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THE CONDOMINIUM TREND: RESPONSE TO INFLATION
Theodore Crone

Social factors, such as smaller families, only partially explain the trend toward condominiums and cooperatives. Homeownership itself, whether of a traditional single-family house, or of a unit in a multi-family building, continues to offer significant returns as an investment, and particularly so in times of inflation.

REMOVING DEPOSIT RATE CEILINGS: HOW WILL BANK PROFITS FARE?
Mark J. Flannery

Dire predictions ignore the complex indirect forms of competition that have evolved in response to Regulation Q, and that have rendered it less effective than is sometimes assumed. Data on aggregate bank profitability and stock market reactions following other recent deposit rate deregulation provide further evidence to counter the gloomy forecasts.

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The Federal Reserve Bank of Philadelphia is part of the Federal Reserve System—a System which includes twelve regional banks located around the nation as well as the Board of Governors in Washington. The Federal Reserve System was established by Congress in 1913 primarily to manage the nation's monetary affairs. Supporting functions include clearing checks, providing coin and currency to the banking system, acting as banker for the Federal government, supervising commercial banks, and enforcing consumer credit protection laws. In keeping with the Federal Reserve Act, the System is an agency of the Congress, independent administratively of the Executive Branch, and insulated from partisan political pressures. The Federal Reserve is self supporting and regularly makes payments to the United States Treasury from its operating surpluses.
The Condominium Trend: Response to Inflation

by Theodore Crone*

The Dorchester, Hopkinson House, The Philadelphian—three familiar center city Philadelphia addresses with a common trait: each was a large rental apartment complex converted to condominiums in the late 1970s. Philadelphia has not been alone in seeing many of its higher quality rental units “go condo” or become cooperatives. Nationwide, about 350,000 units were converted in the 1970s; in several U.S. cities, this amounted to a significant proportion of the rental housing stock.

The increased availability of condominiums has broadened the range of housing options for many American households. Apartment living no longer implies renting; the apartment-dweller now must decide whether to rent or buy a unit. And in many condominium developments almost identical units are being offered for sale and for rent.

Recent demographic trends explain why more people want to live in apartment-sized units, but they do not explain the increased demand by households to own the units. At first glance, the increased demand to own these units seems anomalous during a decade when rents were rising at an annual rate of only 5.4 percent and new home prices at a rate of 9.6 percent. Rather than dampen the demand for homeownership, however, this relatively rapid rise in housing prices actually

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encouraged home purchases. Buying a home was viewed as a wise investment which provided a hedge against inflation. In fact, the structure of the U.S. tax system makes homeownership less expensive than renting for large numbers of households during periods of high inflation.

CONDOMINIUMS ACCOUNT FOR AN INCREASING PERCENTAGE OF OWNER-OCCUPIED HOUSING

The condominium form of ownership is a relatively recent development in the United States; the first was established in 1947 in New York City where cooperatives were already well known (see CONDOMINIUMS AND cooperatives). The so-called condo-craze, however, did not erupt until the 1970s. Fewer than 400,000 owner-occupied condominiums and cooperatives existed in the U.S. in 1970; by 1980 the number had more than tripled to 1.4 million.1


Many of these new condos and co-ops were converted rental units. The Department of Housing and Urban Development (HUD) estimates that 346,500 units, or about 1.4 percent of the 1970 rental housing stock, were converted in the seventies.2 In the largest metropolitan areas, conversions ranged from almost 8 percent of the 1970 rental housing stock to less than 1 percent (Figure 1). Despite considerable controversy over conversions, these new forms of ownership introduced many Americans to the homeownership market (see LAWS REGULATING CONDOMINIUM CONVERSIONS page 12).

Some analysts have attributed the increased demand for condominiums to changes in lifestyles and family structure. But the demand for these new types of housing cannot be


CONDOMINIUMS AND Cooperatives

Both the condominium and the cooperative provide for multiple ownership of multi-family buildings with all the tax advantages of homeownership. Owners of both can deduct property taxes and mortgage interest payments when calculating taxable income, but do not include the imputed rent from their unit as income. The legal arrangements, however, differ in the two cases.

Each unit in a condominium has its own deed and is owned separately. The common areas and facilities are owned jointly by the unit owners, usually in proportion to the original dollar value of the individual units. Ownership is acquired by the transfer of the deed to the unit. In a cooperative, individuals do not buy their units but rather purchase stock in a non-profit corporation entitling them to live in a particular unit and to use the common areas and facilities. Ownership rights are obtained by the purchase of this stock according to the regulations of the corporation.

The different legal forms of ownership imply different financing arrangements and different property-tax assessment procedures. Separate mortgage financing is arranged for each unit in a condominium complex with the individual owner solely responsible for the mortgage payments. In a cooperative, one mortgage is obtained for the entire complex, and all of the members are jointly liable for mortgage payments, so that if any member defaults on his share the other members are responsible. This joint liability has sometimes made it difficult to secure financing for cooperatives. Like mortgage financing, property-tax assessments differ for cooperatives and condominiums. Taxes are assessed on the entire complex in a cooperative development and on the individual units in a condominium.
explained solely by demographic trends; it is also the result of high overall inflation rates and even higher rates of housing price increases.

THE BABY BOOM AND CHANGING LIFESTYLES FUELED THE DEMAND FOR SMALLER UNITS

During the 1970s the first wave of the postwar baby boom entered the age group commonly considered the most likely first-time buyers, the 25 to 34 year olds. The number of people in this age group increased 49 percent between 1970 and 1980. The traditional profile of a family in this group had been a couple married several years, having one or more children, and ready to buy their first home, most likely a single-family, detached home in the suburbs. But, as the baby boom generation entered the 25 to 34 year old age group, fewer families followed the traditional pattern. On average they married later, and after they married, many postponed having children while both spouses pursued careers. From 1970 to 1980 the labor force participation rate for women rose from 43.4 percent to 51.6 percent. Also many of those who married were subsequently divorced, and the divorce rate more than doubled from 1970 to 1980. All of these trends resulted in a large increase in smaller, young households within the population. The number of persons under 35 and living alone increased threefold between 1970 and 1980, and the national percentage of one-and two-person households rose from 47.2 percent in 1970 to 53.4 percent in 1980.

