

Analyzing the Flow of Funds into Commercial Real Estate:

A Look at the Commercial Mortgage Market

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Commercial real estate is one of many investments in the economy. And this investment is undertaken by a number of different types of business entities that are funded by a wide range of financial institutions, who themselves obtain funding from savers. Thus, understanding the funding of commercial real estate investment requires examination of activities of many economic sectors. The U.S. flow of funds accounts would seem to be a useful framework for such an examination.

The flow of funds in an economy can be viewed as a pipe system with water (saving) flowing in one end and out the other (as nonfinancial investment). Figure 1 pictures such a system, where the left inflow represents saving in the economy and the right outflow represents investment in real assets (nonfinancial capital). Because changes in inventories are defined as investment/disinvestment, the saving and investment flows are equal; an unanticipated increase in saving (decrease in consumption) increases inventories equally.

Both investment and saving consist of a number of component parts. We partition total saving into household (or personal), business, and government plus foreign (henceforth called "other"). And we consider three kinds of nonfinancial investment - household (owner-occupied housing and consumer durables), commercial real estate, and other business (industrial plant and equipment and changes in inventories). In some cases, saving flows directly into nonfinancial investment. For example, households can channel funds directly into houses, and businesses can put retained earnings directly in plant and equipment (other structures and other business, respectively, in the figure).

But most saving first flows into primary securities (stocks and bonds, broadly defined) and secondary securities (debt of financial intermediaries), and then is moved into real or nonfinancial investments. For simplicity, Figure 1 contains a single primary security market and only one financial intermediary class. Thus

saving flows either directly into nonfinancial investment, into primary securities, or to the financial intermediary. Of course, funds going to the intermediary then flow into either nonfinancial investment or primary securities. In the end, all the saving channeled into primary securities or through the intermediary finances nonfinancial investment. [1]

While all saving flows into investment, the cause of the flow is as often a pulling from the investment side as a pushing from saving. To illustrate, the most important determinant of the flow of funds into commercial real estate is surely the demand for space. Increased demands for space will drive vacancy rates down and real rents and values up. As a result, developers will build (Brainard and Tobin, 1968, and Gentry and Mayer, 2002), and funds will be attracted from other uses (nonfinancial capital investment) to finance the development. In terms of Figure 1, changed space demands magically alter the composition of investment outlays on the left.

Another important determinant is tax law. For example, the returns (cash flow and capital gains) on owner-occupied housing (and consumer durables) are not taxed and home mortgage interest is largely deductible. As a result of this non-taxation, the "user cost of capital" (the annual rental cost) is lower for owner-occupied housing than other nonfinancial investments, and thus we get more of the former and less of the latter, including commercial real estate. A large literature exists on the resultant over-investment in household capital relative to business or industrial capital (Hendershott, 1983, and Hendershott and Hu, 1983). Another tax example is the extremely generous tax depreciation allowances that existed in the early 1980s and the meager allowances that existed after the 1986 tax act (Follain, Hendershott and Ling, 1987 and 1992). As a result, the user cost for commercial real estate and other fixed business investment (but not inventories or household real capital) was first relatively low and then relatively high.

Flow of funds analysis is unlikely to be especially useful in understanding the impacts of changes in space demands or tax law on the flow of funds to commercial real estate. In each of these cases, real factors change investment demands and fund flows follow. Where flow of funds analysis could be useful is in understanding the effect of "disturbances" that emanate from the financial system or within the funds flows matrix. Such disturbances begin by affecting the distribution of saving and the portfolio decisions of financial institutions and then spill over onto real investment decisions. We know that the different financial intermediaries - banks, thrifts, REITs, insurance companies, etc. - have different proclivities to invest in commercial real estate either directly or indirectly; thus

shocks that alter the distribution of funds among the intermediaries will affect the financing of real estate.

