University of Pennsylvania Law School

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A Joint Research Center of the Law School, the Wharton School,
and the Department of Economics in the School of Arts and Sciences
at the University of Pennsylvania

RESEARCH PAPER NO. 08-34

Explaining the United States' Uniquely Bad Housing Market

Jesse M. Abraham
WELLS FARGO HOME MORTGAGE

Andrey Pavlov
SIMON FRASER UNIVERSITY

Susan Wachter
UNIVERSITY OF PENNSYLVANIA

September 2008

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Abstract

Despite national economic, and real estate market trends that are not unique in U.S. history, the housing market woes of the United States appear to be developing into an historic, adverse episode. Indeed other countries have experienced the same fundamental forces and find themselves with nowhere near the level of U.S. economic repercussions and their housing markets are not nearly as threatened. We argue that the U.S. experienced a unique expansion of credit and deterioration of residential mortgage lending standards. This shift in the credit supply temporarily fueled housing prices beyond levels justified by favorable demographic and macroeconomic conditions. The subsequent withdrawal of credit has resulted in severe housing market declines as well as contributed to the adverse macroeconomic conditions that are in place today.

Introduction

The housing market woes of the United States are developing into an adverse economic episode of historic proportions. The economic circumstances that contributed to the recent housing market boom and bust are not unique in history and are manifestations of normal housing market behavior, yet while housing price rises through 2003 may have been justified by fundamentals, the subsequent price rises certainly were not. What were the factors that explain the rising prices even in the absence of positive fundamentals?

The demand for housing is the result of the formation of new households, the demand for second homes, and the need to replace deteriorated or obsolete structures.[1]

[1] There are clearly many complexities to the derivation of specific local forecasts of housing demand, such as migration patterns, employment opportunities and wage trends, demand for vacation properties, the

New households are responsible for 70 percent of this demand. Figure 1 shows that in the post-war period new household formation has cycled with the Baby Boom cohort, rising in the late 1970s as Boomers formed new households, and in the late 1990s as Boomers' children formed their households.

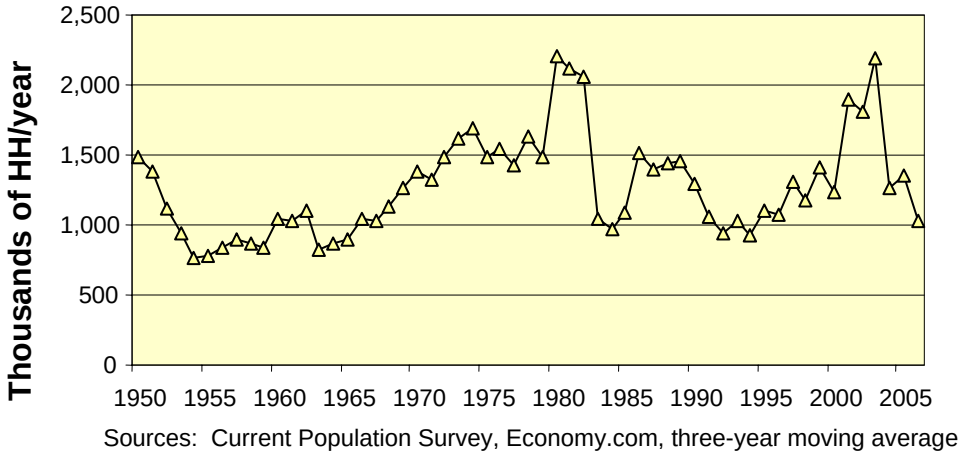
New households are also a function of immigration. The last decade witnessed a large and unexpected rise in immigration, with an additional 400,000 persons entering the country each year compared to projections of only a few years earlier. This increase, combined with rising homeownership rates among indigenous minorities, led to a surge in demand for new housing units: new household formation in the early 2000s increased by roughly 200,000 more households annually than 1995 to 2000, 100,000 to 200,000 units more than was widely projected (Table I). This high rate of household formation—higher than at any time since the housing boom of the late 1970s—drove up the cost of existing housing.[2]

Figure 1

potential to convert nonresidential properties to residential use, the composition of supply between multi-unit buildings and detached single family dwellings, etc. See the extensive discussion of these and other points in Belsky, Drew and McCue (2007) and the references cited therein.

[2] We'd be remiss if we failed to acknowledge the simultaneous nature of the household formations and the economic incentives discussed later in the paper. In the paper we attribute at most half of the household increase to easy credit from seeing the forecast error of 2004 JCHS projection for 2000-2005.

Figure 1
New Household Formations



Sources: Current Population Survey, Economy.com, three-year moving average

Table I

Average Annual Household Growth (Actual and Joint Center Projection)

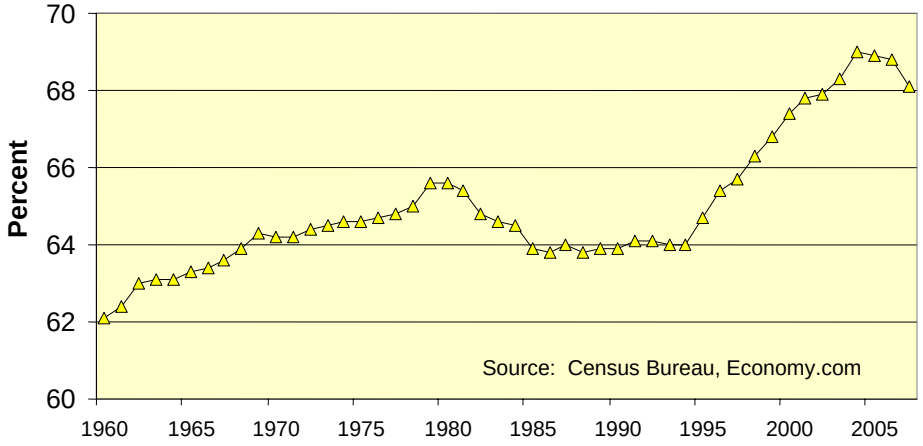
Years	**1980-85**	**1985-90**	**1990-95**	**1995-00**	**2000-05**	**2005-10**
Actual (HVS)	1,295	1,267	1,154	1,147	1,373	--
Joint Center Household Projections						
Vintage						
1980	1,578	1,386	1,303	1,193	--	--
1986	1,421	1,427	1,175	1,066	--	--
1989	--	--	1,119	1,090	--	--
1994	--	--	--	1,242	--	--
1996	--	--	--	1,107	1,131	1,191
2000	--	--	--	1,260	1,145	1,201
2004	--	--	--	--	1,277	1,340
2006	--	--	--	--	1,320	1,456

Source: Table 8, page 27 of Eric S. Belsky, Rachel Bogardus Drew and Daniel McCue, *Projecting the Underlying Demand for New Housing Units: Inferences from the Past, Assumptions about the Future*, November 2007, Joint Center for Housing Studies, W07-7

GOVERNMENT POLICIES

Not only was the number of households increasing, but many of these new households became homeowners. The national homeownership rate increased steadily from 1995 until 2005, which was widely interpreted as affirmation that the U.S. housing finance system was working (Figure 2, Table II). The rising homeownership rate among non-white minorities was a significant contributor to this increase, partially the result of "fair housing" initiatives for indigenous minorities as well as new immigrants. A key manifestation of these policies was the establishment of affordable housing goals for Freddie Mac and Fannie Mae in the Federal Housing Enterprises Financial Safety and Soundness Act of 1992.