These smaller, younger, professional households have several reasons for preferring the type of housing traditionally offered by rental units. They have no need for a larger, single-family, detached home. They also may value highly the neighborhood amenities more frequently available in areas where multi-family buildings are located (restaurants, shops, entertainment). And they probably enjoy the freedom from time-consuming maintenance. Moreover, they are the most mobile group in our society, a fact which in normal times would militate against their investing in owner-occupied housing.

Many in this group continued to rent apartments in the seventies. An increasing number, however, opted to buy apartment-sized units as condominiums or cooperatives. In December 1979 and January 1980, HUD conducted a survey of residents of recently converted buildings including both renters and buyers. The vast majority of both renters and buyers were members of one-or two-person households. Approximately one-half of each group was under 36 years old. More than
one-half of each group held a professional or managerial position. And, of those who were married, over 60 percent of both renters and buyers had working spouses. These household, age, and job characteristics did not distinguish the buyers from the renters. Changing demographic trends only explain the increased demand to live in apartment-sized units; they do not explain the demand to buy rather than rent.

To understand why more people are choosing to buy condominiums and cooperatives, it helps to view homeownership as an investment. The higher the return on that investment, the greater will be the demand for owner-occupied housing.

THE OWNER-OCCUPIED HOME IS BOTH A RESIDENCE AND AN INVESTMENT

A family which rents its home is concerned only about the enjoyment it will receive from living there and the monthly rent it will have to pay. Housing will be treated like any other consumption item, and the last dollar spent on housing should provide as much enjoyment as the last dollar spent on any other good. For homeowners, however, a house serves not only as a shelter but also as an investment. For many U.S. households the major part of their savings is invested in their home; approximately 18.4 percent of the net worth of all U.S. households is in the form of equity in owner-occupied real estate.

Once a household has acquired a sufficient level of wealth, the decision to buy a home will depend upon the return on owner-occupied housing relative to the return on other available forms of investment. The gross dollar return on a house, excluding any capital gains, is equal to the rent the household would have to pay for a comparable dwelling, or the so-called imputed rent. We can think of the household as paying rent to itself instead of a landlord. The net return before taxes is equal to this imputed rent minus the costs of acquiring and maintaining the house.

The costs associated with homeownership will vary from household to household, and they are generally higher for young families. For example, if a homebuyer's downpayment is less than twenty percent of the value of the house, his mortgage interest rate will generally be higher than the rate for borrowers with a larger downpayment. This will raise the cost of acquiring the house and lower the net return. The lack of sufficient savings is a primary reason why many young households find it more advantageous to rent than to buy a home. Again, if a household places a higher than average premium on leisure time, the value of the time devoted to maintenance will be greater, and the net return on the housing investment will decrease. This may be a factor in the decision by some two-wage-earner households to rent rather than buy.

The net return to owner-occupied housing will also depend upon the frequency of a household's moves, since there are large costs associated with buying and selling a home. The younger, smaller households traditionally attracted to rental housing are also the most mobile households in our society. In the 1979-80 HUD survey of residents of converted buildings, mobility surfaced as a major factor in the decision to buy or rent. Of the former tenants who remained in the converted buildings, only 17 percent of those

3 The exact results of the survey are as follows: members of one or two person households (buyers, 92 percent; renters, 85 percent), under 36 years old (buyers, 48 percent; renters, 50 percent), holding a professional or managerial position (buyers, 65 percent; renters 55 percent), percent of married who had working spouses (buyers, 69 percent; renters, 61 percent). See HUD, The Conversion of Rental Housing to Condominiums and Cooperatives.

4 Capital gains are also part of the total return on a house, but we will discuss them in the context of inflation.
who bought their units intended to move within two years, while 60 percent of those who continued to rent intended to move within two years. After controlling for such variables as income and family size, a study by Michael Lea and Michael Wasylenko found that mobility played a significant part in the decision to continue to rent rather than to buy. This was not unexpected, since households which move frequently may have little or nothing to gain from buying their home. But in an inflationary environment mobility plays a smaller role in the buy/rent decision, because buyers can recoup the costs of investing much more quickly.

The speed with which a household can recover the costs of buying and selling a home depends upon the rate of return to owner-occupied housing in the years of occupancy. Certain tax advantages raise the after-tax return on owner-occupied housing for all households; they also cause the rate of return to vary among households according to their marginal tax rates. And high rates of inflation actually increase these tax-based advantages to owner-occupied housing.

OWNER-OCCUPIED HOUSING ENJOYS CERTAIN TAX ADVANTAGES

If owner-occupied housing were treated like any other investment, the net return on a house (imputed rent minus any costs incurred) would be taxed at the homeowner's marginal tax rate. The imputed rent, however, is not included in the homeowner's gross income for tax purposes, and yet some of the costs (mortgage interest payments and property taxes) are deductible from his other income. Furthermore, if owner-occupied housing were treated like any other investment, any capital gain on the house would be taxed at the capital gains rate upon sale of the house. Rollover provisions, however, permit the deferment of taxes on any capital gain as long as it is reinvested in owner-occupied housing. And a one-time exemption from the tax for individuals over fifty-five years of age means that the capital gains go untaxed for most people above this age.

The implications of these tax advantages can be appreciated if we compare the after-tax return earned by two otherwise identical couples, one investing its savings in owner-occupied housing and the other renting a comparable house and investing its savings in a financial asset earning the market rate of interest. If each couple has $18,000 to invest and the market rate of interest is 5 percent, the renter couple will earn $900 in taxable interest income in the first year. Their after-tax earnings would be $630. Each year the couple's accumulated wealth will increase by their after-tax return.

Because of the initial costs of investing in owner-occupied housing (which include mortgage origination fees, transfer taxes, and recording fees), the first year's return on the homeowner couple's $18,000 will actually be negative. Furthermore, when this couple decides to sell their home, they will incur still more costs in the form of brokerage fees, which the renters avoid. Therefore, the owners' after-tax return during the years they are in the house must be considerably higher than the renters' if they are to be as well off as the renters. Much of that higher return is in the form of tax savings.

