

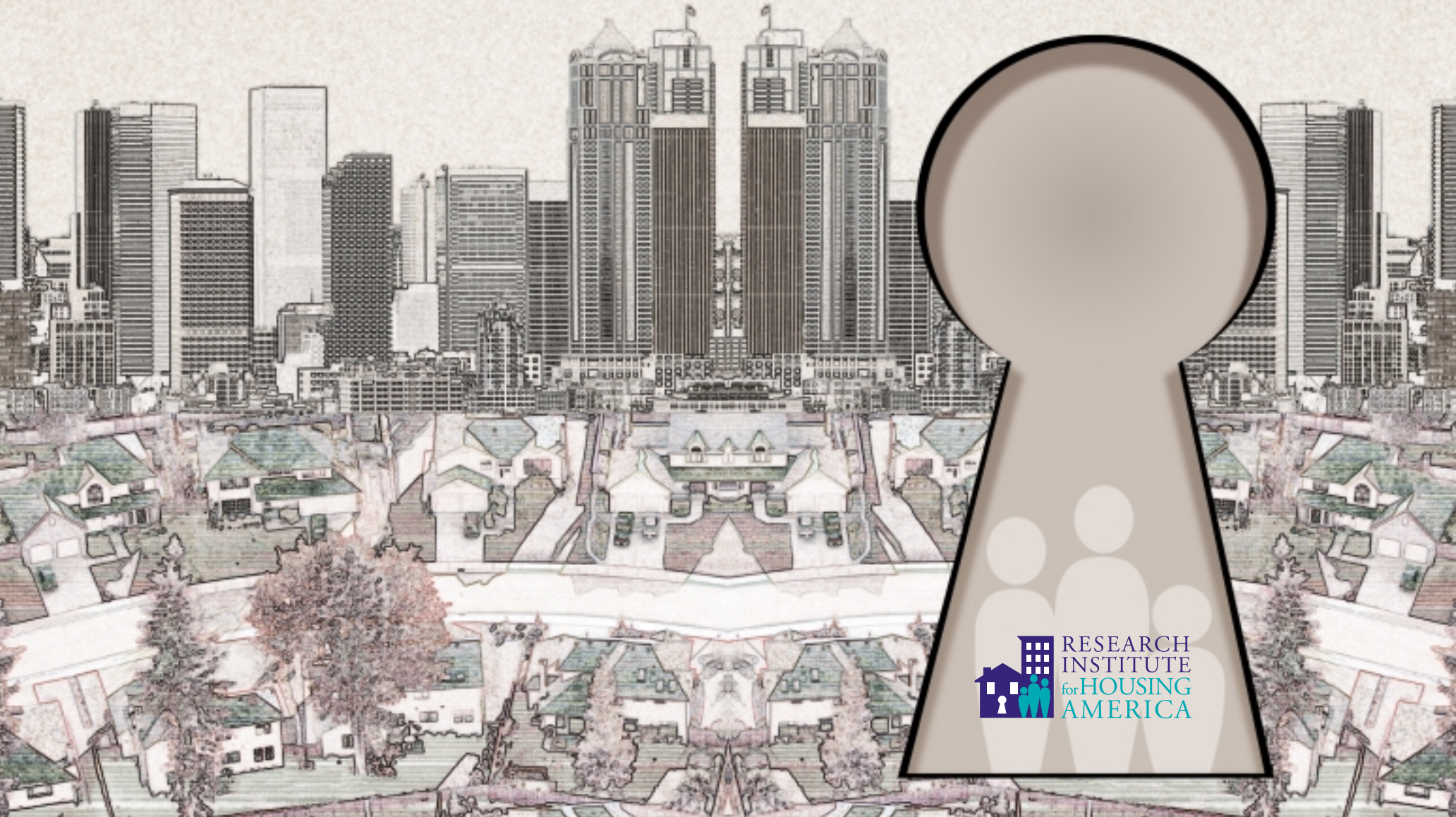


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# The Evolution of Real Estate in the Economy

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THE EVOLUTION OF REAL ESTATE  
IN THE ECONOMY

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## FOREWORD



The 1990s witnessed the beginnings of a potentially historic industrial transformation. Trillions of dollars of new wealth were created on the major stock exchanges, many in industries virtually unheard of only two decades ago. This tectonic shift in the economic landscape of the country calls for a reexamination of the role of the one of the oldest and largest sectors of the economy—real estate. Real estate long has been considered omnipresent, as all businesses and households need it. However, the rise of the new economy calls into question just how important real estate will be in this new environment. Even though you cannot live in virtual space, both firms and families can shop and communicate there if they so desire.

