

I. INTRODUCTION

In 1983 the Arizona Department of Revenue, Division of Property and Special Taxes, undertook a study to gather information on the financing of legal class 3 (commercial/industrial) and legal class 6 (rental residential) property sales. This paper reports on the results obtained for the rental residential properties.

Section II of the paper discusses sample selection and data collection procedures. Section III presents results of a standard mathematical computation of cash equivalency adjustments using compound interest/present value tables. Section IV discusses the results of an attempt to model the extent to which the mathematical adjustments are capitalized in the market. Section V contains the conclusions.

The sample was drawn from a population of 2234 class 6 (rental/residential) parcels that sold in 1981 and were used in the Department's final 1982 sales ratio study. Through stratified random sampling based on type of property (e.g., single family, condominium, etc.), 320 of these were selected as candidates for a field survey. The remaining 1914 were designated for a mail survey.

Both the field and mail surveys utilized the Rental Residential Sales Information Form (Exhibit I-A). A cover letter describing the purpose and nature of the study (Exhibit I-B) was included with the mail survey. The field survey was conducted by full-time appraisers employed by the Division of Property and Special Taxes. Both surveys were directed to purchasers, who were generally current owners of the property, or their agents.

Of the 320 parcels designated for the field survey, owners or their agents were successfully contacted and interviewed in 146 cases. Most of the others were not available when the parcel was visited. Several refused to participate. Of those contacted, 101 were screened in the office as being complete and usable and were subsequently key-punched onto a computer file.

Of the 1914 parcels assigned to the mail survey, the Post Office returned 363 questionnaires (19.0 percent) as undeliverable, 1097 (57.3%) did not respond, and questionnaires were returned for 454 (23.7%). A second mailing was not made. Office screening found 332 of the returned questionnaires to be complete and usable; these were keypunched. Hence, a total of 433 questionnaires (19.4% of the population of 2234 class 6 sales) were computerized for further analysis.

Once computerized, the data was matched against property characteristics and appraisal data contained in the property files. This revealed that there were a total of 385 seemingly valid single family residential, condominium/townhouse, 2-4 plex, and apartment parcels. The other 48 parcels consisted of acreage, mobile homes, trailer parks, converted or misclassified commercial structures, storage buildings, and mixed use properties and were not analyzed further. In addition, a check on financing information was made to ensure that the sum of the cash down-payment, including the value of trades, and the amount of all mortgages was not less than 95% or greater than 110% of the stated purchase price. This check purged another 24 responses, leaving a net total of 361 useable responses.

III. CASH EQUIVALENCY ANALYSIS

Exhibit 2 summarizes the type of financing involved in the transfers. The mean percent downpayment, including the reported value of trades, was 29.9%. Twenty-one respondents reported that a trade, such as another property or notes, was included in the downpayment. Total downpayments (cash and trades) by type of property ranged from 21.3% for apartments to 34.0% for condo/townhouses. By price, downpayments ranged from 22.3% for sales of \$250,000 or more to 36.5% for sales under \$40,000. Thirty-Five respondents (9.7%) reported paying all cash.

The 361 transfers involved a total of 479 mortgages, an average of 1.33 per property. Over half of the transfers (53.5%) involved at least one assumed mortgage. Seller carrybacks were also involved in over half of the transfers (51.0%). Median percent interest rates ranged from 9.50 on first assumptions to 13.75 on new first mortgages.¹ The term of the loans was generally short, about five years, except for the first assumptions, which carried a median remaining term of 23 years.

The present value of the mortgages was computed by finding the present value of the monthly payments. The monthly payments were computed by multiplying the mortgage amount by the monthly partial payment factor based on the stated term and interest rate. The present value of the monthly payments was then computed by multiplying by the present worth factor of one per period at a market rate of 17%. This is the approximate average mortgage interest rate quoted by Arizona lending institutions during 1981. This method of cash equivalency computations is consistent with that contained in course materials used by IAAO and other professional appraisal organizations.