We can measure the advantages of homeownership by comparing the wealth positions of our two hypothetical couples after each year of residency. Figure 2 provides computations and comparisons of four cases, in each of which the following holds. The renters' wealth consists of their original $18,000 and the accumulated after-tax interest

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FIGURE 2

COMPARISON OF WEALTH BETWEEN RENTERS AND OWNERS (AFTER SALE)

<table>
<thead>
<tr>
<th>End of year</th>
<th>Case 1 Rents</th>
<th>Case 1 Owners</th>
<th>Case 2 Rents</th>
<th>Case 2 Owners</th>
<th>Case 3 Rents</th>
<th>Case 3 Owners</th>
<th>Case 4 Rents</th>
<th>Case 4 Owners</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$18,513</td>
<td>$11,754</td>
<td>$19,282</td>
<td>$14,490</td>
<td>$19,282</td>
<td>$16,118</td>
<td>$19,206</td>
<td>$12,961</td>
</tr>
<tr>
<td>2</td>
<td>19,041</td>
<td>13,510</td>
<td>20,656</td>
<td>19,611</td>
<td>20,656</td>
<td>23,212</td>
<td>20,226</td>
<td>16,235</td>
</tr>
<tr>
<td>3</td>
<td>19,583</td>
<td>15,268</td>
<td>22,128</td>
<td>25,427</td>
<td>22,128</td>
<td>31,403</td>
<td>21,866</td>
<td>19,846</td>
</tr>
<tr>
<td>4</td>
<td>20,141</td>
<td>17,030</td>
<td>23,539</td>
<td>32,545</td>
<td>23,539</td>
<td>41,349</td>
<td>23,331</td>
<td>23,821</td>
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<tr>
<td>5</td>
<td>20,715</td>
<td>18,795</td>
<td>25,039</td>
<td>40,547</td>
<td>25,039</td>
<td>52,691</td>
<td>24,894</td>
<td>28,188</td>
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<tr>
<td>6</td>
<td>21,306</td>
<td>20,565</td>
<td>26,639</td>
<td>49,515</td>
<td>26,639</td>
<td>65,578</td>
<td>26,562</td>
<td>32,977</td>
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<tr>
<td>7</td>
<td>21,913</td>
<td>22,340</td>
<td>28,171</td>
<td>59,996</td>
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<td>80,633</td>
<td>28,342</td>
<td>38,220</td>
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<tr>
<td>8</td>
<td>22,538</td>
<td>24,122</td>
<td>29,791</td>
<td>71,617</td>
<td>29,791</td>
<td>97,564</td>
<td>30,240</td>
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<tr>
<td>9</td>
<td>23,180</td>
<td>25,910</td>
<td>31,504</td>
<td>84,375</td>
<td>31,504</td>
<td>116,455</td>
<td>32,267</td>
<td>50,211</td>
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<tr>
<td>10</td>
<td>23,841</td>
<td>27,706</td>
<td>33,315</td>
<td>98,360</td>
<td>33,315</td>
<td>137,497</td>
<td>34,428</td>
<td>57,036</td>
</tr>
</tbody>
</table>

In this figure, the following is assumed to hold for all four cases: * Each couple earns $42,000 a year in salaries, and lives in an $80,000 home. Non-housing tax deductions are 5 percent of their salary income. The owners purchase their home with 20 percent down and a 25 year fixed rate mortgage. Closing costs represent 2.5 percent of the initial value of the house, and yearly maintenance costs are 2.6 percent of the initial value. The house depreciates at an annual rate of 1.2 percent. Property taxes are 2 percent of the current value of the house. Selling costs are 7.5 percent of the sale price of the house. The annual rent is 10 percent of the current value of the house; the renters invest $18,000 in savings in a financial asset earning the market rate of interest. The shaded area indicates those years in which the owners' wealth exceeds that of the renters.

Case 1: General prices and housing prices are stable. Market interest rates, including mortgage rates, are 5 percent. Tax rates are calculated according to the 1980 tax law.
Case 2: All prices and incomes rise by 7.4 percent a year. Market interest rates, including mortgage rates, are 12.5 percent. Tax rates are calculated as in Case 1.
Case 3: The assumptions are the same as in Case 2 except that housing prices and maintenance costs rise at a rate of 9.6 percent a year.
Case 4: All prices, including housing prices and incomes, rise by 5 percent a year. Market interest rates, including mortgage rates, are 10 percent. Tax rates are calculated according to the law which will prevail in 1984.

on that money. The homeowners' wealth consists of their accumulated tax savings and the after-tax interest earned on that savings plus the equity they would receive from their home after selling it. Each couple earns $42,000 a year and files a joint income tax return under the 1980 tax law. The homeowners buy an $80,000 house, and the renters occupy a comparable home and pay $8,000 a year in rent.

For Case 1 suppose there is no inflation, no increase in housing prices, and an interest rate of 5 percent. Through savings in rent and taxes the owners will have recouped the costs of buying the house by the end of the second year, but they will not have accumulated enough equity to offset the cost of selling the house until the seventh year. The homeowners, then, must reside in their house approximately seven years if the housing investment is to be more profitable than renting. The picture changes dramatically, however, when we take inflation into consideration.

**INFLATION INCREASES THE TAX ADVANTAGE ENJOYED BY HOMEOWNERS**

Inflation increases the tax advantages of homeownership in two ways. First of all, as incomes increase to keep up with inflation, marginal tax rates increase because households are pushed into higher and higher tax brackets (bracket creep). Renters will pay this higher rate on all their income. Homeowners will avoid this higher tax on the imputed rent which they receive from their property. Inflation also helps homeowners in a second way. As housing prices rise along with other prices, the homeowner will receive nominal capital gains upon the sale of his house. Because of rollover provisions and the one-time exemption in the tax law, these capital gains generally go untaxed. Capital gains on other assets, however, will be taxed at the capital gains rate.

