Indicators of generalized value change in real estate markets

A working paper by:

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Introduction

The reaction of buyers and sellers to changing market conditions has, at times, created identifiable and unique fluctuations in the market value of real estate. During such periods, traditional valuation procedures must be supplemented with additional tools to achieve credible estimates of market value. The Supreme Court of the State of Michigan and the State Tax Commission provided guidelines for anomalous market conditions. However, there has been a paucity of market based research. This report examines residential sales data from one market over a period of more than three decades. It closely scrutinizes for probable indicators of change in the average annual selling price. It includes a "cross-market" verification process comparing data from two years in five markets located in three states. The research yielded market derived metrics that can be useful to those struggling with high foreclosure rates, "creative financing" or similar influences on property value.

Real estate value arises in part, from the combination of: (1) characteristics of a property and, (2) influences outside of the property. This preliminary report describes external "markers" of changing value and both "normal" and anomalous market conditions. "Normal" is defined as a market in equilibrium; where overall, neither buyers nor sellers are under any unusual stress to buy or sell, housing supply and demand are in balance and an adequate amount of appropriate financing is available to meet market demand. An anomalous market is one in which equilibrium does not exist and there are forces at work which somehow restrict the ability of a buyer or seller to negotiate terms of a transaction. In this study, one signal of anomaly is a shift in the dominant choice of transaction financing.
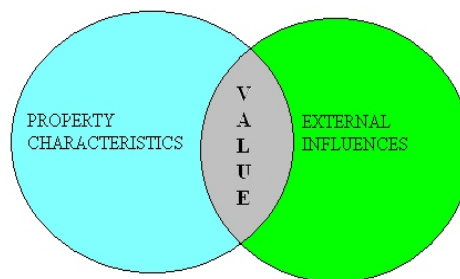

Figure 1

The study period includes (1) a time characterized by extremely high mortgage rates when land contract financing replaced conventional financing as the dominant type; (2) a period where the market was in equilibrium and no extreme conditions existed; and (3) a period when household debt, personal bankruptcies and mortgage foreclosure rates soared, property values plummeted and cash sales replaced conventional financing. A search for patterns in market metrics that indicate price change was successful. For example, when the number of Board of Realtor sales annually were less than three for every new foreclosure deed issued, the average price of sold properties fell. "T tests" and regression analysis were used to confirm the statistical validity of identified correlations. "Cross-market" comparisons produced prima facie evidence that five geographically distinct markets had similar patterns with regard to choice of sale financing.

In total, statistical analyses found relationships between average annual selling price and twenty annually reported external metrics in the market studied. Statistically significant correlations were found between four types of financing and the nationally averaged, annually reported Freddie Mac interest rate. Cross-market validation supports an argument that financing patterns and certain markers of changing price found locally, may be adaptable as analytic tools in Michigan and

other residential markets across the U.S. This preliminary study did not test an economic model, it merely identified metrics that could be incorporated in a model.

The problem

Changing real estate markets led to uncertainty for how best to determine fair market value. There have been times when seller financed sales dominated the market, times when "conventional financing dominated and times when the "cash sale" dominated. Confusion developed about how to interpret market conditions. This led to taxpayer distrust of government, a drain on government resources as appeal after assessment appeal was filed and stress for property tax officials.

Government agencies reacted to improve conditions. Directives were issued emphasizing procedure standardization and using market facts. The courts offered clarifications. In 1979, Michigan's Supreme Court declared the statutory term "true cash value" means "fair market value." In 1985, the court reviewed valuation procedures related to "creative financing" and high mortgage rates. It said property value could not be created by legislation, but had to be determined from the marketplace. Guides defining a "cash equivalent" sale and dealing with "creative financing" were quickly produced by the State Tax Commission (STC). In the 1980s, federal law pre-empted Michigan's 11 percent cap on land contract rates. In 2007, the STC found real estate foreclosures impacted property values. It produced guidelines for determining when a foreclosure sale should be used to establish value to "ensure the sales are an adequate part of the market," it also addressed a shortage of usable sales, commented on the falling number of arms length transactions and authorized statistical procedures as an alternative to real property statements.

Observations

Financing as Percent of market 1974-2009
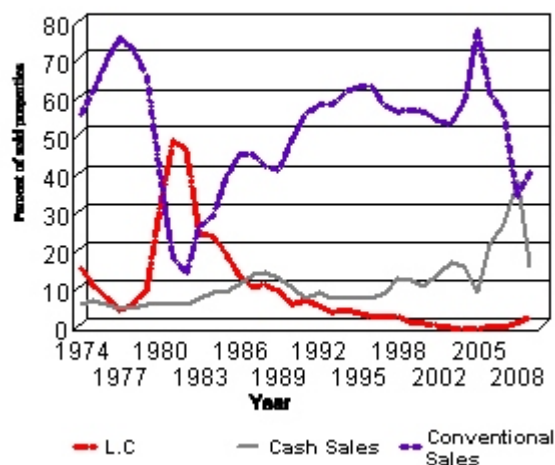
this article: (a) methods of financing residential real estate transactions form patterns; and (b) over time methods of financing occupy both relatively stable and unique portions of a market. As will be shown, such patterns can be used in decision making. In part, because variation in use of a specific type of financing is related to observable economic forces and, in some cases, are significantly correlated with market price.

In the beginning period (1974 - 1985) mortgage rates rose above 16 percent, workforce unemployment climbed to more than ten percent and the U.S. underwent a recession. By 1980 various forms of "creative financing" arose because mortgages were simply unaffordable for most potential buyers. The use of conventional loans

Figure 2

plummeted, land contracts predominated and there was a small decline in the reported annual average selling price.

At the end period (2006 - 2009) personal debt, bankruptcy and an extraordinarily high number of foreclosures occurred. This dramatically increased the supply of houses while the supply of potential buyers dwindled. This period illustrates financing preference during recessionary times with high unemployment and instead of high mortgage rates, a plethora of lending sources offering extremely low interest rates. Many homeowners and potential buyers had become overburdened with other debt. In this market under these conditions the use of cash became the dominant method of financing residential transactions. There were significant declines in property value. In between the first and last periods lay a period of relative stability with much different financing choices.

During stable market conditions (1986-2005) the market appears to be at or near equilibrium, with consistent percentages of listings sold annually, affordable financing and approximately price efficient transactions. During this period conventional financing dominated all other financing choices and property values increased.

