
U.S. HOUSING MARKETS RELATIVE RISK ASSESSMENT

Discussion Document

October 2003



PROJECT OBJECTIVES AND METHODOLOGY

Objective: Assess the relative risk of geographic markets in which Bank XYZ competes or is considering entering to inform equity loan acquisition efforts and equity loan portfolio management strategies.

Methodology

- Identified two geographic levels to be analyzed separately:
 - All U.S. metropolitan areas, including key markets in which Bank XYZ currently lends or may lend in the future, and
 - All counties within the states in which Bank XYZ currently lends or may lend in the future.
- Analyzed historical housing market collapses and researched economic white papers to determine how to measure and assess market risk.
 - Identified relevant and leading indicators of real estate risk and consumer economic market conditions.
- Collected historical and projected economic data for each market.
- Created models to score each market relative to all others based on collected data.
 - **Model #1 – Consumer Economics** evaluates market demand by assessing the relative strength of consumer economic status indicators, including market growth projections, income appreciation, and employment.
 - **Model #2 – Real Estate Market Vitality** evaluates activity of consumer real estate markets, including home price appreciation, housing affordability, and new home construction.
- Compared the results of the two models for each market to determine current market risk status.
- Assessed recent activity in each market, including one-year changes in unemployment and job growth, to project potential changes in market risk status.

U.S. Housing Markets Relative Risk Assessment

DATA DESCRIPTIONS AND WEIGHTS

Consumer Economic Variables and Weighting

Variable	Definition	Type	Weight
Projected Household Growth (2002-2007, CAGR)	Forecasted percent change in the number of market households as estimated by Claritas, Inc.	Standard	25%
Median Household Income Appreciation (1990-2002, CAGR)	Percent change in market median household income	Standard	25%
Unemployment Rate (12/2002)	Percent of civilian labor force unemployed	Contra	25%
New Job Growth (12/1999-12/2002)	Percent change in total employed civilian labor force (total civilian labor force net of number unemployed)	Standard	25%

Real Estate Market Vitality Variables and Weighting

Variable	Definition	Type	Weight
Housing Price Appreciation (3Q96-3Q02, CAGR)	Percent change in existing home prices as indexed by the Office of Federal Housing Enterprise Oversight	Contra	33.3%
FNIS Housing Affordability Index (2002)	Intrinsic market housing price/actual market median housing price* as estimated by Fidelity National Information Solutions	Contra	33.3%
Estimated Building Permits/1,000 Households Not in OOHUs (2002)	Number of residential housing permits/number of resident households not in owner-occupied housing units (i.e., renter household population)	Contra	33.3%

Short-term Trend Analysis Variables

Variable	Definition	Type
FNIS Housing Affordability Index (2002)	Intrinsic market housing price/actual market median housing price*	Per Decision Rules
Change in Unemployment (12/2001-12/2002)	Absolute change in the percent of civilian labor force unemployed	
New job growth (12/2001-12/2002)	Percent change in total employed civilian labor force	