Figure 2
U.S. Homeownership Rate



Sources: Census Bureau, Economy.com

While many people want to purchase a home "at some point," the exact timing of that decision depends on individual circumstances and market conditions. Buying a home

for the first time, trading up to a larger home, taking cash out of an existing home, or conducting a rate/term refinancing that lowers monthly payments, all increase when the interest rate cycle reaches its low point. Thus, monetary policies, even more than HUD policies, have a major impact on homeownership. And from 2001 to 2004, borrowers were treated to historically low interest rates. Since many borrowers were constrained by the level of their monthly payments, lower mortgage rates directly contributed to improved borrower affordability, and hence jolted housing demand. In addition, low interest rates compared to projected property appreciation making the bottom of the rate cycle a good time to increase one's investment in housing. For both reasons, low and falling rates coincided with a high-level of housing financing activity.

Table II: Home ownership rates, 1983 to the present

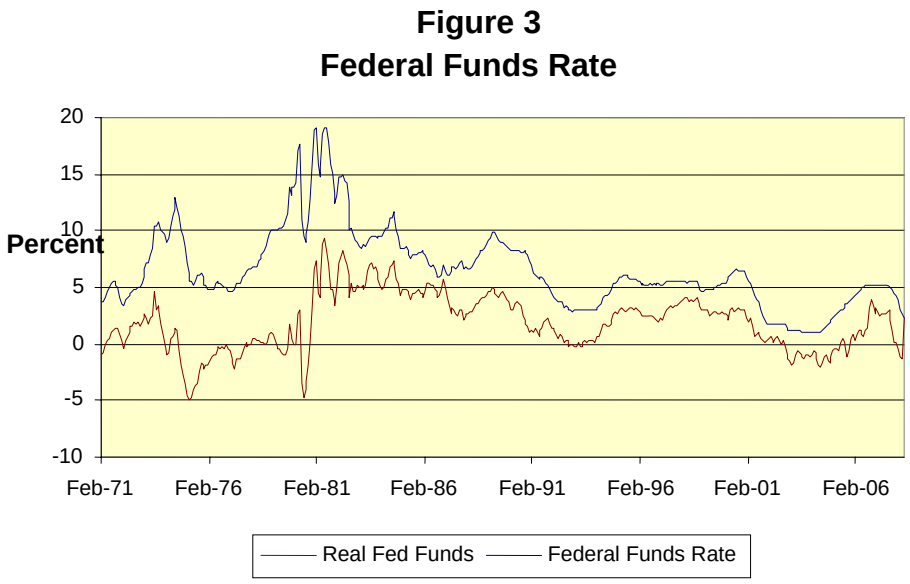
Period	U.S. Total, %	Non-Hispanic, %				Hispanic%
		White Alone	Black Alone	Other race alone	Two or more races	
1983	64.9	69.1	45.6	53.3	NA	41.2
1984	64.5	69	46	50.9	NA	40.1
1985	64.3	69	44.4	50.7	NA	41.1
1986	63.8	68.4	44.8	49.7	NA	40.6
1987	64	68.7	45.8	48.7	NA	40.6
1988	64	69.1	42.9	49.7	NA	40.6
1989	64	69.3	42.1	50.6	NA	41.6
1990	64.1	69.4	42.6	49.2	NA	41.2
1991	64	69.5	42.7	51.3	NA	39
1992	64.1	69.6	42.6	52.5	NA	39.9
1993	64.1	70.2	42	50.6	NA	39.4
1994	64	70	42.5	50.8	NA	41.2
1995	64.7	70.9	42.9	51.5	NA	42
1996	65.4	71.7	44.5	51.5	NA	42.8
1997	65.7	72	45.4	53.3	NA	43.3
1998	66.3	72.6	46.1	53.7	NA	44.7
1999	66.8	73.2	46.7	54.1	NA	45.5
2000	67.4	73.8	47.6	53.9	NA	46.3
2001	67.8	74.3	48.4	54.7	NA	47.3
2002	67.9	74.7	48.2	55	NA	47
2003	68.3	75.4	48.8	56.7	58	46.7
2004	69	76	49.7	59.6	60.4	48.1
2005	68.9	75.8	48.8	60.4	59.8	49.5
2006	68.8	75.8	48.4	61.1	59.9	49.7
2007	68.1	75.2	47.8	60.3	59	49.7

Sources: US Housing Market Conditions, February 2008, HUD

For reasons unrelated to housing—the dot com collapse in the equities market, recessionary forces, the 9/11 attack—the Federal Reserve aggressively loosened monetary policy in the early part of this decade (Figure 3). In June 2003, the Federal Funds rate, which is the most visible instrument of Federal Reserve policy, was lowered to 1.0 percent, the lowest value since 1954. But even before reaching that nominal nadir, adjusted for consumer prices the rate had been negative for roughly nine months.

Mortgage rates also dropped in nominal terms, with thirty-year mortgages averaging 5.9 percent during 2003, 2004, and 2005, and reaching a post-war low of 5.2 percent attained in June 2003 (Figure 4). As happened in the late-1970s, after being deflated by the rate of house price increases, housing financing costs turned negative.[3] How could a marginal homeowner say no to buying a house (or trade-up) when housing offered a return in excess of financing costs? The math became even more attractive after tax, and when calculating the investment return with financing provided through a hybrid loan fixed for five years, which for most of this time was offered at a 60 basis point discount to the thirty-year fixed-rate mortgage.[4] Even as fixed-thirty rates rose during 2006, the five-year hybrid rates remained an average of 30 basis points lower.