When balloon payments appeared to be involved, an attempt was made to determine and capitalize the exact payment stream. Due to difficulties in interpreting responses and other factors, however, this was abandoned in favor of a consistent, conservative policy of finding the present value of all mortgages as if they were fully amortizing. For a 5-year mortgage at 11% with interest only payments and a balloon at the end of five years, this will overstate the present value of the loan by 7.3% and understate the required cash equivalency adjustment by about 1/3 (32.2%).²

Exhibit 2 also shows the computed mean cash equivalency adjustments for each type of mortgage. These adjustments are the differences between the nominal and present values of the loans expressed as a percentage of their dollar value. The mean adjustment for the first assumptions was 32.0%, far higher than for the other mortgages and reflecting the lower interest rates and longer term generally associated with these mortgages.

The total cash equivalency adjustment for cash transfer was computed by summing the adjustments made for each mortgage.³ The total adjustments were then expressed as a percentage of the total purchase price. The results are summarized in Exhibit 3. Among all 361 respondents, the average cash equivalency adjustment was 15.9%. In addition, respondents reported paying an average of 1.3% of the purchase price for furniture, fixtures and other items of personal property, thus yielding a total adjustment of 17.2%.

In general, the magnitude of the percentage adjustments appeared to increase with the size and price of properties, with apartment buildings and sales of \$250,000 or more requiring the largest adjustments. Little differences were observed among counties. In terms of survey procedures, total percentage adjustments averaged 16.0% for those transfers subject to field visits, 19.7% for mail responses in which the owner or agent included a copy of the sales contract or other supporting transfer documents, and 17.1% for mail responses without supporting transfer documents.

IV. REGRESSION ANALYSIS

In order to help evaluate the extent to which the market recognizes or capitalizes creative financing, two types of regression analyses were performed (Exhibit 4). The first approach was based in dollars with the dependent variable being total purchase price (TOTPRCPR). The independent variables included the amount of cash equivalency adjustment (CEADJZ) and the indicated value of any personal property included in the sale (TOTPP). Appraised 1981 full cash values (FCVs) were used as proxies for market values.⁴ These were set up separately by area (Maricopa, Pima, and other counties) and valuation model (market and cost) to allow for variations in appraisal procedures and results. Maricopa County in 1981 used a market approach employing multiple regression analysis (MRA) for single family and condominium/townhouse properties and used the cost approach for 2-4 plex and apartment properties. Pima County used an MRA-based market approach for other residential parcels. The other counties used MRA-based techniques for some single family residences and the cost approach for all other residential properties.⁵ Five models were run: one each for single family, condo/townhouse, 2-4 plex and apartment properties, as well as a pooled or aggregate model.

While this dollar approach is consistent with most other regression analyses performed to evaluate the market's capitalization of creative financing, the authors suspect that it suffers in terms of heteroscedasticity⁶ and, more importantly, model specification. This is because mathematically derived cash equivalency adjustments expressed in dollars reflect not only the degree of creative financing, but also the magnitude of the mortgages which, in turn, tend to be correlated with purchase price. Hence, a variable such as CEADJZ tends to reflect the magnitude of the dependent variable along with the nature of the financing itself.

For this reason a second set of regression equations using a "percentage" approach was also developed. The dependent variable was the appraisal ratio (FCVRATIO) obtained by dividing the "full cash value" appraisal made for tax purposes by the sale price. Independent variables included the cash equivalency adjustment expressed as a percentage of the purchase price (CEPER) and the reported value of personal property divided by the purchase price (PERPP). Dummy variables were used to model for variations in appraisal procedures, with parcels in Maricopa County appraised by the market approach serving as the reference group in the single family, condo/townhouse, and pooled regressions.

The coefficients obtained in the percentage approach regressions are interpreted as follows: The constant represents the overall ratio of appraised values to market values in the reference group. This can be seen by noting that when no creative financing or personal property is present, sale prices tend to converge upon market values and the equation "collapses" to the constant when the subject parcel is in the reference group. Similarly, the coefficients for the dummy variables representing the other appraisal models will represent the differential in appraisal levels between the models. Most importantly, the coefficient for CEPER will, when divided by the constant, represent the percentage of the cash equivalency adjustment recognized by the market. Division by the constant is necessary to adjust for the level of appraisal, that is, a coefficient of, say, -.40 will imply 40% capitalization when the overall level of appraisal, as indicated by the constant, is 1.00, but 80% capi-

talization at an appraisal level of only 50%.⁷ The coefficient for PERPP is interpreted in a similar manner. In both cases, negative coefficients imply positive capitalization, since a decrease in the dependent variable, FCVRATIO, at a given level of appraisal (as measured by the constant) means an increase in sales prices. *