*See Appendix C for detailed descriptions

U.S. Housing Markets Relative Risk Assessment

MODEL #1 – CONSUMER ECONOMICS STRONGEST U.S. METROPOLITAN AREAS

Rank	Metropolitan Area	Overall		Market Growth		Consumer Financial Vitality		Employment Economic Indicators			
		Grade	Score	Projected Household Growth (5-year, CAGR)		Median HH Income Appreciation (10-year, CAGR)		Unemployment Rate (current month)		New Job Growth (3-year, CAGR)	
				Data	Index to U.S. Avg.	Data	Index to U.S. Avg.	Data	Index to U.S. Avg.	Data	Index to U.S. Avg.
1	[MSA Name]	A	10.00	4.0%	401	4.4%	116	3.7%	71	7.3%	1,219
2	[MSA Name]	A	9.21	1.8%	176	4.3%	111	2.3%	44	4.0%	664
3	[MSA Name]	A	9.17	2.8%	279	6.6%	171	4.8%	92	2.2%	362
4	[MSA Name]	A	8.78	3.8%	373	4.1%	107	5.0%	96	3.4%	571
5	[MSA Name]	A	8.63	1.2%	123	5.5%	142	2.4%	46	2.3%	380
6	[MSA Name]	A	8.44	1.3%	131	4.7%	123	2.8%	54	3.1%	512
7	[MSA Name]	A	8.36	1.3%	131	4.7%	122	3.0%	58	3.1%	515
8	[MSA Name]	A	8.32	2.0%	198	5.4%	141	5.0%	96	2.5%	420
9	[MSA Name]	A	8.19	2.1%	209	5.4%	141	4.1%	79	1.7%	280
10	[MSA Name]	A	8.05	2.6%	255	4.4%	114	5.6%	108	3.1%	517
11	[MSA Name]	A	7.97	2.0%	196	4.8%	126	1.7%	33	0.8%	133
12	[MSA Name]	A	7.93	2.4%	241	4.9%	126	4.8%	92	2.0%	332
13	[MSA Name]	A	7.80	0.9%	90	4.9%	128	3.4%	65	2.6%	440
14	[MSA Name]	A	7.78	1.9%	193	4.5%	117	3.8%	73	2.2%	367
15	[MSA Name]	A	7.67	1.4%	140	4.6%	120	1.8%	35	1.3%	216
16	[MSA Name]	A	7.64	1.6%	161	4.3%	111	2.7%	52	2.0%	329
17	[MSA Name]	A	7.64	2.9%	289	3.3%	86	4.1%	79	2.5%	420
18	[MSA Name]	A	7.54	0.8%	75	4.8%	124	3.8%	73	2.9%	478
19	[MSA Name]	A	7.45	1.6%	161	3.7%	97	3.5%	67	2.8%	468
20	[MSA Name]	A	7.42	2.0%	202	2.0%	52	3.6%	69	6.2%	1,039
United States Metropolitan Area Average				1.0%	100	3.8%	100	5.2%	100	0.6%	100
United States Metropolitan Area Median				0.9%		3.9%		4.9%		0.5%	
United States Metropolitan Area Standard Deviation				0.7%		0.7%		2.2%		1.3%	

U.S. Housing Markets Relative Risk Assessment

MODEL #1 – CONSUMER ECONOMICS WEAKEST U.S. METROPOLITAN AREAS

Rank	Metropolitan Area	Overall Grade Score		Market Growth		Consumer Financial Vitality		Employment Economic Indicators			
				Projected Household Growth (5-year, CAGR)		Median HH Income Appreciation (10-year, CAGR)		Unemployment Rate (current month)		New Job Growth (3- year, CAGR)	
				Data	Index to U.S. Avg.	Data	Index to U.S. Avg.	Data	Index to U.S. Avg.	Data	Index to U.S. Avg.
329	[MSA Name]	F	0.71	-0.3%	(27)	3.8%	100	7.3%	141	-3.2%	(539)
328	[MSA Name]	F	0.79	1.7%	168	1.7%	45	16.2%	312	-0.2%	(33)
327	[MSA Name]	F	1.04	-0.4%	(39)	3.3%	86	6.3%	121	-2.5%	(417)
326	[MSA Name]	F	1.05	0.1%	5	4.0%	103	12.1%	233	-1.0%	(162)
325	[MSA Name]	F	1.09	0.8%	81	3.0%	77	8.3%	160	-2.2%	(374)
324	[MSA Name]	F	1.09	-0.3%	(35)	2.4%	62	6.0%	116	-1.5%	(255)
323	[MSA Name]	F	1.31	-0.5%	(47)	2.6%	66	5.1%	98	-1.8%	(298)
322	[MSA Name]	F	1.80	-0.4%	(37)	2.3%	60	4.2%	81	-1.4%	(231)
321	[MSA Name]	F	1.81	0.8%	75	3.0%	79	13.8%	266	0.9%	147
320	[MSA Name]	F	1.82	0.6%	55	2.6%	68	8.0%	154	-0.6%	(97)
319	[MSA Name]	F	1.82	-0.2%	(22)	2.9%	75	7.6%	146	-0.2%	(38)
318	[MSA Name]	F	1.86	0.6%	59	2.5%	66	9.0%	173	0.2%	26
317	[MSA Name]	F	1.86	0.2%	17	2.6%	67	6.5%	125	-0.9%	(150)
316	[MSA Name]	F	1.89	-0.1%	(6)	3.1%	82	6.2%	119	-1.5%	(243)
315	[MSA Name]	F	1.89	0.2%	20	2.9%	76	5.7%	110	-1.8%	(294)
314	[MSA Name]	F	1.92	0.4%	36	3.7%	97	7.7%	148	-1.7%	(289)
313	[MSA Name]	F	2.13	1.2%	121	3.4%	89	17.2%	331	0.4%	69
312	[MSA Name]	F	2.18	-0.5%	(48)	2.9%	77	5.1%	98	-0.9%	(155)
311	[MSA Name]	F	2.20	1.6%	157	2.5%	65	15.3%	295	1.2%	200
310	[MSA Name]	F	2.26	-0.1%	(11)	2.7%	70	6.0%	116	-0.4%	(68)
United States Metropolitan Area Average				1.0%	100	3.8%	100	5.2%	100	0.6%	100
United States Metropolitan Area Median				0.9%		3.9%		4.9%		0.5%	
United States Metropolitan Area Standard Deviation				0.7%		0.7%		2.2%		1.3%	

