REAL ESTATE CENTER
TEXAS A&M UNIVERSITY

Nest or Nest Egg?

Hatching Best Investment Plan

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Buying a home is typically the largest investment a household makes. One alternative is to rent a home and invest the down payment in something else. From purely an investment perspective, the anticipated rate of return plays a crucial role in the homebuying decision. This article compares the financial gains from investing in the stock market with the gains from purchasing a home. Households faced with either renting and investing in the stock market or purchasing a home should consider the historic performance of both before making their choice.

The point of initial investment ranges from the beginning of 2000 to the beginning of 2016, a period with significant disruptions in both the stock and housing markets.

Multiple investment opportunities are available to households. However, stocks and real estate have shown to be two of the more popular. According to the Survey of Consumer Finances (conducted by the Federal Reserve Bank), 63.7 percent of all families in the United States held a primary residence in 2016, while 51.9 percent of all families had direct or indirect stock holdings.

The Takeaway

Between 2000 and 2017, renting and investing in the stock market generally yielded a higher rate of return than investing in a home. However, households faced with both options are likely to consider other factors such as current stock market conditions, their ability to qualify for a mortgage, housing stock, the obligations of homeownership, and the social and community aspects of owning versus renting.

Although the proportion of families who held a primary residence was somewhat similar to the proportion of families with direct or indirect stock holdings, the values of the assets differed significantly. In 2016, the median value of stocks for families with direct or indirect stock holdings was $40,000, whereas the median home value was almost five times that at $185,000. Home equity depends on whether the homeowner holds a mortgage and the remaining mortgage balance.

By renting and investing in a stock portfolio, the household forgoes the potential to earn appreciation from homeownership but may benefit from selling the stock at a profit. Conversely, by purchasing a home, the household forgoes the future earnings from a stock portfolio as well as the potential to earn dividends. However, renting can cost more than homeownership, in which case a renter household might not have the funds to invest in a stock portfolio.

The question is, if between 2000 and 2016 a household had the option of either renting (and consequently investing in the stock market) or purchasing a home, which provided the greater financial gain? The answer isn't simple.

Stocks versus Homes

Numerous differences complicate a comparison between renting and investing in the stock market and purchasing a home. The Real Estate Center's analysis attempted to control for the differences through a number of assumptions.

- The household either purchases a home or rents and invests the entire down payment in a stock portfolio at the beginning of the year.
- In the case of a home purchase, the household meets the qualifying requirements for purchasing a home.
- In the case of an investment in stocks, the household does not trade any stocks during the holding period and reinvests all dividends (a buy-and-hold investment strategy).
- The household does not face any constraints in the sale of either the stock portfolio or the home.
- The internal rate of return (IRR) results, based on stock portfolio and home price appreciation or depreciation, are the sole criteria for buying versus renting. The analysis does not account for qualitative differences between owning and renting, any advantage from leverage in homeownership, or any equity increase from mortgage balance reduction.
- Households seek a longer-term investment in a primary residence. Second-home or investment property purchases are not considered.

Assume a household with $10,000 has two options: rent and open an investment portfolio or spend the money on a down payment on a home. For this analysis, the home price is $100,000.

Investment Portfolio

The value of the investment portfolio at the end of each year after a minimum two-year hold depends on the year the $10,000 was invested (Table 1). Table 2 depicts the IRR on the initial investment based on the year in which the portfolio is liquidated.

The timing of the initial investment, the duration of the holding period, and the volatility in the stock market during the holding period produce dramatically different returns. In general, opening a portfolio in a year with strong stock market returns produces a higher initial IRR due to the positive impact of compounding in the early years.

