseph statue, 108
Standard & Poor's, 60
stated-income, 16, 17, 67, 94, 122, 150, 185
stocks, 4, 36, 54, 68, 72, 100, 108
structured finance, 1, 54, 57, 58, 59, 60, 70

subordinate loans, 32
Subprime, xviii, xix, 11, 12, 18, 56, 61, 63, 68, 82, 88, 93, 177, 180
suicide loan, 84
Super SIV, 123
supply and demand, 3, 9, 29, 30, 81, 84, 85, 96, 159
supply curve, 84
survey fees, 40
swap, 55
Syndicators, 59
systemic risks, 61, 62

T

The Irvine Company, 48, 51, 53
TIPS, 38
title insurance, 40, 72
toxic financing, 84
transaction costs, 38, 40, 41
Treasury Bill, 9, 10
Treasury Inflation-Protected Securities. *See* TIPS
Treasury Note, 9, 10
Trustee Sales, 156, 157, 158

U

unemployment, 2, 12, 132, 148, 154, 155, 156, 160, 162, 175

V

vacancy rates, 104, 156
Valuation risk, 65

W

Wall Street, 57, 69
Warren Buffet, 59, 100, 104
Winston Churchill, 121
wishing prices, 115
Woodbury, 51, 52, 53
World War II, 8, 26

Z

zero amortization loan, 125

End Notes

¹ "Out, out, brief candle! Life's but a walking shadow, a poor player that struts and frets his hour upon the stage and then is heard no more: it is a tale told by an idiot, full of sound and fury, signifying nothing." Macbeth Quote (Act V, Scene V).(Shakespeare, 1603)

² Partial list of prominent real estate bubble and related blogs:

The Irvine Housing Blog – <http://www.irvinehousingblog.com/>
Patrick.net – <http://patrick.net/housing/crash.html>
The Real Estate Bubble Blog – <http://www.thehousingbubbleblog.com/index.html>
The House Bubble – <http://housebubble.com/>
Nouriel Roubini's Blog – <http://www.rgemonitor.com/blog/roubini/>
Paper Economy - A US Real Estate Bubble Blog – <http://paper-money.blogspot.com/>
Implode-o-meter – <http://ml-implode.com/>
Bubble Markets Inventory Tracking – <http://bubbletracking.blogspot.com/>
Housing Doom – <http://housingdoom.com/>
Southern California Real Estate Bubble Crash – <http://www.socalbubble.com/>
Calculated Risk – <http://calculatedrisk.blogspot.com/>
Housing Panic – <http://housingpanic.blogspot.com/>
Professor Piggington – <http://piggington.com/>
Dr. Housing Bubble – <http://drhousingbubble.blogspot.com/>
Bubble Meter – <http://bubblemeter.blogspot.com/>
Priced Out Forever – <http://pricedoutforever.com/>
The Bursting Bubble – <http://www.theburstingbubble.com/>
The Real Estate Bloggers – <http://www.therealestatebloggers.com/>
Housing Bubble Casualty – <http://www.housingbubblecasualty.com/>
Housing Bubble Bust – <http://www.housingbubblebust.com/>
Mish's Global Economic Trend Analysis – <http://globeconomicanalysis.blogspot.com/>
Real Estate Realist – <http://www.realestaterealist.com/>
Housing Wire – <http://www.housingwire.com/>
Sacramento Area Flippers In Trouble – <http://flippersintrouble.blogspot.com/>
Seattle Bubble – <http://seattlebubble.com/blog/>
Westside Bubble Blog – <http://westside-bubble.blogspot.com/>
Marin Real Estate Bubble – <http://marinrealestatebubble.blogspot.com/>

THE GREAT HOUSING BUBBLE

Sonoma Housing Bubble – <http://sonomahousingbubble.blogspot.com/>

New Jersey Real Estate Report – <http://njrereport.com/>

New York City Housing Bubble – <http://nychousingbubble.blogspot.com/>

- ³ Much of the author's personal study of Buddhism comes from the writings and recordings of the author Jack Kornfield (Kornfield, *The Roots of Buddhist Psychology*, 1996), (Kornfield, *The Inner Art of Meditation*, 1993), (Kornfield, *A Path with Heart: A Guide Through the Perils and Promises of Spiritual Life*, 1993), (Kornfield, *After the Ecstasy, the Laundry: How the Heart Grows Wise on the Spiritual Path*, 2000). The audio recordings of the *Roots of Buddhist Psychology* have been particularly influential.
- ⁴ The stock market experienced a 500% gain in a five year period before its infamous crash. Much of the reason for the wild increase in pricing was very low margin requirements. People were allowed to buy 10 times as much stock as they had money due to 10:1 margin trading. This expansion of credit through the broker's margin is what drove prices up, and when prices started to fall, margin calls cascaded through the market and resulted in a crash.
- ⁵ Robert Shiller in his book *Irrational Exuberance* (Shiller, *Irrational Exuberance*, 2005) discusses precipitating factors at length from pages 31 -54. Most of the factors he mentions are macro-factors or more specifically related to the stock market.
- ⁶ According to data from the US Census Bureau and The US Department of Labor, wage growth since 1976 has averaged 4.62% and inflation has averaged 4.42%.
- ⁷ From 2002-2006 in Irvine, California, the median house price increased by an amount *each year* equal to the median income.
- ⁸ Karl Case and Robert Shiller noted that a buyer's willingness to pay high prices depended in part on their perception of risk of price decline (Case & Shiller, *The Behavior of Home Buyers in Boom and Post-Boom Markets*, 1988). Very few buyers in the markets they surveyed during the coastal boom of the late 1980s though prices could go down.
- ⁹ Psychologists have noted narrative-based thinking is extremely important in human decision making (Shiller, *Historic Turning Points in Real Estate*, 2007). When realtors or anyone working in sales creates a compelling narrative, it is very effective in motivating buyers.
- ¹⁰ The author could not find the source for the widely cited quote from Irving Fisher where he said, "Stock prices have reached what looks like a permanently high plateau." It is held as the standard for incorrect market prognostications.
- ¹¹ Robert Shiller has noted there is a tendency among investors to overestimate how unique an investment they favor is. These investors fail to take into account the supply response to higher prices (Shiller, *Understanding Recent Trends in House Prices and Home Ownership*, 2007). Supply shortages are never permanent. The ends of booms are almost always associated with an unexpected glut

END NOTES

of supply. Also, the idea of there being “not enough land” was cited in surveys going back to 1988 (Case & Shiller, *The Behavior of Home Buyers in Boom and Post-Boom Markets*, 1988).

¹² William Jaeger studied the issue of land use control limiting local housing supply in his paper *The Effects of Land-Use Regulations on Property Values* (Jaeger, 2006). His conclusions are as follows: “Land-use regulations can affect property values in a variety of complex ways. In the context of laws like Oregon's Measure 37, requiring that landowners be compensated if regulations reduce property values, the economic effects of land use regulations on property values have been widely misinterpreted because two very different economic concepts are being confused and used interchangeably. The first concept is “the effect of a land use regulation on property values” which measures the change in value when a regulation is added to many parcels. The second concept is “the effect of an individual exemption, or variance, to an existing land use regulation,” which measures the change in value when a regulation is removed from only one parcel. The effect of a land-use regulation on property values can be positive or negative, whereas removing a land-use regulation from one property can be expected to have a positive effect. Indeed, many land-use regulations actually increase property values by creating positive “amenity effects” and “scarcity effects.” As a result of these differences, a positive estimate for removing a land-use regulation cannot be interpreted as proof that the other concept was negative. Despite this, a positive value for an individual exemption to a land-use regulation continues to be interpreted as proof that compensation is due under Oregon's Measure 37. Indeed, this mistaken interpretation may be partly responsible for public sentiment that land-use regulations tend to reduce property values.”

¹³ In the paper, *Asset Price Bubble in Japan in the 1980s: Lessons for Financial and Macroeconomic Stability* (Shiratsuka, 2003), the author reached the following conclusion, “Japan’s experience of asset price bubble is characterized by euphoria, that is, excessively optimistic expectations with respect to future economic fundamentals, which lasted for several years and then burst. Under such circumstances, policymakers are unlikely to take an appropriate policy response without evaluating whether asset price hikes are euphoric or not, and forecast a correct path for the potential growth rate. In so doing, it is deemed important to assess the sustainability of financial and macroeconomic stability.” The paper is more history than analysis, but it provides a good background understanding of the Japanese housing and stock market bubble.