Returning to the example of our two couples, the renters and the buyers, we can demonstrate the effect of inflation on investment in owner-occupied housing. In Case 2, we assume that all prices and incomes are rising at 7.4 percent a year (the average annual inflation rate for the 1970s) and that interest rates are 12.5 percent instead of 5 percent; now it takes the owners only three years instead of seven to recoup the costs of buying and selling their home (Figure 2). The after-tax return to owner-occupied housing has increased relative to the return on other assets, and now some households who move more frequently can profitably invest in owner-occupied housing.

**HOUSING PRICES ROSE FASTER THAN INFLATION IN THE SEVENTIES**

While the general price level as measured by the Consumer Price Index rose at an average annual rate of 7.4 percent in the 1970s, the price of a standardized new home rose at an annual rate of 9.6 percent (Figure 3 overleaf). In most areas of the country housing was experiencing real capital gains during the decade. These real gains accelerated the pace at which homeowners could recoup the costs of making their investment.

What happens to the wealth of the couple who rents and of the couple who buys when the general price level rises at 7.4 percent per year and housing at 9.6 percent per year? Under these conditions, Case 3, the owners would recover the costs of buying and selling their home in two years instead of three (Figure 2). Even more of those families who move relatively frequently will find it profit-

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6 This higher rise in housing prices may have been induced by inflation itself as it increased the demand for housing as an investment. The process could be reversed if inflation is sharply curtailed. See Anthony M. Rufolo, "What's Ahead for Housing Prices?" *Business Review*, Federal Reserve Bank of Philadelphia, July-August 1980. Since we have no reliable index for the price of condominiums, throughout this article we use the price index for new single-family homes which has been adjusted for the size and quality of the structure.
able to buy rather than to rent. This will increase the demand for homeownership of apartment-sized condos and co-ops.

The increase in the relative price of housing may have furthered condominium development in another way. As housing costs absorb a larger share of income, households will tend to consume less housing by buying

**FIGURE 3**

**CONSUMER PRICE INDEX AND HOUSE PRICE INDEX 1970-1981 (1967 = 100)**

*The House Price Index was rescaled.

**SOURCES:** "CPI-W" (BLS, CPI Detailed Report) and "Price Index of New One-Family Houses Sold" (Department of Commerce, Construction Reports C27-82).
smaller units. In fact, as housing prices rose more rapidly than average prices in the seventies, the median size of new single-family homes peaked in 1978 and has fallen every year since then. Sharp increases in utility costs have the same effect, since these costs are related to the size of the dwelling. As households begin to consume less housing, condominiums and cooperatives offer the possibility of smaller, owner-occupied units.

To recap, demographic trends set the stage for strong condominium demand in the 1970s. The rise in the number of young professionals living alone or as couples without children increased the demand for apartment-sized units, and high inflation rates provided the incentive for these young professionals to buy their units. Inflation resulted in bracket creep which heightened the tax advantages for homeownership; it also produced nominal capital gains which go untaxed in the case of owner-occupied housing. Furthermore, increases in housing prices greater than the inflation rate not only resulted in real capital gains for homeowners but also shifted demand toward smaller dwelling units. These increased advantages to homeownership meant that highly mobile households could buy their unit, resell it in a few years, and still fare better than if they had rented. This possibility provided a large number of prospective buyers for condominiums and cooperatives in the seventies.

WILL THE CONDO TREND CONTINUE?

In the weak housing market of the early 1980s, the pace of condominium conversions has slowed considerably. Recently, the demand for owner-occupied housing has been dampened by high interest rates and a sluggish economy; but what are the prospects for condominiums and cooperatives as the economy recovers?

Certain economic facts and demographic trends will act to encourage condominium development and conversions. First, the housing market adjusts with a lag. And the fact that housing prices and utility costs have already risen relative to other prices will favor the ownership of smaller housing units as the market continues to adjust. Second, as the final phase of the baby boom generation enters the household formation years in the 1980s, the number of young households will continue to rise. This increase should bolster demand for housing in general; and if the trend toward more one- and two-person households continues, it also should spur condominium development.

A period of lower inflation rates and lower tax rates, on the other hand, could provide less incentive to purchase a condominium. The CPI inflation rate has fallen from a high of 13.3 percent in 1979 to an annual rate of 3.9 percent 1982. Moreover, the prices of new homes increased less rapidly than average prices in 1980 and 1981. These developments mean less bracket creep for taxpayers and less need to shelter their income. They also foreshadow lower capital gains for owner-occupied housing and a decrease in the investment demand for housing.

Besides the indirect effect of disinflation, the tax advantages afforded homeowners have been affected directly by the tax cuts contained in the Economic Recovery Tax Act of 1981. By 1984, marginal tax rates will have been reduced by more than twenty percent from their 1980 levels. If the renter and owner couples described earlier lived in a world of 5 percent inflation and were subject to the tax rates which will prevail in 1984, Case 4, it would take the homeowners four years to recover the cost of investing in their home (Figure 2). This compares with two years under the conditions which prevailed in the 1970s, Case 3. A household which did not intend to remain in the house those extra two years would fare better by renting.

In sum, condominium development and condominium conversions are not a thing of the past. Their future is assured by the trend toward smaller households and smaller housing units. The rate of condominium
conversions, however, is not likely to return to the level of the late 1970s. Lower inflation rates and lower tax rates, should they be maintained, will reduce the incentives for homeownership in the period ahead.

LAWS REGULATING CONDOMINIUM CONVERSIONS

In the wake of the large number of conversions in the 1970s, complaints have been voiced about sharp reductions in the supply of rental housing, heartless displacement of older tenants, and unscrupulous misrepresentation to prospective buyers. Following the pattern of these complaints, state and local regulations regarding condominium conversions fall into three categories: rental stock protection, tenant protection, and buyer protection.