The next question is: which financial markets are most relevant to commercial real estate? The bank loan market probably supplies most funds for real estate development, and the commercial mortgage market plays a major role in post development financing. Flow of funds analysis is more appropriately applied to the commercial mortgage market than the bank loan market because so many different sectors are issue and purchase these mortgages. [2]

So we begin with a discussion of portfolio decisions by savers and financial intermediaries and the likely affects of these decisions on commercial real estate investment. We then analyze changes in the commercial mortgage market over the last quarter century and their possible impact on commercial real estate investment. We conclude with a brief summary and begin formulating some thoughts on future work in this area.

I. Some Determinants of Portfolio Decisions

Taxes can also affect the distribution of saving among financial intermediaries. For example, if household saving at banks directly lowered taxable income and if the return on this saving were exempt from taxation (e.g., 401 type retirement plans), saving in this form would certainly increase relative to saving through other intermediaries or primary security markets. And if banks were more likely to invest in commercial real estate (see below), the flow of funds to it would increase. More fundamentally, the 1960 decision to exempt REITs from taxation at the firm level likely has affected both the distribution of saving and the share of nonfinancial investment in commercial real estate.

The composition of nonfinancial investment also depends on the perceived risk of the different types of investment. A significant input into the user cost of capital is the weighted (debt and equity) average cost of financing nonfinancial investments (WACC). This is the after-tax risk-free interest rate plus a risk premium. The higher is the risk premium for a type of investment, the greater is the WACC and thus the user cost, and therefore the smaller is the fraction of total investment in this component. Put another way, the higher the risk premium for an investment, the higher is its cap rate and the lower are valuations and thus incentives to supply more of the component. Risk premia for different nonfinancial investments can presumably change in fundamental ways over time as private markets develop or government regulation becomes more or less

restrictive. Premia might also change over the business cycle owing to changes in business risks.

Different investor classes have different assessments of the risk premium for commercial real estate or securities issued to finance it. For example, a fully diversified investor will have a lower risk premium because nonsystematic risk is not an issue, while a nondiversified investor will charge a premium for nonsystematic as well as systematic risk. Thus the development of a diversified REIT sector could lower the risk premium on commercial real estate, increasing the flow of saving to it.

If a specific financial intermediary has a lower commercial real estate risk premium and this intermediary receives more/fewer funds, investment in commercial real estate will increase/decrease. Thus the taxation/regulation of financial intermediaries, as well as of households supplying funds to intermediaries, matters. If taxation/regulation of an intermediary is lowered/loosened, then it will be able to attract a larger share of household saving. Again, if the intermediary has a relatively low/high commercial real estate risk premium, investment in commercial real estate will increase/decrease. As we note below, the 1982 expansion of thrift asset powers to allow investing in commercial mortgages and the increase in financial intermediary risk-based capital requirements for whole loans or mortgages in 1993 were important regulatory changes for commercial real estate.

Similarly, the efficiency of primary securities markets matters. If a primary securities market becomes more liquid (bid-ask spreads shrink), then more funds will flow directly to this market and less to other primary security markets or through intermediaries. And if the now more efficient primary market favors/disfavors commercial real estate, then investment in commercial real estate will rise/fall.

To summarize, the relative flow of funds to commercial real estate depends importantly on taxes, regulation and risk. Taxation of nonfinancial investment components, of household saving and of financial intermediaries all matter. Examples of important tax legislation in the last fifty years include the 1960 exemption of REITs from taxation at the firm level, the incredibly generous and then stingy tax depreciation allowances for structures in the 1980s, and the general expansion of tax exempt retirement savings vehicles for households. Examples of potentially important changes in risk premia are harder to identify because these premia are not observed. However, the securitization of first

residential and then commercial mortgages, and the changes in risk-based capital requirements of financial institutions in the early 1990s are likely illustrations.

We remind the reader that documenting the impact of these factors on commercial real estate investment is a formidable task. The main difficulty is that other factors are likely far more important. To illustrate, say that one wished to identify the impact of home mortgage securitization on housing. One would effectively have to estimate what the increase in the housing stock would have been in the absence of securitization and then obtain the securitization impact by subtraction. This would entail accounting for demographic changes over time, as well as changes in real income, in variables determining the user cost of capital (household marginal tax rates, expected house price appreciation), etc.