Please note the long term use of cash financing. Michigan's courts, the State Tax Commission and professional appraisal organizations all cite a prime directive that, unless otherwise specified, a real estate valuation is to reflect the price of a property in terms of cash. Besides an actual cash sale, there exists a cash equivalent sale. It is defined by state officials in this manner: "A conventional (non-creatively financed) sale is a cash sale or a sale financed anew by a financial institution for the total amount of the mortgage after down payment."[1] This directive affects the process of valuing individual parcels of real property and the determination of which sales are to be included within a sales ratio study for assessment purposes.

Financing a real estate transaction via a "cash" purchase is relatively rare. In the local market studied, more than 90 percent of all transaction were not cash sales ... until the recent advent of extraordinarily high rates of mortgage foreclosure. However, Figure 1 shows that if cash equivalent sales are considered along with actual cash sales, cash sales dominate. Similar patterns in the use of cash to consummate residential sales appeared in each market (See Figures 25 and 26).

When seller financing dominates

Figure 3 uses pre-computer graphs (1982) to focus on how the use of land contract sales replaced the use of conventional mortgages. Note the use of cash to finance purchases remained relatively stable. Look at reported annual average interest rates for fixed rate mortgages graphed at the bottom half of Figure 3. As average interest rates topped 13 percent, the use of land contracts rose dramatically and the use of conventional mortgages plummeted in this market. The interest

Figure 3
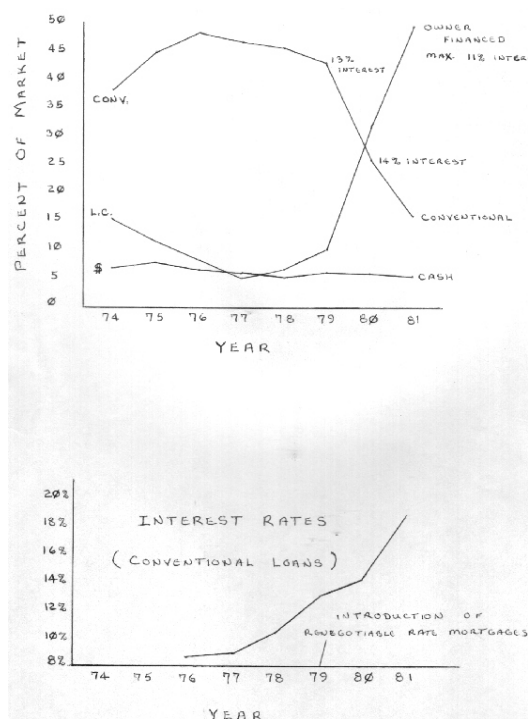
rate for land contracts had been capped by state law at a maximum of 11 percent annual interest during this period. With low interest rates in 1978, 1906 units were sold. In 1982, as conventional interest rates moved towards 20 percent only 715 units sold. Unlike plummeting values associated with contemporary foreclosures and bankruptcy, there was no huge drop in average transaction price as land contracts became the dominant financing tool (2.5 percent dip in average transaction price). By 1983 the number of sales rebounded, as did average price. During this time it was common to write a purchase agreement utilizing a land contract amortized over a long period of time (25 years) with a "balloon" payment due at the end of five years. Buyers and sellers expected interest rates to drop and land contract buyers to pay the contract in full within five years. The expectation was that the buyer would secure conventional commercial loans or other financing.

In State Tax Commission (STC) Bulletin No. 11 of 1985, officials ruled which financing forms could be considered "cash" equivalent sales. Sales financed and considered equivalent to cash required: (a) down payments of no less than "10% of the purchase price" and (b) "the interest rate within 1% of the prevailing rate certified by the STC for that period ..." The bulletin stated: "VA, FHA, FmHA, and MSHDA mortgages, blended rate mortgages, and mortgages which resulted from buy downs by the sellers usually are not conventional sales and must be analyzed individually." That bulletin remains active as a guide today.

When cash is king

In the last period of the study, another deviation from a "normal" market occurred. Mortgage interest rates went the opposite way of what happened 30 years ago. they dropped to record lows. Zero percent, or other minimal forms of down payment, became common. Housing prices inflated and considerably more potential buyers qualified to purchase a home than in past times. Then came the "crash." According to a *National Bureau of Economic Research Digest* report," beginning in 2006 homeowners defaulted on existing loans at rates unseen since the great depression of the 20th Century.[2] In June 2011, Dan Levy, writing for Bloomberg News reported that new foreclosures were entering the market faster than they could be sold.[3]
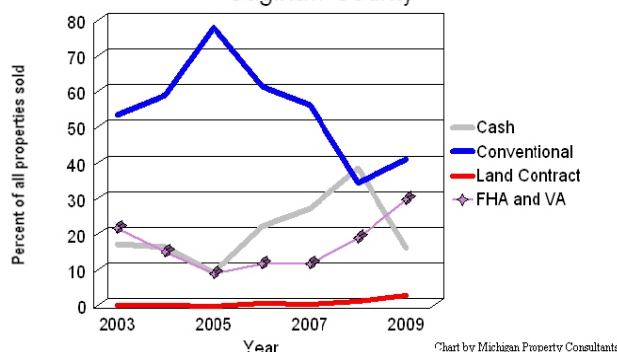

Figure 4

For a variety of reasons, many individuals across the U.S. saw their disposable income disappear as easy credit proliferated. A paucity of potential home buyers developed. Sales of existing and newly constructed homes plummeted. Many markets saw the purchase of housing with "cash" rise dramatically. As figure 4 shows, the "cash" sale became the most used form of financing in 2008 Saginaw county MLS transactions. Writing in the Wall Street Journal, S.M. Kalita, reported the national use of cash for residential real estate purchases had doubled, between October 2008 and calendar year 2010.[4]

This deviation from stability was addressed by Michigan officials in STC Bulletin No. 6 of 2007. In it, guidelines for the utilization of foreclosure sales within sales ratio studies were provided. The STC noted that "**The recent increase in foreclosure has caused those transactions to have an impact on the real estate market in some parts of the state**." The STC determination is consistent with findings from a research project which covered 1.8 million sales occurring in the state of Massachusetts between 1987 and 2008. That study[5] found an average diminished market value of 28 percent on foreclosed properties. The loss in Saginaw County between 2006 and 2009 is approximately 33 percent.

Bulletin 6 presented the rationale required for utilization of foreclosure sales and importantly, "the use of any sale that would normally be excluded from a sales study."Assessment and equalization processes require assessors and equalization directors to properly include sales that should be included within a study and to exclude sales which should be excluded. Such rules arise from the constitutional mandate that properties be assessed at 50% of true cash value.