The effect of conversions on the rental housing market is difficult to assess. They certainly do not reduce the supply of rental units on a one-for-one basis. Some units are generally bought by investors who offer them for rent, and some of the new owners will have vacated rental dwellings freeing them for new rental occupancy. Furthermore, the demand for rental units will be reduced by conversions if some of the previous tenants buy in the converted building or elsewhere. The net effect of all these forces is probably a slight reduction in rental vacancies in the local community with larger impacts in certain neighborhoods and among certain types of dwellings. In a nationwide study, HUD estimated that for every one hundred units converted there was a net decrease of five rental vacancies.* A Philadelphia study estimated that there was a net decrease of twelve rental vacancies for every one hundred units converted.†

The most radical form of rental stock protection has been the moratorium. Chicago, Philadelphia, San Francisco, San Jose, Seattle, and Washington, D.C. are among the cities which passed moratoriums on conversions at some time in the 1970s. The Chicago and Washington, D.C. ordinances were struck down by the courts, and the Philadelphia law was nullified by state legislation. Less extreme than the moratorium has been the prohibition of conversions as long as the rental vacancy rate remains below a certain threshold. A number of cities in California, including Palo Alto, Newport Beach, San Diego, and San Bernardino, have enacted such legislation. In many instances this has resulted in almost no conversions in these communities.

The more immediate problems associated with condo-conversions are the displacement of the elderly and the handicapped and possible misrepresentation to prospective buyers. The most common form of tenant protection is a notice provision creating a period of minimum occupancy before the tenant must move. Other forms of tenant protection include an exclusive option to buy the unit in which the tenant lives, and relocation assistance for those tenants who do not choose to purchase. The elderly and the handicapped are often provided special protection. And in some cities like San Francisco, New York, and Washington, they are granted lifetime leases. In all, twenty-two states and fifteen central cities in the thirty-seven largest metropolitan areas have statutes providing some form of tenant protection. The primary protection for condominium buyers consists in requirements for the disclosure of information on the condition of the building. Some jurisdictions have gone even further and permit the buyer to cancel the sales agreement within a specified period. Twenty-three of the fifty states provide some form of buyer protection.

* The Conversion of Rental Housing to Condominiums and Cooperatives, 1980.
† Condominium-Cooperative Conversion Housing Study: City of Philadelphia, 1981.
Removing Deposit Rate Ceilings: How Will Bank Profits Fare?
by Mark J. Flannery*

Among its many important provisions, the Depository Institution Deregulation and Monetary Control Act (DIDMCA) of 1980 mandated the removal of most deposit rate ceilings by early 1986. These so-called "Regulation Q" ceilings have governed bank competition for deposit balances since the Banking Act of 1933. Deposit rate ceilings have applied to thrift institutions (savings and loan associations and mutual savings banks) since September 1966. After many years of relatively constant deposit rate levels, the recent introduction of money market accounts and "super-NOW" transaction accounts indicates that the actual pace of deregulation will probably exceed that required by DIDMCA's statutory deadline.

Regulation Q has frequently been credited with keeping down deposit costs and therefore reducing loan rates (especially on mortgages) and/or raising financial institutions' profits. Under this view, the removal of deposit rate ceilings will have a serious effect on banking firms and their customers. An alternative view, however, contends that Regulation Q ceilings have had relatively little effect on loan rates or bank profits. Dismantling those ceilings should therefore cause no substantial changes in bank profitability. Which view of the effectiveness of Regulation Q is correct has important implications for the health and safety of financial institutions in the coming years.

*Assistant Professor of Finance, University of Pennsylvania and Research Advisor, Federal Reserve Bank of Philadelphia.
A SIMPLE—BUT INCOMPLETE—ASSESSMENT OF DEPOSIT RATE DEREGULATION

One possible result of Regulation Q ceilings is that they have been completely effective as a means of limiting bank costs. That is, a 5-1/4% ceiling on regular savings accounts means that these deposit balances cost banks no more than 5-1/4% per year (aside from compounding), regardless of the level of unregulated market interest rates. In this situation, if the rate ceiling were removed, competition would force banks to pay existing depositors higher rates for the same deposit balances. This would cause a dollar-for-dollar reduction in bank profits. Figure 1 summarizes the effect of deposit rate deregulation on commercial banks under this view of the world. (See the APPENDIX for details on how these numbers were calculated.)

The data reported in Figure 1 suggest that complete retail deposit rate deregulation would have disastrous consequences for bank profitability. If this view of deposit rate ceilings is correct, allowing banks to pay fully competitive rates on retail balances would reduce bank profits about 80%. Some who have performed similar calculations argue that deregulation should be opposed in the interest of protecting the viability of the U.S. financial system. Such a judgment may not stand up, however, once we recognize that Regulation Q has affected bank costs in ways other than its direct influence on interest expenses. A more complete evaluation of the effects of Regulation Q suggests a much different outcome for bank profits as deposit ceilings are dismantled.

THE FULL EFFECT OF DEPOSIT RATE CEILINGS

Though Regulation Q prevents explicit deposit rates from rising to their competitive levels, it does not eliminate bankers' profit incentives to compete for deposits. On the contrary, effective deposit rate ceilings...
mean that banks earn a profit on any additional deposit balances they can attract. While they are limited in their ability to pay explicit interest, bankers employ other devices to encourage customers to hold more deposits. These devices are generally interpreted as "implicit interest"—payments to depositors in some form other than cash. Common types of implicit interest include the provision of transaction services at a price below the bank's cost and attempts to make it more convenient for customers to use banking services. (See also REGULATION Q AND BANK LOAN RATES.)

Free Depositor Services. One way banks pay implicit interest is by providing deposit services—check clearing, money orders, deposit taking, statement maintenance, and so forth—at fees substantially below production costs. Bank processing costs for retail demand deposits, for example, were about 6.19% of deposit balances in 1981. Yet banks collected service charge income equal to only 1.67% of demand balances.¹ The difference (4.52 percent per year) can be viewed as an implicit interest payment to depositors: services provided in lieu of explicit interest. If explicit retail deposit rates rose (for example with the introduction of NOW accounts paying 5-1/4 percent interest), banks would presumably recoup some of the added explicit interest expense by raising service charges.²

Weiss (1969) reports that this type of adjustment was common when New England banks began offering "free" checking accounts in the late 1960s, and the more recent experience with NOW accounts seems to provide confirmation. The same effect is likely to occur for time and savings deposits: in 1981...