And what about the impact of the REIT tax-exemption status? One would need estimates of the impact on the REIT industry's share of savings and of how much the increase in this share fuelled additional commercial real estate investment - most of the increase likely just replaced investment that would otherwise have been financed by some other sector.

Contrast these analyses with determining the impact of changes in tax depreciation allowances. Here all one needs to know is how the tax depreciation changes affected the user cost for investment and how investment responds to such changes. This makes the point that the further the tax/regulatory intervention is away from the end nonfinancial investment, the more difficult it will be to identify the impact because the more other factors will have to be accounted for.

Nonetheless, we venture forward with our analysis of developments in the commercial mortgage market.

II. Net Issues and Purchases of Commercial Mortgages

Figure 2 plots total commercial mortgage issues over the last quarter century, as well as those of nonfinancial corporate business, noncorporate business, and REITs. Total issues equal the sum of those issued by these three sectors and nonprofits organizations. [3] As can be seen, total issues increased five-fold between the late 1970s and the late 1990s, about twice the increase in nominal GNP. However, the real growth occurred entirely in the early 1980s; the recent \$100 billion plus total annual issues are less in real terms than the issues during 1983-88.

Historically, the major issuer has been the noncorporate business sector, and that sector fully accounted for the early tripling of the market. Corporate business issues are the most cyclical, being negative during the recession periods of 1980, 1982 and 1991-93 (but not 2000). Except for these declines and large issues in the late 1980s, corporate issues have been in the \$5 to \$15 billion range until recent years. REITs were a negligible factor in the market until the second half of the 1990s.

The major questions for us are the causes of the early 1980s surge in issues and the subsequent cycle in this market. Have issues simply reflected swings in the demand for real estate financing or have changes in the supply of funds sometimes driven the market? That is, have fund flows altered commercial real estate investment or have the flows simply been pulled along by the investment? To assist in this assessment, we have computed annual average commercial mortgage issues and purchases during 1977-2002 period for two to four year segments. These segments capture the major shifts in the market. Purchases are given for commercial banks, saving institutions, life insurance companies, asset-backed security issuers (ABSs) and all other. These data are shown in Table 1.

As can be seen, purchases of all the major investors (except ABSs) plummeted in the early 1990s, although those of nonbank savings institutions (SAVs) fell first. SAV purchases were small (\$4 billion per year) during the 1977-88 period except for a surge to \$16 billion during 1983-85. In contrast, SAVs liquidated \$15 billion a year during the next six years. After purchasing \$35 billion commercial mortgages annually during the 1984-90 period, commercial banks bought none during the 1991-94 period. Life insurance companies (LICs) averaged annual purchases of \$17 billion a year during the 1985-90 period, but liquidated \$11 billion a year during the 1991-94 period. The post1994 data indicate that of these three sectors only commercial banks have come back into the market in a significant way. Rather, the LICs and SAVs have been replaced by ABSs and greater bank purchases in very recent years.

We now turn to a more detailed look at issues and purchases in order to determine whether issuer or purchaser behavior was driving the market at different points in time.

Issues

Table 2 provides some aggregated data on sources and uses of funds by

corporate (top) and noncorporate (bottom) business for our nine sub-periods. The net acquisition of financial assets consists of three netted items (see the Appendix), while the net increase in financial liabilities is divided into commercial mortgages, corporate bonds, other credit market instruments (CMI) and equity issues. [4] Internal funds (or gross saving) and capital expenditure increase monotonically over our periods, while net financial asset purchases and security issues exhibit some volatility. [5] We are, of course, especially interested in commercial mortgage issues.

