REAL ESTATE CENTER
TEXAS A&M UNIVERSITY

# Buying Stocks or Buying Homes?
## A Real-World Scenario

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March 12, 2019
Publication 2228


Many factors come into play when deciding whether to purchase a home or to rent instead. One factor worth considering is the anticipated rate of return on invested capital from home ownership versus renting. This article provides a "real-world" comparison of the financial gain from renting and investing any remaining cash in the stock market with the financial gain from purchasing a home. For a more simplified scenario, read "Nest or Nest Egg? Hatching Best Investment Plan" in the October 2018 issue of *Tierra Grande*.

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.

As in the previous article, the question being examined is, if between 2000 and 2016 a Texas 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 Takeaway**

When deciding between buying a home or renting and investing the down payment, the anticipated rate of return in both choices is a major consideration. Outcomes will vary depending on a complex range of factors pertaining to the home purchase or rental and the individual's stock portfolio.

## Real-World Financial Comparison

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 (see "Real-World Scenario Assumptions" sidebar).

The internal rate of return (IRR) from homeownership using statewide data as well as data for four major Texas MSAs provided a benchmark. The four metros considered are Austin, Dallas-Fort Worth, Houston, and San Antonio. Due to space considerations, metro-level results are available only online in the technical report

*Purchasing a Home versus Renting and Investing* at www.recenter.tamu.edu.

The IRR from homeownership is compared with that from renting and investing any savings in the stock market. Expenses associated with buying, holding, and selling a home or a stock portfolio in a typical, real-world situation are also considered.

The amount of the initial investment varies, but it is assumed to be the same for both investment options. The household either purchases a home or rents and invests the equivalent dollar amount in a stock portfolio at the beginning of the year. The point of initial investment ranges from the beginning of 2000 to the beginning of 2016.

## Cash-Flow Fluctuations

Net cash flow to homeowners is typically negative as the annual costs of homeownership usually outweigh the rent on a "comparable" property. However, upward pressure on rents has translated into positive cash flow for homeownership over the past several years.

Homeownership costs tended to remain more stable than rental rates over the holding period as the sum of principal and interest is constant for a fixed-rate mortgage. Property taxes and insurance and maintenance can vary each year depending on factors such as the appraised value of the home. However, the sum of these expenses was generally less than the sum of mortgage principal and interest, thus having less impact on overall homeownership costs.

## Winning IRR Tally

Even if a household suffered an overall financial loss from a particular investment (as indicated by a negative IRR), the investment with the less negative IRR is assumed to provide the household with greater financial gain. In other words, a superior IRR does not necessarily translate into a positive IRR.

The results for the investment decision (i.e., the number of times a household most often captured a higher IRR from purchasing a home or renting and investing in the stock market during the study period) vary by geography. However, the IRRs from homeownership exceeded the IRRs from renters investing in the stock market in all five MSAs and in Texas overall.

The IRR from homeownership in Texas surpassed that of renters investing in the stock market 97 times, or 63.4 percent of the time (Table 1).

The results also indicate that either renting and investing in the stock market or buying a home would have produced more positive than negative returns. However, homeownership did result in a greater incidence of positive returns.

The homeownership IRR based on statewide data was positive 126 times, or 82.4 percent of the time (Table 2). The IRR from renters investing in the stock market

**Table 1. Investment Matrix to Purchase or Rent and Invest at Year-End for Texas Statewide**

| 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 | p | p | p | p | p |
| 2001 | | p | p | p | p | p | p | p | p | p | p | i | i | p | p | p | p |
| 2002 | | | i | i | p | p | p | p | p | p | p | i | i | i | p | p | i |
| 2003 | | | | i | i | i | i | p | p | i | i | i | i | i | i | p | i |
| 2004 | | | | | i | i | p | p | p | p | p | p | i | p | p | p | p |
| 2005 | | | | | | i | p | p | p | p | p | p | p | p | p | p | p |
| 2006 | | | | | | | i | p | p | p | i | i | i | i | p | p | p |
| 2007 | | | | | | | | p | p | i | i | i | i | i | p | p | p |
| 2008 | | | | | | | | | i | i | i | i | i | i | p | p | p |
| 2009 | | | | | | | | | | i | i | i | i | i | i | i | i |
| 2010 | | | | | | | | | | | i | i | i | i | p | p | p |
| 2011 | | | | | | | | | | | | i | i | i | p | p | p |
| 2012 | | | | | | | | | | | | | i | p | p | p | p |
| 2013 | | | | | | | | | | | | | | p | p | p | p |
| 2014 | | | | | | | | | | | | | | | p | p | p |
| 2015 | | | | | | | | | | | | | | | | p | p |
| 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