Dapeng Hu and Anthony Pennington-Cross take up the challenge of evaluating how real estate's share of the economy has changed over the last two decades during which the foundations of the new economy took hold and then thrived. It is noteworthy that they analyze real estate in both a stock and flow sense. That is, they measure how real estate's share in the nation's stock of wealth has changed and they measure how real estate's share of the flow of annual economic activity has changed. This is important because the answer differs depending upon whether the question is about stocks or flows.

With respect to the latter, about 11 percent of annual output is attributable to the real estate industry in recent decades. Thus, in terms of value added in the nation's gross domestic product, real estate's share has not changed much at all in the last twenty years. This suggests that the rise of the new economy has not yet fundamentally affected the operations of the real estate industry. Total payments to the factors of production, labor and capital, that work in the industry have risen along with the overall economy to maintain a constant share in the economy.

The picture presented by Hu and Pennington-Cross is different when the focus is on real estate's share of wealth or of the capital stock. Among households and corporations, real estate's share of the asset base clearly has declined. Focusing on the household and non-profit sectors, real estate (primarily housing) accounted for just over 30 percent of their assets throughout much of the 1980s. By the end

of the 1990s, this fraction had fallen over twenty percent so that only 23 percent of household and nonprofit wealth portfolio was held in real estate-related assets. Among nonfinancial corporations, the authors report that the fraction of real estate assets owned by such companies reached over 40 percent in the 1980s. By 1999, the figure was only 28 percent. A key reason for real estate's declining share in the overall asset base appears to be the phenomenal rise of (nonreal estate) stock market wealth due to the industrial transformation noted above.

This trend poses a challenge for the real estate industry. In an environment in which wealth accumulation via capital appreciation, not income growth, is king, the real estate industry seems likely to lose some of its previous influence over policies that affect it. The proposed FCC rule on forced access for telecom providers and the debate over whether virtual and physical retailers should have to pay the same sales tax look to be the first tests of this hypothesis. Other tests are certain to arise if the wealth trend continues.

In addition, the declining wealth share is likely to have an impact on how the industry is organized, who works in it, and what those workers are paid. While no such effects are yet visible in the flow data analyzed by Hu and Pennington-Cross, some industrial reorganization within the real estate industry seems likely if its relative share of the nation's wealth is permanently lower. The biggest changes probably will occur in sectors where the rise of new information technologies and real estate intersect. The brokerage business, commercial and residential, come to mind first. It is also apparent that owners of large property portfolios, REITs in particular, are restructuring to try to take advantage of possible economy of scale associated with delivering new information technologies to huge numbers of tenants or residents. Whether these changes will help restore some of the industry's share in the nation's asset base is unclear. What is more clear is that the industry's future increasingly will be shaped by its ability to embrace new technology and react quickly to new market demands.

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## EXECUTIVE SUMMARY: THE INSTITUTE PERSPECTIVE



As we move into the “new economy,” an economy based primarily on information, the fundamental structure of markets is changing. What is being produced and sold, how people get to work, and how we communicate are being revolutionized. Many argue that for three reasons, these changes are reducing the relevance and importance of real estate to the economy:

- the introduction of e-mail and web businesses makes it easier for workers to do their jobs in a variety of locations;
- firms also have new tools making it much easier to sell goods from business to business without physically meeting at a market place; and
- the output of the new economy—information—is very amorphous, making the contribution of real estate as a factor of production unclear.

If firms and workers need to physically meet less often, then they should spread out, reducing the intensity of demand for real estate in urban centers. The net effect, this thinking goes, is that space or real estate has become a less important part of the production process and therefore the economy.

Consistent with this interpretation of the impact of an information-based economy, this paper shows that since the early 1980s, real estate holds a much smaller fraction of total U.S. wealth. In contrast, the role of real estate as an input to create goods and services in the economy has held steady from the late 1980s through the late 1990s. In fact, from 1993 on, the amount of output allocated to real estate has been increasing slowly. This finding directly conflicts with the idea that space and real estate have become less important.