¹These data on bank cost and service charges come from the Federal Reserve System's Functional Cost Analysis for 1981. The data describe banks with $50-$200 million in total deposits.

²A recent Wall Street Journal article (December 30, 1982, page 7) on the effects of interest-bearing checking ("Super NOW") accounts quotes a North Carolina banker's response to deregulation: "Now that we're paying more for money, you'll see much more explicit pricing." The article goes on to define "explicit pricing" as "a specific charge for every service, including those once considered 'free,' that banks render customers."
banks recouped fees of less than two cents per dollar of noninterest expenses incurred in servicing retail time and savings accounts.\(^3\) As deregulation progresses, consumers will find that their explicit interest earnings have increased, but so have the fees and service charges they pay for bank services. The net effect on bank profits will therefore be much smaller than the calculation in Figure 1 suggests.

**Competition Via Convenience.** To attract profitable deposit balances without paying higher explicit rates, banks undertake a range of costly promotional activities in the form of advertising, gifts for new accounts or new deposits, and probably most important of all, efforts to increase customers' convenience. Establishing additional branch offices, installing automated teller machines, and lengthening hours of operation all raise bank expenses, but they also make a bank more convenient for existing and potential depositors. Other things the same, a more convenient bank is likely to attract more deposits. Research on this subject indicates U.S. banks have established a large number of additional banking offices in their efforts to substitute implicit interest (in the form of convenience) for explicit interest payments prohibited by Regulation Q. For the banking industry nationally, Peterson (1981) estimates that nearly one-third of all bank offices in 1979 would not have existed without binding Regulation Q ceilings. This is further substantiated by Chase's (1981) estimate that 38.3% of all savings and loan association offices in California in 1978 existed solely because savings and loan associations were forced to compete for funds without raising explicit deposit rates. In Massachusetts, Taggart (1978) found that 25.4% of all mutual savings bank branches were established to compete for deposits within the restrictions imposed by Regulation Q.

**An Estimate of Implicit Interest Payments.** The total amount of implicit interest of all sorts—subsidized services, additional conveniences, free gifts, advertising, and so forth—has been estimated independently by two researchers. Taggart (1978) found that Massachusetts mutual savings banks in the 1970-1975 period returned to their depositors implicit interest equal to nearly 40% of the difference between the regulated deposit rates and the explicit rates he estimated would have been paid in the absence of Regulation Q. (These expenses include the added branches mentioned above.) In a second study, Spellman (1980) evaluated savings and loan associations nationally. He found approximately 50% of all explicit interest savings arising from Regulation Q were "returned" to depositors in implicit forms. Though both these studies apply to thrift institutions instead of commercial banks, there is every reason to believe that similar forces have developed there as well. The relevant conclusion seems to be "that savings banks could have paid substantially higher rates without bankrupting themselves. . . because some of the increased interest expense would have been offset by lower operating expenses."\(^4\)

Applying these findings to the numbers reported in Figure 1 is straightforward. If banks cut back implicit interest payments (operating expenses) by 45% of the additional explicit rates they would pay under deregulation (the average of Taggart's and Spellman's estimates), the last two columns in Figure 1 would be 45% smaller. Note however, that the profit effect of deregulation remains substantially negative: $8.6 billion or 43.4% of pretax current operating income. It still appears that deposit rate deregulation will seriously hurt U.S. banks, provided their

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\(^3\)The Federal Reserve's 1981 Functional Cost analysis indicates that retail time deposits cost banks 1% in noninterest cost, while savings accounts cost 2.4% in noninterest cost.

\(^4\)Taggart (1978), p. 155, emphasis added.
Deposit Rate Ceilings

Mark J. Flannery

total size remains unchanged.

Bank Size Effects. Even after adjusting for reductions in implicit interest costs, it appears the profit margin on retail deposits will shrink under deregulation. Does this mean that removing Regulation Q will reduce the profitability of U.S. banks? Not necessarily. The final effect on total dollar profits cannot be determined without considering deregulation’s impact on the volume of deposit balances. (A supermarket, for example, has a lower markup on each item sold than a corner grocery store, but can still earn greater total profits because of its larger volume.) Without deposit rate ceilings, banks should become more attractive places for people to hold their wealth, leading to faster growth and (perhaps) higher profits.

Depositors have a number of alternative investments to bank deposits and will allocate available funds according to the relative rates of return offered. President Carter’s Inter-Agency Task force on Regulation Q noted that Regulation Q ceilings can have an important effect on deposit flows: “during periods when market interest rates significantly exceed rate ceilings, savers as a whole tend to decrease the proportion of their savings allocated to these institutions by investing directly in market securities or allocating savings to financial intermediaries, such as money market funds and mutual bond funds, that are not subject to Regulation Q.”

Spellman’s and Taggart’s evidence that implicit interest replaces no more than half the explicit interest saved because of Regulation Q implies that deregulation will raise the total return (explicit plus implicit) on deposits relative to other investments. In response, the public would supply more deposit balances to the banking system. The connection between deposit rates paid and the total dollars deposited is called the “interest elasticity of deposit supply.” Depositors are said to supply deposit dollars elastically if a small increase in the deposit rate elicits a large increase in the public’s desired holdings of bank deposits. With a larger volume of deposits, bank profits may rise even if the profit margin on each dollar shrinks with deregulation. Figure 1 ignores this effect; it assumes that depositors hold the same level of bank balances regardless of the return on deposits relative to other investments. A more realistic assessment is that depositors will increase their account balances when they receive higher interest. A high enough deposit supply elasticity could mean that deregulation actually raises bank profits. If enough new deposits flow into the banking system in the wake of deposit rate deregulation, banks could emerge even more healthy and profitable than they are today.

SOME EVIDENCE ON DEREGULATION’S IMPACT ON BANK PROFITS

The impact of deposit rate deregulation on bank profits depends on a large number of factors. However, we can assess the net effect of these interacting factors on bank profits using two types of evidence: recent accounting data on bank profitability, and evidence from the stock market’s assessment of past Regulation Q changes.