U.S. Housing Markets Relative Risk Assessment

MODEL #2 – REAL ESTATE MARKET VITALITY STRONGEST U.S. METROPOLITAN AREAS

Rank	Metropolitan Area	Overall		Housing Price Appreciation (5-year, CAGR)		FNIS Housing Affordability Index (current year)		Proj. Building Permits/ 1,000 HHs Not in OOHUs (current year)	
		Grade	Score	Data	Index to U.S. Avg.	Data	Index to U.S. Avg.	Data	Index to U.S. Avg.
1	[MSA Name]	1	9.09	2.5%	47	-9.3%	(121)	16.0	35
2	[MSA Name]	1	8.52	1.9%	36	-5.7%	(74)	28.1	61
3	[MSA Name]	1	8.24	3.4%	64	-4.9%	(65)	13.0	28
4	[MSA Name]	1	8.13	1.6%	31	-0.1%	(2)	18.9	41
5	[MSA Name]	1	8.04	3.1%	58	-2.3%	(30)	11.6	25
6	[MSA Name]	1	7.88	3.4%	64	-4.0%	(52)	21.9	48
7	[MSA Name]	1	7.76	2.5%	47	0.4%	5	16.8	37
8	[MSA Name]	1	7.65	5.8%	109	-6.7%	(88)	9.3	20
9	[MSA Name]	1	7.55	3.1%	58	1.6%	22	10.1	22
10	[MSA Name]	1	7.53	5.5%	104	-8.5%	(111)	26.7	58
11	[MSA Name]	1	7.52	3.8%	72	-5.8%	(75)	39.4	86
12	[MSA Name]	1	7.45	3.1%	59	1.8%	23	12.3	27
13	[MSA Name]	1	7.44	4.8%	90	-5.3%	(70)	25.7	56
14	[MSA Name]	1	7.34	4.3%	80	-3.8%	(49)	29.0	63
15	[MSA Name]	1	7.32	2.6%	48	3.5%	46	17.2	38
16	[MSA Name]	1	7.28	5.0%	95	-5.1%	(66)	26.3	57
17	[MSA Name]	1	7.21	2.9%	56	3.8%	49	14.3	31
18	[MSA Name]	1	7.14	2.5%	47	6.3%	82	10.2	22
19	[MSA Name]	1	7.13	4.7%	90	-4.6%	(60)	34.2	75
20	[MSA Name]	1	7.12	2.2%	42	-5.0%	(65)	75.7	165
United States Metropolitan Area Average				5.3%	100	7.7%	100	45.7	100
United States Metropolitan Area Median				4.7%		7.3%		41.1	
United States Metropolitan Area Standard Deviation				2.2%		6.5%		34.5	