One explanation is that change in the economy over the last 20 years is not as straightforward as moving from an industrialized economy to an information-based economy, where place does not matter. Innovation has also occurred in the real estate industry itself. Some recent examples of this

innovation include the increasing vertical integration of the real estate market (e.g., real estate agents becoming active in home selection and mortgage financing) as well as the creation of one stop shopping internet sites.

However, the most significant innovation to-date in the real estate market is the securitization of mortgages. Mortgage-backed securities have grown from less than 10 percent of the total debt outstanding in 1985 to 18.6 percent by 1999. Real estate has become such an important part of the debt market that its share is approaching 50 percent. Debt innovation in the real estate industry has helped make real estate an even more important part of the financial market.

In sum, the declared demise of the importance of real estate to the economy is premature. The more significant and interesting question, as Dr. Joseph Gyourko points out in his Foreword, is the ongoing impact of these developments on the ability of real estate interests to control their own destiny in social and political conflicts.

# THE EVOLUTION OF REAL ESTATE IN THE ECONOMY

## INTRODUCTION



The fast growth of high-tech and Internet-related industries has changed the landscape of the U.S. economy. In 1999, the economy completed its tenth consecutive year of expansion, marking the longest expansion in history. As a result, the concept of a “new economy” has become widely accepted. What is the role of real estate in the new economy? How will the real estate industry change in the future? One approach to answer these questions is to examine the patterns of growth and decline of real estate in various parts of the economy.

This paper examines economic indicators to depict the evolution of the real estate industry's role in the economy over time. This examination spans the early 1980s through 1999, a period chosen for two reasons: First, important financial innovations in the real estate industry, such as real estate investment trusts (REITs) and mortgage-backed securities (MBS), occurred during this period. Secondly, this was also the period during which we saw the rapid growth of high-tech industries and the formation of dot-com companies.

A few studies have tried to estimate the size of the entire real estate industry or the aggregate value of all real estate assets. Miles et al. (1994) and Miles and Tolleson (1997) estimated the aggregate value of investable real estate assets in public and private markets. In its *America's Real Estate series*, the Urban Land Institute (ULI) also has attempted to calculate and publish such a statistic, which incorporated comprehensive data tables of real estate component values.

The authors of these papers used a detailed accounting approach. The entire real estate market was divided into two markets, public and private; each of these was further divided into several segments. Data on transactions and flow of funds provided a reasonably accurate estimation of the total value of real estate in public markets. However, documenting the aggregate value of nonsecuritized or private market assets is not as straightforward.



This detailed accounting method approach has two disadvantages. First, it requires a huge amount of data, which generally are not available either in cross section or over time. For example, commercial real estate is one of the largest components of the private market. However, there is no direct data information on the market value of real estate held by corporations. In addition, previous studies rely heavily on arbitrarily determined parameters to estimate asset values. These parameters are almost always time invariant. Given that results are sensitive to these key parameters, the lack of time variation limits the usefulness of the results when examining changes across decades. It is not surpris-

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***While the percentage of value added attributed to real estate is fairly steady over time, its importance actually grew slightly in the late 1990s.***

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ing that there is a wide range of estimates reflecting the lack of agreement on the true size of real estate pie.

Rather than creating one arbitrarily determined aggregate number, our

approach is to create several indicators based on more reliable data that reflect several aspects of the real estate industry. The aspects include real estate in gross domestic product (GDP), which reflects the annual flow of value added by the real estate industry; real estate's share in the total wealth of households and businesses; real estate in the debt market, and real estate in the stock market.

Our key conclusions include the following: In terms of the value added in GDP, the role of the real estate industry is quite steady over time. About 11 percent of output each year is attributable to the real estate industry. In terms of household and corporation asset allocations, the importance of real estate has been declining. One of the contributors to this phenomenon is the very strong performance of the stock market. In the capital markets, the prominence of REITs in the stock market has increased since 1985. However, it remains a very small fraction of the overall equity market. Finally, the role of real estate in the debt market has steadily increased, perhaps due to increasing market acceptance of securitization in the residential and commercial mortgage market.

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 REAL ESTATE IN THE ECONOMY: SEVERAL INDICATORS
 

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## A Flow Measure—Value Added in GDP

Table 1 shows the allocation of GDP to the real estate industry as a whole and for various components of the industry. Following the ULI's approach (1998), GDP is allocated to the real estate industry based on the gross output originating from the construction, real estate service, real estate finance, and insurance sectors. To estimate how much of the output from the finance and insurance sector can be attributed to real estate, we calculate the fraction of outstanding credit that is attributed to mortgages from in the *Federal Reserve Bulletin*, table 1.59, "Summary of Credit Market Debt Outstanding". We think this estimate should be viewed as a lower bound. To estimate the output of real estate services, the output from owner-occupied homes is subtracted from total output of the real estate sector.