Beneath the corporate section of the table we list the ratio of commercial mortgage issues to the sum of commercial mortgage and corporate bond issues. Beneath the noncorporate section we list the ratio of commercial mortgage issues to total issues of credit market instruments. We also list the ratio of corporate to noncorporate commercial mortgage issues. As can be seen, after 1985, corporate and noncorporate issues move largely in tandem, with corporate issues being about two-thirds of noncorporate. The only exception is 1991-94, where issues are negative for both sectors, but more, rather than less, negative for corporations. Prior to 1985, corporate issues were modest and basically uncorrelated with noncorporate issues.

For corporate business, in the post1985 period the ratio of net commercial mortgage issues to the sum of these and bond issues ranged between 8 and 20 percent with the exception of the anomalous 1991-94 period. Here commercial mortgages were liquidated at a rapid rate, while bond issues continued at the same rate as in the previous two years. For noncorporate businesses, commercial mortgage issues average 40 percent of total CMI issues over the quarter century, with the ratio ranging from 20 to 74 percent over our sub-periods, with commercial issues being particularly heavy during the first half of the 1980s. The largest ratio, however, is during the 1991-94 period when commercial mortgages were liquidated at a relatively greater rate than other debt.

It appears that the sharp liquidation of commercial mortgages in the early 1990s was not driven solely by general factors affecting business total issues. Whereas commercial mortgage net issues of noncorporate business were generally about two-thirds of other CMI issues, three times as much commercial mortgage debt was repaid. And corporations sharply liquidated commercial mortgages while continuing to grow their bond debt. Much of the collapse in commercial mortgage issues, then, must have been due to changes in the supply of funds to this market. Further, noncorporate issues were large relative to other CMI borrowing during the first half of the 1980s.

Before moving to the supply of funds, we conclude our analysis of commercial mortgage issues with a brief examination of the behavior of REITs, the other major issuer (because nonprofits are included with households in the flow of funds, an analysis of the former cannot be undertaken with these data). Table 3 provides data on REIT sources and uses of funds. Here we have taken 1989-92 as the base low level of activity and shown how REIT behavior evolved. As can be seen, the annual fixed investment of REITs jumped in the 1993-96 period, triggered by creation of the umbrella partnership UPREIT structure. Annual investment then quadrupled in 1997-98, before settling back to half of the 1993-96 period activity. At the bottom of the table we list the ratio of commercial mortgage issues, other debt issue, and equity funds raised (internally and externally) to the total sources of funds. As can be seen, commercial mortgage issues constituted a roughly 15 to 20 percent share of REIT fund sources, although the averaging in the table disguises significant annual variation. Equity funds, in contrast, declined from roughly 60 percent of sources during the 1993-96 period to 40 percent since then.

Purchases

As noted earlier, nonbank savings institutions (SAVs) were the first to back out of the commercial mortgage market. By the early 1980s, many of the thrifts were bankrupt owing to the combination of their having borrowed short term and lent long and a significant increase in the level of interest rates. Congress encouraged thrifts to grow out of their problem - to earn positive margins on large quantities of newly invested funds - and expanded asset powers of Federally-chartered thrifts to assist in this process. And grow thrifts did, raising \$122 billion funds annually during the 1983-88 period, twice the rate during 1977-82 period (see Table 4). A major new power in the Garn-St Germain Depository Institutions Act of 1982 was the ability to invest in commercial mortgages, and this triggered a surge in purchases of commercial mortgages - \$16 billion annually during the 1983-85 period, quadruple the rate during the pervious six years..

Unfortunately, overbuilding of commercial real estate occurred in response to both the tax sheltered syndicates stimulated by the 1981 Tax Act and the lending of bankrupt thrifts. [6] This led to declines in commercial real estate values, especially in the Southwest, and negative margins on much of thrifts' new business. The end result was the passage of FIRREA in 1989 and the closing of many thrifts. In 1989-90 this sector lost funds at a \$127 billion annual rate, and it lost another \$80 billion annually during the 1991-94 period. As a result of the

liquidation of these thrifts, nearly \$15 billion of net sales of commercial mortgages occurred annually during the 1989-94 period.