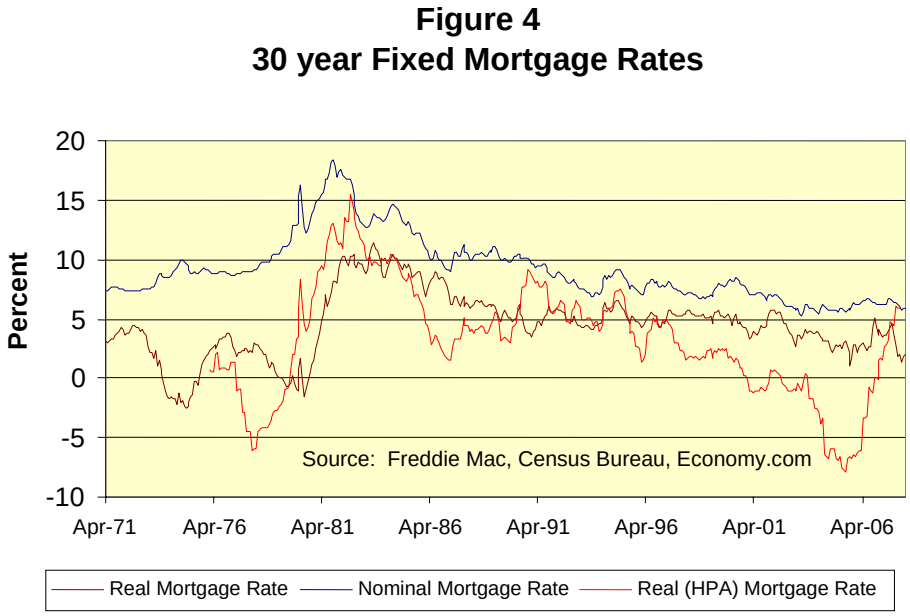
Figure 3



[3] Here we are slipping in a user-cost concept by calculating the debt cost less the expected appreciation in the asset. As explained in Abraham and McGuire (2006), we should really match the duration of the funding costs and *expected* investment return. Here we've used the 1 year lagged appreciation in housing (using the national Freddie Mac CMHPI) as a proxy for the expected annual appreciation over the planned holding period.

[4] Author calculations from the proprietary HSH rate series from the 2000-07 period.

Figure 4



The Taxpayer Relief Act of 1997 also contributed to the housing boom. The Act specifies that if a property has been a primary residence for two of the last five years, the taxpayer may keep tax-free capital gains of up to $500,000 (if married and filing jointly), or $250,000 (if single or married and filing separately). This new policy replaced a regime in which a homeowner could defer a capital gain on sale only through a rollover to a more expensive house, with a one-time exclusion of $125,000 permitted for home sellers older than fifty-five. Although it is hard to discern the magnitude of the effect of the Act, the legislation definitively freed up capital and encouraged housing turnover. The fundamentals from 2000 to 2004 were all in place to encourage homeownership.

LIQUIDITY AND INNOVATIONS

Favorable fundamentals increased the demand for home financing, along with the demand for housing. An upward sloping financing supply curve implies that the cost of financing should have increased under these circumstances. However, the opposite

occurred; the influx of liquidity and the easing of underwriting standards (an outward shift in the supply curve) together contributed to an "extra" demand for housing.

Table III
Mortgage Originations by Product

	FHA/VA	Conv/Conf	Jumbo	Subprime	Alt A	HEL
2001	8%	57%	20%	7%	2%	5%
2002	7%	63%	21%	1%	2%	6%
2003	6%	62%	16%	8%	2%	6%
2004	4%	41%	17%	18%	6%	12%
2005	3%	35%	18%	20%	12%	12%
2006	3%	33%	16%	20%	13%	14%
2007	4%	48%	14%	8%	11%	15%

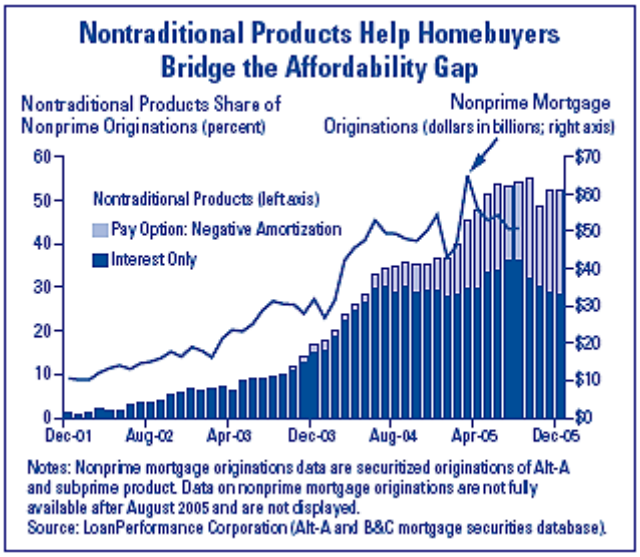
Source: Inside Mortgage Finance

After a strong bull market in equities, major stock indices worldwide dropped in 2000, recovered, and then dropped again. Many investors found alternative investment vehicles in the U.S. fixed-income mortgage products. The private mortgage-backed securities market, which had been formed in the mid-1980s and remained small until the mid-1990s, grew rapidly in 2004 through 2006 (Table III). This growth occurred after the significant credit problems of California of the early 1990s. Hence, while there was a nominal "performance history" when the market took off in 2004, evolving products such as subprime and Alt A securities remained largely untested. Total mortgage originations grew at a modest 6.1 percent annual rate between 2001 and 2006 (other than the supercharged refi boom year of 2003). Even with such growth, the securitized higher-risk segment (subprime, Alt A, and home equity loans) rose from a combined 15 percent of all mortgages in 2001, to a peak of 48 percent of securitized originations in 2006, an astonishing 34 percent annualized rate in dollar volume. The investment grade securities created with these mortgages offered attractive spreads over Treasuries at seemingly very low levels of risk. Wall Street was ready to securitize the riskier subprime and Alt A mortgage loans not bought by Freddie Mac or Fannie Mae, with the rating agencies providing a low risk imprimatur.[5]

[5] There was thoughtful analysis going on at the Rating Agencies (e.g. Moody's (2004), Fitch (2006)), but there was no hard data that demonstrated realized risks from innovations in risk layering. Lowenstein (2008) reports on Rating Agency failures during this period.

In financial markets, necessity and greed are the mothers of invention.[6] If borrowers have difficulty qualifying for a "standard" product such as a thirty-year amortizing fixed-rate mortgage, lenders will tailor new financing products. Many such "aggressive" or "affordable" products had been offered in the past: teaser rate adjustable rate mortgages (that gave borrowers a lower initial rate at the risk of future rate increases); negative amortization mortgages (that let borrowers pay less than the market interest expense by borrowing against their equity growth); interest-only mortgages (that reduced monthly payments by eliminating amortization); low to zero down payment mortgages (that opened opportunities to borrowers with strong income, but little capital); and low to no documentation mortgages (that simplified the underwriting process for borrowers with strong credit records).

Figure 4.1: Increased use of non-traditional products[7]



[6] Deteriorating credit trends are clearly demonstrated by the data in Table 3.

[7] Nonprime mortgage originations rose at an even pace from 2001 through 2003 to reach between $25 billion and $30 billion in January 2004. Originations accelerated in 2004 before peaking in March 2005 in a range between $60 billion to $70 billion and declined since then to reach approximately $50 billion in August 2005. Recent data on subsequent months are not fully available and are subject to revision. Source: < http://www.fdic.gov/bank/analytical/regional/ro20062q/na/2006_summer04_chart03.html> Refer also to appendix tables A1 through A4.