While the percentage of value added attributed to real estate is fairly steady over time, its importance actually grew slightly in the late 1990s. Real estate's share of GDP increased from 10.7 percent in 1993 to 11.3 percent in 1997. While this

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***The year 1999 marked the first time that stocks and mutual funds became a larger part of household assets than real estate.***

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may seem fairly trivial, if share is held constant at the 1993 level, real estate's output would be \$868 billion lower. In other words, real estate has

grown 5 percent faster than would have been expected if the market structure were unchanged since 1993. The substantial innovations in real estate finance and insurance must contribute to this growth.

In sum, real estate is as important a part of the economy as ever, in terms of economic flow. Some parts of the industry, especially those related to the finance and capital market have increased share in GDP, while others (i.e., services) have remained constant and still others have decreased. As will be

**Table 1. Allocation of GDP to the Real Estate Industry**

Year	Total GDP	Real Estate Industry		Construction		Real Estate Services		Real Estate Finance and Insurance	
	Dollars	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
1988	5,049.6	598.4	11.9%	233.4	4.6%	268.5	5.3%	96.5	1.9%
1989	5,438.7	638.8	11.7%	242.2	4.4%	292.7	5.3%	103.9	1.9%
1990	5,743.8	661.4	11.5%	245.2	4.2%	306.7	5.3%	109.5	1.9%
1991	5,916.7	663.2	11.2%	228.8	3.8%	312.8	5.3%	121.5	2.0%
1992	6,244.4	672.0	10.8%	229.7	3.6%	330.0	5.3%	112.3	1.8%
1993	6,558.1	699.8	10.7%	242.4	3.7%	338.5	5.2%	118.9	1.8%
1994	6,947.0	747.4	10.8%	268.7	3.8%	359.0	5.2%	119.7	1.7%
1995	7,269.6	796.1	11.0%	286.4	3.9%	376.1	5.2%	133.6	1.8%
1996	7,661.6	859.6	11.2%	311.9	4.0%	400.9	5.2%	146.8	1.9%
1997	8,110.9	912.5	11.3%	328.8	4.0%	416.6	5.1%	167.1	2.0%

*Data sources:* National Accounts Data, BEA, various years; Federal Reserve Board, *Federal Reserve Bulletin*, various years. *Note:* All dollars are current dollars in billions. GDP is allocated to the real estate industry based on the gross output originating from the construction, real estate services, and real estate finance and insurance sectors (Real Estate Industry = Construction + Real Estate Services + Real Estate Finance and Insurance). To estimate the output of real estate services, the output from owner-occupied homes is subtracted from total output of the real estate sector. The output of owner-occupied homes is estimated from table 8.19 of the “National Income and Product Accounts” gross housing product of owner-occupied farm and nonfarm housing (lines 89 and 97). To estimate how much of the output from the finance and insurance sector can be attributed to real estate, we calculate the fraction of outstanding credit that is attributed to mortgages from table 1.59 “Summary of Credit Market Debt Outstanding,” as reported in the *Federal Reserve Bulletin*. All F&I is defined as the sum of reported gross output from depository institutions, nondepository institutions, security and commodity brokers, insurance carriers, and holding and other investment offices.

seen in the next subsection, a different conclusion is reached when we examine the asset base.

### Stock Measures—Household and Corporate Asset Allocation

Tables 2A and 2B document how much of household and nonfinancial corporate assets are allocated to real estate. In both tables, total assets refer to all tangible and financial assets held; real estate assets refer to tangible real estate assets only.

From table 2A we can see that the share of real estate assets held by American households was quite steady throughout most of the 1980s, but began declining at the end of the decade. This trend continued through 1999, the last year for which we have data. In the 1980s, real estate assets consistently accounted for

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***Even if households were to expend the same proportion of their income on real estate assets each year, the lower return on housing would drive down the fraction of wealth held in real estate.***

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about 31 percent of household and nonprofit assets, but by the end of 1999 that fraction was just less than 23 percent. Meanwhile, the importance of stocks and mutual funds increased rapidly

from 7.5 percent in the 1985 to 22.7 percent in 1999. The year 1999 marked the first time that stocks and mutual funds became a larger part of household assets than real estate. In addition, pension fund reserves were also increasing rapidly during this period.