¹⁴ Karl Case and Robert Shiller mentioned a report in the *Harvard Business Review* that spoke of businesses in boom regions were unable to attract labor due to the high cost of housing. (Case & Shiller, *The Behavior of Home Buyers in Boom and Post-Boom Markets*, 1988)

¹⁵ Karl Case and Robert Shiller noted (Case & Shiller, *Is There a Bubble in the Housing Market*, 2004) overwhelming agreement with the statement “Housing

THE GREAT HOUSING BUBBLE

prices have boomed in [city] because lots of people want to live here.” Another recurring idea in the “everyone wants to live here” meme is the “rich Asians are buying.” This fallacy is promoted in every real estate bubble. (Case & Shiller, *The Behavior of Home Buyers in Boom and Post-Boom Markets*, 1988)

¹⁶ Michael Wolff wrote the book *Burn Rate : How I Survived the Gold Rush Years on the Internet* (Wolff, 1998) describing the strange investor behavior of the internet startup era.

¹⁷ Robert Shiller’s surveys have demonstrated most home purchases have little real knowledge or agreement about the underlying causes of price rallies. Most would cite clichés, images or popular fallacies rather than hard evidence or analysis of data with correspondence to prices. (Case & Shiller, *The Behavior of Home Buyers in Boom and Post-Boom Markets*, 1988)

¹⁸ Stated-Income Loans also known as “liar loans” were widespread during the bubble. People frequently fabricated their income.

¹⁹ One of the more interesting phenomenon observed in the scholarly literature during a financial bubble is the number of analysts who look at the data and are unable to form an objective opinion about what the data shows them. In the paper *Bubbles, Human Judgment, and Expert Opinion* (Shiller, *Bubbles, Human Judgment, and Expert Opinion*, 2001), Robert Shiller examines this phenomenon. In his introduction he noted, “There are many who have been arguing in effect that the market (or major components of it) has been undergoing a bubble. It would seem that it is essential to their notion of a bubble that investors’ actions are, in one way or another, foolish. Others sharply disagree with these bubble stories, and it is precisely this intimation of foolishness that seems to bother them. It seems to them just implausible that investors at large have been foolish.” The tone of many of the journal articles seems rather defensive and dismissive of the idea of a bubble even when the evidence is clear. One can surmise this tone is the result of the “foolishness” Dr. Shiller describes. In his conclusion he writes, “human patterns of less-than-perfectly rational behavior are central to financial market behavior, even among investment professionals, while at the same time there is little outright foolishness among investors. It is hard for writers in the news media, who describe financial markets, to convey the nature of any essential irrationality, since they cannot all review the relevant social science literature in their news article. They are left with punchy references to pop psychology that may serve to discredit them in many eyes. That is part of the reason why we have been left with a sense of strong public disagreement about the nature of speculative bubbles.” It is amazing to this author how so many academics along with the general public can completely miss financial bubbles and deny their existence past the point where it is obvious to everyone. Ben Stein was the poster child for this behavior during the Great Housing Bubble. One of the scholarly references showing this dismissal of the obvious is *The great turn-of-the-century housing boom* (Fisher & Quayyum, 2005) by Jonas D. M. Fisher and Saad Quayyum. In it they reach the following completely errone-

END NOTES

ous conclusion right at the peak of the bubble, “To the extent that the quantities can be understood by considering the underlying economic fundamentals, such as productivity growth and the evolution of the mortgage market, then the recent growth in house prices is probably not due to excessive speculation in the housing market, such as occurs in a bubble. We argue that our findings point toward the high prices being driven by fundamentals.” Even at the very peak of the insanity, there are well-educated market observers that miss the signs or believe the fallacies which serve to inflate the bubble.

²⁰ Alan Greenspan made the following statements at the Credit Union National Association 2004 Governmental Affairs Conference, “Indeed, recent research within the Federal Reserve suggests that many homeowners might have saved tens of thousands of dollars had they held adjustable-rate mortgages rather than fixed-rate mortgages during the past decade, though this would not have been the case, of course, had interest rates trended sharply upward. American homeowners clearly like the certainty of fixed mortgage payments. This preference is in striking contrast to the situation in some other countries, where adjustable-rate mortgages are far more common and where efforts to introduce American-type fixed-rate mortgages generally have not been successful. Fixed-rate mortgages seem unduly expensive to households in other countries. One possible reason is that these mortgages effectively charge homeowners high fees for protection against rising interest rates and for the right to refinance. American consumers might benefit if lenders provided greater mortgage product alternatives to the traditional fixed-rate mortgage. To the degree that households are driven by fears of payment shocks but are willing to manage their own interest rate risks, the traditional fixed-rate mortgage may be an expensive method of financing a home.” It is a good thing Alan Greenspan was our central banker and not a financial adviser. Many people who “benefited” from the mortgage product alternatives lost their homes in foreclosure. There is a reason homeowners like fixed-rate mortgages. How exactly are borrowers supposed to “manage their own interest rate risks” without using fixed-rate mortgages? Perhaps if Alan Greenspan had thought that statement through, his advice might have been different. Daniel Gross wrote about the folly of this speech in his weekly column on the internet magazine Slate (Gross, Alan Greenspan: ARMed and Dangerous, 2004). Mr. Gross noted the following, “Greenspan also conspicuously ignored the non-monetary benefits associated with fixed-rate mortgages. Homebuyers pay a premium for the ability to lock in a fixed interest rate – and hence have utter certainty on the size of their payment for up to three decades. But in return, they receive peace of mind, security, and the ability to plan.”

²¹ According to Credit Suisse, the average credit score for Alt-A borrowers was 717 and for subprime borrowers it was 646.

²² There was a steep rise in prices in California and selected large metropolitan areas of the East Coast during 1987, 1988 and 1989. This was followed by a 7 year period of slowly declining prices as fundamentals caught up. This is considered by some to be a bubble because prices showed a detachment from fundamentals

THE GREAT HOUSING BUBBLE

and a later return to the former relationship. This “bubble” did not see capitulatory selling, so it did not show the behavior of classic asset bubbles.

²³ A study by Consumer Federation of America's Allen J. Fishbein *Piggyback Loans at the Trough: California Subprime Home Purchase and Refinance Lending in 2006* (Fishbein, *Piggyback Loans at the Trough: California Subprime Home Purchase and Refinance Lending in 2006*, 2008), reveals the following “1.26 million home purchase and refinance loans in California metropolitan areas in 2006 and found about one sixth of California home purchase borrowers taking out single, first lien mortgages and one quarter of refinance borrowers received subprime loans in 2006. The subprime mortgage market provides loans to borrowers who do not meet the credit standard for prime loans. To compensate for the increased risk of offering loans to borrowers with weaker credit, lenders charge subprime borrowers higher interest rates – and thus higher monthly payments – than prime borrowers. California has historically had lower rates of subprime lending than the national average, but the rates of subprime lending crept up in 2006. Additionally, more than a third of California home purchase borrowers also utilized a second “piggyback” loan on top of a primary, first lien mortgage. Piggyback loans combine a primary mortgage with a second lien home equity loan, allowing borrowers to finance more than 80 percent of the home’s value without private mortgage insurance. These borrowers took out loans on as much as 100 percent of the value of the home in 2006. More than half these piggyback borrowers received subprime loans on their primary mortgages. Many subprime loans are adjustable rate mortgages (ARMs) that reset to higher interest rates after the first two years, meaning that homeowners that received subprime purchase or refinance mortgages in 2006 are likely to see their interest rates and monthly payments increase – in many cases significantly – in 2008. Moreover, as real estate markets cool and decline, borrowers that utilized piggyback financing could find themselves owing more on their mortgage than their homes are worth.” An earlier related study, *Exotic or Toxic? An Examination of the Non-Traditional Mortgage Market for Consumers and Lenders* (Fishbein & Woodall, *Exotic or Toxic? An Examination of the Non-Traditional Mortgage Market for Consumers and Lenders*, 2006) by Allen J. Fishbein and Patrick Woodall also sounded the alarm concerning exotic financing.

²⁴ This data comes from the Credit Suisse Report (Credit Suisse, 2007). The source of their data was Loan Performance.