Figure 4.2: Subprime-to-Prime Spread for 30 year Fixed Mortgages

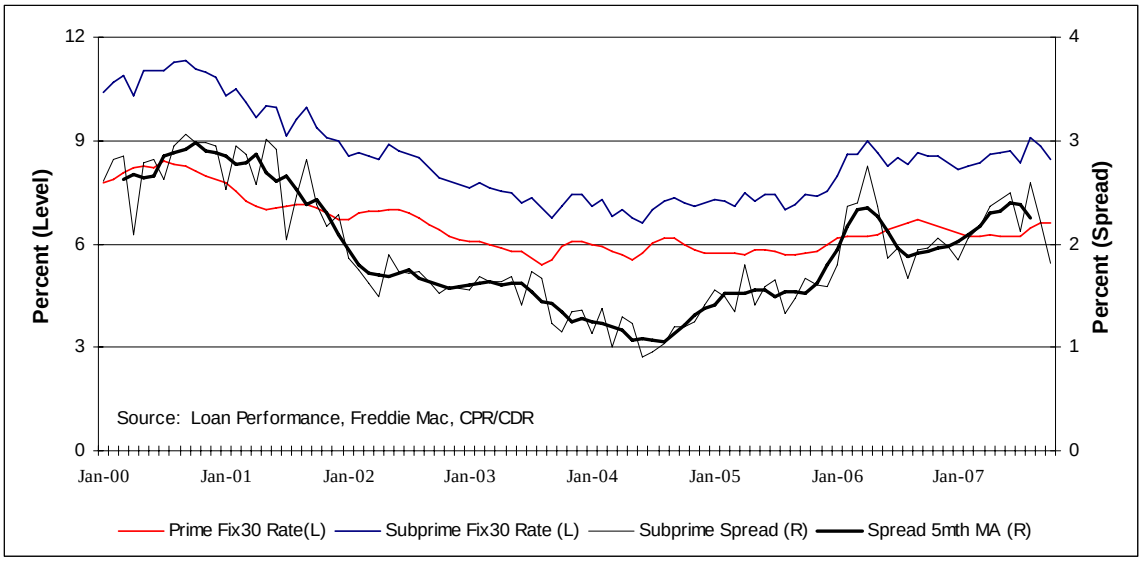


Table IV: Deterioration of lending standards, 2002 to 2006

Fixed										
Orig Yr	CLTV	CLTV >80	Seconds	Full Doc	10%	DTI	FICO <700	Investor	WAC	Spd to WAC
Prime										
2002	65.4	3	0.6	76	0	31	21.8	0.3	5.6	-
2003	63.8	4.4	6.3	56.9	1	29.9	17.8	0.3	5.7	-
2004	67.4	7	9.1	54.2	2	34	17.6	2	5.8	-
2005	70.9	13.4	16.9	53.6	20	36.5	16.7	0.2	5.9	-
2006	74.6	23.1	27.3	53.1	28	35.6	16.8	0	5.5	-
Alt A										
2002	74.7	22	2.3	33.8	1	35.7	41.2	14.3	7.3	1.7
2003	71.5	21.4	7.5	32.4	3	34.4	39.9	22.7	6.2	0.5
2004	75.2	29.4	15.3	33.4	10	36	41	24.1	6.3	0.5
2005	76.2	31.4	26	36.6	31	37.1	38.1	15	6.2	0.3
2006	79.4	40.3	35.6	22.7	39	38.8	44.7	14.9	6.9	1.4
Subprime										
2002	77.3	38	1.4	68.9	0	38.5	84.5	6.4	6.3	0.7
2003	78.4	41.7	3	68.2	0	38.6	83.5	6.2	7.3	1.6
2004	77.7	41.2	5.5	70.7	2	39.2	84	3.8	7	1.2
2005	78.7	44.5	9.7	72.9	6	39.9	86.5	4.3	7.1	1.2
2006	78.7	44.6	11.5	75	7	40.3	91.2	3.8	8	2.5

ARMS										
Orig Yr	CLTV	CLTV >80	Seconds	Full Doc	10%	DTI	FICO <700	Investor	WAC	Spd to WAC
Prime										
2002	66.5	4.1	1.9	56	46	31	20.7	0.7	5.5	-
2003	68.2	10.1	10.9	48.6	53	31.8	21.8	1.6	4.6	-
2004	73.5	20.7	23.1	51.2	71	33.5	22	2.1	4.5	-
2005	74.1	21.7	26.8	47.3	81	33.6	18.9	1.9	5.4	-
2006	75.3	26.2	35.3	33.6	91	37.2	19.5	2.3	6.2	-
Alt A										
2002	74.3	20.8	2.7	29.3	26	35.4	46.4	9.9	6.3	0.8
2003	78	33.3	23.4	28.1	56	35.3	44.7	12.9	5.6	1
2004	82.6	46.9	39.1	32.6	75	36.2	44.3	15.3	5.5	1
2005	83.5	49.6	46.9	28.3	83	37	40.5	16.5	6	0.6
2006	85	55.4	55.4	19	87	38.3	44.2	13.5	6.8	0.6
Subprime										
2002	81.2	46.8	3.7	66.9	1	40	93.4	4.7	8.5	3
2003	83.5	55.6	9.9	63.5	5	40.2	91.6	4.9	7.5	2.9
2004	85.3	61.1	19.1	59.9	20	40.6	90.6	5.3	7.1	2.6
2005	86.6	64.4	28.1	55.9	32	41.2	89.7	5.4	7.3	1.9
2006	86.7	64	31	54.6	20	42.1	91.8	5.7	8.2	2

Sources: Loan Performance data as of November 2006. UBS, April 16, 2007; Thomas Zimmerman, "How Did We Get Here and What Lies Ahead"

These financing products were appropriate for different subsets of borrowers and lenders. But uninformed and reckless borrowing, combined with the absence of prudent underwriting standards by investors and rating agencies, produced toxic results. The 2002 to 2006 deterioration of lending standards (Table IV), while keeping lending margins constant or decreasing, is a classic example of loan underpricing. Markets that underprice mortgage loans during up-markets experience larger price increases during booms, and deeper real estate price declines following negative demand shocks.

The end could have come as early as December 20, 2005, with the release of a draft of the *Interagency Guidance on Nontraditional Mortgage Product Risks*, which raised concerns about layered risks, especially interest-only and option-ARM mortgages. The *Guidance* was finalized in September 29, 2006, but as shown in Table IV,

underwriting standards continued to deteriorate. In other words, lenders continued to offer these products and underprice mortgage risk despite clear and direct warnings.

A subsequent *Statement on Subprime Mortgage Lending* released for comment on March 8, 2007 finally eliminated the availability of the 2/28 adjustable ARMs for subprime borrowers (2/28 are thirty-year loans fixed for two years followed by a rate adjustment every six months, often with a two-year prepayment penalty). But by that time, subprime early payment defaults were rising sharply, subprime originators were filing for bankruptcy, and Bear Stearns was experiencing trouble with two of its MBS-focused hedge funds. Also by that time, the ABX indices (which started trading in mid-2006 and allowed short-selling) signaled the underpricing of risk.