Over the long run, it is not surprising to see the decline in real estate as a depository of household wealth. For households, owner-occupied homes represent the vast majority of real estate wealth. Because the income elasticity of housing demand has been estimated in a range of 0.7 to 1.0 (Mills 1999), spending on housing will increase less than the growth in income. Thus, when household income or wealth increases by 10 percent, housing expenditure increases by less than 10 percent.

In addition, the improved condition of financial markets may provide an additional impetus for the declining role of real

**Table 2A. Real Estate Assets in the Total Wealth of Households and Nonprofit Organizations: 1982-99**

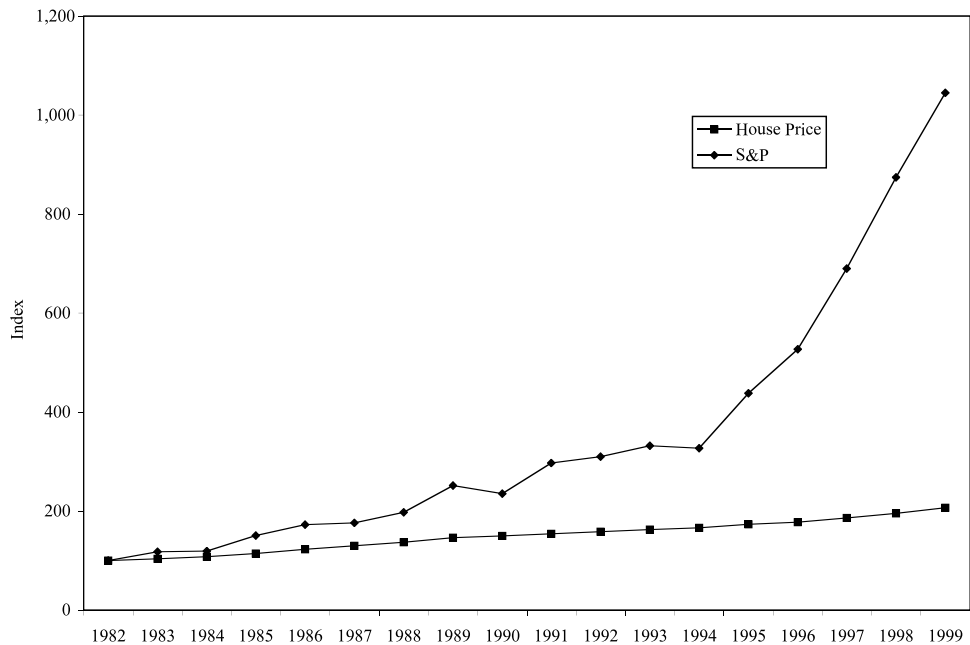
Year	Dollar Allocation (Billions \$)		Percentage Allocation (%)				
	Total Assets	Real Estate Assets	Real Estate	Other Tangible Assets	Corporate Equities and Mutual Fund Shares	Pension Fund Reserves	Other Financial Assets
1982	12,673	3,999	31.5	8.3	7.1	10.1	42.9
1983	13,710	4,181	30.5	8.1	7.5	11.1	42.6
1984	14,803	4,630	31.2	8.1	6.6	11.4	42.5
1985	16,684	5,235	31.3	7.8	7.5	12.5	40.8
1986	18,392	5,719	31.1	7.7	9.0	12.6	39.4
1987	19,651	6,177	31.4	7.9	8.5	12.7	39.4
1988	21,461	6,712	31.2	7.8	9.2	12.7	38.9
1989	23,583	7,296	30.9	7.7	10.3	13.6	37.4
1990	24,307	7,405	30.4	7.9	9.3	14.2	38.0
1991	25,920	7,477	28.8	7.6	12.1	14.9	36.3
1992	27,000	7,664	28.3	7.6	13.3	15.6	35.0
1993	28,429	7,804	27.4	7.6	14.8	16.4	33.6
1994	29,477	8,017	27.2	7.7	13.9	16.8	34.2
1995	32,610	8,398	25.7	7.3	16.5	17.7	32.7
1996	35,483	8,833	24.8	6.9	17.5	18.7	31.9
1997	39,697	9,517	23.9	6.4	19.5	19.9	30.2
1998	43,508	10,238	23.5	6.1	20.3	20.9	29.1
1999	48,889	11,088	22.7	5.8	22.7	21.2	27.6

*Data sources:* Federal Reserve Board, *Flow of Funds...*, Z1 tables & "Survey of Consumer Finance." *Note:* All dollars are current dollars in billions. Total assets include all the tangible assets and financial assets. Real estate assets refer to tangible real estate assets only. Assets are at market.