THE RECENT TREND IN BANK ACCOUNTING PROFITS

The view that deregulation cripples bank profits is unsupported by recent data on aggregate bank profitability. Between 1977 and 1982, retail deposit rates were substantially deregulated. A Federal Reserve economist notes that

"small" banks are those with assets less than $100 million.] As recently as the end of 1978, almost 80 percent of the interest-bearing liabilities of small banks were subject to fixed interest ceilings." (Opper (1982), page 456)

This effective deregulation has been due largely to the new, money market certificates (MMC) first introduced on June 1, 1978. These $10,000 minimum deposit, six-month time deposits had a ceiling rate tied to the discount yield of newly auctioned 26-week Treasury bills. By mid-1982 MMC accounted for $234.7 billion, or 60.4% of all bank time deposits under $100,000. In addition, NOW accounts spread from New England and Middle Atlantic states to the rest of the nation's banks on December 31, 1980. Between then and June 30, 1982, commercial bank NOW balances rose by $47 billion. Despite this sharp increase in the proportion of bank retail deposits bearing market rates, bank profits remained virtually unchanged between 1977 and the first half of 1982.

Figure 2 demonstrates this profit effect for both pretax operating profits and for net income (after all taxes, capital gains, and other extraordinary income items), each deflated by total assets. A great number of factors affected bank profits during the past few years, including a substantial amount of retail deposit rate deregulation. Despite all this, bank profits have been remarkably stable. This is true not only for large banks, which rely primarily on unregulated wholesale deposits, but also for smaller, more retail-oriented institutions. Banks have apparently adjusted their portfolios and pricing policies to counteract the profit effect of paying higher rates on retail balances. If deposit rate

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6 The minimum denomination on this account was reduced to $2,500 on January 5, 1983.

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**FIGURE 2**

BANK PROFITS BEFORE AND AFTER RECENT DEPOSIT RATE DEREGULATIONS

<table>
<thead>
<tr>
<th>1977</th>
<th>1981</th>
<th>1982†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretax Operating Profits*</td>
<td>Net Income*</td>
<td>Pretax Operating Profits*</td>
</tr>
<tr>
<td>All Insured Banks</td>
<td>.010</td>
<td>.0077</td>
</tr>
<tr>
<td>Banks with assets under $300 million</td>
<td>.010</td>
<td>.0087</td>
</tr>
<tr>
<td>Banks with assets over $300 million</td>
<td>.0098</td>
<td>.0071</td>
</tr>
</tbody>
</table>

*As a percentage of total assets at end of period. †Annualized, using data through June 30.
deregulation has seriously hurt bank profits so far, it has not shown up in the accounting figures.

**EVIDENCE FROM THE STOCK MARKET**

A firm's stock price reflects the expected profitability of its future operations. When investors learn new information about a firm, they evaluate the likely effect on profitability and revise the stock’s price accordingly. Examining the response of bank stock prices to past Regulation Q changes, therefore, provides one indicator of how relatively sophisticated investors feel the relative forces associated with deposit rate ceiling changes balance out. Regulation Q ceilings have been modified frequently in the past.\(^7\) Two particular episodes of deregulation are discussed here: the removal of rate ceilings on large certificates of deposits in 1970, and the introduction of retail money market certificates (MMC) in 1978.

**Deregulation of Large CD Rates.** Before 1970, Regulation Q ceilings applied to all bank time deposits including certificates of deposit in excess of $100,000. Because large depositors are very responsive to interest rate levels, when market rates on commercial paper or Treasury bills rose above the major banks' permissible CD rate (for example, in 1966 and 1969), it became difficult or impossible to sell large deposits. During these periods of so-called disintermediation, banks were forced to curtail lending or to obtain loanable funds in less efficient ways. On June 23, 1970, Regulation Q was suspended for short maturity (30-89 days) time deposits greater than $100,000.

How did the stock market react to this development? Christopher James (1983) reports that the price of large, money center banks' stock rose about 5% relative to the rest of the stock market on the day this deregulation was announced. Investors apparently felt that in this instance the high deposit supply elasticity of large depositors outweighed the higher explicit deposit rates the banks would pay for CD funds in the future. At the same time, smaller commercial banks showed no apparent change in market value, presumably because their liabilities included relatively small amounts of the newly deregulated time deposits. James' study therefore illustrates an important conceptual point: not all banks (or all thrift institutions, either) are necessarily affected by deregulation the same way. The specific factors that determine deregulation’s impact on profitability may balance out differently for different types of banks.

**Money Market Certificates.** Probably the most substantial change in deposit rate regulation prior to passage of DIDMCA was the creation of the new MMC account on June 1, 1978. Tying the MMC rate ceiling to a current market interest rate constituted a strong break with previous deposit rate ceilings, which had been set at specific levels that changed infrequently. When this Regulation Q modification was announced on May 11, 1978, retail-oriented bank stocks fell by about 3% relative to other stocks in the market. Market investors thereby indicated that they felt the net effect of these new accounts would hurt bank profits. Apparently, retail deposit balances were not expected to increase sufficiently in response to the higher explicit rate to offset the added interest expenses allowed by deregulation. In other words, these banks were viewed as being forced to pay more for essentially the same funds. This rather small stock price decline associated with the introduction of MMC is consistent with the accounting data in Figure 2 that show little recent change in bank profitability.

The market value of large money center banks did not change significantly when MMC were introduced, which again emphasizes the fact that each bank’s particular

\(^7\)Between July 1973 and yearend 1980, retail deposit rate ceilings were changed ten times. Since 1980, the Depository Institutions Deregulation Committee has made a number of further revisions.
position will determine its net response to deregulation. A monolithic response across the banking industry is unlikely to occur.

To summarize, neither recent accounting data nor the stock market's evaluation of Regulation Q changes suggests that deposit rate deregulation will have a tremendous effect on bank profits. Once we recognize the multiple influences of Regulation Q on bank operations, there is little evidence that the banking system's stability is threatened by deregulation.