Table 1. Value of Initial $10,000 S&P 500 Stock Portfolio at Year-End

Year of Initial Investment (Beg. of Year)	In Dollars																
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
2000	8,019	6,257	8,032	8,895	9,325	10,780	11,372	7,215	9,086	10,433	10,652	12,345	16,313	18,519	18,774	20,985	25,526
2001		6,879	8,829	9,778	10,250	11,851	12,501	7,931	9,988	11,469	11,710	13,570	17,932	20,358	20,638	23,068	28,060
2002			10,016	11,092	11,628	13,444	14,181	8,998	11,331	13,011	13,284	15,394	20,343	23,094	23,413	26,169	31,832
2003				14,214	14,902	17,228	18,173	11,530	14,521	16,673	17,023	19,728	26,069	29,595	30,003	33,536	40,793
2004					11,610	13,422	14,158	8,983	11,313	12,990	13,262	15,370	20,310	23,057	23,375	26,127	31,781
2005						12,120	12,785	8,112	10,216	11,730	11,976	13,879	18,340	20,820	21,108	23,593	28,698
2006							12,195	7,738	9,744	11,189	11,423	13,239	17,494	19,860	20,134	22,505	27,375
2007								6,693	8,429	9,678	9,881	11,451	15,132	17,178	17,415	19,466	23,678
2008									7,990	9,175	9,367	10,856	14,345	16,285	16,510	18,453	22,447
2009										14,460	14,763	17,109	22,609	25,667	26,021	29,084	35,379
2010											11,723	13,586	17,953	20,381	20,662	23,095	28,093
2011												11,832	15,636	17,750	17,995	20,114	24,467
2012													15,314	17,386	17,625	19,700	23,964
2013														15,002	15,209	16,999	20,678
2014															11,509	12,864	15,648
2015																11,331	13,784
2016																	13,596

Sources: Real Estate Center at Texas A&M University and Dr. Aswarth Damodaran (New York University)

For example, a portfolio opened in the beginning of 2003 earned an IRR of +12.7 percent after five years (at the end of 2007). The high return stems from the large upswing in the market in the initial year (+19.2 percent) as well as fairly strong growth in the following years, ranging from +12.7 to +14.6 percent (Table 2). Higher growth in the initial years of a holding period effectively acts as a hedge against future market downturns.

Table 2. IRR from S&P 500 Stock Portfolio at Year-End

Year of Initial Investment (Beg. of Year)	Percent																
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
2000	–10.5	–14.5	–5.3	–2.3	–1.2	1.1	1.6	–3.6	–1.0	0.4	0.5	1.6	3.6	4.2	4.0	4.5	5.3
2001		–17.1	–4.1	–0.6	0.5	2.9	3.2	–2.9	0.0	1.4	1.4	2.6	4.6	5.2	4.9	5.4	6.3
2002			0.1	3.5	3.8	6.1	6.0	–1.5	1.6	3.0	2.9	4.0	6.1	6.7	6.3	6.6	7.5
2003				19.2	14.2	14.6	12.7	2.4	5.5	6.6	6.1	7.0	9.1	9.5	8.8	9.0	9.8
2004					7.7	10.3	9.1	–2.1	2.1	3.8	3.6	4.9	7.3	7.9	7.3	7.7	8.6
2005						10.1	8.5	–5.1	0.4	2.7	2.6	4.2	7.0	7.6	7.0	7.4	8.4
2006							10.4	–8.2	–0.6	2.3	2.2	4.1	7.2	7.9	7.2	7.7	8.8
2007								–18.2	–5.5	–0.8	–0.2	2.3	6.1	7.0	6.4	6.9	8.2
2008									–10.6	–2.8	–1.6	1.7	6.2	7.2	6.5	7.0	8.4
2009										20.2	13.9	14.4	17.7	17.0	14.6	14.3	15.1
2010											8.3	10.8	15.8	15.3	12.9	12.7	13.8
2011												8.8	16.1	15.4	12.5	12.4	13.6
2012													23.8	20.2	15.2	14.5	15.7
2013														22.5	15.0	14.2	15.6
2014															7.3	8.8	11.8
2015																6.4	11.3
2016																	16.6

Sources: Real Estate Center at Texas A&M University and Dr. Aswarth Damodaran (New York University)

Using IRR as a Benchmark

The IRR provides a direct numerical comparison between renting and investing the difference in a stock portfolio and purchasing a home. According to Property Metrics, the IRR "is the percentage rate earned on each dollar invested for each period it is invested." While the two options share the same initial investment, the end-values may differ depending on the holding period, producing different IRRs.