**Table 2B. Real Estate Assets in the Total Wealth of Nonfinancial Companies: 1982-99**

Year	Dollar Allocation (Billions \$)		Percentage Allocation (%)		
	Total Assets	Real Estate Assets	Real Estate	Other Tangible Assets	Financial Assets
1982	6,145	2,514	40.9	31.9	27.2
1983	6,463	2,588	40.0	31.5	28.5
1984	7,013	2,732	39.0	30.9	30.1
1985	7,502	2,854	38.0	30.2	31.7
1986	7,838	2,936	37.5	30.1	32.4
1987	8,343	3,083	37.0	29.9	33.2
1988	9,074	3,288	36.2	29.2	34.6
1989	9,620	3,471	36.1	29.1	34.8
1990	9,828	3,440	35.0	30.0	35.0
1991	9,736	3,254	33.4	30.2	36.4
1992	9,723	3,012	31.0	31.1	37.9
1993	10,070	2,901	28.8	31.3	39.9
1994	10,691	3,074	28.8	31.4	39.8
1995	11,494	3,203	27.9	31.1	41.1
1996	12,266	3,354	27.3	30.4	42.3
1997	13,339	3,756	28.2	29.3	42.5
1998	14,251	4,203	29.5	28.4	42.1
1999	15,380	4,411	28.7	28.2	43.1

*Data source:* Federal Reserve Board, *Flow of Funds...*, Z1 tables, various years. *Note:* All dollars are current dollars in billions. Total assets include all the tangible assets and financial assets. Real estate assets refer to tangible real estate only. Assets are at market value.

**Figure 1. House Price Index vs. S&P 500 Index**

*Note:* Housing price index is from Freddie Mac Repeat Sale Housing Price Index. Base year is 1982 when both indexes are normalized into 100.

estate as a mechanism for holding wealth. Table 2A shows that stocks and mutual fund holdings have increased from about 7 percent in 1982 to more than 22 percent of total wealth in 1999. Stock prices have been increasing at a much faster rate than home prices, especially in the 1990s. This can be seen in figure 1, which plots the appreciation rate on the Freddie Mac repeat sales house price index versus the S&P 500 Index. Even if households were to expend the same proportion of their income on real estate assets each year, the lower return on housing would drive down the fraction of wealth held in real estate. In addition, the lower cost of investing in the stock market, along with the momentum of investing associated with its

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***A number of researchers, including Linneman (1998) and Gyourko and Deng (1999) have argued that the ownership of too much real estate can and does hurt firms, resulting in lower returns in the long run.***

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rise in the 1990s, makes it likely that households have been shifting some money from real estate into stocks to diversify their portfolios. As long as the economy is strong and the stock market performs

well, one would expect further declines in the fraction of household assets allocated to real estate (primarily owner-occupied homes). That said, the volatility in the stock market is much higher than in the housing market, and that volatility has been increasing recently. If a major market correction occurs, it is possible that the fraction of household wealth held in real estate will increase.

Finally, the baby-boomer generation may provide another reason for real estate's recent decline in share of household wealth. As baby boomers approach retirement age, they should be focusing on saving more money for retirement. The increase in the pension fund reserves is evidence of this behavior. However, once this group actually enters retirement, individuals will begin to use their savings and wealth for consumption. This will ultimately reduce the demand for stocks and bonds.

Table 2B shows the changes in asset allocation for nonfinancial companies. As with households, there is a declining



share for real estate in corporate wealth. In the early 1980s, the fraction of real estate assets held by these companies was as high as about 41 percent, but by the end of the 1990s it dropped to about 28 percent. This decline was most dramatic in the early 1990s.