The Saginaw County Market

Saginaw county is located about 100 miles north of Detroit along the Interstate 75 industrial corridor. Its northern neighbor, Bay county is the demarcation point between the industrialized southern counties and the recreation areas of central and northern Michigan. Because of the relatively high wage scales (compared to national averages) of its working class population and for other reasons, the county has scored well on measures of housing affordability. According to Michigan Economic Development Corporation postings, about eight-seven percent of the county's workers are employed by private firms, eleven and one-half percent are government employees and one and one-half percent are employed in farming.
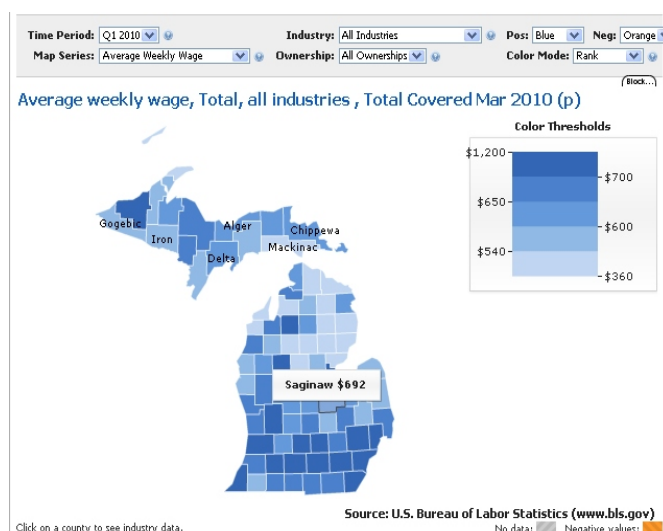
Figure 5

According to the author's personal experience and interviews with real estate brokers, in this market, many potential buyers look to the monthly payment and the required down payment as two critical affordability decisions when initiating a real estate purchase. The tables that follow provide statistics related to the local residential real estate market.

Saginaw County Market Data

Equalization statistics and sampled annual properties sold as percent of county parcel count.

YEAR	County residential Parcel count	Parcels sold by MLS participants	Sold properties as Percent of all properties	County Market SEV times 2	Sold properties Transaction $$	Sold as percent of Total SEV Market
		Saginaw County Market Parameters				
1975						
1980	66,644	1594	0.024%	$1,944,637,386	$30,699,467	1.579%
1985	67,892	1665	0.025%	$2,329,428,850	$77,747,428	3.338%
1990	69,071	1520	0.022%	$2,739,215,556	$88,748,547	3.240%
1995	71,306	1878	0.026%	$3,731,068,098	$140,265,234	3.759%
2000	74,155	2458	0.033%	$4,687,121,604	$221,455,968	4.725%
2005	77,973	2113	0.027%	$7,367,679,882	$238,587,282	3.238%
2010	78,646	3083	0.039%	$6,773,768,334	$246,624,585	3.641%

Figure 6

Note that between 2.2 and 3.9 percent of all residential parcels sold within the years examined.

YEAR	Nat'l Rate 30 Yr Mtg	Avg Price all Sold	NBR Sold	Mkt Time
		Selected market data		
1974	9.19	$26,953	1139	88
1975	9.05	$28,332	1245	92
1976	8.87	$29,821	1524	88
1977	8.85	$32,369	1892	77
1978	9.64	$35,851	1906	76
1979	11.2	$40,331	1798	82
1980	13.74	$43,038	1309	96
1981	16.63	$44,489	978	65
1982	16.04	$43,378	715	104
1983	13.24	$46,150	1152	123
1984	13.88	$45,995	1315	125
1985	12.43	$47,353	1476	133
1986	10.19	$49,680	1623	130
1987	10.21	$50,652	1464	125
1988	10.34	$51,871	1610	112
1989	10.32	$56,043	1623	106
1990	10.13	$58,387	1520	107
1991	9.25	$62,627	1536	115
1992	8.39	$66,993	1623	122
1993	7.31	$69,632	1802	120
1994	8.38	$69,538	1914	116
1995	7.93	$74,689	1878	109
1996	7.81	$80,823	1846	109
1997	7.6	$84,341	1920	110
1998	6.94	$91,283	1527	107
2001	6.97	$102,799	2154	99
2002	6.54	$102,065	2205	101
2003	5.83	$105,082	2244	105
2004	5.84	$110,073	2200	107
2005	5.87	$113,295	2117	113
2006	6.41	$109,593	1912	120
2007	6.34	$97,115	1855	123
2008	6.03	$81,458	1830	115
2009	5.04	$75,973	1987	112

Figure 7

Research: chronology and methodology

Data gathering began in the early 1970s during the author's service as a fee appraiser and certified assessor . It continues to this day. About 2002, data entry personnel were engaged to complete digitization of accumulated records. Records were approved for analysis after being entered and individually proof read for errors. This paper was created by utilizing multiple listing service annual reports, digitized records and data acquired from private and public agencies. Government statistics were secured from the state of Michigan's Department of Labor and Economic Growth, Saginaw County Equalization, the U.S. Department of Labor, Board of Realtors organizations in Michigan's Bay, Saginaw and Genesee counties and the Fargo North Dakota and Sioux Falls, South Dakota Boards of Realtors. The National Association of Realtors provided national housing data. Graphs and charts and the text were produced using WordPerfect and Quattro Pro applications ©. Computations were performed using annual averages. Due to a change in reporting, there was insufficient data to utilize calendar year 1999 and 2000 data for this report. Another analysis that will include data from the missing years as individual sale records is planned.

The investigative methodology began with of a visual inspection of the data, various tables and charts. The investigation looked first for patterns in local data, then to results from statistical tests and then to similarity of financing choice across distinct markets. T tests were conducted to discover which of the potential measures of the local real estate market statistically corresponded to <u>average annual sale price</u> at a probability of 95 percent or more. Following the initial T tests (when sufficiently matched years were available) the data was re-tested using single regression analysis. Also, a Pearson Correlation was computed. An R^2 score of >.50 with p<.10 and a Pearson correlation of > .50 were necessary for consideration as a potential market indicator. Potential indicators were put through one of two regression analyses. One was a multiple regression using local choices of financing and the interest rate annually reported as the Freddie Mac averaged 30 year fixed rate mortgage. The other utilized average annual selling price and either labor market or residential real estate observations. A chance probability of less than 5 percent (p<.05) was the threshold for results to be presented. Statistical analyses were performed using the Excel © spreadsheet program.