A household's decision to rent and invest the difference in the stock market or purchase a home is displayed in the investment values and IRR at the end of each holding period. Holding periods range from a minimum of two years to a maximum of 18 (for a household that invests as early as the beginning of 2000 and sells as late as the end of 2017). This results in a total of 153 holding periods to be analyzed.

This analysis excludes all expenses accrued from opening and selling a stock portfolio while renting or from buying, holding, and selling a home. Assuming all other factors are fixed, this scenario offers a simple, straightforward comparison between the two options.

Ups and downs in the stock market and Texas housing market have not coincided since 2000 (see table). In fact, dramatic differences in magnitude of change and timing have often resulted in a large variation in the two investments' rates of return. Consequently, the variation has also affected the winning investment decision for any given holding period.

For this analysis, the S&P 500 represents the performance of the stock market. History shows the stock market is generally more volatile than the housing market. The annual returns for the S&P 500, which include dividends, ranged from –36.6 percent in 2008 to +32.1 percent in 2013. In comparison, the annual return from homeownership for Texas ranged from –1.4 percent in 2011 to +8.0 percent in 2017.

Annual Return from S&P 500 vs Annual Home Price Appreciation for Texas

Year	S&P 500 (percent)	Texas (percent)
2000	–9.0	6.1
2001	–11.8	6.7
2002	–22.0	3.5
2003	28.4	3.1
2004	10.7	2.7
2005	4.8	4.4
2006	15.6	5.6
2007	5.5	5.1
2008	–36.6	1.9
2009	25.9	0.1
2010	14.8	–1.3
2011	2.1	–1.4
2012	15.9	1.5
2013	32.1	4.5
2014	13.5	7.3
2015	1.4	7.6
2016	11.8	7.8
2017	21.6	8.2

Sources: Dr. Aswath Damodaran (New York University) and the Federal Housing Finance Agency (FHFA)

Conversely, a portfolio opened in a year characterized by a stock market decline needs much higher growth in subsequent years to recoup the early losses during the initial years of the holding period. A stock portfolio opened in the beginning of 2002 earned a return of just +6.1 percent after five years (at the end of 2006). Return is significantly lower, as the +0.1 percent increase in the initial year significantly lessened the impact of subsequent stock market growth on the portfolio's value (Table 2).

How do the IRRs compare if both portfolios were sold at the end of 2008 during the early stages of the Great Recession (GR)? At +2.4 percent, the return for a portfolio opened in 2003 remains slightly higher than the –1.5 percent return for a portfolio opened in 2002. The poor +0.1 percent annual return in 2002 diminished the ability of the portfolio opened that year to offset the downturn in 2008. By comparison, the initial strong growth in 2003 allowed the portfolio opened that year to better offset the decline in 2008 (Table 2).

Home Purchase

Home values at the end of each year the home could have been sold, based on the year of purchase and FHFA home price appreciation data for Texas, is shown in Table 3. Table 4 shows the IRR based on those values.

Similar to renting and investing in the stock market, the return for a home purchase is affected by the timing of the initial investment and the duration of the holding period. While high market volatility significantly impacted the range of stock market investment returns, the low volatility in Texas' housing market tempered homeowners' returns.

Overall, lower volatility translated into much less IRR variation from homeownership than from the S&P 500 portfolio. Annual IRR ranged from –1.3 to +7.9 percent for a home purchase (Table 4) versus –18.2 to +23.8 percent for the stock market portfolio (Table 2). Thus, households had the potential to earn a significantly higher rate of return from the stock market than from owning a home. However, they also risked losing substantially more money. Both results rely heavily on the timing of the initial investment.

In the years immediately preceding the GR's housing downturn, the return on homeownership remained relatively unchanged. Unlike states such as California and Florida, Texas experienced neither excessively high home price appreciation during the national housing boom of the mid-2000s nor the exceptional price decline immediately after the GR.