Results of the "dollar" regressions are shown in Exhibit 5. Adjusted R²s and COVs (coefficients of variation computed as the standard error of the estimate divided by the average purchase price) are quite good. The coefficient of .88 for CEADJZ obtained for single family parcels suggests, for example, that the market capitalizes 88% of the mathematical adjustment into an increased purchase price. Comparable figures are 39% for condo/townhouses, 148% for 2-4 plexes⁸, and 73% for the pooled regression.

Exhibit 6 contains results of the "percentage" regressions. Adjusted R²s, of course, are much lower since, by nature, appraisal ratios will exhibit much less variance than purchase prices. The COVs are rather comparable to those obtained in the first models. The results of the single family model, for example, indicate that the overall appraisal ratio is 79% of market value in the reference group (properties in Maricopa County appraised on the market model), not significantly different for properties appraised by the market model in Pima and the other counties, and 9 percentage points lower, or .70, for properties appraised by the cost approach. The coefficient for CEPER of -.24 in conjunction with the constant of .79 suggests that the market capitalizes 30% (.24 divided by .79) of the mathematical cash equivalency adjustment into the sale price. Comparable figures are 112% for apartments (.82 divided by .73) and 15% overall (.12 divided by .78). The F-values, although not very high, suggest that capitalization does exist at the 95% confidence level (one-tailed test). The variable CEPER, however, did not enter the condo/townhouse and 2-4 plex models at an F-to-enter level of 2.0.

The coefficients obtained for PERPP are also of interest. In the pooled model the coefficient of .50 in conjunction with the constant of .78 suggests that the market capitalizes 64% of the value reported for personal property (.50 divided by .78).

The percentage regressions (except for the apartment model in which sample size was already small) were rerun with the largest outliers from the first run deleted.⁹ The results were little changed in the single family and pooled models. In the condo/townhouse model, CEPER came in with a positive coefficient of .28 (F-value of 8.7), indicating negative capitalization. In the 2-4 plex model, CEPER took on a coefficient of -.38 (F-value of 9.2) which in conjunction with the constant of .60, indicates 63 percent market capitalization (.38 divided by .60).

Finally, the pooled percentage regression was rerun for parcels with a purchase price of \$60,000 or more on the hypothesis that the market might be more stable and predictable for such properties. The model, which included 143 cases, had an adjusted R² of .231 and COV of .205. The constant was .787 and the coefficients for CEPER and PERPP were -.390 (F-value of 7.7) and -.657 (F-value of 6.3), respectively. This indicates that the market capitalizes approximately half of the cash equivalency adjustment for such properties (.390 divided by .787 equals .496) and the better part of the reported value of personal property (.657 divided by .787 equals .835).

There were six cases in this regression with standardized residuals greater than 2.0. Selection of these outliers resulted in an adjusted R^2 of .318 and COV of .179. The constant was .784 and the coefficients for CEPER and PERPP were $-.396$ (F-value of 10.6) and -1.11 (F-value of 17.9) respectively, again suggesting that the market capitalizes about half of the cash equivalency adjustment ($.396$ divided by $.784$ equals $.505$) and, in this case, over 100 percent of the reported value of personal property (1.11 divided by $.784$ equals 1.416).

CONCLUSIONS

Below-market or "creative" financing was widely used in the financing of rental residential property sales in Arizona, in 1981. The large majority of the 361 respondents analyzed in the survey reported mortgage assumptions, seller carrybacks, or both at interest rates averaging 6-8 points below rates quoted by local banks. The average cash equivalency adjustment among all respondents, found by computing the present value of the reduced mortgage payments, was 15.9%. Addition of the reported value of personal property received by the buyer increases the average adjustment to 17.2%.