INITIAL RESULTS

Segmentation by choice of financing

Figure 8 shows the use of four financing methods studied: cash sales, conventional financing, federal government administered financing and seller   financed sales (land contracts).
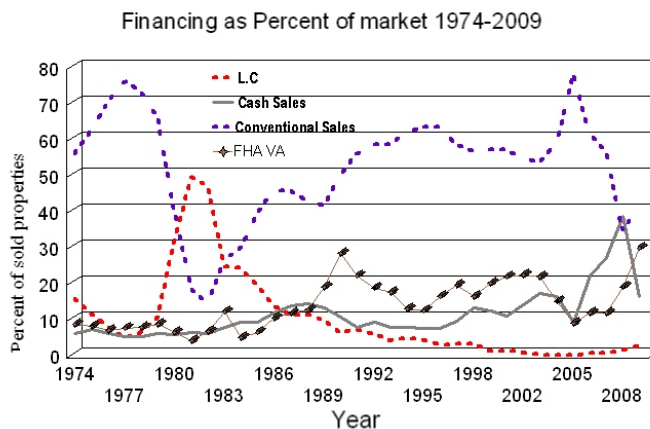

Figure 8

Correlation: local choice in financing to national financing index

Regression Statistics								
Multiple R	0.993013424							
R Square	0.986075659							
Adjusted R Square	0.952470078							
Standard Error	1.201263045							
Observations	35							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	4	3167.91508	791.97877	548.829322	1.39488E-27			
Residual	31	44.73402001	1.443032903					
Total	35	3212.6491						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Cash	0.031780503	0.030340399	1.047464889	0.302983796	-0.030099149	0.093660154	-0.030099149	0.093660154
Conv.	0.080514223	0.008372919	9.616027882	8.09543E-11	0.063437542	0.097590904	0.063437542	0.097590904
Gov't	0.06931298	0.032087065	2.160153337	0.038607796	0.00387098	0.134754979	0.00387098	0.134754979
Seller	0.327457565	0.01448281	22.61008523	7.96494E-21	0.29791968	0.35699545	0.29791968	0.35699545

Figure 9

Figure 9 illustrates a regression analysis of the Saginaw data with the Freddie Mac rate. The question pondered was: Do the four methods of financing shown, statistically correlate with the average 30 year fixed rate mortgage reported at:(www.freddiemac.com/pmms/pmms30.htm) for the years of this study? Only the use of cash to finance a sale is not significantly correlated with the interest rate. "P" values shown in Figure 10 indicate conventional, government (FHA, VA FmHA) and seller financed (land contract) financing have high correlations to nationally reported average interest rates for 30 year fixed rate mortgages.

Further support for the relationships is evidenced by R square and adjusted R square values of .986 and .952 respectively. R square values indicate a high level of accountability in the data. Known as the coefficient of determination, it is the proportion of variation explained by the model. "P" scores indicate the correlation could occur by chance less than 5 percent of the time.   F and Significance F scores support that the probability of the correspondence of the data has happened by chance is very low; far less than 1 percent. These scores indicate robust data.

Segmentation by difference between list and selling price

Figure 10 uses differences in an average listed price and selling price (by type of financing) in the early years of the study period to show another segmentation. This pre-computer graphic from 1982 provides a unique view of segmentation by discount from list price within the market. Bands are comprised of: government backed financing, commercial lender backed financing and seller or buyer backed financing.
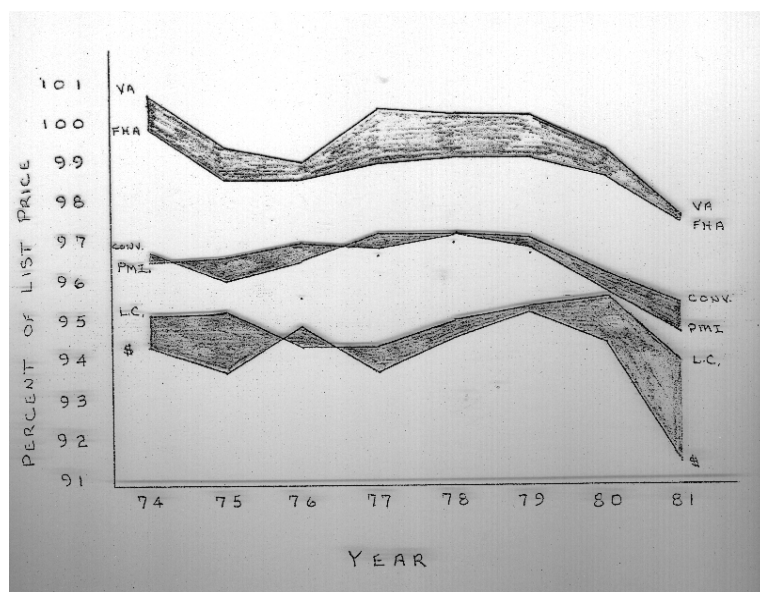
The first band consists of government financed loans. The observer may note this type of financing exhibits a selling price frequently close to listing price. Based upon experience as a real estate broker and appraiser in that market during this time period, my belief is the higher average sale price was often due to negotiations between buyers and sellers over FHA and VA mandates regarding the property's physical condition. An agreed upon price close to, or even above the list price, encouraged the seller to pay for repairs required by federal financing. The higher price effectively reimbursed the seller for the financing mandated repairs.

Figure 10

The middle band is much narrower than the other bands. It consists of the discounts associated with loans financed by commercial lenders. The percentage of list price received as a sale price hovers near 100 percent for government financed sales, the commercial lender financed purchases are negotiated down about 2.5 to 3.5 percent. Observations during my participation in the market lead me to believe conventional financing (requiring 20 percent or more as a down payment) and PMI financing (requiring either 5 or 10 percent down) were viewed by participants as one type of financing - *commercial lender financing* - available at three levels of down payment.

The third band (lowest of the three) consists of seller financed and buyer financed (cash) sales. Results suggest that cash and land contract sales represent a unique spectrum of the market. At the time this is being written, a complete statistical analysis has not yet been conducted. Nevertheless, the pattern is that cash and land contract sales consistently have the greatest negotiated difference between the listed price and the selling price.

At some future date a hypothesis will be tested which may help explain the close proximity of land contract and cash financing in terms of percent of market and percent of discount from list price. The hypothesis is: in a period when commercial financing is dominant, land contract and cash sales will be associated with lower priced properties (properties in the lowest quintile of a market). Since this form of financing is typically only a small portion of the market during times of market equilibrium, they represent an atypical transaction. Experience suggests cash sales in this market have been associated with properties being acquired as rental units in distressed neighborhoods or as the preferred payment for undervalued properties sold from estates or forced sales. Sworn testimony presented to the city of Saginaw property tax Board of Review over a several year period support the contention that cash sales are a buyer strategy for low priced rental properties.

Figure 11 re-plots the cash sale, seller financed sale, conventional and government agency financed sales with pooled statistics. Where two related financing methods created the "bands" shown in Figure 11 (e.g. VA and FHA; conventional and PMI) the data was pooled and re-plotted creating a single number profile. A market profile can be created by viewing figures 10, 11 and 3. Figure 3 shows the predominant financing choice in 1978 was commercial lender financing. Figure 11 shows the difference

Figure 11

between list and selling prices (Discount) as an annual average for individual types of financing.