Although the U.S. housing boom was supported by the economic fundamentals of global financial trends (low real interest rates and hungry investors) and the demand for homeownership (immigration, Federal housing policies, and income growth), what truly kept the process going were the profits made by intermediaries: brokers, real estate agents, lawyers, mortgage companies, Wall Street conduits, and investment bankers. Even local communities made money from the high level of transactions through rising local property values and transfer taxes. Due to the price rises temporarily induced by the credit bubble, defaults were delayed and provided no signal of poor underwriting.

AN INTERNATIONAL PERSPECTIVE

Favorable economic conditions such as economic growth, demographic changes, and low interest rates are not unique to the United States, and were present in many markets around the world. Figure 5 shows the home price appreciation rates since 1990 for eight countries,[8] including the United States. From 1990 to 2006, the U.S. housing market was in the middle of the group. In 2007, however, the United States experienced far worse home price declines than any other country. In fact, the recent price declines experienced in the United States are only comparable to previous declines experienced in Thailand

[8] We control for long-term volatility by dividing the price appreciation each period by the annualized standard deviation of the price appreciation for that country.

and Hong Kong, both of which are far more volatile markets and had their own versions of financial and real estate crises.

Figure 6 shows home price appreciation controlled for long-term price volatility. When controlling for volatility (dividing the returns by the long-term standard deviation of returns), the United States does appear to have experienced the highest price growth in the 2004 to 2005 period of any of these countries since 1990. More important, since 2005, the United States has experienced a decline that is 50 percent larger than the decline experienced by any other country since 1990.

There is a confusing potpourri of house price indices reported in the popular press, representing various methodologies, covering varying segments of the market, and sometimes giving divergent signals of market conditions. Until recently, the most widely reported index was the Median Existing Home Price Index of the National Association of Realtors. The monthly national (or quarterly by city) report gives the trend in the median-priced MLS-listed homes sold during that period. However, shifts in the mix of properties transacting can lead to misleading signals; for example, the predictable counter-cyclical collapse of the market for high-priced houses driving the median down in periods of slow sales. Thus, the NAR index has recently fallen out of favor. The federal government's House Price Index is reported both monthly and quarterly by the Office of Federal Housing and Enterprise Oversight, which regulates Freddie Mac and Fannie Mae. The HPI derives city, state and national indices by statistically combining appreciation that is observed on individual properties financed by Freddie Mac and Fannie Mae. Since between them, these two enterprises provide funding for roughly half of the mortgages outstanding, this represents a large sample. The index that currently receives the most press attention is the S&P/Case-Shiller Index, named after the Yale and Wellesley professors who spawned a rebirth in the use of so-called "repeat sales" indices. The coverage uses only third party transactions (no appraisals), includes properties regardless of investor funding, and weights transactions by property size. The S&P/Case-Shiller Index reported a national price decline of -16 percent from a peak in the second quarter of 2006 through the first quarter of 2008.

Figure 5: Real Home Price Appreciation

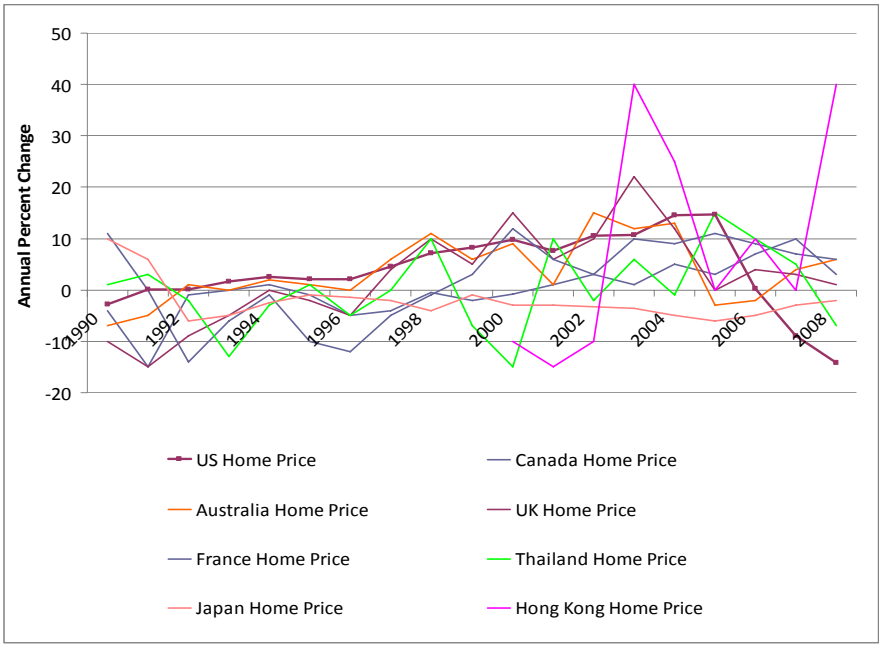
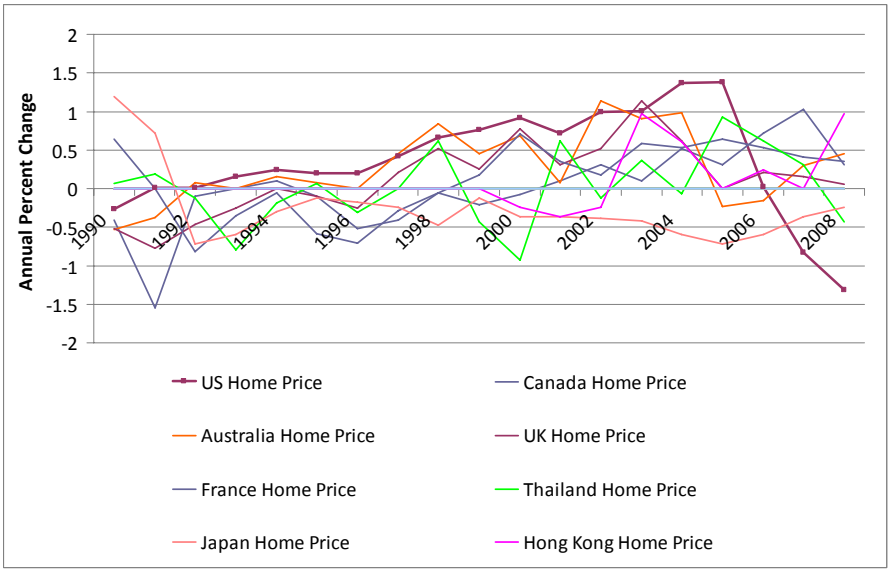


Figure 6: Price Appreciation Controlled for Volatility



A possible explanation for the unusual recent behavior of U.S. home prices is an extreme economic cycle. Figure 7 shows the ratio of home price to GDP. Again, the United States is exceptional in the recent home price decline. Figure 8 shows changes in

the home price to GDP when controlled for long-term volatility (dividing the changes in the home price to GDP ratio by the long-term annualized standard deviation of these changes). Figure 8 shows that the 2004–2005 U.S. home price run-up was significant, but not out of the ordinary. More important, it shows that the subsequent price decline is unusually large, nearly twice the size of any prior price to GDP ratio declines for any country.