The extent to which the market recognized this creative financing in the form of increased sales prices, however, is not very clear. When sales prices are regressed on the dollar value of the computed adjustments, as generally done by previous researchers, the degree of capitalization appears strong -- 73% in the overall model. As noted, however, there appear to be statistical problems in this approach. When, as a more statistically "pure" alternative, appraisal ratios are regressed on percentage adjustments, the results are less strong and consistent. Overall, the results indicate that one can be certain that capitalization exists, especially for middle and relatively high value properties. The results for lower value properties and condo/town-houses are not as clear.

Several factors probably contribute to the sometimes inconclusive nature of these results. First, despite the attempts to develop a relatively clean data base, the information provided by the respondents was obviously not as clean as one would prefer. Second and more importantly, the appraisals used in the study were not perfect proxies for market values. Since, even if the computed cash equivalency adjustments were fully capitalized, some 85% of sales prices still is attributable to the value of the real property, it is crucial that good, accurate proxies for market value be included in any such study. It is felt that improvements made in appraisal procedures in Arizona since 1981 would considerably improve the accuracy of the market value proxies in a similar, subsequent study. In addition, improvements in market value proxies may be obtainable by creating more homogeneous strata and/or including property characteristics as regression variables.

Third and perhaps most important, the nature of the market may be more complex, less perfect, and more difficult to model than one might like to believe. At least this may have been the case in Arizona in 1981. As already emphasized, the very large majority of the transfers involved considerable creative financing. Market rates of interest were historically high, conventional financing was very difficult to find, and the market for residential property was very depressed. In this environment creative financing may have emerged, at least temporarily, as a way of life in which there was little cash equivalent or conventional financing available as a benchmark or reference of comparison. Indeed, a crucial omitted variable in such a buyer's market is the intensity of the seller's desire to market the property, which may at times manifest itself both in creative financing and a lower sale price. Useful proxy variables in this regard, if available, would be time on the market and/or the percentage gap between asking price and sale price.

Finally, the present paper did not explicitly consider tax considerations, as the objective was to evaluate the net extent to which the market capitalized creative financing. Many analysts have suggested that tax considerations tend to mitigate the extent of capitalization. In addition, since tax considerations differ widely among individual buyers and sellers, this introduces another source of random variation in statistical models.

In any case, real estate markets are dynamic and today's market in Arizona, like most other areas, is much different than in 1981. It is hoped that these improved market conditions will not only decrease the need for creative financing, but also create a more stable frame of reference for analyzing and modeling market adjustments for creative financing that continues to exist.

NOTES

1. The authors suspect that some buyers may have reported seller carrybacks as new mortgages. This suspicion is supported by a median reported term or only five years for new mortgages, the same as for seller carrybacks, and a preponderance of reported below-market interest rates. Perhaps this category would have been better labeled as "mortgages obtained from financial institutions". The impact in terms of cash equivalency analysis, however, is unaffected.
2. The monthly partial payment factor for 5 years at 11% (.21742) multiplied by the monthly present worth factor for five years at 17% (40.237234) is .874838. The monthly interest rate at 11% (.009166) multiplied by the present value worth factor for five years at 17% (40.237234) and added to the present worth of one in 5 years at 17% (.429973) is .815283. Hence, the indicated cash equivalency adjustment is .125162 by the first method versus .184717 by the second method, a percentage difference of 32.2%.
3. To adjust for discrepancies between total reported financing (downpayment plus mortgages) and purchase price due, for example, to reporting the original rather than remaining balance of a mortgage, the total cash equivalency adjustment was multiplied by the ratio of the sale price less downpayment to the sum of the reported mortgage amounts. This permits the cash equivalency adjustment to be more meaningfully expressed as a percentage of purchase price. Since, however, transfers were only included in the sample if the reported downpayment (including trades) and mortgage amounts was from 95 to 110 percent of the purchase price, none of these adjustments were large. The average cash equivalency adjustment expressed as a percentage of the purchase price decreased from 16.0 to only 15.9 as a result. In 233 cases the reported downpayment and mortgage amounts equaled the reported purchase price to the exact dollar.
4. An exception is in Pima County for which 1982 cost model values were used for condo/townhouses and 1983 values were used for other property types.
5. Pima and several other counties now use MRA-based techniques for the appraisal of condominiums and townhouses (with considerably improved results).
6. This is a statistical problem associated with a correlation between the regression errors and dependent variable which, in this case, means that the regression equations are more sensitive or influenced by properties with the higher sales prices.
7. Mathematically, the same result is achieved in a two-stage regression in which the dependent variable, FCVRATIO, is divided by the constant to yield a new dependent variable that represents the ratio of appraised value to market value. In the new regression method the constant will be 1.00 and the coefficient for CEPER will yield the capitalization percentage directly.
8. Greater than 100 percent capitalization was observed in at least one other study. See Douglas S. Bible and Jon R. Crunkleton, "The Effects of Financing on the Sale of Multi-Family Properties", Real Estate Appraiser and Analyst (Summer, 1983).
9. The 10 cases with the largest standardized residuals were eliminated from the single family and condo/townhouse models and 18 cases with standardized residuals greater than 2.0 were eliminated from the pooled regression.