The decline reflects the potential influences of at least two factors. First, the decrease in the relative value of real estate naturally reduces the fraction of assets held in real estate. That is, the values of nonreal estate assets simply have appreciated more. Second, there has been a decline in the incentives

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*...these results show that in the debt market, real estate is becoming increasingly important and may in the foreseeable future constitute the majority of the debt market.*

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for nonfinancial companies to hold real estate. A number of researchers, including Linneman (1998) and Gyourko and Deng (1999) have argued that the ownership of too much real

estate can and does hurt firms, resulting in lower returns in the long run. Hence, the decline in the share of scarce corporate capital being devoted to real estate may reflect increasingly sound management practice.<sup>1</sup>

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## REAL ESTATE EQUITY AND DEBT



This section focuses on the growth of real estate-related equity and debt capital markets.

Tables 3 and 4 are constructed to examine the evolution of real estate in the capital markets. Table 3 provides annual data on outstanding debt, and table 4 depicts the role of REITs in the stock market.

Table 3 shows a steady increase in the fraction of total outstanding debt that is real estate related. Real estate debt is defined as all debt owed by real estate companies or nonreal estate companies, but for real estate purposes. Using the Federal Reserve Board, *Flow of Funds ... data*, this figure includes mortgage debt (home and commercial), government-sponsored enterprise (GSE) securities and collateral mortgage obligations (CMOs), federal government-related mortgage pools, debt owed by mortgage companies and REITs, privately issued home MBS, nonagency commercial mortgage-backed securities (CMBS), and debt owed by banks for mortgage financing. The only parts missing from this calculation are municipal bonds and nonreal estate company corporate bonds that are used to finance real estate projects.

Total real estate debt outstanding in 1985 was about \$3 trillion, while it was about \$11.3 trillion in 1999. The real estate fraction of total debt outstanding was 35.8 percent in 1985, while it climbed to 44 percent in 1999. Excluding mortgage debt owed by households and nonfinancial companies, nonmortgage real estate debt (primarily in bonds, with some commercial loans and commercial papers) increased even more rapidly. In addition, nonmortgage real estate debt was only about 8 percent of total outstanding debt in 1985; it was about 19 percent in 1999. In summary, these results show that in the debt market, real estate is becoming increasingly important and may in the foreseeable future constitute the majority of the debt market.

**Table 3. Real Estate Debt: Debt Outstanding: 1985-99**

	Total Debt Outstanding	Mortgage Owed by Nonfinancial Sector	GSEs	Federal Related Mortgage Pools	Mortgage Companies	REITs	Agency CMOs <sup>a</sup>	Privately Issued Home MBS <sup>b</sup>	Nonagency CMBS	Debt by Finance Companies for Mortgage <sup>c</sup>	Total Real Estate Debt	Real Estate Debt Fraction (%)	MBS Total Debt Fraction (%)
Year	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
1985	8,627	2,376	263	369	16	8	10	24	1	19	3,085	35.8	7.7
1986	9,804	2,661	278	531	25	13	53	17	2	24	3,604	36.8	9.0
1987	10,816	2,963	308	670	14	21	81	28	4	28	4,118	38.1	10.1
1988	11,855	3,279	353	745	14	25	106	35	7	31	4,594	38.8	10.5
1989	12,822	3,549	378	869	24	27	98	43	10	36	5,035	39.3	10.9
1990	13,745	3,804	398	1,019	24	28	103	55	12	44	5,488	39.9	11.5
1991	14,393	3,954	407	1,156	22	29	89	100	18	44	5,818	40.4	12.3
1992	15,194	4,068	448	1,272	30	28	71	151	29	46	6,143	40.4	13.0
1993	16,165	4,203	529	1,357	30	30	90	184	40	44	6,505	40.2	13.6
1994	17,209	4,372	701	1,472	19	40	110	206	47	47	7,013	40.8	14.7
1995	18,439	4,569	807	1,570	17	45	133	224	54	51	7,469	40.5	15.1
1996	19,766	4,849	897	1,711	21	57	137	259	71	59	8,061	40.8	15.6
1997	21,157	5,138	995	1,826	16	96	141	312	97	63	8,684	41.1	15.9
1998	23,364	5,612	1,274	2,018	18	159	179	403	157	73	9,893	42.3	17.3
1999	25,614	6,238	1,592	2,292	18	167	224	455	198	87	11,271	44.0	18.6

*Data sources:* Federal Reserve Board, *Flow of Funds...*, Z1, tables. *Note:* All dollars are current dollars in billions. Total debt is the year-end debt outstanding by all households, nonfinancial corporations, financial sectors, and governments. Total real estate debt (K) is the summation of the columns of (B) to (J). MBS debt includes columns (C), (D), (G), (H), and (I). a: Federally related mortgage pool securities backing privately issued CMOs. b: Privately issued mortgage pool securities and privately issued CMOs, not including REITs. c: Estimated by the authors. The number equals mortgage asset times debt to total asset ratio in finance companies.