U.S. Housing Markets Relative Risk Assessment

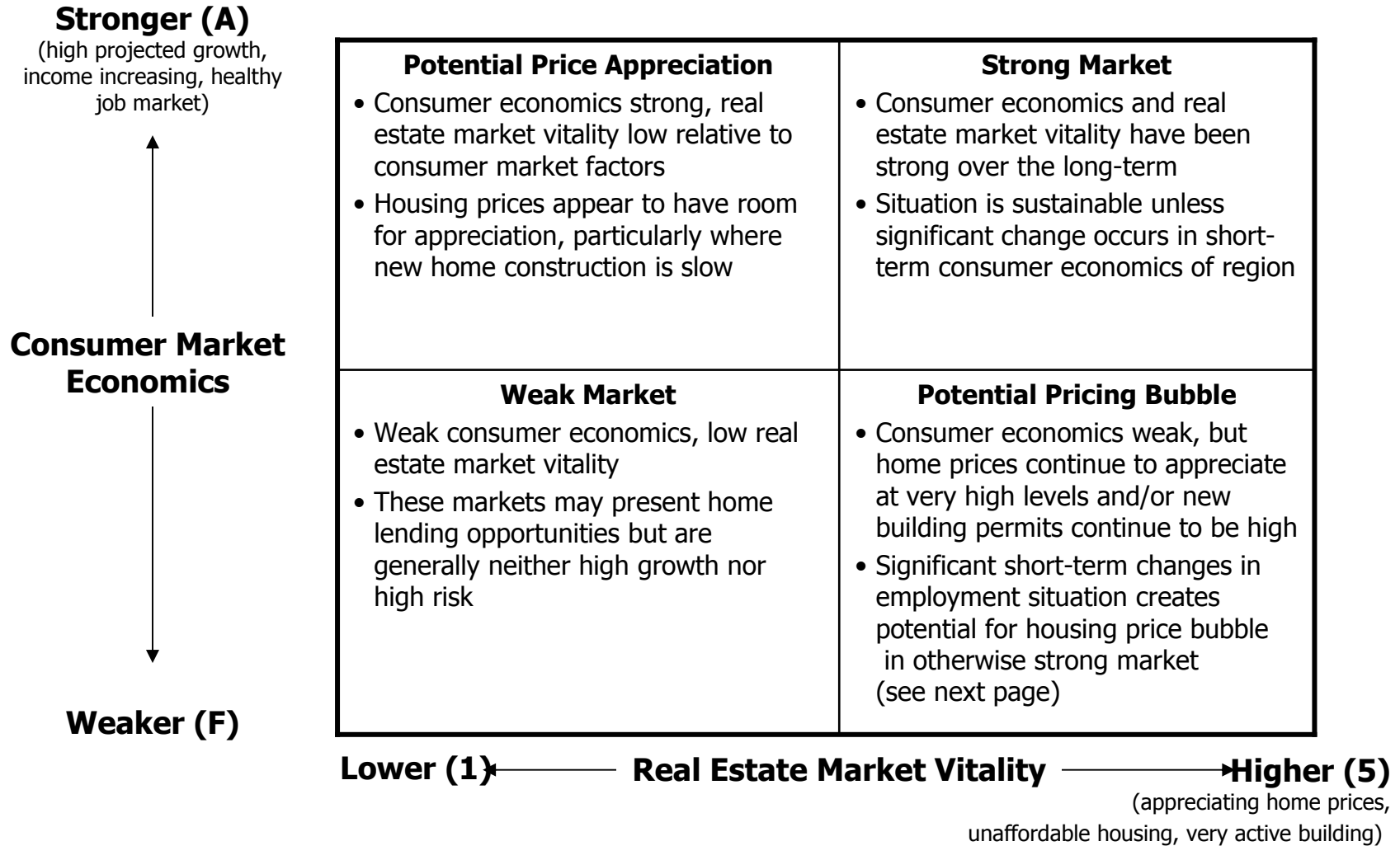
MODEL #2 – REAL ESTATE MARKET VITALITY WEAKEST U.S. METROPOLITAN AREAS

Rank	Metropolitan Area	Overall		Housing Price Appreciation (5-year, CAGR)		FNIS Housing Affordability Index (current year)		Proj. Building Permits/ 1,000 HHs Not in OOHUs (current year)	
		Grade	Score	Data	Index to U.S. Avg.	Data	Index to U.S. Avg.	Data	Index to U.S. Avg.
329	[MSA Name]	5	0.38	7.3%	138	18.1%	237	141.8	310
328	[MSA Name]	5	0.48	6.6%	125	18.0%	235	184.0	402
327	[MSA Name]	5	0.96	9.2%	173	6.9%	90	224.5	491
326	[MSA Name]	5	0.97	9.1%	171	22.4%	293	68.9	151
325	[MSA Name]	5	1.07	6.5%	122	19.7%	258	119.0	260
324	[MSA Name]	5	1.18	10.9%	206	22.8%	297	29.6	65
323	[MSA Name]	5	1.31	8.9%	169	18.1%	237	79.7	174
322	[MSA Name]	5	1.48	10.6%	200	21.7%	283	28.3	62
321	[MSA Name]	5	1.49	10.8%	203	17.8%	233	46.0	101
320	[MSA Name]	5	1.54	11.0%	207	22.2%	290	17.6	39
319	[MSA Name]	5	1.75	7.0%	133	9.0%	117	140.8	308
318	[MSA Name]	5	1.88	6.2%	116	8.7%	114	155.9	341
317	[MSA Name]	5	1.91	8.8%	166	14.8%	193	75.6	165
316	[MSA Name]	5	1.98	12.3%	231	15.4%	202	19.8	43
315	[MSA Name]	5	2.02	8.9%	169	14.4%	188	71.5	156
314	[MSA Name]	5	2.05	9.2%	173	13.4%	175	72.0	157
313	[MSA Name]	5	2.05	10.6%	201	21.7%	284	4.9	11
312	[MSA Name]	5	2.06	7.5%	141	17.9%	234	73.5	161
311	[MSA Name]	5	2.09	10.8%	204	21.7%	284	0.5	1
310	[MSA Name]	5	2.13	11.2%	210	14.2%	186	33.4	73
United States Metropolitan Area Average				5.3%	100	7.7%	100	45.7	100
United States Metropolitan Area Median				4.7%		7.3%		41.1	
United States Metropolitan Area Standard Deviation				2.2%		6.5%		34.5	