Since the GR, Texas home prices have increased more rapidly. For homes purchased from 2013 to 2016, the IRR from homeownership ranged from +5.9 to +7.9 percent (Table 4).

More Rewarding Investment?

Based on the IRR, renting and investing in the stock market was generally the more financially rewarding option for a household between 2000 and 2016 (Table 5).

Table 3. Value of $100,000 Home at Year-End

Year of Home Purchase (Beg. of Year)	In Dollars																
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
2000	113,156	117,164	120,770	124,026	129,482	136,772	143,812	146,476	146,684	144,807	142,782	144,942	151,518	162,556	174,870	188,473	203,585
2001		110,433	113,831	116,901	122,043	128,914	135,550	138,061	138,257	136,488	134,579	136,615	142,813	153,217	164,824	177,644	191,889
2002			106,729	109,606	114,428	120,870	127,092	129,446	129,630	127,971	126,181	128,091	133,902	143,657	154,539	166,560	179,915
2003				105,857	110,514	116,736	122,744	125,018	125,196	123,594	121,865	123,709	129,321	138,743	149,253	160,862	173,761
2004					107,214	113,250	119,080	121,286	121,458	119,904	118,226	120,015	125,460	134,600	144,797	156,059	168,573
2005						110,277	115,953	118,101	118,269	116,755	115,122	116,864	122,166	131,066	140,995	151,962	164,147
2006							111,067	113,124	113,285	111,835	110,271	111,940	117,018	125,543	135,053	145,558	157,230
2007								107,095	107,247	105,875	104,394	105,974	110,781	118,852	127,856	137,801	148,850
2008									101,997	100,692	99,283	100,786	105,358	113,034	121,597	131,055	141,563
2009										98,861	97,478	98,953	103,442	110,978	119,385	128,671	138,988
2010											97,340	98,813	103,296	110,821	119,216	128,489	138,792
2011												100,093	104,634	112,257	120,761	130,154	140,590
2012													106,119	113,850	122,474	132,001	142,585
2013														112,152	120,648	130,033	140,459
2014															115,412	124,390	134,364
2015																115,943	125,240
2016																	116,420

Sources: Real Estate Center at Texas A&M University and FHFA Home Price Index

Table 4. IRR From Homeownership at Year-End

Year of Home Purchase (Beg. of Year)	Percent																
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
2000	6.4	5.4	4.8	4.4	4.4	4.6	4.6	4.3	3.9	3.4	3.0	2.9	3.0	3.3	3.6	3.8	4.0
2001		5.1	4.4	4.0	4.1	4.3	4.4	4.1	3.7	3.2	2.7	2.6	2.8	3.1	3.4	3.7	3.9
2002			3.3	3.1	3.4	3.9	4.1	3.8	3.3	2.8	2.4	2.3	2.5	2.8	3.2	3.5	3.7
2003				2.9	3.4	3.9	4.2	3.8	3.3	2.7	2.2	2.2	2.4	2.8	3.1	3.5	3.8
2004					3.5	4.2	4.5	3.9	3.3	2.6	2.1	2.0	2.3	2.7	3.1	3.5	3.8
2005						5.0	5.1	4.2	3.4	2.6	2.0	2.0	2.2	2.7	3.2	3.5	3.9
2006							5.4	4.2	3.2	2.3	1.6	1.6	2.0	2.6	3.1	3.5	3.8
2007								3.5	2.4	1.4	0.9	1.0	1.5	2.2	2.8	3.3	3.7
2008									1.0	0.2	–0.2	0.2	0.9	1.8	2.5	3.1	3.5
2009										–0.6	–0.8	–0.3	0.7	1.8	2.6	3.2	3.7
2010											–1.3	–0.4	0.8	2.1	3.0	3.6	4.2
2011												0.0	1.5	2.9	3.8	4.5	5.0
2012													3.0	4.4	5.2	5.7	6.1
2013														5.9	6.5	6.8	7.0
2014															7.4	7.5	7.7
2015																7.7	7.8
2016																	7.9