²⁵ The impact of exotic mortgage terms was explored by Matthew S. Chambers, Carlos Garriga and Don Schlagenhauf in the paper *Mortgage Contracts and Housing Tenure Decisions* (Chambers, Garriga, & Schlagenhauf, 2007). Their abstract reads as follows, “We find that different types of mortgage contracts influence these decisions through three dimensions: the downpayment constraint, the payment schedule, and the amortization schedule. Contracts with lower downpayment requirements allow younger and lower income households to enter the housing market earlier. Mortgage contracts with increasing payment

END NOTES

schedules increase the participation of first-time buyers, but can generate lower homeownership later in the life cycle. We find that adjusting the amortization schedule of a contract can be important. Mortgage contracts which allow the quick accumulation of home equity increase homeownership across the entire life cycle.” The cold reality of negative amortization loans is summed up in the observation that increasing payment schedules decrease home ownership over time. People default when their payments go up. It is the fatal flaw of all these loan programs. One of the more amusing papers from the bubble was written by James Peterson (Peterson, 2005) “Designer Mortgages: The Boom in Nontraditional Mortgage Loans May Be a Double-Edged Sword. So Far, Most Banks Have Moved Cautiously.” The lenders during the Great Housing Bubble were anything but cautious.

²⁶ This data comes from the Credit Suisse Report (Credit Suisse, 2007). The source of their data was Loan Performance.

²⁷ This data comes from the Credit Suisse Report (Credit Suisse, 2007). The source of their data was Mortgage Asset Research Institute.

²⁸ Anecdotal evidence indicates the practice of fabricating loan application income was common. There were a few high-profile arrests, as is always the case with this kind of phenomenon. As of the early 2008, no definitive studies have been undertaken to assess how widespread was the practice of intentionally fabricating loan application data by mortgage brokers.

²⁹ Payments to investors from collateralized debt obligations were actually made by the servicer. If the borrower failed to make payments, the servicer would make them to the investor. When the loan was discharged through sale, the servicer would then recoup the money, plus interest, on any payments made on behalf of the borrower.

³⁰ (Libby, Libby, & Short, 2004)

³¹ Numerous reports have been compiled on the savings adequacy of Americans. In the report Lifetime Earnings, Social Security Benefits, and the Adequacy of Retirement Wealth Accumulation by Eric M. Engen, William G. Gale, Cori E. Uccello (Engen, Gale, & Uccello, 2004), the authors detail the savings patterns on various generations preparing for retirement.

³² Robert Shiller constructed a graph of housing prices from 1890-2005 for the book *Irrational Exuberance* (Shiller, *Irrational Exuberance*, 2005). The rate of appreciation during this 115 year time period is 0.7% over the rate of inflation. The data from the US Census Bureau shows a 2.0% increase over inflation since 1940, however much of this increase was during the baby boom right after WWII and it does not reflect the improvement in house quality during this time. The 0.7% statistic is referenced a number of times in this work.

³³ Robert Shiller titled his groundbreaking book *Irrational Exuberance* (Shiller, *Irrational Exuberance*, 2005) after a phrase in a speech given by Alan Green-

THE GREAT HOUSING BUBBLE

span, FED chairman from 1986-2006, in a speech at the Annual Dinner and Francis Boyer Lecture of The American Enterprise Institute for Public Policy Research, Washington, D.C., December 5, 1996 (Greenspan, *The Challenge of Central Banking in a Democratic Society*, 1996). The term “irrational exuberance” is used synonymously in this writing to describe the behavior of buyers in creating an asset price bubble.

- ³⁴ Human nature being what it is, another real estate bubble will form unless measures are taken to prevent one. The projections of how long it will take markets to recover vary depending on the variables analyzed. Later chapters explore this question in detail.
- ³⁵ Joe Vitale in his book *There's a Customer Born Every Minute: P.T. Barnum's Secrets to Business Success* (Vitale, 1998) disputes the contention that PT Barnum ever uttered the phrase with which he is credited.
- ³⁶ The conclusion of the paper *Subprime Refinancing: Equity Extraction and Mortgage Termination* (Chomsisengphet & Pennington-Cross, 2006) is as follows, “Consistent with survey evidence the propensity to extract equity while refinancing is sensitive to interest rates on other forms of consumer debt. After the loan is originated, our results indicate that cash-out refinances perform differently from non-cash-out refinances. For example, cash-outs are less likely to default or prepay, and the termination of cash-outs is more sensitive to changing interest rates and house prices.” The sensitivity to changes in interest rates is not surprising as borrowers will take the money if it is a good deal, and they will repay it when the deal is less favorable. The observation that these loans have lower default rates and are less likely to be paid back early is quite surprising. This may have been an artifact of the bubble rally, and future data may show these loans do not perform as well as in previous years.
- ³⁷ Robert Shiller wrote a paper on *Household Reactions to Changes in Housing Wealth* (Shiller, *Household Reaction to Changes in Housing Wealth*, 2004). He reached no definitive conclusions concerning the reactions to households to increasing home prices. At the time of his writing, the bubble was inflated enough to be obvious to him, and he does mention the bubble and its potential problems. The impact of mortgage equity withdrawal had not reached absurd height in early 2004, but by 2006, the pattern of household spending had become fairly obvious. In 2007 Oxford professor John Muellbauer wrote *Housing, Credit and Consumer Expenditures* (Muellbauer, 2007). His conclusion is that the spending “wealth effect” was insignificant in the past due to more restrictive credit policies which limited access to home equity (financial prudence on the part of lenders.) After the “liberalization” of credit markets and the dramatic increase in prices of the housing bubble, the consumer spending brought about by the wealth effect became pronounced. The wealth effect observed in the Great Housing Bubble was much larger than the wealth effect of the stock market bubble which preceded, and the effect was twice as large in the United States as it was in Great Britain.

END NOTES

- ³⁸ There is a lack of scholarly studies on the financial results of home improvement projects (Baker & Kaul, 2002). Builder behavior is often revelatory of the state of the market. In most markets new home builders do not put in rear yard landscaping because they are not able to obtain a return on the investment. Also, the fact that builders have multitudes of upgrade options from a base package indicates the premium finishes do not provide a market return unless specifically requested by a purchaser. Builders can profit in that circumstance.
- ³⁹ The evidence of consistent refinancing is anecdotal, but it is reinforced by national statistical trends from the US Governments Flow of Funds accounting.
- ⁴⁰ In the paper (Leamer, *Housing Is the Business Cycle*, 2007), the author has graphs showing the loss of manufacturing jobs after the recession of 2001.
- ⁴¹ (Gibbon, 1999)
- ⁴² In the paper *Innovations in Mortgage Markets and Increased Spending on Housing* (Doms & Krainer, *Innovations in Mortgage Markets and Increased Spending on Housing*, 2007), Mark Doms and John Krainer document how financial innovation helped facilitate the housing bubble. Their abstract is as follows: “Innovations in the mortgage market since the mid-1990s have effectively reduced a number of financing constraints. Coinciding with these innovations, we document a significant change in the propensity for households to own their homes, as well as substantial increases in the share of household income devoted to housing. These changes in housing expenditures are especially large for those groups that faced the greatest financial constraints, and are robust across the changing composition of households and their geographic location. We present evidence that young, constrained households may have used newly designed mortgages to finance their increased expenditures on housing.” Notice the “innovation” reduced financing constraints. This is the definition of loose credit. They also note the increase in home ownership and the increase in debt-to-income ratios. The latter is a telltale sign of a housing market bubble. The exotic loans tended to be concentrated in younger households who used to be excluded from the housing market due to lack of downpayments and insufficient income. Basically, exotic loans were given to persons who were not ready for home ownership, and the high default rates among this group should not have been a surprise.
- ⁴³ In response to the dramatic increase in subprime delinquencies in 2007, the Federal Reserve Bank of San Francisco commissioned a report on *Subprime Mortgage Delinquency Rates* (Doms, Furlong, & Krainer, *Subprime Mortgage Delinquency Rates*, 2007). The reports conclusions were as follows: “First, the riskiness of the subprime borrowing pool may have increased. Second, pockets of regional economic weakness may have helped push a larger proportion of subprime borrowers into delinquency. Third, for a variety of reasons, the recent history of local house price appreciation and the degree of house price deceleration may have affected delinquency rates on subprime mortgages. While we find a role for all three candidate explanations, patterns in recent house price apprec-

THE GREAT HOUSING BUBBLE

iation are far and away the best single predictor of delinquency levels and changes in delinquencies. Importantly, after controlling for the current level of house price appreciation, measures of house price deceleration remain significant predictors of changes in subprime delinquencies. The results point to a possible role for changes in house price expectations for explaining changes in delinquencies.” In later sections the relationship between default rates and default losses is explored. When prices decline, default losses increase because lenders get less money from the collateral in a foreclosure. This report from the FRBSF demonstrates that lenders also face higher default rates, probably due to borrowers “giving up” when they owe more on their mortgage than their house is worth. These two phenomenon have a negative synergy. In a related report by Kristopher Gerardi, Adam Hale Shapiro, and Paul S. Willen titled *Subprime Outcomes: Risky Mortgages, Homeownership Experiences, and Foreclosures* (Gerardi, Shapiro, & Willen, 2007), the authors make the following observations, “First, homeownerships that begin with a subprime purchase mortgage end up in foreclosure almost 20 percent of the time, or more than 6 times as often as experiences that begin with prime purchase mortgages. Second, house price appreciation plays a dominant role in generating foreclosures. In fact, we attribute most of the dramatic rise in Massachusetts foreclosures during 2006 and 2007 to the decline in house prices that began in the summer of 2005.”