In the more discernible segmentation of Figure 11 one can estimate average transaction price based on choice of financing. For example, In 1978, the discount would be about 1 percent from list for sales backed by government financing, 3 percent if sold with conventional financing, almost 5 percent if financed by a land contract or a cash transaction without financing.

Discount variation may signal irregularity

How could the discount be used to evaluate the inclusion of property within a sales ratio study? One method may be to look for combinations of change in price, choice of financing and the difference in discount between the dominant form of financing and each of the other financing methods. Enough processed data is available to explore the relationship between average annual selling price by type of financing as well as the average price for all sold properties.
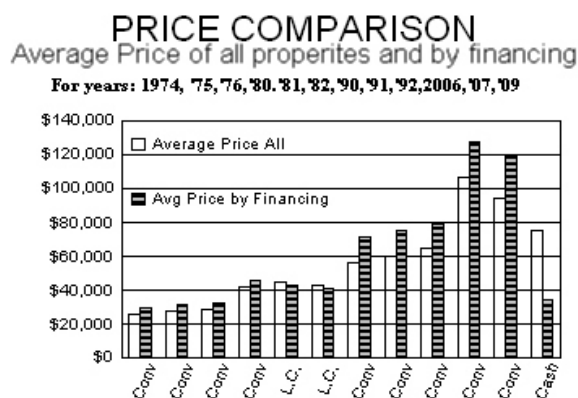
Figure 12

In Figure 11, as financing shifts from conventional to land contracts, there is an increasing difference between the average list price and selling price for all 1980 sales...except those financed by a land contract; suggesting average selling price is somehow linked to financing. The plot is for twelve representative years, three years of each decade covered.

Figure 12 documents a difference between average annual selling price for all properties and the average annual sold price of the dominant form of financing. Price drops are shown. First,

a dip following the dramatic shift from conventional financing to land contract financing (1981-1982) and then a significant (>30%) drop when financing shifted from conventional to cash (2007-2009).

In Figure 13, selected years from all three periods of the study are plotted to focus on average selling prices by choice of transaction financing. Twelve of the years studied are shown. They include representative stable years and years from the two periods in which the preponderance of sale financing in the Saginaw market was not the commercial lender financed mortgage..

One can see a pattern of increasing average sale price for the years in which conventional financing dominates. When seller financing and buyer financing (cash) sales became dominant, there was a dip in price. Referring back to figure 12, one can see that in years where conventional financing dominates, the average price of a residential property sold using conventional financing typically exceeded the average price of all methods of financing. That is not true when conventional financing is replaced. Both the seller financed and buyer financed sales change the relationship. The average selling price of both land contract and cash sales are lower than those sales finance by all other methods in this market. This suggests disequilibrium. For some reason, at times when most properties are sold by means other than conventional financing, prices for those **Figure 13** properties drop.
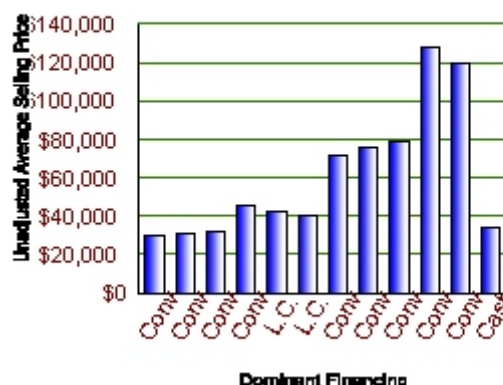
Figure 14 provides a tabular view of the same twelve year sample. The left two columns present the dominant market choice annually. The first column is the percent of all sales financed. Dominant choice of financing is stated in the second column."Conv" means commercial financing ("Comm"). The two columns in white show average price for all sales and the year considered. The right five columns show the average price for a specific financing method as a percentage of the annual average price for all properties sold.

% of Mkt	Choice	Price	YEAR	CASH	COMM	GOV'T	L.C.	OTHER
52.00%	Conv	$26,053	1974	77.97%	114.05%	66.95%	78.94%	116.89%
60.37%	Conv	$27,746	1975	74.29%	111.60%	73.03%	72.83%	119.08%
66.69%	Conv	$29,028	1976	77.16%	111.20%	66.29%	72.46%	102.83%
38.21%	Conv	$41,862	1980	71.47%	108.25%	81.64%	99.96%	104.34%
49.77%	L.C.	$44,330	1981	75.47%	116.80%	64.08%	96.63%	109.74%
48.09%	L.C.	$42,613	1982	58.89%	114.17%	76.37%	95.33%	124.17%
48.08%	Conv	$56,508	1990	74.93%	127.05%	79.77%	61.01%	71.99%
54.34%	Conv	$60,459	1991	71.56%	125.02%	75.78%	48.96%	81.89%
55.24%	Conv	$64,538	1992	67.82%	122.89%	75.13%	57.30%	91.05%
62.07%	Conv	$106,450	2006	54.26%	120.34%	87.24%	55.66%	98.23%
56.94%	Conv	$94,090	2007	44.30%	127.37%	100.22%	112.59%	87.58%
40.88%	Cash	$75,038	2009	45.60%	173.46%	127.67%	87.62%	85.26%
			Average	66.14%	122.68%	81.18%	78.27%	99.42%

Choice of financing as percent of market and as percentage of avg sale price for all properties

Table 1 **Figure 14**

For example, in 1974 conventional loans financed 52% of all sales for which data was usable in this market. The average price of all sold properties was $26,053.. The average price of a sale financed by cash was 77.97% of the average price for all properties or $20,314.

The chart suggests some interesting relationships. As the old saying goes, it appears "cash talks," but maybe not in the expected way. View the last row of the table (labeled "average"). In this example, the average price of a sale financed with cash constitutes 66.14 percent of the average selling price for the market over the years considered. In fact, properties sold for cash usually are the lowest priced properties. Seller financed sales also appear to consistently sell well below the average market price. Land contract sales usually sell for more than cash sales but less than real estate financed by other means. This prima facie evidence suggests an area of further study. Clearly cash and land contract financing are usually limited to a unique portion of the market.

During periods when commercial lender financing dominates, other patterns are evident. Under those conditions, a cash sale is typically sold faster, with a greater discount from the listed price and at much lower average market prices than properties sold via other means. When either commercial lender or government backed financing dominates, experience suggests seller financed (land contract) transactions are most frequently used only for properties that are very difficult to market due to neighborhood or other conditions. Cash sales, seller financed and government financed sales were distinguishable from commercial lending.