Figure 7: Change in Home Price to GDP ratio

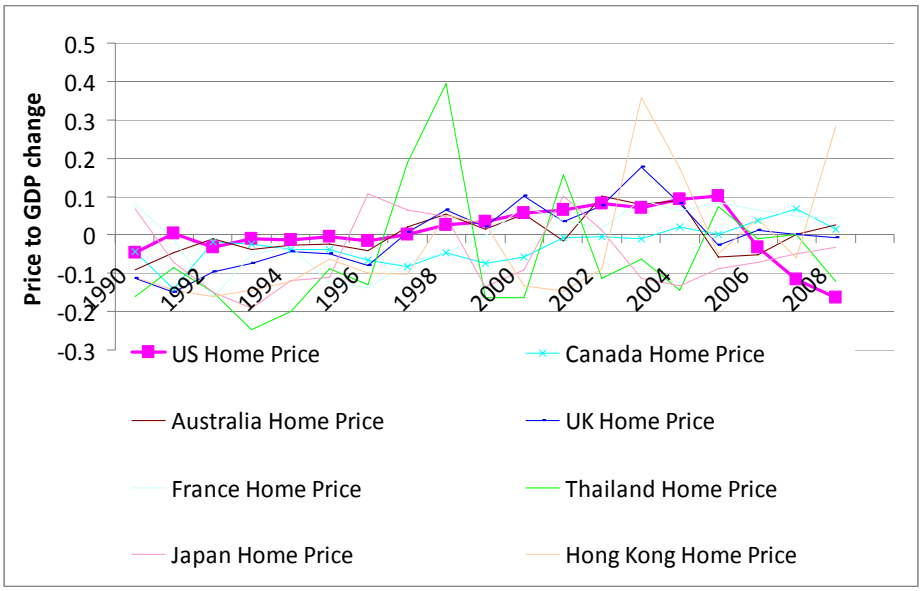


Figure 8: Change in Home Price to GDP ratio

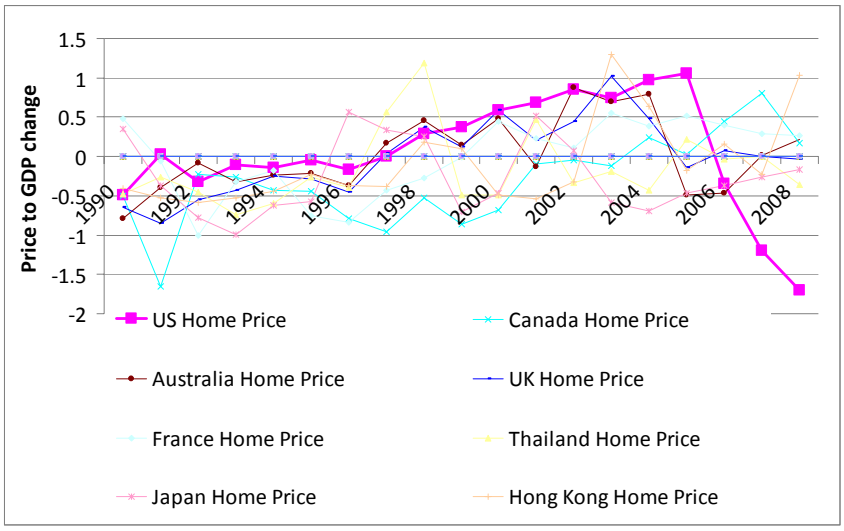


Figure 8 again shows the price correction in the U.S. market in the last two years is exceptional. The key explanation for this may lie in the role of cross-country differences in housing finance. Canada, the United Kingdom, and Australia have complex mortgage systems that offer borrowers many financing choices (Table V). In contrast, most of continental Europe, Asia, and the developing nations offer far more limited borrower options. Housing cycles also differ among nations. Since the 1990s, the United States, Canada, the United Kingdom, and Australia have increased consumer access to mortgage credit, prompting high levels of financing accompanied by significant and extended real house price gains.

Table V: Mortgage market comparisons

	United States	**Canada**	**United Kingdom**	**Australia**
Products	Typical loan is FRM, with hybrid ARMs at a 20-30% share	Typical loan is ARM with 3-5 year roll-over	Typical loan is ARM indexed to Libor	Typical loan is ARM for purchase, with limited refinancing
Financing	Primary reliance on securitization, with a roughly 60% share	Primary reliance on deposit-based financing with a small but liquid ABS market; tough capital requirements	Primary reliance on building societies, but with growing securitization by nonbanks including subprime	Primary reliance on five banks for financing
Subprime	High risk (subprime+Alt A+home equity) reached 47% share of securitized originations in 2006; in 2006 subprime was ~15% of outstanding loans	Subprime share of total originations reached 5% in 2006; interest only <5%	Subprime share reached 10% of originations; ~8% are low doc; IO loans are ~33 of first time buyers	Recent subprime growth was funded by nonbank portfolios but <1% of outstanding loans; this market has been largely shut-down since August, 2007

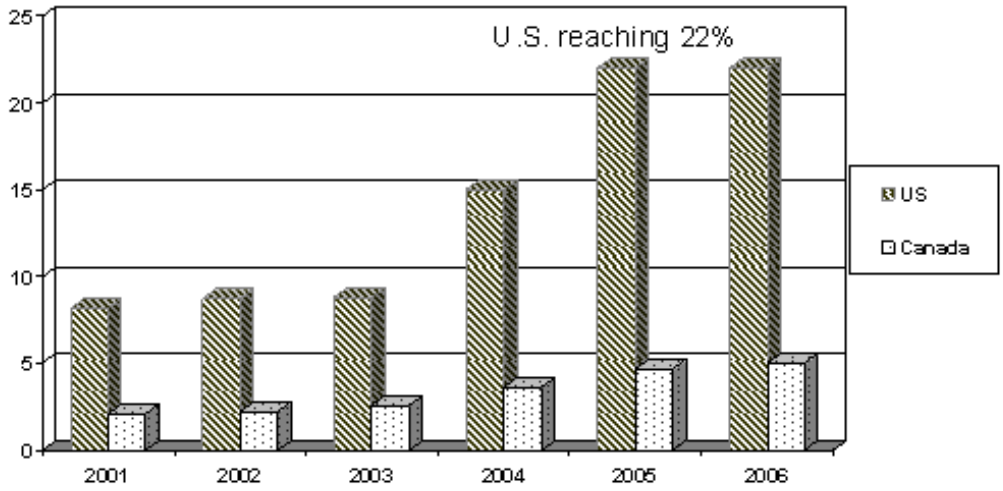
CANADA

Canada has a securitized mortgage market with more than $200 billion in annual mortgage flow. Unlike the United States, by law, all Canadian banks and other federally regulated financial institutions must insure mortgages with LTV ratios exceeding 80 percent through one of two nation-wide government-regulated insurance companies (one private, one government). Credit unions, which are provincially regulated, can choose to self-insure, and some accept 95 per cent LTV mortgages without insurance.