⁴⁴ In the paper *Unskilled and Unaware of It: How Difficulties in Recognizing One's Own Incompetence Lead to Inflated Self-Assessments* (Kruger & Dunning, 1999), the authors noted the tendency of individuals to overestimate their own competence and abilities. Their primary conclusion is as follows “People tend to hold overly favorable views of their abilities in many social and intellectual domains. The authors suggest that this overestimation occurs, in part, because people who are unskilled in these domains suffer a dual burden: Not only do these people reach erroneous conclusions and make unfortunate choices, but their incompetence robs them of the metacognitive ability to realize it.” It is a perfect description of the general public and their relationship to complex financial agreements like Option ARMs.

⁴⁵ The author is a believer in the Austrian School of Economics. Two of the sources of research and understanding on the credit cycle are *The Hedge Fund Edge: Maximum Profit / Minimum Risk Global Trend Trading Strategies* (Boucher, 1999), and *Money, Bank Credit, and Economic Cycles* (Soto, 2006).

⁴⁶ There are a number of research papers discussing the pros and cons of various methodologies for calculating equivalent rent. *Hedonic Estimates of the Cost of Housing Services: Rental and Owner-Occupied Units* (Crone & Nakamura, 2004) *Treatment of Owner-Occupied Housing in the CPI* (Poole, Ptacek, & Verbrugge, 2005).

⁴⁷ Robert Shiller noted “that real owners’ equivalent rent and real building costs track each other fairly well, as one might expect. But neither of them tracks real

END NOTES

home prices at all, suggesting that some other factor – I will argue market psychology – plays an important role in determining home prices.”

⁴⁸ Depending on the market, rental rates grow at a rate around 1% over the rate of inflation. Rental rates are closely aligned with income growth, and in markets where income growth is strong, rental rates increase at approximately the same rate.

⁴⁹ John Krainer, chief economist for the Federal Reserve Bank of San Francisco, pointed out in 2004 “The price-rent ratio for the U.S. and many regional markets is now much higher than its historical average value.” (Krainer & Wei, *House Prices and Fundamental Value*, 2004) This is one of the first papers (other than those by Robert Shiller) to recognize the data was pointing to a housing bubble.

⁵⁰ The full text of the Proposition 13 law can be found at http://www.leginfo.ca.gov/.const/article_13A

⁵¹ In California, the first half of regular secured property tax bills are due November 1st, and delinquent after December 10th; the second half are due February 1st, and delinquent after April 10th each year. If the delinquent date falls on a Saturday, Sunday, or government holiday, then the due date is the following business day.

⁵² All information regarding tax rates comes from the Internal Revenue Service. <http://www.irs.gov/>

⁵³ There are many studies that have mentioned the use of price-to-rent ratios as being similar to price-to-earnings ratios of stocks. Some of the studies are good, and some are not. Bubble, bubble, toil and trouble is of the latter variety (Haines & Rosen, 2006). Typical of these studies is that they will look at the data, see the obvious signs of a bubble, and proceed to dismiss the obvious as something else. Even though the national data for price-to-rent clearly shows a bubble, even in their own graphs, the authors dismiss the idea because “all real estate is local.” The paper was written for the Federal Reserve, but it could have been written for the National Association of Realtors. Another silly statement they make is “Thus, what appears to be a bubble in some markets might just be a reflection of normally high volatility in those markets.” This is like saying “what appears to be a bubble isn’t a bubble because bubbles are normal in these markets.” When the authors can look right at the data and not understand what they are seeing, there is little hope the paper will draw the right conclusions.

⁵⁴ The study *A Trend and Variance Decomposition of the Rent-Price Ratio in Housing Markets* by Sean D. Campbell, Morris A. Davis, Joshua Gallin, and Robert F. Martin (Campbell, Davis, Gallin, & Martin, 2005) uses method of estimating the investment premium people pay for homes in bubble markets based on the expectation of future rental growth. This entire approach is flawed as it assumes people are investing based on cash flows. This would be a rational approach, but most people who buy in financial manias know little or nothing about cashflow or how to value it. The real reason they are “investing” is to

THE GREAT HOUSING BUBBLE

capture speculative price changes. Trying to determine a fundamental valuation based on cashflow is an interesting exercise in math and statistics, but it completely fails to capture the real motivation behind buyers in the marketplace.

- ⁵⁵ In the article “Are CAP Rates Still a Valid Indicator of Value?” (Hockley, 2005), the author noted “On the West Coast, California investors have driven the price of investments to levels never before seen. California CAP rates are hovering between 4 percent and 7 percent, even with no or low increases in rent. Investors are betting on appreciation gains.”
- ⁵⁶ Robert Shiller has been studying homebuyer behavior since the late 1980s. His surveys have consistently show the general public believes houses will appreciate in value at more than double their recorded historical rate.
- ⁵⁷ The 1.4% rate of house price appreciation over the rate of inflation is based on the US Census Bureau measurement of house price and the US Department of Labor’s Consumer Price Index.
- ⁵⁸ In their paper Loss Aversion in Riskless Choice: A Reference-Dependent Model (Tversky & Kahneman, 1991), the authors discuss the premise that losses and disadvantages have greater impact on preferences than gains and advantages. This explains much of the unusual behavior of sellers in price declines.
- ⁵⁹ Many in the academic community do not seem to understand the true nature of land prices. In their paper The Price of Residential Land in Large U.S. Cities (Davis & Palumbo, 2006) Morris A. Davis; Michael G. Palumbo talk about residential land prices as being a determinant of house prices rather than the other way around. This mistake concerning the valuation of land is prevalent in the general public, but it is surprising to see academics continue to respond to this fallacy.
- ⁶⁰ The author has worked with many builders in Southern California. At one time, the author shared an office with the former Division President of Taylor Woodrow Homes who at the time was the President of the Orange County Building Industry Association. The \$85 SF is anecdotal, but it is a reliable number from multiple sources.
- ⁶¹ There were numerous news stories in 2007 of impairment charges from various national builders.
- ⁶² The Village of Woodbury information can be found on the Irvine Company website: <http://www.villagesofirvine.com/VILLAGES-AND-RESIDENCES/Woodbury-Overview.aspx>
- ⁶³ The author was involved with the analysis of a project that was purchased as raw land for \$10,000,000 in 2001 in Riverside County, California. The owner sold the project to a major homebuilder in three phases in 2004 and 2005 for a total of \$95,000,000.

END NOTES

- ⁶⁴ Most participants in the housing market believe changes in interest rates are responsible for changes in housing prices (Case & Shiller, *The Behavior of Home Buyers in Boom and Post-Boom Markets*, 1988). There is actually very little correlation between interest rates and house prices. Interest rates are very important for determining the amount a borrower can obtain in a loan, but other factors are more critical to determining the actual price of real estate.
- ⁶⁵ Most of the technical data on the secondary market found in this section comes from the paper Fussing and Fuming over Fannie and Freddie: How Much Smoke, How Much Fire? (Frame & White, 2005). Another paper with excellent historical background on the evolution of the secondary mortgage market is *The Housing Finance Revolution* (Green & Wachter, 2007) by Richard Green and Susan Wachter. Perhaps the finest overview of the functioning of the secondary mortgage market with respect to subprime is *Understanding the Securitization of Subprime Mortgage Credit* by Adam B. Ashcraft and Til Schuermann (Ashcraft & Schuermann, 2008).
- ⁶⁶ In the paper *Who Holds the Toxic Waste? An Investigation of CMO Holdings* (Haubrich & Lucas, 2006), the authors provide a good background on the CMO (CDO by another name) market. Their analysis of who holds the bad paper is suspect due to lack of data. Also, many “insurers” were not insurance companies. These were private, unregulated firms who often had little financial ability to make good on their obligations.
- ⁶⁷ (Soros, 1994)
- ⁶⁸ (Burdekin & Siklos, 2004)
- ⁶⁹ Even if a homeowner’s house is worth less than the mortgage, there is still option value in the property. If the homeowners is not far underwater, it may not take much time for values to return and provide them with equity in the property.
- ⁷⁰ Robert Shiller’s surveys of market attitudes in 1989 showed 95% of respondents in the bubble markets of San Francisco and Orange County said they thought of their purchase as an investment at least in part. Also, the tendency to view housing as an investment is a defining characteristic of a housing bubble (Case & Shiller, *Is There a Bubble in the Housing Market*, 2004). Since housing bubbles portend of disastrous declines, the investment motive as a risk to CDOs is very real.
- ⁷¹ FHA Guidelines for appraisals only require the use of the income approach for income producing properties.
- ⁷² Real Estate prices in California have bubbled 3 times since the 1970s. After prices peaked in the late 70s and then again in the late 80s, prices declined until they came back into alignment with historic fundamental valuations. This is strong confirmation of the theory of buyers waiting for rental equivalence before purchasing when prices drop.