Government financed loans attempted to increase home ownership for buyers who might not otherwise qualify. These loans had down payment requirements of less than five percent appealed to those who had little money but qualified with respect to ability to pay and credit worthiness.

Days on market and properties sold

Refer to Figure 15. The selling time is referred to as "days on the market" or DOM. DOM and the number of listing that sell are sometimes inversely related. In both the period of high interest rates and the period of high foreclosures, it took longer to sell property and fewer properties are sold. That relationship must be affected by multiple factors, because when DOM and units sold are statistically tested, the Adjusted R^2 value is lower than most cases (0.575243437). In regression tests for the study period, DOM (p=.0118788) and Units sold (p=3.17666E-07)do correlate with price. Figure 15 shows during the first and last periods of the study, DOM and units sold are clearly inversely related. When DOM goes up, units sold goes down.
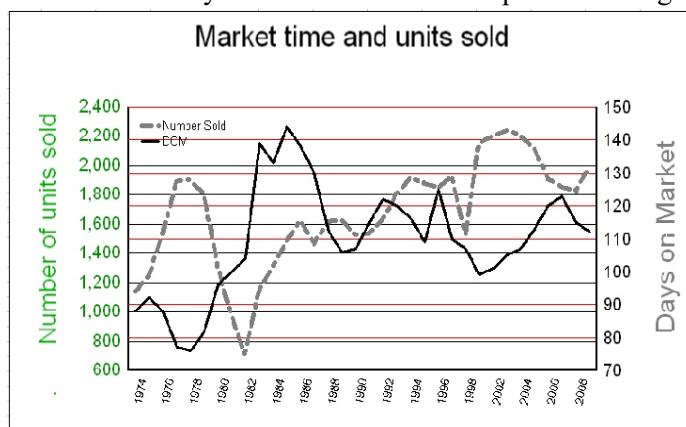
Figure 15

During the middle section, that behavior is observable but not nearly as pronounced.

Figure 16 is a view of behavior in the first period of the study. Similar data was not available for later periods. As DOM drops, the number of listed properties sold increases. Shorter selling times and transaction prices closer to list price correspond to changes that might be expected in a market where demand exceeds supply. When the market is "hot" residential properties sell fast and they sell closer to the listed price. One can see clearly that DOM, fluctuating percent of listings sold and percent of listing price received may signal a changing market. Figure16 data suggests these metrics be statistically evaluated.

Foreclosures, bankruptcy and money supply

Figure 16

Among economic influences on market price are measures of money available for a purchase. Measures of available money include income levels, personal bankruptcy rates, housing foreclosures, hours being worked weekly and unemployment rates. Figure 17 provides data on the average annual residential price in the Saginaw market, and rates of personal bankruptcy and foreclosure. Data cover the end of the first period and both the middle and ending period.

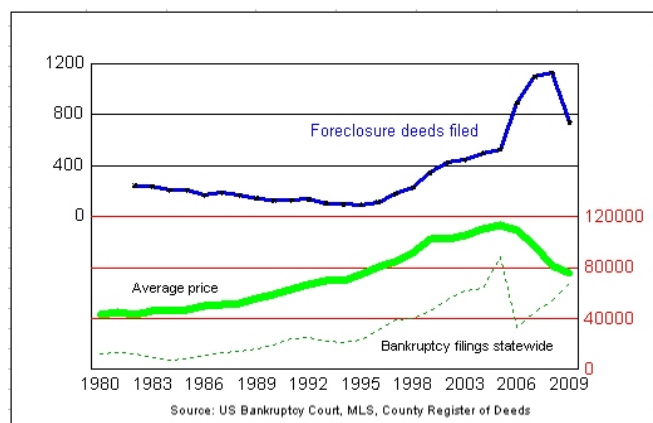Foreclosure records for Saginaw County are measured by the recording of a "Sheriff's Deed". As expected, the average price began to decline as the rate of foreclosure deeds dramatically increased. But what is a metric indicating an influence on value?

Between 1983 and 1998, foreclosures per year averaged 158. In the late 1990s, more and more foreclosed properties became available to potential buyers. In 2001, annual foreclosures doubled the long term rate.

Figure 17

Figure 18 documents when the foreclosure rate correlates with a drop in market, prices. For example, in the year 1982 and in the years 2006 through 2009 inclusive, less than three M.L.S. listings were sold for every new foreclosure available to the market. The price drop happened when the ratio was less than 3 in this market.

Bankruptcy rates seem to correlate too. The rate used here was taken from records of business and non-business bankruptcies filed annually by the U.S. Eastern District of Michigan. The correlation between average annual selling price and number of bankruptcy filings was significant; P=1.33E-07 for a T test with zero mean and unequal variances.

A relationship between money in a market available for a home purchase and the price of housing is not only reflected in bankruptcy and mortgage foreclosure records. The federal reserve board maintains records of average household debt. Such figures are available for the state of Michigan and they were made available for use in this report by the New York Federal Reserve Board. Using a T test with zero mean differences and unequal variances, measures of Michigan's average household debt correlated with local selling price (p<8.62287E-08) when 11 years of available debt records were compared to average selling price.

Year	Ratio Sold/Fclsd	Avg Sold Price
1981		$44,489
1982	2.94	$43,378
1983	4.84	$46,150
1984	6.32	$45,995
1985	7.13	$47,353
1986	9.60	$49,680
1987	7.75	$50,652
1988	9.58	$51,871
1989	11.27	$56,043
1990	12.06	$58,387
1991	11.91	$62,627
1992	11.85	$66,993
1993	17.16	$69,632
1994	19.94	$69,538
1995	20.19	$74,689
1996	16.19	$80,823
1997	10.79	$84,341
1998	6.73	$91,283
2001	6.24	$102,799
2002	5.18	$102,065
2003	5.04	$105,082
2004	4.41	$110,073
2005	4.01	$113,295
2006	2.15	$109,593
2007	1.69	$97,115
2008	1.62	$81,458
2009	2.69	$75,973

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Figure 18

Labor, economic and housing statistics

To better understand this market during the three unique periods, other descriptive statistics were examined. They included percent of properties listed that sold, workforce size, hours worked, and unemployment statistics. Lets look at examples. In this local market labor, economic, housing

supply and demand statistics were all available for analysis. Since, academic research suggests real estate markets are affected by both national and local influences, Figure 19 is offered. It illustrates national trends in employment and a picture of the U.S.'s overall economic health. Gray vertical bars indicate national recessions. The chart is provided courtesy of Timothy R. Mayes, Ph.D., Professor of Finance, Metropolitan State College of Denver.
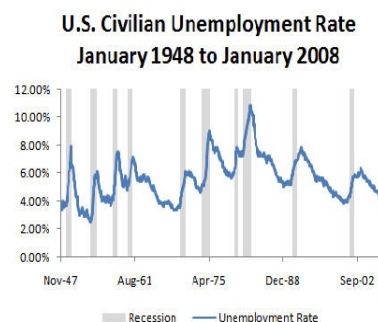