Sources: Real Estate Center at Texas A&M University and FHFA Home Price Index

Table 5. Investment Matrix to Purchase or Rent and Invest at Year-End

Year of Initial Investment or Purchase (Beg. of Year)	Percent																
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
2000	p	p	p	p	p	p	p	p	p	p	p	p	i	i	i	i	i
2001		p	p	p	p	p	p	p	p	p	p	p	i	i	i	i	i
2002			p	i	i	i	i	p	p	i	i	i	i	i	i	i	i
2003				i	i	i	i	p	i	i	i	i	i	i	i	i	i
2004					i	i	i	p	p	i	i	i	i	i	i	i	i
2005						i	i	p	p	i	i	i	i	i	i	i	i
2006							i	p	p	i	i	i	i	i	i	i	i
2007								p	p	p	p	i	i	i	i	i	i
2008									p	p	p	i	i	i	i	i	i
2009										i	i	i	i	i	i	i	i
2010											i	i	i	i	i	i	i
2011												i	i	i	i	i	i
2012													i	i	i	i	i
2013														i	i	i	i
2014															p	i	i
2015																p	i
2016																	i

Note: A "p" indicates that the IRR from homeownership was greater than from an S&P 500 stock portfolio.
An "i" indicates that the IRR from an S&P 500 stock portfolio was greater than from homeownership.

Source: Real Estate Center at Texas A&M University

If the initial investment was made in 2000 or 2001, homeownership was, on average, the option that yielded a higher return through 2012. However, for all other years, on average, investing in the stock market proved the more financially beneficial option.

Alternatively, the higher incidence of negative returns and greater return volatility experienced in the stock market indicates renters assumed much greater risk compared with buying a home. The IRR from a stock portfolio produced negative returns 23 times (Table 2). Meanwhile, IRR from homeownership produced negative returns in only six instances (Table 4).

Furthermore, the severity of the negative returns was much greater for an investment portfolio than for homeownership (–18.2 percent versus –1.3 percent). On average, the potential loss in initial investment proved higher

for renters than for homeowners. The IRR from the stock portfolio varied significantly across holding periods, whereas the IRR from homeownership remained in the low single digits.

Note that the analysis for the stock market portfolio reflects before-tax returns. Capital gains tax is not factored into the returns for the stock market or homeownership.

According to the Tax Policy Center, the average effective tax rate for capital gains ranged from a low of 12.5 percent in 2009 to a high of 19 percent in 2000. This represents a significant portion of the overall value of the stock portfolio and would have a large impact on its after-tax return.

If the analysis for the stock market portfolio had accounted for transaction costs and capital gains taxes, the IRR would have decreased. Depending on the severity of the decline in the IRR, this could have reversed the investment decision (i.e., purchase a home rather than rent and invest in a stock portfolio).

Weighing the Options

On average, investing in the stock market offered a greater IRR than purchasing a home for Texas households from 2000 to 2017. However, the introduction of capital gains tax can dramatically affect the investment decision. In most cases under current tax law, avoiding capital gains tax on sale of a home gives homeownership a tremendous edge. The impact of capital gains tax and transaction costs, along with other factors such as the impact of leverage from homeownership and equity increases due to mortgage loan reductions, will be discussed in a future article.

Additionally, high rent growth over the past several years has diminished the financial gain from investing in the stock market. Another important factor is the substantial up-front cost of purchasing a home versus investing in the stock market. Potential homeowners should typically expect to remain in a home at least two years before the front-end costs are recouped.

Finally, investing in the stock market at the bottom of a recession and selling within a few years is almost always the superior financial investment. The stock market tends to grow at a much faster rate than home prices coming out of a recession. However, when investing for a longer duration, purchasing a home often proves the winning option.

Ultimately, a household's decision to rent and invest in the stock market or purchase a home will be determined by a combination of personal and investment preferences, not just the IRR the household would have received from either option. Households are likely to consider factors such as each market's historic performance and its current conditions, and the ease and ability of qualifying for homeownership. Other factors include the need for flexibility in living arrangements, the obligations of homeownership, available housing stock, nearby amenities, and the social and community aspects of owning versus renting.

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