Perhaps as a result, lending practices in Canada are more conservative than in the United States, with borrower credit scores playing a significant role in credit granting and very limited use of risk-based pricing. Subprime borrowers are precluded from accessing mortgage instruments such as interest-only, no documentation, zero down payment, and forty-year amortizations. Since subprime borrowers cannot qualify for the mandatory mortgage insurance, they cannot obtain a high-ratio mortgage from a federally regulated institution. Thus, subprime lending in Canada is confined to extremely well collateralized loans, and most subprime lending requires 60 percent LTV, and is available only for properties in strong local housing markets with a track record of strong liquidity. In addition, only private financial institutions, rather than major banks, extend subprime mortgages, and charge a significant mortgage rate premium. The result of these practices was that although housing finance in Canada has many of the same features as in the United States, there was no similar subprime credit crunch (Figure 9).

Figure 9

Figure 9: Subprime Mortgage as a Percent of Total Mortgage Originations for the US and Canada



Sources: CIBCWorldMarkets Benjamin Tal Presentation at MIABC September 2007; HHS 2006, MBA, Financial Monitor.

Buttressing the tighter underwriting standards for getting a loan is the fact that Canadian borrowers also have far greater incentives than their American counterparts to avoid foreclosure. Since Canada has a relatively streamlined foreclosure process, a lender can foreclose and sell the property while continuing to pursue deficiency judgment against a borrower. This may encourage lenders to scrutinize the credit worthiness of the borrowers. Facilitating this is also a transparent and straightforward property title registration system, which reduces the transaction risks and costs. The net result of the Canadian mortgage system is that even though Canada enjoyed the same economic growth, favorable demographic conditions, and supportive monetary policy, real estate market increases were modest relative to those seen in the United States. By the same token, the Canadian real estate markets continue to marginally appreciate today, and the availability of credit is largely unchanged.

UNITED KINGDOM

British mortgage lending has traditionally been dominated by building societies, or specialized lenders. The deregulation of housing finance in late 1980s coincided with the development of a secondary mortgage market. While home-purchase loans dominate originations, the mortgage system also allows for mortgage equity withdrawals and limited refinancing. The typical LTV ratio is 75 per cent, and the typical term is twenty-five years. The secondary mortgage market allows for both covered bonds (senior debt instruments with the issuer having priority recourse to a pool of assets) and mortgage-backed securities, which are increasing in size and importance. Overall, the mortgage market is dominated by commercial banks and by former building societies that have become banks. Unlike other nations, the United Kingdom classifies mortgage rates set for one year or more as "fixed." The mortgage market allows homebuyers to access the following products: flexible mortgages, capped rates, discounted variable rates, and interest-only mortgages. According to the Financial Services Authority, interest-only loans have not (surprisingly) experienced higher default claims in recent years. Even though they are referred to as interest-only mortgages, there is a repayment vehicle to pay off the principal at the end of the mortgage term.

In the United Kingdom, the subprime market reached a high of 10 percent of all new mortgages. Approximately 8 percent of new home loans were self-certified; that is, borrowers did not have to prove their income. Equally popular were interest-only mortgages, which comprised about one-third of all mortgages for first time buyers. The United Kingdom also experienced problems with subprime mortgage lending; foreclosures on homes with subprime mortgages are reportedly increasing and prices dropping.

With its wide range of lending products, the mortgage system in the United Kingdom is among the most flexible in the world, perhaps second only to the United States. By the same token, it is fairly susceptible to loan under-pricing. Despite the existence of aggressive lending instruments, and substantial flexibility on behalf of

lenders to extend subprime loans, the deterioration of lending standards was not to the same extent as in the United States. Thus, we would place the United Kingdom between Canada and the United States in terms of the impact of aggressive lending on the underlying real estate markets. As a result, the United Kingdom is experiencing some real estate price decreases, although not to the same extent as the United States.

AUSTRALIA

Deregulation of housing financial markets in Australia was completed by the mid-1980s. While homeownership purchase loans dominate originations, the mortgage system also allows for limited mortgage equity withdrawals and refinancing. The typical LTV ratio is 80 per cent, and the typical term is twenty-five years. The secondary mortgage market allows for mortgage-backed securities; these increased in size and importance, as in other nations. Since deregulation in the 1980s, non-banking institutions significantly increased their share of mortgage originations and mortgage brokers although in the aftermath of the U.S. crisis, the sector is now in decline.

Australian mortgage lending and underwriting rules are different from those in the United States, and more similar to those of Canada and the United Kingdom, once again with the banking sector significantly more important than securitization. Subprime lending in Australia was mostly limited to no-documentation loans, preferred by self-employed households and those who cannot verify income. While strong competition in mortgage lending produced relaxed underwriting standards during the last ten years, LTV ratios for these instruments tended to be low, typically not exceeding 60 percent, and only in very limited cases reaching 80 percent. Furthermore, high-risk mortgages always require the borrower to qualify at the full mortgage rate, rather than the discounted "teaser" rates used in the United States. Because of these restrictive underwriting standards, subprime mortgages accounted for only 2 percent of Australian mortgages as of December, 2007. There is also broad use of mortgage insurance for high-LTV loans to protect the lender from loss. The underlying fundamentals of the local real estate markets in Australia, while strong on economic grounds, were not further accelerated by exotic mortgage products and lenient lending practices. House price increases in Australia have

been helped by a strong economy, increasing population and demographic demand, and diminishing supply of available properties, but not by underpriced credit.

CONCLUSION

Over the past decade, what was initially a strong U.S. housing market, supported by fundamentals, shifted to an unsustainable level of housing activity. Investors, with the tacit support of government regulators and policymakers, allowed risk-layering to such an extent that failures snowballed during 2007, although the forthcoming disaster was masked by the temporary price increases accompanying the credit bubble. This result was not pre-ordained by market fundamentals. Canada, the United Kingdom, and Australia have similar housing markets in terms of recent economic growth, and ownership rates, but they differ in the evolution of their housing finance systems. Their markets also experienced strong real price gains but have not – to date – experienced a similar collapse. The country with problems closest to those in the United States is the United Kingdom, which also had an expanded subprime sector and significantly relaxed underwriting standards over time.