THE GREAT HOUSING BUBBLE

- ⁷³ The Dutch tulip bulb mania was documented in the book *Extraordinarily Popular Delusions and the Madness of Crowds* (Mackay, Vega, & Fridson, 1996). The activities associated with the tulip mania have long been held as the archetype of a speculative bubble. Peter Garber in his paper *Tulipmania* (Garber, 1989) lays out the case that speculation in the Dutch tulip market in 1634-1637 was not necessarily irrational exuberance. He draws these conclusions based on the similar behavior of modern agricultural markets for rare flowers. The assumption behind his conclusions is that modern markets do not display symptoms of irrational exuberance which is highly suspect. Markets dealing with very rare commodities are always subject to wild price swings due to irrational exuberance because the commodity in question truly is rare. This plays to one of the central fallacies of irrational exuberance that the market is experiencing a severe shortage. Of course, like any market, even if the commodity is rare, if the demand is fickle and prone to irrational exuberance, there is a strong detachment from fundamental valuations due to excessive speculation.
- ⁷⁴ There are circumstances where FICO scores of responsible citizens may characterize them as subprime. Some people do not use credit or maintain credit lines. They are very responsible, but their credit scores would make them subprime. Also, people who go through divorce, illness, a job loss or some other financial problem may temporarily become subprime. Responsible citizens who become subprime can generally recover their FICO scores in a short period of time. In fact, the original business plan for subprime was based on this idea.
- ⁷⁵ There were some valiant attempts during the bubble to determine if the price increases really were a bubble. The literature of the time almost universally missed it despite the obvious signs in the data. In the paper *Assessing High House Prices: Bubbles, Fundamentals, and Misperceptions* (Himmelberg, Mayer, & Sinai, 2005) the authors used almost the same approach to the analysis presented in this writing and reached the opposite conclusion, "As of the end of 2004, our analysis reveals little evidence of a housing bubble. In high appreciation markets like San Francisco, Boston, and New York, current housing prices are not cheap, but our calculations do not reveal large price increases in excess of fundamentals." By the end of 2004, the data was unambiguously in support of a financial bubble. One of the few authors who recognized the problems early on was John Krainer an economist with the Federal Reserve Board of San Francisco (Krainer, *House Price Bubbles*, 2003).
- ⁷⁶ Jordan Rappaport provides an overview of the various methods of house price measurement in *A Guide to Aggregate House Price Measures* (Rappaport, 2006).
- ⁷⁷ In the paper *A Note on the Differences between the OFHEO and S&P/Case-Shiller House Price Indexes* by Andrew Leventis (Leventis, 2007), the author makes the following observation: "OFHEO's House Price Indexes (the "HPI") and home price indexes produced by S&P/Case-Shiller are constructed using the same basic methodology. Both use the repeat-valuations framework initially

END NOTES

proposed in the 1960s and later enhanced by Karl Case and Robert Shiller. Important differences between the indexes remain, however. The two models use different data sources and implement the mechanics of the basic algorithm in distinct ways.”

- ⁷⁸ Praveen Kujal and Vernon L. Smith noticed an interesting phenomenon in the studies of perceptions of fairness in their paper (Kujal & Smith, *Fairness and Short Run Price Adjustment in Posted Offer Markets*, 2003), “perceptions of fairness cause people to resist price increases following abrupt changes in conditions with no cost justification. Fairness is thus interpreted as being a result of expectations that are not sustainable.” This implies that people have an intuitive sense that nothing is justifying the dramatic increase in prices during a bubble rally. There is no perception of fairness because houses are not any better, nor are houses any more expensive to build. The increase in prices has no justification in cost. Carl Case and Robert Shiller also noticed the same behavior among sellers in financial manias who felt guilty that the buyer paid so much (Case & Shiller, *The Behavior of Home Buyers in Boom and Post-Boom Markets*, 1988).
- ⁷⁹ In the paper *Are House Prices the Next “Bubble?”* (McCarthy & Peach, 2004) the authors completely missed the implications of the rising price-to-income ratio. Some amount of the increase in price (less than 50%) nationally can be attributed to lower interest rates. The authors make the statement, “The marked upturn in home prices is largely attributable to strong market fundamentals: Home prices have essentially moved in line with increases in family income and declines in nominal mortgage interest rates.” An analysis of the impact on lower interest rates on actual payments and debt-to-income ratios would have revealed their conclusion erroneous, but no such analysis was undertaken. In the paper (Gallin, *The Long-Run Relationship between House Prices and Income: Evidence from Local Housing Markets*, 2003) Joshua Gallin reaches the following, completely erroneous conclusion, “More formally, many in the housing literature argue that house prices and income are cointegrated. In this paper, I show that the data do not support this view. Standard tests using 27 years of national-level data do not find evidence of cointegration.”
- ⁸⁰ The paper for the Federal Reserve Board by Joshua Gallin, (Gallin, *The Long-Run Relationship between House Prices and Rents*, 2004) demonstrates there is a relationship between these variables long term. What is interesting is the Mr. Gallin did not reach the same conclusion with respects to the relationship between house prices and income (Gallin, *The Long-Run Relationship between House Prices and Income: Evidence from Local Housing Markets.*, 2006) despite the fact that rents and income track each other very closely.
- ⁸¹ In the paper *Housing: Boom or Bubble* (Schiller, 2007), author Tim Schiller shows a chart on page 17 that looks very similar to the one in this work (He used a different data source, but the results were almost the same.) The chart shows the obvious sign of a massive housing bubble with prices showing a deviation in the price-to-rent relationship 5 times the previous high of the coastal bubble of

THE GREAT HOUSING BUBBLE

the early 1990s. Despite the visual appearance of the chart, he goes on to say the rally in prices was supported by fundamentals. Obviously, he was proven wrong. There is a history of scholarly papers on the price-to-income ratio that completely missed the housing bubble.

⁸² Praveen Kujal and Vernon L. Smith noted in *The Endowment Effect* (Kujal & Smith, *The Endowment Effect*, 1991) that even small changes in the bid/ask spread results in a large decline in transaction volume.

⁸³ Robert Shiller noted that the causes of a major turning point signifying the popping of a real estate bubble are “fuzzy.” (Shiller, *Historic Turning Points in Real Estate*, 2007) Any events associated with the end of a speculative bubble may be simply coincidental.

⁸⁴ Federal Reserve Chairman Ben Bernanke gave a speech (Bernanke B. , 2007) in front of the Joint Economic Committee of the U.S. Congress on March 28, 2007 when he claimed, “Although the turmoil in the subprime mortgage market has created severe financial problems for many individuals and families, the implications of these developments for the housing market as a whole are less clear. The ongoing tightening of lending standards, although an appropriate market response, will reduce somewhat the effective demand for housing, and foreclosed properties will add to the inventories of unsold homes. At this juncture, however, the impact on the broader economy and financial markets of the problems in the subprime market seems likely to be contained. In particular, mortgages to prime borrowers and fixed-rate mortgages to all classes of borrowers continue to perform well, with low rates of delinquency.” In short, the FED Chairman completely missed the scale and scope of the problem. Either that, or he knew how bad the problem was and chose to lie for public relations impact.

⁸⁵ According to Credit Suisse, 80% of subprime loans were the 2/28 variety.

⁸⁶ The information on New Century Financial comes from their website.

⁸⁷ Studies have shown people feel less need to save when house prices are increasing in value (Baker D. , 2002).

⁸⁸ Social psychology is an important factor in the transmission of booms and speculative mania; however, the perception of this fact by market participants is not common. Most individuals attribute price increases to some fundamental factor whereas the actual price movements are driven mostly by mass psychology. (Case & Shiller, *The Behavior of Home Buyers in Boom and Post-Boom Markets*, 1988)

⁸⁹ Karl Case and Robert Shiller noted (Case & Shiller, *Is There a Bubble in the Housing Market*, 2004) 90% or more of households expected house prices to increase in the following year during price rallies. It is the expectation of 10-year appreciation that is most striking. Market participants in the coastal bubble markets expected a 10-year average annual increase of near 15%. This would mean a tripling of prices over a 10-year period.