RENTAL RESIDENTIAL SALES INFORMATION FORM

EXHIBIT I-A

SECTION I — OFFICE USE ONLY

Co _____	Bk Mp Parcel Split _____	Type of Property _____
Fee Number _____	Date Recorded _____	Type of Deed _____

SECTION II — PURCHASE PRICE

Total Purchase Price \$ _____ Cash Downpayment \$ _____

Was any real or personal property (other than cash) traded to the seller?

____ Yes ____ No If yes, please provide:

Description _____ Contract or Estimated Value \$ _____

Was the contract or estimated value included in the "total purchase price" above?

____ Yes ____ No

SECTION III — NON-REAL ESTATE ITEMS RECEIVED BY BUYER

	<u>Description</u>	<u>Contract Price Or Estimated Value</u>
Tangible Personal Property		
Inventories	_____	_____
Fixtures, Equipment, Furnishings, Etc.	_____	_____
Other	_____	_____
Intangible Personal Property		
Licenses or Franchise Fees	_____	_____
Going Concern Value (Goodwill)	_____	_____
Agreements Not To Compete	_____	_____
Other	_____	_____

SECTION IV — TYPE OF FINANCING

Assumed Mortgages:		Term Remaining At Assumption	Monthly Payment	Fee Or Points Paid To Lender
<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Yrs./Mos.</u>		
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Seller's Financing (Carryback):			
<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Term</u>	<u>Monthly Payment</u>
_____	_____	_____	_____
_____	_____	_____	_____

New Mortgages:				
<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Term</u>	<u>Monthly Payment</u>	<u>Fee Or Points Paid To Lender</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Indicate any other relevant financing considerations such as balloon payment, graduated payment, etc.

RENTAL RESIDENTIAL SALES INFORMATION FORM, CONT'D.

SECTION V — ASSUMED LEASES

<u>Annual Rent/Square Foot</u>	<u>Market Rent/Square Foot</u>	<u>Square Feet</u>	<u>Term Remaining At Assumption Yrs./Mos.</u>

Indicate any other relevant lease considerations such as step-up provisions, overages, etc.

SECTION VI — COMMENTS

SECTION VII — VERIFICATION

PLEASE PRINT

<u>Person Completing Form</u>	<u>Title</u>	<u>Phone</u>
<u>Signature</u>	<u>Date</u>	

EXHIBIT 1-B

J. ELLIOTT HIBBS
DIRECTOR



BRUCE BARRITT
COMMISSIONER

Arizona Department of Revenue

CAPITOL BUILDING
1700 W. WASHINGTON
PHOENIX, ARIZONA 85007

September 28, 1983

The Arizona Department of Revenue is undertaking a study to determine the various factors involved in the selling price of real estate, as reported on the Affidavit of Real Property Value filed when recording a transfer document (deed). The study focuses on sales that occurred in 1980-82.

The Sales Transaction Analysis form is being sent to you for completion. Complete this form on or before the date posted below and return to the Arizona Department of Revenue, Division of Property and Special Taxes.

Your assistance is requested to help us determine what portion of the purchase price of commercial/industrial property represents the real property value. By reviewing the records of real estate transactions the portion of a sale price that should be assigned to real estate (land and improvements [buildings]), and the portion of the sale price attributable to personal property, going business value, creative financing and similar considerations can be determined.

Enclosed is a copy of the recorded Affidavit of Real Property Value filed on your 1980-82 real estate transaction.