Stating the obvious, in the United States a lot of bad loans were made, and many of those loans were not underwritten to withstand scheduled mortgage payment rises, declining house prices, or a slowing national economy. Since the ownership of the bad loans is so opaque, no one can tell what institution might be the next to have problems, which has engendered a fundamental lack of trust among investors, originators, processors, and borrowers. The housing crisis has lead to a credit crunch, and the current sentiment is, “I was lied to before; shame on me if I get lied to again.”

After the losses are realized and the survivors are ready to move forward, how does the housing market return to a state of trust among trading entities? We believe the key will be achieving sufficient transparency and accountability in the mortgage finance process that market discipline ultimately forces good behavior of all process contributors. The Wall Street securitization model of the last few years has failed in this regard.

In the days before securitization, assets were originated and managed by a single entity, as opposed to the recent originate-to-distribute model. The management of interest rate risk by borrowing short and lending long, together with government policies (Regulation Q) ultimately broke the portfolio lending system, creating the S&L crisis. The solution was supposed to be securitization. While direct bank investment in (primarily adjustable rate) mortgages remained, mortgage securitization became the dominant funding model in the 1990s. Freddie Mac and Fannie Mae, and the mortgage insurance companies were on the hook for credit risk, which they managed assiduously. Interest rate risk was passed-through to other investors who specialized in analyzing, trading, and hedging that exposure. Public policy concerns over the sizeable growth in the GSE-retained portfolios (potential arbitrage profits while taking on interest rate risk) made observers concerned about their possible failure risk. Importantly, concerns over possible GSE bankruptcy did not emanate from their long position in credit risk, which has now become the source of concern over their viability.

In this last cycle, Wall Street's structured finance desks made it possible for investors to take on credit risk, thereby creating a securitization alternative to GSE funding. Investors, not knowledgeable about credit issues, delegated that responsibility to the rating agencies, whose own knowledge was limited and whose incentives were compromised. More important, the credit risk market was incomplete; the complexity of the market-to-model mortgage securities was such that it was difficult to short them. The resulting lack of discipline in credit risk among private investors resulted in a unique expansion of credit and deterioration of residential mortgage lending standards. The subsequent withdrawal of credit has resulted in severe housing market declines, and has contributed to today's adverse macroeconomic conditions.

[Author bio: Jesse M. Abraham (jesse.abraham@wellsfargo.com) is a Vice President at Wells Fargo Home Mortgage. Andrey Pavlov (apavlov@wharton.upenn.edu) is an Associate Professor of Finance at Simon Fraser University, and visiting associate professor at the University of Pennsylvania. Susan Wachter (Wachter@wharton.upenn.edu) is Richard B. Worley Professor of Financial Management at the University of Pennsylvania.]

Despite national economic, and real estate market trends that are not unique in U.S. history, the housing market woes of the United States appear to be developing into an historic, adverse episode. Indeed other countries have experienced the same forces and find themselves with nowhere near the level of U.S. economic repercussions and their housing markets are not nearly as threatened. We argue that the U.S. experienced a unique expansion of credit and deterioration of residential mortgage lending standards. This shift in the credit supply temporarily fueled housing prices beyond levels justified by favorable demographic and macroeconomic conditions. The subsequent withdrawal of credit has resulted in severe housing market declines as well as contributed to the adverse macroeconomic conditions that are in place today.

Table 3

ARMS

	Orig Yr	CLTV	CLTV>80	Seconds	Full Doc	IO%	DTI	FICO<700	Investor	WAC	SpdtoWAC
Prime	2002	66.4	4.1	1.9	56.0	46	31.0	20.7	0.7	5.5	-
	2003	68.2	10.1	10.9	48.6	53	31.8	21.8	1.6	4.6	-
	2004	73.5	20.7	23.1	51.2	71	33.5	22.0	2.1	4.5	-
	2005	74.1	21.7	26.8	47.3	81	33.6	18.9	1.9	5.4	-
	2006	75.3	26.2	35.3	33.6	91	37.2	19.5	2.3	6.2	-
Alt A	2002	74.3	20.8	2.7	29.3	26	35.4	46.4	9.9	6.3	0.8
	2003	78.0	33.3	23.4	28.1	56	35.3	44.7	12.9	5.6	1.0
	2004	82.6	46.9	39.1	32.6	75	36.2	44.3	15.3	5.5	1.0
	2005	83.5	49.6	46.9	28.3	83	37.0	40.5	16.5	6.0	0.6
	2006	85.0	55.4	55.4	19.0	87	38.3	44.2	13.5	6.8	0.6
Subprime	2002	81.2	46.8	3.7	66.9	1	40.0	93.4	4.7	8.5	3.0
	2003	83.5	55.6	9.9	63.5	5	40.2	91.6	4.9	7.5	2.9
	2004	85.3	61.1	19.1	59.9	20	40.6	90.6	5.3	7.1	2.6
	2005	86.6	64.4	28.1	55.9	32	41.2	89.7	5.4	7.3	1.9
	2006	86.7	64.0	31.0	54.6	20	42.1	91.8	5.7	8.2	2.0

Source: Loan Performance data as of November 2006. UBS, April 16, 2007, Thomas Zimmerman, "How Did We Get Here and What Lies Ahead"

Table XX **Homeownership Rates: 1983-Present**

Period	US Total	Non -Hispanic				Hispanic
		White Alone	Black Alone	Other Race Alone	Two or More Races	
1983	64.9	69.1	45.6	53.3	NA	41.2
1984	64.5	69.0	46.0	50.9	NA	40.1
1985	64.3	69.0	44.4	50.7	NA	41.1
1986	63.8	68.4	44.8	49.7	NA	40.6
1987	64.0	68.7	45.8	48.7	NA	40.6
1988	64.0	69.1	42.9	49.7	NA	40.6
1989	64.0	69.3	42.1	50.6	NA	41.6
1990	64.1	69.4	42.6	49.2	NA	41.2
1991	64.0	69.5	42.7	51.3	NA	39.0
1992	64.1	69.6	42.6	52.5	NA	39.9
1993	64.1	70.2	42.0	50.6	NA	39.4
1994	64.0	70.0	42.5	50.8	NA	41.2
1995	64.7	70.9	42.9	51.5	NA	42.0
1996	65.4	71.7	44.5	51.5	NA	42.8
1997	65.7	72.0	45.4	53.3	NA	43.3
1998	66.3	72.6	46.1	53.7	NA	44.7
1999	66.8	73.2	46.7	54.1	NA	45.5
2000	67.4	73.8	47.6	53.9	NA	46.3
2001	67.8	74.3	48.4	54.7	NA	47.3
2002	67.9	74.7	48.2	55.0	NA	47.0
2003	68.3	75.4	48.8	56.7	58.0	46.7
2004	69.0	76.0	49.7	59.6	60.4	48.1
2005	68.9	75.8	48.8	60.4	59.8	49.5
2006	68.8	75.8	48.4	61.1	59.9	49.7
2007	68.1	75.2	47.8	60.3	59.0	49.7

Source: US Housing Market Conditions, February 2008, HUD.

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