Figure 19

According to Dr. Mayes' chart, the first years of this study period began just as a recession ended and ended just as a recession began. The relationship between market time and percent of listing sold appears to correlate to national recessions. At the beginning and end of the eight year period market times, when recessionary influences existed, it took longer to sell a property and fewer of the listed properties sold.
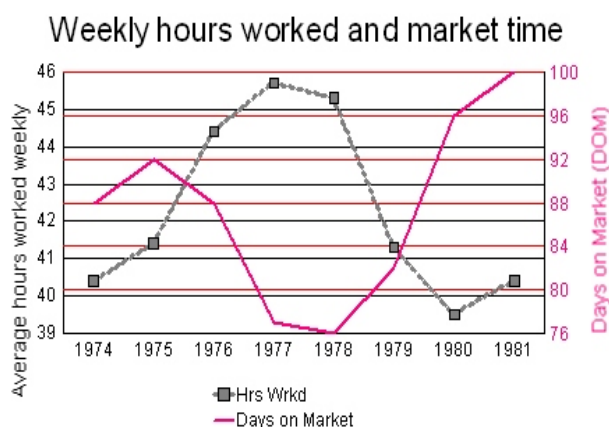

Figure 20 presents listing and sale data from the early time period of the study in three bands of activity. The upper band illustrates the percentage of listings sold. Remembering recessions shown earlier, one can see in Figure 20 that near periods of national recession, the percent of listings sold dips. In the most vibrant year (1978), 59.7 percent sold.

Figure 20

Besides national trends, the market was examined for signs of a relationship between local labor force and transaction statistics. In Figure 21, one can see an apparent correlation between the average r weekly in the local workforce and marketing time. As hours per week increase for employees, the number of days between listing a residential property and completing the transaction drops. Data was not available to test for the entire 36 year time frame, but this chart shows evidence of an inverse relationship between the number of hours being worked in the local labor force and how quickly a home sells. The behavior is similar to that shown in Figure 16 and suggests DOM is related to affordability metrics.

The middle band (housing supply) does not respond in the same manner. 2,396 listings were available in 1974 and only 2,186 in 1981. However, 3,190 listing were available in 1978. This is represented by the middle band. Demand is illustrated in the bottom band. Again, near recessionary periods, demand drops. In 1974, **Figure 21**
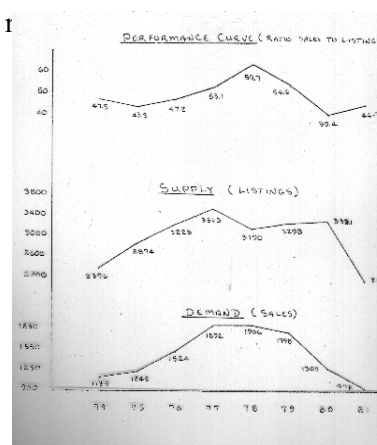
only 1139 homes were sold and in 1981, a minuscule 978 were sold. However, in 1978 this market saw 1906 homes sold; almost double the 1981 sale volume.

	30 Yr Avg	DOM	% Sold	Discount
1974	9.19	88	47.5	96.7
1975	9.05	92	43.3	96.3
1976	8.87	88	47.2	96.6
1977	8.85	77	53.1	97.1
1978	9.64	76	59.7	97.3
1979	11.2	82	54.6	97.0
1980	13.74	96	39.4	96.1
1981	16.63	100	44.7	94.0

Figure 22

A weak pattern is discernible in Figure 22. DOM begins at 88 days, drops to 77 with the falling nationally reported mortgage interest rate, then rises As interest rates drop, real estate becomes more affordable. The market generally reflects that circumstance in shorter market times and a higher percentage of listings being sold. Using calendar year 1978 as a focal point, one can see a general trend; as more properties are sold, smaller differences between the listed price and the transaction price show up. .

With lower interest rates, the negotiated selling prices remains closer to the listed price. This is reflected in the discount rate. Sellers obtain only 94 percent of the asking average asking price when interest rates hit 16 percent. A "buyers market" exists as interest rates rise and DOM increases. The percent of annually listed properties that sell decreases and the negotiated sale price shows a greater discount (becomes less close to the listed price). As of this writing, data was available to compare *average selling price and 28 years of discount* (amount of list price received). The Pearson correlation (.2468) for DOM over the longer time period and "p" value (9.66E-16) and "Discount" scores of -.0200 and 9.6E-17 respectively, with average selling price using a T test for equal means and unequal variances,) support the concept of a weak correlation. DOM correlations with price fluctuate significantly by time period.

This discrepancy between short period and long term statistical results suggest at least two things. First, it is important to identify markets in equilibrium and establish metrics based upon normalcy. Second, if property tax administrators create a data base of metrics deemed to be reliable indicators of market value and market conditions, those with insufficient sale data or those testing sale data, would have a new tool to assist them in decision ma

Local variations

Though effected by national conditions, it is assumed that each MLS service area varies from the other in some important economic characteristics. Examples may be household income, unemployment levels, population density, housing supply and other statistics. Figure 23 illustrates unemployment in the Saginaw market from 1975 to the year 2000 based on five year increments. The

Figure 23

localized pattern appears to differ from the national rate. The lower, lighter line shows the national rate plotted in five year increments.

Historically, this area was originally settled by persons involved in lumbering, fur trading and farming, since the early 1900s, the employment market consisted of local regional retail and wholesale firms, agriculture, employment in manufacturing and a large medical infrastructure. Economic activity peaked between 1975 and 2000. During that time period a regional retail mall was constructed as was a regional performance/entertainment center and fully developed big box and other retail facilities. Because of its geographic location at the north end of Michigan's industrialized I-75 corridor, Saginaw county contained major medical and dental care facilities including three large non-profit hospitals and one veteran's hospital. Rural medical clinics which could draw patients to the urban hospitals for major work developed. Based upon interviews and various interactions over the years, it is estimated in aggregate, local facilities routinely served a consumer base consisting of an area larger than Rhode Island and Delaware combined. Peak employment within the county exceeded 100,000 persons and over 25 percent (26,000 persons) were direct employees of General Motors automobile manufacturing facilities. Local wage rates routinely exceeded national average rates and additional benefits such as medical insurance were readily available.