END NOTES

⁹⁰ (Miles, 2004)

⁹¹ In the paper *Investor Psychology and Security Market Under- and Overreactions* (Daniel, Hirshleifer, & Subrahmanyam, 1998), the authors document that investors have two biases which negatively impact their financial decisions: first, they have an overreliance on private information and analysis with regards to asset prices, and they have a biased self-attribution or belief in themselves that causes them to be overconfident in their investment outcomes. In short, people go into denial because they are overconfident about the direction of the trade.

⁹² The best books for understanding the mindset of a professional trader are the books by author Mark Douglas (*Douglas, The Disciplined Trader, Developing Winning Attitudes*, 1990) and (*Douglas, Trading in the Zone*, 2000). He lays out the emotional issues of trading in great detail.

⁹³ (Mints, 2006) According to Victor Mints in his study of the Moscow housing market, the number of vacant houses held for sale by speculators showed the same pattern as the United States.

⁹⁴ In their paper *Prospect Theory: an Analysis of Decision under Risk* (Kahneman & Tversky, *Prospect Theory: An Analysis of Decision under Risk*, 1979), the authors note a tendency of people to overweight low probability events which contributes to the attractiveness of insurance and gambling. Toward the end of the rally of the Great Housing Bubble when prices stopped rising, it became apparent that a resurgent rally was not very likely; however, many still bought in anticipation of this rally because 100% financing was available and they tended to overweight the probability of a rally.

⁹⁵ In the paper *Moral Hazard in Home Equity Conversion* (Shiller & N.Weiss, *Moral Hazard in Home Equity Conversion*, 1998), Robert J. Shiller and Allan N.Weiss document the moral hazard issues in cash-out refinancing as follows “Home equity conversion as presently constituted or proposed usually does not deal well with the potential problem of moral hazard. Once homeowners know that the risk of poor market performance of their homes is borne by investors, they have an incentive to neglect to take steps to maintain the homes’ values. They may thus create serious future losses for the investors.” They miss the most serious problem resulting in lender losses, the predatory “put” exercised by borrowers. There are clearly moral hazards in cash-out refinancing; they are even more severe than the ones documented in this paper.

⁹⁶ The author has a difficult time believing that a God would intervene in a financial market based on the purchase of an idol. It is not surprising a superstition like this one would spring up once houses started to be traded more frequently. There are myths about the practice going back hundreds of years, but references to the practice only go back to the early 1980s – a time corresponding to the slump after the first California real estate bubble.
<http://www.snopes.com/luck/stjoseph.asp>

THE GREAT HOUSING BUBBLE

⁹⁷ Much of the history of the Efficient Markets theory is outlined in Robert Shiller's paper (Shiller, *From Efficient Market Theory to Behavioral Finance*, 2002), "The efficient markets theory reached the height of its dominance in academic circles around the 1970s. Faith in this theory was eroded by a succession of discoveries of anomalies, many in the 1980s, and of evidence of excess volatility of returns. Finance literature in this decade and after suggests a more nuanced view of the value of the efficient markets theory, and, starting in the 1990s, a blossoming of research on behavioral finance. Some important developments in the 1990s and recently include feedback theories, models of the interaction of smart money with ordinary investors, and evidence on obstacles to smart money." One of the groundbreaking papers of the early 1990s that influenced the change in economics thinking from efficient markets to behavioral finance was the work by David Porter and Vernon Smith (Porter & Smith, 1992) on Price Expectations in Experimental Asset Markets with Futures Contracting. In this paper, the authors demonstrated the volatility of returns was excessive as prices detached greatly from fundamental values and stayed detached for extended periods of time.

⁹⁸ In the paper *Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias* (Kahneman, Knetsch, & Thaler, *The Endowment Effect, Loss Aversion, and Status Quo Bias*, 1991), the authors, Daniel Kahneman, Jack L. Knetsch, and Richard H. Thaler, begin to lay the foundations for behavioral finance theory by documenting the many anomalies the efficient markets theory could not explain, "Economics can be distinguished from other social sciences by the belief that most (all?) behavior can be explained by assuming that agents have stable, well-defined preferences and make rational choices consistent with those preferences in markets that (eventually) clear. An empirical result qualifies as an anomaly if it is difficult to "rationalize," or if implausible assumptions are necessary to explain it within the paradigm."

⁹⁹ In the paper *Learning from the Behavior of Others: Conformity, Fads, and Informational Cascades* (Bikhchandani, Hirshleifer, & Welch, 1998), the authors, Sushil Bikhchandani, David Hirshleifer and Ivo Welch, describe the phenomenon of herd behavior and observational learning. Much of human learning is accomplished through observation and imitation of others. This valuable survival skill results in the herd behavior observed in financial markets. It is the driving force behind the price-to-price feedback loop responsible for irrational exuberance.

¹⁰⁰ In *House Prices, Fundamentals and Bubbles* (Black, Fraser, & Hoesli, 2006), the behavior of momentum investors is characterized as evidence against rationality in the marketplace. For the typical amateur speculator this is certainly true, but for momentum traders who have learned how to buy and sell to profit from the momentum, it is a rational and profitable method of speculation.

¹⁰¹ In *Risk and Return in the U.S. Housing Market: A Cross-Sectional Asset-Pricing Approach* (Cannon, Miller, & Pandher, 2006), the authors noted a 10% increase

END NOTES

in volatility with each 2.48% increase in annual returns. This strongly suggests bubble volatility occurs just because prices are rising.

- ¹⁰² An article in Real Estate Journal.com (<http://www.realestatejournal.com/buysell/marketrends/20050106-capell.html>) from the Greed stage in the bubble anecdotally documents properties selling for over list and realtors telling clients to write emotional letters to sellers (Capell, 2004).
- ¹⁰³ Karl Case and Robert Shiller noted (Case & Shiller, *The Behavior of Home Buyers in Boom and Post-Boom Markets*, 1988) that prices in the early 80s leveled off, but they did not decline at the conclusion of the first California housing bubble of the late 1970s. This convinced people that prices could not decline and that if they just waited long enough prices would come back. This belief caused people to bid up prices even higher in the coastal bubble of the late 1980s. When the decline of that bubble (25%) was forgotten, market participants inflated the Great Housing Bubble.
- ¹⁰⁴ In Robert Shiller's studies, very few market participants said they would lower their prices until they found a buyer (Case & Shiller, *The Behavior of Home Buyers in Boom and Post-Boom Markets*, 1988).
- ¹⁰⁵ (Orwell, 1950)
- ¹⁰⁶ Vernon L. Smith noted in *Human Nature: An Economic Perspective* that "We should all love rich people, because they consume such a small percentage of their accumulation, leaving almost all of it to work in the economy and make the rest of us better off." (Smith, *Human Nature: An Economic Perspective*, 2004)
- ¹⁰⁷ Newspapers frequently print stories of lottery winners who spent all their winnings or were unhappy after the windfall (Geary, 2002)(Sullivan, 2006).
- ¹⁰⁸ Karl Case and Robert Shiller noted (Case & Shiller, *Is There a Bubble in the Housing Market*, 2004) that Wisconsin had almost no volatility in the ratio of house price to income whereas the coastal bubble markets have price volatility where income only explains about half of the movement in price seen over longer terms.
- ¹⁰⁹ Median income information is available from the US Census Bureau <http://www.census.gov/hhes/www/income/income.html>
- ¹¹⁰ Median home sales price from US Census Bureau.
- ¹¹¹ Data for the California market is from DataQuick Information Systems and the California Association of Realtors.
- ¹¹² BusinessWeek wrote one of the finest articles on the mortgage problem in 2006. In it they reference the now infamous Map of Misery showing the distribution of Option ARMs throughout the United States. The source of their data is not given. The data presented in this work on the loans in Minnetonka, MN and Orange County, California, come from this map. Two of the most moronic lender state-

THE GREAT HOUSING BUBBLE

ments of the housing bubble are in the article's final paragraph, "Analyst Frederick Cannon of Keefe Bruyette & Woods says most banks don't apologize for their option ARM businesses. 'Almost without exception everyone says [the option ARM] is a great loan, it's plenty regulated, and don't bug us,' he says. In an April letter to regulators, Cindy Manzettie, chief credit officer for Fifth Third Bank in Cincinnati, said it's not the 'lender's responsibility to help the consumer determine the appropriate payment option each month.... Paternalistic regulations that underestimate the intelligence of the American public do not work.'" Those statements are wrong on every point, but they do serve to illustrate the mindset of lenders during the bubble.