**Table 2. IRR From Homeownership at Year-End for Texas**

| 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 | 0.3 | 2.6 | 3.1 | 2.9 | 3.7 | 4.7 | 5.2 | 4.6 | 3.6 | 2.5 | 1.6 | 1.6 | 2.3 | 3.2 | 4.0 | 4.7 | 4.4 |
| 2001 | | –1.4 | 1.8 | 2.6 | 4.2 | 5.8 | 6.5 | 5.8 | 4.8 | 3.6 | 2.6 | 2.7 | 3.4 | 4.4 | 5.2 | 5.8 | 5.5 |
| 2002 | | | –8.3 | –3.2 | 0.9 | 4.1 | 5.6 | 5.1 | 4.1 | 2.8 | 1.9 | 2.1 | 3.0 | 4.2 | 5.2 | 5.9 | 5.6 |
| 2003 | | | | –7.7 | 0.6 | 5.4 | 7.5 | 6.9 | 5.8 | 4.4 | 3.4 | 3.6 | 4.6 | 5.8 | 6.8 | 7.5 | 7.1 |
| 2004 | | | | | –4.7 | 4.3 | 7.7 | 7.2 | 6.0 | 4.4 | 3.3 | 3.7 | 4.9 | 6.3 | 7.4 | 8.2 | 7.8 |
| 2005 | | | | | | 1.7 | 7.6 | 7.2 | 5.8 | 4.0 | 2.8 | 3.4 | 4.8 | 6.6 | 7.8 | 8.7 | 8.3 |
| 2006 | | | | | | | 0.8 | 2.2 | 1.3 | –0.4 | –1.5 | –0.3 | 2.0 | 4.5 | 6.3 | 7.5 | 7.1 |
| 2007 | | | | | | | | –6.6 | –4.6 | –5.4 | –5.7 | –3.3 | 0.2 | 3.6 | 5.9 | 7.5 | 7.1 |
| 2008 | | | | | | | | | –16.9 | –14.1 | –12.6 | –7.8 | –2.5 | 2.3 | 5.4 | 7.5 | 7.0 |
| 2009 | | | | | | | | | | –21.3 | –16.1 | –8.6 | –1.5 | 4.2 | 7.7 | 9.9 | 9.2 |
| 2010 | | | | | | | | | | | –23.7 | –11.3 | –1.4 | 5.8 | 9.8 | 12.1 | 11.2 |
| 2011 | | | | | | | | | | | | –14.9 | –0.8 | 8.1 | 12.5 | 14.8 | 13.3 |
| 2012 | | | | | | | | | | | | | 1.6 | 13.1 | 17.5 | 19.4 | 16.9 |
| 2013 | | | | | | | | | | | | | | 12.8 | 19.5 | 21.6 | 18.0 |
| 2014 | | | | | | | | | | | | | | | 17.9 | 22.3 | 17.4 |
| 2015 | | | | | | | | | | | | | | | | 19.8 | 14.8 |
| 2016 | | | | | | | | | | | | | | | | | 5.1 |

Note: IRR based on statewide median home price appreciation.
Sources: Real Estate Center at Texas A&M University and FHFA Home Price Index