In 1992, the Office of Thrift Supervision increased risk-based capital requirements on whole loans (commercial mortgages) of life insurance companies and commercial banks. The result was a sharp decline in the demand for commercial mortgages by these sectors. Figure 2 plots the share of net funds raised by LICs that were allocated to commercial mortgages, other credit market instruments (CMIs), and corporate equities (including mutual funds). During the 1977-89 period, the allocation was roughly 20 percent to commercial mortgages, 5 percent to corporate equities, and 75 percent to other CMIs. The commercial mortgage share dropped off in 1990 and then was negative until 1998, averaging -11 percent of total net funds raised over the 1992-94 period, as LICs shifted into corporate equities. The latter shift continued until 2000; between 1998-2000 LICs put nearly 60 percent of their net funds into equities, backing off to 25 percent in 2001-02 when the stock market collapsed.

Commercial bank aggregate annual sources and uses statements are shown in Table 5 for sub-periods that are close to those used in Tables 1 and 2. Slight changes have been made to make the sub-periods correspond more closely to the periods of more or less growth in the bank sector. More specifically, 1984-86 was the period of most rapid annual asset accumulation until 1995 and was funded by the largest increase in small deposits until 1997. The recent post1994 rapid asset accumulation has been funded by record net security (including large time deposits) issues.

From the late 1970s until the late 1980s, the share of net asset accumulation directed to net commercial mortgage purchases increased fairly steadily, rising from 8 percent to 24 percent. Then the increased risk-based reserve requirements (and reduced real estate development) reduced net purchases in the 1991-94 period to zero. During the last six years net purchases have been 16 percent of net asset accumulation and, given the large accumulation, have averaged \$51 billion per year. Note also the large purchases of bonds, 40 percent of which have been corporates. A significant fraction of these likely consists of the high-quality tranches of CMBSs. Counting both direct and derivative purchases, commercial bank supply of funds to the commercial mortgage market is probably back to its 1984-90 peak in real terms and may be responsible for three-quarters of the market.

The last sector we wish to discuss is the asset-backed security issuers. Issuers of

asset-backed securities are special purpose vehicles (SPVs), entities established by contractual arrangement to hold assets and to issue debt obligations backed by the assets. The SPVs are similar to federally related mortgage pools in that they are not actual institutions but are created for bookkeeping purposes. The financial assets of the sector are federally-related mortgages pool securities, mortgages, and other loans (autos and the like). These "securitized assets" have been transferred from the balance sheets of the sectors that originated the loans to the balance sheets of the SPVs. The obligations issued by the SPVs, e.g., CMBS tranches, are classified as corporate bonds as well as commercial paper and represent claims against the assets that have been pooled as collateral.

Table 6 reports the asset flows into these SPVs over the last 17 years broken down into agency securities (agency mortgage pools), residential mortgages, commercial mortgages and other loans. The first assets securitized were the mortgage pools in 1986-88. This level of activity was not matched again until the late 1990s. Total securitized assets nearly doubled from \$75 billion in 1992-94 to \$143 billion in 1995-96 and doubled again by 2001-02. Net commercial mortgage purchases did not reach \$10 billion until 1996 and then quickly accelerated to the \$30-\$50 billion dollar range in 1998-2002 as the CMBS market exploded. By then, 14 percent of securitized assets were commercial mortgages.

III. Summary and Future Research

The Federal Reserve's flow of funds accounts are a marvelous "closed loop" system with incredible detail on financial flows. For each sector, total sources and uses of funds are equal (up to a discrepancy item), and for each market, issues and purchases of the security are equal. Thus all investment is financed and all securities issued are purchased. [7] We use this data to better understand changes in the commercial mortgage market over time and how they have affected commercial real estate investment.

While the information in these accounts is certainly useful, and one obviously would not want to work in a framework where these adding up constraints or identities did not hold, the data have their limitations. In particular, if issues and purchases in a market increase, we don't know if it was greater demand or supply of the security that caused the increase. Similarly, if investment in commercial real estate rises, we don't know the role played by real estate financing. Did easy financing encourage the increased investment or did tight financing restrain it? Simply put, in order to infer causation, one generally needs to observe prices as well as quantities or flows.