- ¹¹³ Charles Ponzi was an Italian immigrant who arrived in the United States in 1903. He was a consummate schemer and tried numerous get-rich-quick schemes. He hit the con-man's jackpot in 1920 with a scheme involving international postal reply coupons. When the structure collapsed, Ponzi paid out all his gains and ended up penniless. He was sentenced to prison in 1921 for mail fraud. (Zuckoff, 2005)
- ¹¹⁴ Hyman Minsky was a controversial economist of the late 20th century. He wrote extensively as a professor of economics at Washington University in St. Louis. (Minsky, Can "It" Happen Again? Essays on Instability and Finance, 1982)(Minsky, Stabilizing an Unstable Economy, 2008) As the Great Housing Bubble began to deflate, the causes were readily identified in Minsky's work from decades earlier. His writings rose from obscurity and attained a new prominence due to his prescience.
- ¹¹⁵ Todd Sinai in his paper, The Inequity of Subprime Mortgage Relief Programs (Sinai, 2008), documented the moral hazards involved with the various programs in the public forum of the time. He accurately characterized the problem as follows, "These programs may help some borrowers, but they do not bestow these benefits equitably. Some reward those who made riskier decisions over those who made prudent decisions, exclude those who live in states that experienced an early economic downturn, benefit those with high incomes at the expense of others, and spread the costs of the program among all taxpayers or future borrowers – regardless of whether they benefit from the proposals."
- ¹¹⁶ The Hope Now Alliance website address is <http://www.hopenow.com/>.
- ¹¹⁷ The Hope for Homeowners Act of 2008 was built on 5 principals: 1. Long-term affordability. The program is built on the idea, expressed by Federal Reserve Chairman Bernanke, that creating new equity for troubled homeowners is likely to be a more effective way to avoid foreclosures. New loans will be based on a family's ability to repay the loan, ensuring affordability and sustainable homeownership. 2. No investor or lender bailout. Investors and/or lenders will have to take significant losses in order to benefit from the proceeds of the loans refinanced with government insurance. However, these losses would be less than the losses associated with foreclosure. 3. No windfall for borrowers. Borrowers will share their new equity and future appreciation equally with FHA. Borrowers

END NOTES

will pay for the FHA insurance. 4. Voluntary participation. This will be a voluntary program. No lenders, servicers, or investors will be compelled to participate. 5. Restore confidence, liquidity, and transparency. Credit markets are fearful and frozen in part because banks and other financial institutions do not know what their subprime mortgages and related securities are worth. The uncertainty is forcing lenders to hoard capital and stop the lending necessary for economic growth. This program will help restore confidence and get markets flowing again.

¹¹⁸ (Capra, 1946)

¹¹⁹ Since real estate is associated with high transaction costs, heterogeneity and illiquidity, there is little opportunity for arbitrage (Black, Fraser, & Hoesli, 2006) (An investor cannot sell a house short.) These factors cause house prices to correct slowly without large numbers of foreclosures.

¹²⁰ Large variations in regional markets suggests the markets will deteriorate at different rates and at different times. (Baker D. , 2002) The extreme bubble markets of the coasts will deteriorate the most, and they may deteriorate the fastest due to the profusion of exotic financing.

¹²¹ Rental data is from U.S. Department of Labor Bureau of Labor Statistics.

¹²² Adam Posen wrote Why Central Banks Should Not Burst Bubbles. (Posen A. , 2006) His conclusions are as follows, “Central banks should not be in the business of trying to prick asset price bubbles. Bubbles generally arise out of some combination of irrational exuberance, technological jumps, and financial deregulation (with more of the second in equity price bubbles and more of the third in real estate booms). Accordingly, the connection between monetary conditions and the rise of bubbles is rather tenuous, and anything short of inducing a recession by tightening credit conditions prohibitively is unlikely to stem their rise. Even if a central bank were willing to take that one-in-three or less shot at cutting off a bubble, the cost-benefit analysis hardly justifies such preemptive action. The macroeconomic harm from a bubble bursting is generally a function of the financial system’s structure and stability – in modern economies with satisfactory bank supervision, the transmission of a negative shock from an asset price bust is relatively limited, as was seen in the United States in 2002. However, where financial fragility does exist, as in Japan in the 1990s, the costs of inducing a recession go up significantly, so the relative disadvantages of monetary preemption over letting the bubble run its course mount. In the end, there is no monetary substitute for financial stability, and no market substitute for monetary ease during severe credit crunch. These two realities imply that the central bank should not take asset prices directly into account in monetary policymaking but should be anything but *laissez-faire* in responding to sharp movements in inflation and output, even if asset price swings are their source.” His argument is sound, but he does point out that if bubbles get too large, the fallout can be even more disastrous than attempts to restrain them. This argues against his central point, and the Japanese example does show what can happen if bubbles are

THE GREAT HOUSING BUBBLE

allowed to get too large. Ben Bernanke also wrote a paper titled *Should Central Banks Respond to Movements in Asset Prices?* (Bernanke & Gertler, *Should Central Banks Respond to Movements in Asset Prices?*, 2000). He professes a belief that the activities of the Central Bank should not target asset prices, although his behavior as FED chairman has been interpreted as an attempt to bolster market prices. In a later paper (Bernanke & Boivin, *Monetary Policy in a Data-Rich Environment*, 2002) Bernanke also explored the uses and aggregation of data by the Federal Reserve. He seemed to be preparing himself for the job of FED Chairman. The focus of policy debate and academic research in the wake of the Great Housing Bubble is likely to be the issue of asset bubbles in general. Central Banks around the world learned how to control inflation in the 1980s and 1990s, but their policies have tended to create excess liquidity which has resulted in financial bubbles.

- ¹²³ (Bernanke B. S., *Japanese Monetary Policy: A Case of Self-Induced Paralysis*, 1999)
- ¹²⁴ Adam Posen in his paper *It Takes more than a Bubble to Become Japan* (Posen A. S., 2003), outlines the causes of the prolonged recession after the bursting of the stock and real estate bubbles in Japan. He agrees with Ben Bernanke's conclusion that aggressive monetary easing is the solution to the problem, "Central bankers should learn from Japan's bubble the benefits of a more thoughtful approach to assessing potential growth and of easing rapidly in the face of asset price declines and not be concerned with targeting asset prices or pricking bubbles per se." In a related paper *Passive Savers and Fiscal Policy Effectiveness in Japan* (Kuttner & Posen, 2001) by Kenneth N. Kuttner; Adam S. Posen, the authors reaffirm their conclusions on the mistakes of the Japanese Central Bank in handling their asset bubbles. The authors note that despite excessive borrowing of the central government, Japanese citizens continue to by government debt at very low cost and in effect subsidize their own borrowing.
- ¹²⁵ In the paper *Offshoring, Economic Insecurity, and the Demand for Social Insurance* (Anderson & Gascon, 2008), Richard G. Anderson and Charles S. Gascon describe the problems associated with offshoring, in particular the increased demand of social services caused by the fear of offshoring.
- ¹²⁶ The inflation adjusted chart for the S&P/Case-Shiller index was drawn by the following method. The index value was then divided by the consumer price index date from the U.S. Department of Labor Bureau of Labor Statistics. The resulting number was converted to a baseline value of 1 so the data could be represented as a percentage change.
- ¹²⁷ One of the factors not included on the list of those that may negatively impact the housing market during the decline of the Great Housing Bubble was the potential problems created by the aging of baby boomers. In the study *Aging Baby Boomers and the Generational Housing Bubble* (Myers & Ryu, 2008), the authors explore the potential impacts of baby boomers selling their homes and downsizing from their McMansions. The impact of this group, though potential-

END NOTES

ly significant, is very difficult to model and understand. There is no way to know what this generation will do and when they will do it. To speculate that this group would undergo a massive change in their habitation during the collapse of a major housing bubble does not seem plausible, although it is possible. It seems more likely that the baby boomers will not start retiring and potentially downsizing until the crash is past, and any changes in their housing situation will be spread out over many years rather than being concentrated in a short timeframe. The retirement of the baby boomers could serve to depress appreciation in those areas the baby boomers move out of, but it may also stimulate another construction boom in the areas they move in to.