**Table 3. IRR from S&P 500 Stock Portfolio After Tax 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 | –0.3 | –3.6 | –1.0 | –0.9 | –0.7 | 0.5 | 2.1 | 2.8 | 2.7 | 3.2 | 4.1 |
| 2001 | | –4.1 | –0.6 | –2.5 | 0.3 | 1.0 | –2.9 | 0.0 | 0.0 | 0.1 | 1.3 | 3.0 | 3.7 | 3.5 | 4.0 | 5.0 | 0.0 |
| 2002 | | | –7.8 | –1.6 | –0.1 | 2.9 | 3.3 | –1.5 | –0.1 | 1.4 | 1.4 | 2.6 | 4.3 | 5.0 | 4.7 | 5.2 | 6.1 |
| 2003 | | | | 10.4 | 8.5 | 10.3 | 9.3 | 0.0 | 3.5 | 4.8 | 4.4 | 5.5 | 7.1 | 7.6 | 7.1 | 7.4 | 8.3 |
| 2004 | | | | | –0.2 | 4.8 | 5.0 | –2.1 | –0.2 | 1.8 | 1.7 | 3.2 | 5.2 | 5.9 | 5.5 | 6.0 | 7.0 |
| 2005 | | | | | | 2.0 | 3.1 | –5.1 | –2.2 | 0.3 | 0.5 | 2.3 | 4.6 | 5.4 | 5.0 | 5.6 | 6.7 |
| 2006 | | | | | | | 2.3 | –8.2 | –0.6 | –0.5 | –0.2 | 1.9 | 4.5 | 5.5 | 5.0 | 5.6 | 6.9 |
| 2007 | | | | | | | | –18.2 | –5.5 | –0.8 | –0.2 | –0.2 | 3.0 | 4.2 | 3.9 | 4.7 | 6.1 |
| 2008 | | | | | | | | | –10.6 | –2.8 | –1.6 | –1.3 | 2.6 | 4.1 | 3.7 | 4.6 | 6.2 |
| 2009 | | | | | | | | | | 12.2 | 8.5 | 10.3 | 13.0 | 13.0 | 11.3 | 11.3 | 12.4 |
| 2010 | | | | | | | | | | | 0.8 | 5.5 | 10.0 | 10.6 | 9.0 | 9.4 | 10.9 |
| 2011 | | | | | | | | | | | | 1.1 | 8.4 | 9.6 | 7.9 | 8.5 | 10.3 |
| 2012 | | | | | | | | | | | | | 11.7 | 12.2 | 9.4 | 9.9 | 11.7 |
| 2013 | | | | | | | | | | | | | | 10.4 | 7.3 | 8.4 | 10.9 |
| 2014 | | | | | | | | | | | | | | | –3.3 | 1.5 | 6.2 |
| 2015 | | | | | | | | | | | | | | | | –4.1 | 3.8 |
| 2016 | | | | | | | | | | | | | | | | | 5.1 |

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

was positive in 113 instances, or 73.9 percent of the time (Table 3).

Timing is critical in the decision but obvious only with hindsight. Neither house buying nor renting and investing in the S&P 500 from 2007–09 translated into a good investment for several years.

## Comparing Outcomes

Results under more real-world conditions vary significantly from those in the previous article. The first article found renting and investing in the stock market, on average, offered a greater IRR for households in Texas from 2000 to 2017. Conversely, this more real-world set of assumptions revealed that purchasing a home generally provided households with a superior IRR (Table 1).

A major factor in the different outcomes between scenarios was the effect of capital gains tax on a renter's investment portfolio. The introduction of capital gains tax dramatically impacted the IRR from an investment portfolio. In most cases under current tax law, avoiding paying capital gains tax on the sale of a home gives homeownership a tremendous edge.

Additionally, high rent growth over the past several years has diminished the financial gain from investing any excess funds in the stock market. An important factor to consider is the substantial up-front cost of purchasing a home versus renting and 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, renters investing in the stock market at the end of a recession and disinvesting within a few years almost always captured the superior financial investment. The stock market tends to grow at a much faster rate than

# Real-World Scenario Assumptions

## Home Purchase

The following assumptions represent reasonable estimates of actual market conditions. Different loan terms or expenses associated with homeownership can alter the return on homeownership and potentially reverse the investment decision.