U.S. Housing Markets Relative Risk Assessment

MARKET ASSESSMENT MATRIX IMPLICATIONS

Each market's overall status is determined by comparing its results from the two model analyses.



U.S. Housing Markets Relative Risk Assessment

SHORT-TERM TREND ANALYSIS

Short-term Decision Rules Applied to Strong Markets

A strong market is identified as having the potential for a housing price bubble if:

MA FNIS affordability index is more than one standard deviation higher than the U.S. MA average AND

(MA short-term change in unemployment is more than one standard deviation higher than the U.S. MA average short-term change OR

MA short-term new job growth is more than one standard deviation less than the U.S. MA average short-term growth rate.)

	FNIS Housing Affordability Index (2002) [contra]	Change in Unemployment (12/2001-12/2002p) [contra]	New Job Growth (12/2001- 12/2002p)
MA Avg:	7.66%	0.13%	1.06%
MA Median:	7.33%	0.20%	1.00%
MA Std Dev:	6.47%	0.71%	2.26%

Strong Markets At Risk for Pricing Bubble

MSA	18.95%	0.90%	1.92%
MSA	14.53%	1.10%	2.87%
MSA	16.03%	0.90%	3.81%
MSA	18.13%	0.90%	1.37%
MSA	17.81%	0.90%	1.24%

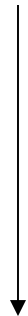
U.S. Housing Markets Relative Risk Assessment

U.S. METROPOLITAN AREA BREAKOUT (329 TOTAL MARKETS)

Stronger (A)
 (high projected growth,
 income increasing, healthy
 job market)



**Consumer
 Economics**



Weaker (F)

<p>Potential Price Appreciation 70 Metropolitan Areas (21%)</p>	<p>Strong Market 85 Metropolitan Areas (26%)</p>
<p>Weak Market 118 Metropolitan Areas (36%)</p>	<p>Potential Pricing Bubble 56 Metropolitan Areas (17%)</p>