¹²⁸ The Federal Reserve has very little control over long-term interest rates. In an unpublished paper from the University of Washington, the authors examined the correlation between the 10-year Treasury Note and long term mortgage rates. They found the correlation to be greater than 95%. However, when they checked for correlation between the Federal Funds Rate and long-term mortgage rates, the correlation dropped to 35%. The most recent example occurred when the Federal Funds Rate when from 2% in June 2004 to 6.25% in October 2006, and the contract mortgage rate barely budged moving from 6.29% to 6.36%.

¹²⁹ Karl Case and Robert Shiller concluded price declines could only come through an economic downturn (Case & Shiller, *The Behavior of Home Buyers in Boom and Post-Boom Markets*, 1988). This theory was disproven by the Great Housing Bubble. There has also been research suggesting that housing downturns are actually the cause of economic downturns (Leamer, *Housing Is the Business Cycle*, 2007).

¹³⁰ A paper by Edward Leamer (Leamer, *Housing Is the Business Cycle*, 2007) draws strong parallels between residential construction spending and the beginning and ending of economic recessions.

¹³¹ The foreclosure chart was drawn by taking the notices of trustee sales and the notices of default and dividing these figures by the monthly sales rate. Since there is considerable variability in these numbers from month to month, the figures have been averaged to smooth out the noise in the data and reveal the underlying trends.

¹³² In the paper *Accounting for Changes in the Homeownership Rate* (Chambers, Garriga, & Schlagenhauf, 2007), the authors concluded 56% to 70% of the increase in home ownership rates was due to “innovations” in the lending industry, in particular the lowering of downpayment requirements. Much of the remainder they attributed to demographic factors. The increase in home ownership among younger households was almost entirely driven by new financing terms, while changes among older households were much more to do with increasing income.

¹³³ One of the issues not discussed in this writing is the potential impact of generational shifts in housing. A model for generational changes presented in *The*

THE GREAT HOUSING BUBBLE

Baby Boom: Predictability in House Prices and Interest Rates (Martin, 2005) resurrects the early theories of Mankiw and Weil (Mankiw & Weil, The Baby Boom, the Baby Bust and the Housing Market, 1989) in which they predicted the collapse of housing prices in Japan in 1990 and the ongoing disruption in their housing market caused by the decline in population from the Baby Boom demographic bubble. In their 1988 paper Mankiw and Weil famously and incorrectly predicted the same phenomenon would occur in the United States. Instead, the United States witnessed the Great Housing Bubble. It is the author's opinion that the differing impacts in the Japanese market and the United States market has far more to do with the degree of asset inflation and other macroeconomic impacts than it does with generational demographic factors. While it is certainly possible that the aging of baby boomers will have a negative impact on the United States housing market, it is not clear what impact baby boomers will have. It is assumed they will downsize their accommodations, but this may not be the case. Many may chose to retire and live out their lives in the houses where they lived pre-retirement. If this occurs there will be no mass selloff of homes depressing housing prices.

¹³⁴ In the paper Housing and the Business Cycle (Davis & Heathcote, 2003), the authors document the strong relationship between residential investment and the general economy. Residential investment is much more volatile than the swings in the general economy, but it moves in the same direction. In a later paper obviously drawing for this paper's title (Leamer, Housing Is the Business Cycle, 2007) the author goes a step further and postulates that the housing market is a driving force in the economy. Previously, conventional wisdom was that housing followed economic cycles and did not drive them. These findings are also bolstered by a report for the Federal Reserve Bank of San Francisco (Krainer, Residential Investment over the Real Estate Cycle, 2006). All the reports reach the same conclusion: residential investment is closely linked to the economic cycle. In another related study on the fallout of financial bubbles, (Helbling, Conover, & Terrones, 2003) Chapter II: When Bubbles Burst. The authors note the financial drag caused by the decline in asset prices.

¹³⁵ By mid-2008 lenders were so overwhelmed with foreclosures that many began bidding less than the loan amount in hopes auction bidders would limit their losses and they would not acquire even more residential real estate.

¹³⁶ Homeowners who owe more on their mortgage than their house is worth in the resale market are by definition homedebtors. The fact that they cannot leave the place they live means they are effectively in prison.

¹³⁷ Japan endured 15 years of slow deflation from the combined stock market and real estate bubbles of the late 1980s. The 1990s are known in Japan as "the lost decade" due to the problems from the slow deflation of their asset bubble.

¹³⁸ In July of 2008, the Fed made changes to Reg Z which would have been helpful in reducing the size of the housing bubble, the amount of fraud during the bubble, and the resulting pain of the bust. Unfortunately, they were at least five

END NOTES

years too late. The changes to Reg Z were: The rule, for “higher-priced loans: 1. Prohibits a lender from making a loan without regard to borrowers' ability to repay the loan from income and assets other than the home's value. A lender complies, in part, by assessing repayment ability based on the highest scheduled payment in the first seven years of the loan. To show that a lender violated this prohibition, a borrower does not need to demonstrate that it is part of a "pattern or practice. 2. Prohibits a lender from relying on income or assets that it does not verify to determine repayment ability. 3. Bans any prepayment penalty if the payment can change during the initial four years. For other higher-priced loans, a prepayment penalty period cannot last for more than two years. 4. Requires that the lender establish an escrow account for the payment of property taxes and homeowners' insurance for first-lien loans. The lender may offer the borrower the opportunity to cancel the escrow account after one year. The rule, for all closed-end mortgages secured by a consumer's principal dwelling: 1. Prohibits certain servicing practices: failing to credit a payment to a consumer's account as of the date the payment is received, failing to provide a payoff statement within a reasonable period of time, and "pyramiding" late fees. 2. Prohibits a creditor or broker from coercing or encouraging an appraiser to misrepresent the value of a home. 3. Creditors must provide a good faith estimate of the loan costs, including a schedule of payments, within three days after a consumer applies for any mortgage loan secured by a consumer's principal dwelling, such as a home improvement loan or a loan to refinance an existing loan. The rule, for all mortgages: Requires advertising to contain additional information about rates, monthly payments, and other loan features. The rule also bans seven deceptive or misleading advertising practices, including representing that a rate or payment is "fixed" when it can change. “

¹³⁹ In their paper *Predicting Bubbles and Bubble Substitutes* (Thompson, Treussard, & Hickson, 2004), the authors contend that certain kinds of bubble intentionally created by government authorities can have positive long-term effects.

¹⁴⁰ The subprime mortgage industry may mount a comeback in the aftermath of the Great Housing Bubble. The original business plan was to take borrowers who had good incomes and savings to put toward a downpayment, but they had low FICO scores which prevented them from getting a Prime loan. These borrowers used subprime as bridge financing until their FICO scores improved and they could refinance into Prime loans. The subprime business plan relied on capacity (income) and collateral (downpayment) to make up for the lack of good credit. Those who go through foreclosure in the bubble will end up with bad credit, but they may have good income and savings. They will be an underserved borrower class that will likely prompt resurgence in subprime lending. The problem with subprime was not that the borrowers had poor credit scores; it was that lenders ignored capacity and collateral on the loans. This is why Alt-A and Prime loans also performed poorly when prices deflated. Subprime will likely resurface, whereas Alt-A is permanently defunct.

THE GREAT HOUSING BUBBLE

- ¹⁴¹ Much of California's lingering economic troubles of the early 90s can be linked to diminished consumer spending due to excessive mortgage obligations. Many people inaccurately point to job losses in the aerospace industry as the cause of California's economic weakness, but this sector was small, and the contraction only lasted a couple of years, whereas the economic slump persisted almost 6 years.
- ¹⁴² This is the primary argument against any kind of legislative reform (Wallace, Elliehausen, & Staten, 2005).
- ¹⁴³ When credit first began to tighten in 2007, the government sponsored entities who insure mortgage loans for sale in the secondary market issued a series of guidelines on the loans they would insure. In the first version, debt-to-income ratios were limited to 50%. In a subsequent revision in late 2007, the debt-to-income ratio was limited to 45%. The tightening of credit was slow enough to keep some transactions occurring in the market, but fast enough to stop underwriters from originating bad loans. As of the time of this writing it is anticipated that the ratio will continue to fall.
- ¹⁴⁴ In his groundbreaking work *The Black Swan: The Impact of the Highly Improbable* (Taleb, 2007), the author describes how unpredictable and dramatic events shape our history.
- ¹⁴⁵ There is a great synopsis of the history and calculation of the rental components of the consumer price index contained in the report *Treatment of Owner-Occupied Housing in the CPI* (Poole, Ptacek, & Verbrugge, 2005).
- ¹⁴⁶ In 2008 the National Association of Realtors launched a commercial advertising campaign claiming that residential real estate doubles in value every 10 years. Besides the obvious inaccuracy of the claim, it is the kind of claim no stock-broker would be allowed to make.