CONCLUSION

Simple extrapolations from current bank balance sheets indicate that deposit rate deregulation will have seriously adverse effects on bank profits. However, incorporating the many relevant factors into the analysis suggests that profits may rise or fall with deregulation. Because deregulation is improving bankers' ability to compete with other market investments, banks with highly interest-sensitive deposits will gain substantial amounts of new investable funds. The additional profits earned on new deposits may more than offset the added interest cost of retaining old depositors. Stock market investors' past reactions to Regulation Q changes indicate that some banks will gain while others will lose under deregulation.

A second important dimension of the adjustment to deregulation concerns the timing of bank profit changes. Bankers are limited in their ability to reduce some implicit interest payments quickly when deposit rates rise. This limitation is most obvious in the case of bank branches, which cannot quickly be closed in an orderly fashion. Numerous branch closings might also generate sizable, one-time book losses that would make bank profits worse in the short run than they will eventually be.

Depending on their existing situations, some bankers will be better positioned than others to profit from the Regulation Q phase-out. The evidence suggests that large, wholesale banks will be least affected, because their current retail business is limited. Banks with a strong retail orientation will be subject to more serious changes in their traditional ways of compensating depositors. While careful planning and management will surely be required, over the long term most banks should find their profits largely unaffected by deposit rate deregulation.

REFERENCES


APPENDIX

THE ASSUMPTIONS UNDERLYING FIGURE 1

The data in Figure 1 describe only retail bank balances, on the assessment that corporate (and government) deposits have long borne competitive rates. For large certificates of deposit, this is obviously true: banks have been free to pay whatever rate they wish on time deposits above $100,000 since June 23, 1970. Corporate demand depositors have also received a variety of free or subsidized bank services in return for the average balances they hold. (In more recent years, this arrangement has been made explicit via the calculation of an "earnings credit allowance" on demand balances at a rate that fluctuates with market interest rates.)

Several other important assumptions underlie the numbers reported in Figure 1. First, deregulation is assumed to create competitive pressures among banks that force them to pay fully competitive rates on their deposits. These "fully competitive" rates were calculated using market interest rates from August, 1982.

Second, the "Retail Demand Deposits" category includes bank demand liabilities to the household sector. All these balances could potentially be transformed into interest-bearing NOW accounts. Figure 1 will overestimate the impact of deposit rate deregulation if some households continue to hold demand deposit accounts. On the other hand, nonprofit firms are allowed to have interest-bearing transaction accounts, though their current demand deposits are not shown from Figure 1. This omission tends to make Figure 1 underestimate the impact of deposit rate deregulation if some eligible firms will change from demand deposits to NOW accounts in the future.

Third, the "fully competitive" rate for demand and savings deposits is 100 basis points (1.0%) less than the average 13-week Treasury bill rate for August 1982, adjusted for the effect of required reserves. The 100 basis point differential is approximately equal to the pretax profit margin of large wholesale banks, which operate in a highly competitive environment. (Substituting some alternative short term market rate for the Treasury bill rate here would not substantially alter the estimates in Figure 1.)

Finally, the "fully competitive" rate for small time deposits is 100 basis points below the 2 year government bond rate in August 1982, adjusted for the effect of reserve requirements.
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No. 82-11 Robert H. DeFina, "Unions, Relative Wages, and Economic Efficiency."

No. 82-12 Mark J. Flannery and Christopher James, "Market Evidence on the Effective Maturity of Bank Assets and Liabilities."
82-1
ELEMENTS OF AN ECONOMIC JUSTIFICATION FOR MUNICIPAL ZONING
by Theodore M. Crone

The fact that externalities can produce a non-convexity in the social production set limits the application of both Coasian and Pigouvian solutions to the problem of achieving an optimal allocation of land resources. In this paper, we derive conditions on relative land prices which indicate whether external effects are strong enough to introduce a non-convexity into the production set. These conditions were not fulfilled in a sample of single-family and multi-family dwellings in Foster City, California. This does not preclude the possibility that they are fulfilled in cases of more severe external effects.

82-4
SPOT AND FUTURES PRICES AND THE LAW OF ONE PRICE
by Aris Protopapadakis and Hans R. Stoll

The law of one price (LOP) is tested for narrowly defined commodities traded in futures markets in different countries during the period 1973-1980. Although the LOP holds as an average tendency for most of the commodities, there are instances of large riskless arbitrage returns (before transactions costs). Deviations from the LOP tend to be commodity specific rather than due to a common external factor and they tend to be smaller the longer the maturity of the futures contract.

82-7
THE NEUTRALITY OF THE REAL EQUILIBRIUM UNDER ALTERNATIVE FINANCING OF GOVERNMENT EXPENDITURES
by Simon Benninga and Aris Protopapadakis

In this paper we show that the real equilibrium of an economy (excluding cash balances) is independent of government financing policies as long as the present value of taxes paid by each consumer, including the inflation tax, remains fixed. The economy for which the above proposition is true has constant marginal tax rates, has complete markets, and it is characterized by consumers that form expectations rationally under uncertainty. We investigate the restrictions this neutrality proposition imposes on the consumer's demand for money.

82-8
ECONOMIC DISTURBANCES AND EXCHANGE REGIME CHOICE
by Nicholas Carlozzi

The choice between fixed and flexible exchange rates is studied using stochastic simulations of a three-country macromodel. Random demand shocks appear in the markets for internationally traded goods and assets. Increasing the variances of one nation's goods and asset market disturbances increases the attractiveness of fixed rates to that nation's residents. Increasing the variances of the goods (relative to the asset) market disturbances does not significantly affect exchange regime preferences. Finally, it is shown that increasing the correlations of disturbances in any two nations increases the attractiveness of flexible exchange rates to the residents of all nations.

82-11
UNIONS, RELATIVE WAGES, AND ECONOMIC EFFICIENCY
by Robert H. DeFina

The ability of unions to raise the wages of their members relative to the wages of similar but nonunionized workers is well-documented. This paper examines empirically the implications of that wage differential for resource allocation and economic efficiency. This is accomplished by explicitly solving a numerically specified general equilibrium system with and without the wage differential. Comparison of the two solutions yields the desired information. The findings indicate that the wage premium results in adjustments in prices and quantities of factors and commodities that vary widely across industries. These adjustments are found to carry a small deadweight loss, as measured by the Hicksian equivalent variation.