Lower (1) ————— **Real Estate Market Vitality** ————— **Higher (5)**

(appreciating home prices,
 unaffordable housing, very active building)

U.S. METROPOLITAN AREA MARKET ASSESSMENTS

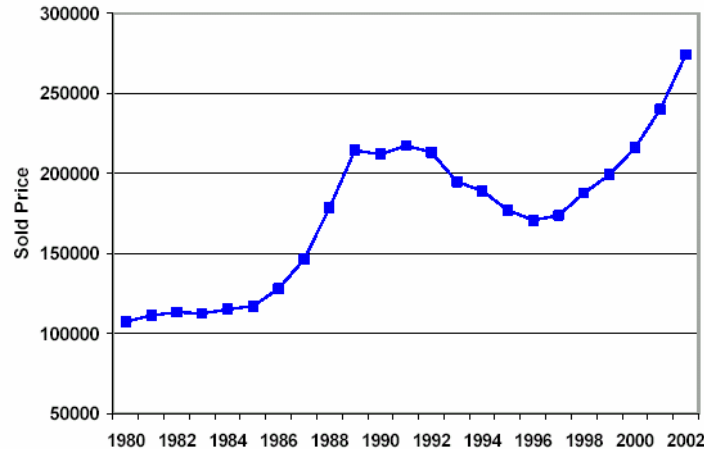
<p><u>Potential Price Appreciation</u> List of MAs</p>	<p><u>Strong Market</u> List of MAs</p>
<p><u>Weak Market</u> List of MAs</p>	<p><u>Potential Pricing Bubble</u> List of MAs</p>

APPENDIX A: MELTDOWN MARKET PROFILE LOS ANGELES, CA – 1990 HOUSING BUBBLE

What Happened in Los Angeles

- From 1986 to 1990, Los Angeles experienced a severe housing bubble characterized by an unsustainable rise in home prices. The appreciation in housing prices was unsustainable for two important reasons. As housing prices in Los Angeles rose dramatically, housing supply increased and the demand for housing dropped. Following the burst of LA's housing bubble, the median home price in the market fell and did not return to 1990 levels for ten years.

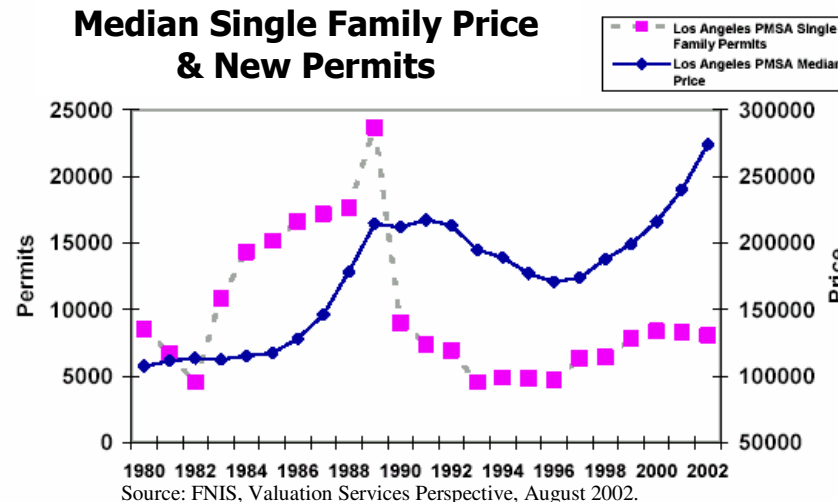
Exhibit 3: Los Angeles Median Single Family Price



Source: FNIS, Valuation Services
Perspective, August 2002.

- A study by the Joint Center for Housing Studies at Harvard University found that people who bought homes in 1991 in Los Angeles would have had negative equity by 1995 in both higher- and lower-income neighborhoods.
- The excess in housing supply in LA in 1990 coupled with steeply rising home prices resulted in a sharp increase in the inventory of unsold homes in the market.
- Excess housing supply resulted from a combination of factors, but the most important of these was a dramatic increase in new home construction in the late 1980s.