- The sum of the down payment on a home plus closing costs represents the initial investment. The down payment for a home purchase is 20 percent.
- The dollar amount available to either purchase or rent within the five separate geographies will vary by differences in median home prices during the stated year of investment.
- According to the U.S. Census Bureau, 58 percent of the total owner-occupied housing units in Texas were mortgaged in 2016. This analysis assumes households require a mortgage and must pay principal and interest.
- Homeowners must also pay property taxes, insurance, and maintenance costs.
- Both homeowners and renters pay for utilities separately. Therefore, utilities are a wash, and this analysis does not consider them.
- Because this analysis assumes a minimum two-year holding period for a principal residence, no capital gains tax on a sale by homeowners is factored in.
- A 30-year, fixed-rate mortgage at the effective mortgage interest rate was calculated for each geography at the time of initial investment. For the state, the rate ranged from a low of 3.75 percent in 2012 to a high of 8.16 percent in 2000. Mortgage interest rates varied slightly by Metropolitan Statistical Area (MSA). FHFA is the source for all mortgage interest rate data.
- Closing costs are 2 percent of the purchase price.
- Selling fees are 6 percent of the sales price.
- Property taxes are pegged at 2 percent of the home value while insurance and maintenance costs are 1.5 percent.
- Homeowner net cash flows equal the outflow of mortgage principal and interest, property taxes, and insurance and maintenance plus the inflow of rent on a "comparable" property.
- Households choosing to purchase a home meet the qualifying requirements for purchasing a home.
- Households face no constraints in the sale of the home.
- The IRR results are the sole criteria for buying versus renting (see "Using IRR as a Benchmark"). The analysis does not account for qualitative differences or personal preferences between owning and renting.
- Home purchasers are seeking a longer-term investment in a primary residence. Second home or investment property purchases are not considered.

## Renter Stock Portfolio

Stock portfolio expenses paid by renters typically include purchase and sale broker commissions (i.e., transaction fees) as well as capital gains tax on the sale of individual stocks or the portfolio itself. Stock portfolio assumptions:

- As stock transaction fees are generally quite low (1 percent or less), they are excluded from the analysis.
- Renters are expected to pay long-term capital gains tax on a stock portfolio, with the rate being 12.5 to 19 percent of the overall value of the portfolio, depending on tax law at the time.
- Because a renter household does not make any transactions over the holding period of the portfolio, the tax is applied to the value of the stock portfolio only when it's liquidated—as long as the portfolio realizes a gain in value.
- If the portfolio loses value over its holding period, renter households are not subject to capital gains tax on the sale of the portfolio.
- Renters face no constraints in the sale of the stock portfolio.

## Rental Property

For households choosing to rent and invest in the stock portfolio, the following assumptions apply:

- Monthly rent is the sole cash outflow for renters. No utilities are considered.
- The rental property is comparable in quality and functionality to one a homeowner would purchase.
- Annual cash inflows to renters are the annual expenses associated with homeownership offset by the difference between owning and renting.
- A household that rents and decides to open a stock portfolio reinvests the difference between owning and renting. (Actual renters often lack the discipline to actually deposit such funds into a stock portfolio each month. This study assumes a disciplined investor.)

No rental rate index for the five specific geographies was available. Therefore, annual rents were calculated by adjusting the 2015 median rent for each geography reported in the U.S. Census Bureau's American Community Survey by the annual consumer price index reported by the U.S. Bureau of Labor Statistics.

## 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 153 holding periods to be analyzed.

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 and exclude the impact of capital gains tax, ranged from –36.6 percent in 2008 to +32.1 percent in 2013 (see table below).

**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)

This article adds to the complexity of the model by replicating more real-world conditions than the previous article. The dollar amount of the initial investment varies by the five different geographies and year of investment based on changes in median home prices.

In regard to capital gains tax treatment, data for the average effective long-term capital gains tax rate from 2000 to 2014 was obtained from the Tax Policy Center. The 2014 rate is constant across 2015, 2016, and 2017. Passage of the Taxpayer Relief Act in 1997 enabled households to avoid capital gains tax as long as the home has been owner-occupied for at least two of the last five years and the gain on sale is $500,000 or less ($250,000 or less for single filers). Although capital gains tax is not considered for homeowners, it is taken out of a renter's stock portfolio gains.

home prices coming out of a recession. However, over longer periods purchasing a home has shown to be the more rewarding option.

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 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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