In the absence of price data, we have undertaken a careful analysis of commercial mortgage issues and purchases in order to determine if there were periods where unusual purchase levels seemed to generate matching unusual issue levels. This requires identifying causes of unusual purchases and then seeing if there is an appropriate issuance response. Two periods were noted. The first period is when thrifts were encouraged to grow out of their negative-net-worth problem in the early 1980s and were given authority to invest in commercial mortgages. During 1983-85, savings institutions added to commercial mortgage holdings at the annual rate of \$16 billion versus a modest \$4 billion a year during the previous six years. This seems to have spilled over onto greater than normal net issues by noncorporate businesses and thereby contributed to the overbuilding of commercial real estate during that period.

The second period is associated with the closing of many thrifts during the 1989-94 period and, especially, the higher risk-based capital requirements on commercial mortgage holdings of commercial banks and life insurance companies. Seemingly in response, noncorporate businesses paid down commercial mortgage debt at a faster rate than other debt, in spite of the fact that the latter had been growing much faster than commercial mortgage debt in earlier years, and nonfinancial corporations liquidated substantial commercial mortgage debt while continued to issue corporate bonds at the rate of earlier years.

Future research might quantify the unusual business commercial mortgage issuance behavior econometrically, using seemingly unrelated regression analysis (Hendershott, 1977). Presumably issuance would be well above predicted in the early 1980s and below during the early 1990s. Research could also usefully be directed at the direction of causation between sectoral commercial mortgage purchases and issues, the key questions being when were specific financial institution purchases driving business issues and when issues were driving purchases. Perhaps a vector autoregression analysis, such as that recently used by Ling and Naranjo (2003) to determine whether REIT capital flows were causing equity REIT returns or vice versa, could be undertaken. Alternatively, an analysis of the relationship between commercial mortgage issues and commercial construction itself, would be a possibility, where the key would be to determine when issues were driving construction rather than the reverse. These analyses could also be used to determine the effect of recent developments in the market, such as greater REIT issues and the securitization of commercial mortgages into CMBSs.

Finally, other factors that drive construction should be included in these analyses. For example, general macro economic shocks as well as tax law changes are certainly relevant to real estate construction.

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Appendix: Aggregating Flow of Funds Sectoral Sources and Uses of Funds

Here we provide a short description of how we aggregated or combined sector

sources and uses. We generally start with a brief aggregate identity, then break aggregates down and finally reaggregate up.

Noncorporate:

The basic identity can be written as

$$\text{CapCons (or gross inv or gross saving)} = \text{CapExp} + \text{NetAcqFinAssets}$$

$$- \text{NetIncreaseLiab}$$

We divide these into the following components:

$$\text{Net Increase in Liab} = \text{ComMort} + \text{OtherCMI} + \text{PropNetInv} + \text{TradePay} + \text{MiscLiab} + \text{TaxesPay}.$$

$$\text{NetAcqFinAssets} = \text{MiscAssets} + \text{TradeRec} + \text{OtherFinAssets}$$

Substituting and rearranging,

$$\text{ComMort} + \text{OtherCMI} + \text{PropNetInv} =$$

$$\text{CapExp} - \text{GrossSaving} + (\text{TradeRed} - \text{TradePay}) + (\text{MiscAssets} - \text{MiscLiab})$$

$$+ (\text{OtherAssets} - \text{TaxPay})$$

Corporate Nonfinancial:

Here the basic identity can be written as

$$\text{InterFunds} + \text{IVA} = \text{CapExp} + \text{NetAcqFinAssets} - \text{NetIncreaseinLiab} + \text{Disc}$$