APPENDIX A: MELTDOWN MARKET PROFILE (CONTINUED)



- Los Angeles experienced a reduction in the demand for housing just as the market peaked in terms of new housing permits and housing prices.
 - In the first half of the 1990s, one million residents left Los Angeles county (net outflow). Two phenomenon appear to have been at work: movement to surrounding counties (the suburbs) where quality of life and housing affordability were higher; and the dispersion of employment opportunities to outlying areas.
 - In addition, Los Angeles, with a high concentration of aerospace and other Department of Defense dependent employers, experienced a significant decline in DoD-related employment. From 1987 to 1990, defense funds coming to LA County declined by 20% and contracts declined by 22%. Aerospace employees tended to be higher paid than employees in other industry groups, and the significant reduction in this industry’s employment numbers impacted directly the single family housing market in LA. Employment levels overall peaked in 1989.
 - Median income in LA rose until 1989 and then declined drastically. Median income fell by 19% in constant dollar figures from 1985 to 1995.

¹ “Leaving Los Angeles: Migration, Economic Opportunity, and the Quality-of-Life”, Stuart A. Gabriel and Joe P. Matthey, University of Southern California, 1996.

² “Los Angeles County Economic Adjustment Strategy for Defense Reductions”, Los Angeles Economic Roundtable publication, 1992.

³ “Social Well-Being In Los Angeles After An Economic Roller-Coaster Ride, William C. Baer, University of Southern California, 1998.

APPENDIX A: MELTDOWN MARKET PROFILE (CONTINUED)

Lessons To Apply To Our Market Analysis

A review of economic papers written in the aftermath of the Los Angeles meltdown yields the following insights that are relevant for our market model analysis:

- Rapid housing price appreciation is not, in and of itself, indicative of a housing bubble that will burst. The critical issue is whether the housing price situation is sustainable and demand factors support the level of price appreciation.
- Housing demand is a factor of employment, income, interest rates, and population trends. These statistics are critical for evaluating the potential for a bubble to burst.
- A critical measure of housing supply is the number of new homes available on the market. This measure has proven more important in forecasting potential bubble situations than have numbers related to sale of existing homes.
- Experts estimate that housing bubble indicators begin to appear 6 to 18 months before the bubble bursts. Trend analysis is important when looking at individual markets.

APPENDIX B: FNIS HOUSING AFFORDABILITY INDEX

Fidelity National Information Solutions (FNIS) has developed a proprietary model to calculate an intrinsic home value for 350 U.S. metropolitan areas. The model considers household incomes and mortgage rates, two primary drivers of housing costs, and how these factors have historically related to actual empirical home prices. FNIS's Affordability Index is a comparison of each market's intrinsic price with its actual median home price. Specifically, it is calculated as:

$$\text{Affordability Index} = (\text{Median Home Price} / \text{Intrinsic Home Price}) - 1.$$

Fidelity National Information Solutions (NASDAQ: FNIS) is a Santa Barbara, CA-based information and technology solutions vendor to real estate professionals and lenders. Tools they offer include ValueYourHome.com, an online residential property valuation resource for real estate agents that was also recently adopted by LendingTree.com.

Michael Sklarz, PhD is the Chief Valuation Officer at FNIS's Analytics Division and the creator of the company's Affordability Index. He is widely quoted throughout the industry.

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Capital Performance Group LLC is a management consulting firm based in Washington, DC. Our firm provides advisory, planning, analytic, and project management services to the financial services industry. Our professionals possess a depth of experience in a broad range of functional specialties including strategic planning, marketing and product development, market research, risk management, operations and technology, legal and regulatory matters, mergers and acquisitions, and strategic cost management.

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POPULAR SOLUTIONS

- BankRank
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- Consumer and Business Market Profile
- Market Potential Opportunity Assessment
- Sample Area Analysis
- Financial Performance and Peer Comparison Report
- U.S. Housing Markets Relative Risk Assessment
- Market Potential Analysis (includes Affiliate Market Profile and Expansion Into High Growth Markets)

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