**Table 4. Real Estate in the Equity Market: 1985-99**

Calendar Date	Total Equity Market Value	Market Capitalization of all REITs	Number of Public REITs	Percentage of REITs by Value	Percentage of REITs by Firm Counts
31-Dec-85	2,195,914	7.67	82	0.00035	1.3
31-Dec-86	2,467,299	9.92	96	0.00040	1.5
31-Dec-87	2,467,792	9.70	110	0.00039	1.6
30-Dec-88	2,702,045	11.44	117	0.00042	1.7
29-Dec-89	3,290,805	11.66	120	0.00035	1.8
31-Dec-90	2,970,824	8.74	119	0.00029	1.8
31-Dec-91	3,982,063	12.97	138	0.00033	2.1
31-Dec-92	4,375,079	15.91	142	0.00036	2.1
31-Dec-93	5,020,231	32.16	189	0.00064	2.5
30-Dec-94	4,964,998	44.31	226	0.00089	2.8
29-Dec-95	6,732,165	57.54	219	0.00085	2.7
31-Dec-96	8,237,516	88.78	199	0.00108	2.3
31-Dec-97	10,699,532	140.53	211	0.00131	2.4
31-Dec-98	13,175,871	138.30	210	0.00105	2.5
31-Dec-99	17,642,728	124.26	210	0.00070	2.4

*Data sources:* CRSP Indices, Nasdaq, and NAREIT. *Note:* The total market value includes total market value at the NYSE, AMSE, and Nasdaq. Note: Dollars in billions.

One of the most important causes of the growth of real estate debt is securitization. In the 1980s and early 1990s, home MBS experienced the fastest growth. The issuance of CMBS surged in the 1990s, although there was a break in late 1998 and early 1999. The continued growth in these parts of the market will hinge largely on the ability of CMBS to provide increased liquidity and stability.

Table 4 turns to the equity market and shows that the REIT share of the equity market increased steadily from 1985 to 1997, with a rapid increase occurring in 1993. Aggregate public REITs' capitalization doubled that year. However, the well-known decline in the REIT market is evident beginning in 1998. REITs' equity capitalization, and its fraction of the stock market, has declined in recent years. By the end of 1999, the market capitalization of publicly traded REITs was 0.0007 percent of the whole equity market, and the total value declined to about \$120 billion from about \$138 billion in late 1998. Clearly, there could be huge growth in this market without its ever becoming a significant fraction of the overall stock market.

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## CONCLUSION



This paper investigates the evolution of real estate in the economy. We focus on several important aspects of the economy, including GDP, household and corporate asset allocations, and the debt and equity markets. We develop indicators for each of these sectors and document the evolution of real estate since the early 1980s. While previous efforts have relied on somewhat arbitrary and time invariant estimates, our analysis focuses on individual markets and therefore provides more accuracy. This focus allows us to see divergent patterns for real estate in different markets.

In terms of annual flows, real estate's share of GDP is quite stable over time. About 11 percent of new income or output created each year is added by the real estate industry. In contrast, the share of household and corporation assets allocated to real estate is decreasing over time. The strong performance of the stock market, growth in household wealth, the relatively low income elasticity of housing demand, and changes in corporate investment behavior appear to be the major factors influencing this decline. Even so, the role of real estate in the debt and equity markets has increased substantially, indicating the importance of real estate finance innovations.

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## NOTES

1. Changes in the tax code also may have affected the real estate share changes of the late 1980s and early 1990s. The 1986 Tax Reform Act dramatically changed depreciation deductions. The useful life of nonresidential property was extended from 19 years to 31.5 years. The Accelerated Cost Recovery System, which often provided a much larger tax shelter for companies, was replaced by a straight-line depreciation method. In 1993, the useful life of nonresidential property was extended to 39 years. However, the effect of these events cannot account for the persistent decline in share. They may contribute to the real estate share decline in 1987 and 1993, but contribute less to the long-run trends in the real estate decline.

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