We divide these into the following components:

$$\text{Net Increase in Liab} = \text{ComMort} + \text{CorBonds} + \text{OtherCMI} + \text{NetEquIssues}$$

$$+ \text{TradePay} + \text{TaxPay} + \text{MiscLiab}.$$

$$\text{NetAcqFinAsset} = \text{TradeRec} + \text{MiscAssets} + \text{OtherAssets}$$

Substituting and rearranging,

$ComMort + CorBonds + OtherCMI + NetEquIssues =$

$CapExp - InterFunds+IVA + (TradeRec-TradePay) + (MiscAsset-MiscLiab+Disc)$

$+ (OtherAssets-TaxesPay)$

REITs:

The basic identity is:

$FixedInv + NetAcqFinAssetsexceptMisc + (MiscAssets-MiscLiab) + Disc =$

$(Saving+equity\ issues) + ComMort + (otherCMI+SecRPs)$

Life Insurance Companies:

We begin with this identity:

$Inv - GrossSaving + NetAcqFinAssets + Disc = NetInclLiab$

where

$NetAcqFinAssets = ComMort + OtherCMI + (CorEqu+MF) + Cash + MiscAssets$

Rearranging,

$ComMort + OtherCMI + (CorEqu+MF) = GrossSaving - Inv + NetInclLiab - Cash$

$- MiscAssets$

Savings Institutions:

Here the basic identity can be written as

$NetAcqFinAssets = NetInclLiab + (Sav-Inv) - Disc$

We divide these into the following components:

$\text{NetAcqFinAsset} = \text{ComMort} + \text{USTreasuries} + \text{OtherCMI} + \text{OtherFinAssets}$

$\text{Net Increase in Liab} = \text{Deposits} + (\text{SecRPs} + \text{CMI}) + \text{OtherLiab.}$

Substituting and rearranging,

$\text{ComMort} + \text{USTreasuries} + \text{OtherCMI} + \text{OtherFinAssets} =$

$\text{Deposits} + (\text{SecRPs} + \text{CMI}) + (\text{OtherLiab} + \text{Sav} - \text{Inv} - \text{Disc}).$

Asset Backed Security Issuers:

$\text{NetAcqFinAssets} = \text{AgencySec} + \text{ComMort} + \text{ResMort} + \text{OtherLoans}$

where

$\text{NetAcqFinAssets} = \text{NetIncLiab} + \text{Saving} - \text{FixedInv} - \text{Disc}$

Commercial Banks:

We create three asset items, two liability items, and a catchall net everything else. We define the asset and liability items; the catchall is the rest.

"Portfolio" = $\text{ComMort} + \text{OtherTotalLoans} + \text{"Bonds"}(\text{US} + \text{Munis} + \text{Cort\&foreign})$

"Funds" = $\text{"Deposits"}(\text{checking} + \text{smalltime} + \text{"Securities"}(\text{largetime} + \text{fedfunds} + \text{CMI}))$

OtherLiab-OtherAssets (catchall)

[1] It is worth noting that net sectoral flows are recorded. That is, if some households dissave while others save, it is the difference between the two that appears in the accounts. Similarly, if some corporations decide to purchase buildings from, say, pension investors and stop leasing space, this appears as corporate structures investment (and pension disinvestment).

[2] Clayton (2003) has a compelling graph of the relationship between net commercial mortgage issues and the returns on the NCREIF index.

[3] The accounts record net, not gross, issues and purchases. Thus if some

corporations issue commercial mortgages, while others retire an equal amount, no issues will be recorded for the sector.

[4] Proprietor's net investment is computed as the residual to make total sources of noncorporate business funds equal to total uses.

[5] For a lucid discussion of changes in corporate sector finances, especially the enormous retirement of equity in the 1995-2000 period, see Teplin, 2001.

[6] Note in Table 2 the especially sharp 110 percent increase in noncorporate capital expenditures between 1977-79 and 1986-88. In contrast, capital expenditures of corporations increased by only 75 percent.

[7] For an early use of these data and these market-clearing relationships to explain the levels of three market interest rates, see Hendershott (1977).