This information will be used only for the purpose of statistically analyzing the proportion of sales prices attributable to non-real estate considerations. It will not be used for valuation purposes.

We request your cooperation in completing the applicable portions of the enclosed Sales Transaction Analysis form. If you have any questions regarding this request, call Mrs. Theresa Scandone at (602) 255-5238. Please complete the form by October 21, 1983 and return to:

Arizona Department of Revenue
Division of Property and Special Taxes
Attention: Mrs. Theresa Scandone
P. O. Box 29014
Phoenix, AZ 85038

Sincerely,

Handwritten signature of Edward J. Leyba in cursive script.

Edward J. Leyba, Assistant Director
Division of Property and Special Taxes

Enclosures

EXHIBIT 2

FINANCING OF TRANSFERS

DOWNPAYMENT:

	<u>RESPONDENTS</u>	<u>CASH</u>	<u>TRADES</u>	<u>TOTAL</u>
Total	361	29.2	0.7	29.9
Single Family	156	29.9	0.9	30.8
Condo/townhouse	88	33.9	0.1	34.0
2 - 4 Plex	96	25.9	0.4	26.3
Apartment	21	20.0	1.3	21.3
Less than \$40,000	94	36.5	—	36.5
40,000 - 59,999	99	25.1	1.2	26.3
60,000 - 99,999	84	28.5	0.4	28.9
100,000 - 249,000	59	29.0	0.7	29.7
250,000 or more	25	21.2	1.1	22.3

MORTGAGES:

<u>Type of Mortgage</u>	<u>Number</u>	<u>Percent of Total</u>	<u>Percent Of Mortgage Financing</u>	<u>Median Interest * Rate</u>	<u>Median Term (years)</u>	<u>Cash Equivalency Adjustment</u>
First Assumption	193	53.5	38.1	9.50	23	32.0
Second Assumption	34	9.4	2.7	11.25	5	14.3
Third Assumption	4	1.1	0.4	11.50	6.5	15.8
Seller Carryback	184	51.0	32.6	11.25	5	16.3
New First	60	16.6	26.0	13.75	5	13.1
New Second	4	1.1	0.2	11.50	5	11.3
	<u>479</u>		<u>100.0</u>			

* Interest rates were adjusted for points at the rate of .125 percent per point

EXHIBIT 3

PERCENTAGE DOWNPAYMENT, CASH EQUIVALENCY, AND
PERSONAL PROPERTY ADJUSTMENTS BY PROPERTY TYPE

	<u>Number</u>	<u>Downpayment (Cash & Trade)</u>	<u>Cash Equivalency</u>	<u>Personal Property</u>	<u>Total Adjustment</u>
Total	361	29.9	15.9	1.3	17.2
Building Type:					
Single Family	156	30.8	16.3	0.4	16.7
Condo/Townhouse	88	34.0	13.4	2.3	15.7
2 - 4 Plex	96	26.3	17.4	1.1	18.5
Apartment Bldg.	21	21.2	16.8	3.9	20.7
Price Range:					
Less than 40,000	94	36.5	12.6	0.7	13.3
40,000 - 59,999	99	26.3	17.7	0.6	18.3
60,000 - 99,999	84	28.9	16.7	1.9	18.6
100,000 - 249,999	59	29.7	16.4	1.6	18.0
250,000 or more	25	22.3	16.9	3.3	20.2
County:					
Maricopa (Phoenix)	170	29.6	16.1	1.4	17.5
Pima (Tucson)	104	29.3	15.2	1.3	16.5
Other	87	31.2	16.3	1.0	17.3
Survey Type:					
Field Visit	83	29.0	14.1	1.9	16.0
Mail with Contract	48	27.8	17.5	2.2	19.7
Mail without Contract	230	30.6	16.2	0.9	17.1

EXHIBIT 4

REGRESSION VARIABLES

"Dollar" Regressions:

- TOTPRCPR -- Total purchase price (dependent variable)
- CEADJZ -- Cash equivalency adjustment (in dollars)
- TOTPP -- Total reported value of personal property obtained by the buyer
- FCV -- Appraised "full cash value" for tax purposes
- FCV07MKT -- Appraised value of properties in Maricopa County valued on the Market approach (0 otherwise)
- FAC07CST -- Appraised value of properties in Maricopa County valued on the Cost approach (0 otherwise)
- FCV10MKT -- Appraised value of properties in Pima County valued on the Market approach (0 otherwise)
- FCV10CST -- Appraised value of properties in Pima County valued on the Cost approach (0 otherwise)
- FAV07MKT -- Appraised value of properties in counties Other than Maricopa and Pima valued on the Market approach (0 otherwise)
- FAC07CST -- Appraised value of properties in counties Other than Maricopa and Pima valued on the Cost approach (0 otherwise)

"Percentage" Regressions:

- FCVART10 -- Ratio of appraised "full cash value" for tax purposes to the total purchase price (dependent variable)
- CEPER -- Cash equivalency adjustment as a percentage of total purchase price
- PEPPP -- Total value of personal property obtained by the buyer as a percentage of total purchase price
- CTY07CST -- " 1 " if the property is in Maricopa County and valued on the Cost approach; " 0 " otherwise.
- CTY10MKT -- " 1 " if the property is in Pima County and valued on the Market approach; " 0 " otherwise.

"Percentage" Regressions cont'd

CTY10CST -- " 1 " if the property is in Pima County and valued on the Cost approach; " 0 " otherwise

CTYOTMKT -- " 1 " if the property is in a county Other than Maricopa or Pima and valued on the Market approach; " 0 " otherwise

CTYOTCST -- " 1 " if the property is in a county Other than Maricopa or Pima and valued on the Cost approach; " 0 " otherwise

EXHIBIT 5

"DOLLAR" REGRESSION RESULTS

	<u>Single Family</u>	<u>Condo/townhouse</u>	<u>2 - 4 Plex</u>	<u>Apartment</u>	<u>Pooled</u>
Constant	4437 (6.5)	7749 (147.2)	-457 (0.0)	131143 (10.6)	7533 (6.1)
CEADJZ	.88 (34.6)	.39 (3.5)	1.48 (53.8)	*	.73 (20.3)
TOTPP	2.32 (78.1)	2.25 (32.2)	-1.01 (4.6)	*	*
FCV07MKT	1.01 (589.0)	.98 (147.2)			1.01 (97.6)
FCV07CST			1.38 (380.1)		1.29 (940.5)
FCV10MKT	1.11 (722.0)				1.11 (65.3)
FCV10CST		1.23 (159.1)	1.18 (271.6)		1.65 (2482.7)
FCV0TMKT	1.10 (208.1)				1.06 (16.8)
FCV0TCST	1.02 (183.4)	1.36 (165.3)	1.36 (78.3)		1.03 (164.4)
FCV				1.39 (1350.9)	
Cases	132	78	76	13	307
\bar{Y}	51,827	54,851	117,732	1,167,539	130,236
Adj. R ²	.915	.888	.931	.991	.988
COV	.174	.148	.169	.088	.283

Note; Numbers in parenthesis are F-Values.

* Not significant at an F-to-enter-level at 2.0.

EXHIBIT 6

"PERCENTAGE" REGRESSION RESULTS

	<u>Single Family</u>	<u>Condo/townhouse</u>	<u>2 - 4 Plex</u>	<u>Apartment</u>	<u>Pooled</u>
Constant	.79 (931.6)	.82 (1270.0)	.55 (918.4)	.73 57.1	.78 (1759.6)
CEPER	-.24 (3.8)	*	*	-.82 (2.9)	-.12 (2.0)
PERPP	-1.08 (3.8)	-.97 (7.3)	*	*	-.50 (4.6)
CTY07CST					-.20 (87.3)
CTY10MKT	*				*
CTY10CST		-.21 (54.7)	.114 (12.7)		-.12 (38.1)
CTY0TMKT	*				*
CTY0TCST	-.09 (9.0)	-.24 (35.9)	*		-.11 (25.4)
Cases	132	78	76	13	307
\bar{Y}	.723	.664	.592	.574	.669
Adj. R ²	.068	.458	.135	.137	.256
COV	.190	.166	.221	.178	.200

Note; Numbers in parenthesis are F-Values.

* Not significant at an F-to-enter-level at 2.0.