During the first study period, recessions were experienced and personal finances were squeezed to some extent in the early 1980s by gasoline and heating fuel expenses. This was a result of crude oil rising from $3 per barrel to over $35 per barrel as an effect of the1973 and 1979 oil crises. Unemployment peaked at 14.5 percent in the Saginaw market.

In the middle period, due to abundant manufacturing employment, local wage scales remained high compared to national averages. Consider, in this market, cash transactions and seller financed sales (land contracts) represent a measurable component of the market, but in most years they occupy less than 15 percent of the markets financial activity. However, land contracts (limited to 11 percent interest) became the preferred choice of financing as interest rates skyrocketed about 1980. In the years shortly after 1980, personal bankruptcies rose and there was a slightly diminished average property value; about 2.5 percent in between 1981 and 1982. For the most part, the average sale price continued to rise in spite of the switch from conventional loans to land contracts.

The transition from a stable market to current conditions occurred in the first decade of the 21st century. Conventional financing was replaced by alternative financing, but under nearly opposite conditions of the first period as evidenced by a series of events. There was the dot com bust of 2000, where the economy overall did well. Then mortgage rates plummeted to under 4 percent and down payment requirements fell. Money for housing purchases could easily be borrowed with less than a five percent equity position and zero percent down financing was heavily touted. Other forms of credit to consumers were also easily accessible and widely used. In this environment property values climbed and climbed. However, so did personal debt. The national economic climate contained hints of what was to come locally. Beginning about 2001, the rate of real estate foreclosures in the Saginaw market hit double the long term rate. By 2008, local foreclosures hit 1130, almost 10 times the long term rate of 158. In 2008 a national banking crisis

hit the country. Some local bank stocks dropped from over thirty dollars a share to under three dollars per share. Unemployment peaked at 12.5 percent In 1998 personal bankruptcies hit 40,000 per year. In 2005 they hit over 88,000.

Major structural changes were taking place in the local economy. Pressures from international competition made a local impact. High wage rates and abundant "overtime" pay became far less common. Manufacturing employment declined until today, there are approximately 7,000 direct jobs in automotive manufacturing. Bank and telecommunication companies, once major forces in the state, restructured; both the number of jobs and the importance of individual firms declined. The county population declined slightly. Thus, changing income and increasing personal debt have been considered as "affordability" markers for change in average selling price.

Year	Ratio Sold/Fclsd	MLS Sold	Sheriff's Deeds	Percent F/S	Avg Sold Price
1981		978	n/a	n/a	$44,489
1982	2.9423868	715	243	0.33986	$43,378
1983	4.8403361	1152	238	0.20659 7	$46,150
1984	6.3221154	1315	208	0.158175	$45,995
1985	7.1304348	1476	207	0.140244	$47,353
1986	9.6035503	1623	169	0.104128	$49,680
1987	7.7460317	1464	189	0.129098	$50,652
1988	9.5833333	1610	168	0.104348	$51,871
1989	11.270833	1623	144	0.088725	$56,043
1990	12.063492	1520	126	0.082895	$58,387
1991	11.906977	1536	129	0.083984	$62,627
1992	11.846715	1623	137	0.084412	$66,993
1993	17.161905	1802	105	0.058269	$69,632
1994	19.9375	1914	96	0.050157	$69,538
1995	20.193548	1878	93	0.049521	$74,689
1996	16.192982	1846	114	0.061755	$80,823
1997	10.786517	1920	178	0.092708	$84,341
1998	6.7268722	1527	227	0.148657	$91,283
2001	6.2434783	2154	345	0.160167	$102,799
2002	5.1760563	2205	426	0.193197	$102,065
2003	5.0426966	2244	445	0.198307	$105,082
2004	4.4088176	2200	499	0.226818	$110,073
2005	4.0094697	2117	528	0.24941	$113,295
2006	2.1459035	1912	891	0.466004	$109,593
2007	1.6894353	1855	1098	0.591914	$97,113
2008	1.619469	1830	1130	0.617486	$81,458
2009	2.6851351	1987	740	0.372421	$75,973

Figure 24

Do metrics from the market contain markers of change?

Which indicators can be used to identify normal and anomalous markets? From the data it appears that a normal market is represented by a dominance of conventional financing and contains alternative financing methods which hold stable relative positions when the choice of transaction financing is measured over time.

There exists a threshold relationship between the number of distressed properties entering the market and non-distressed sales that occur annually. In this market, if one distressed property becomes available for every three (or fewer) properties sold annually, one can expect prices to drop. Figure 25 illustrates that statistic. Newly issued sheriff's deeds (foreclosure sales) are compared to the number of annual properties sold through the MLS annually. Once about the number of new foreclosures to MLS sales hits about .35 or there are less than 3 sales for every new foreclosure, prices begin to be affected.

In 1982, the average annual price was $43,378, down from a 1981 average price of $44,489.The 2006 average annual selling price of $109,593 had fallen from $113,295 in 2005. From 2006 through and including contemporary times, this marketplace continued to see annual sales of three properties or less for every new foreclosure. The
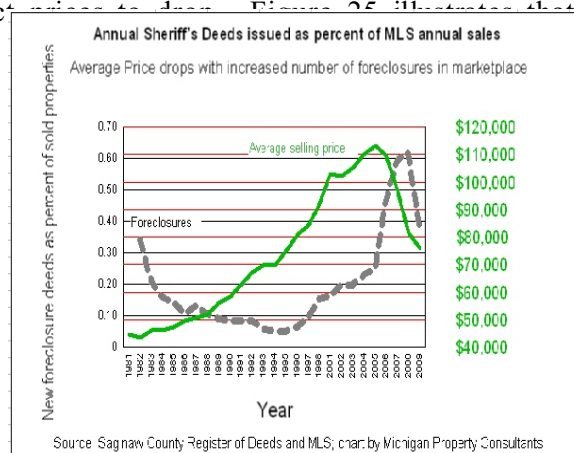

Figure 25

average annual selling price in this market has continued to drop. 2009 data show an average selling price of only $75,973. Comparing new foreclosures to annual properties sold combines government and non-government statistics to produce an excellent visual representation as well as statistically significant numbers. This market is clearly not in equilibrium.

A two sample "T" test assuming unequal variances and zero differences between the means provided a statistically significant relationship (p<.01) between average sale price and the ratio of sold properties to foreclosures. When the ratio of sold properties to annual foreclosures was less than three to one, prices in this market diminished. That was true both in the 1980s and the 2000s. The analysis supports the position of the State Tax Commission with regard to the impact of a large number of foreclosures appearing within local markets around the state.

Consistent changes in market time, changes in the pattern of listed properties sold, and differences in between the listing and selling prices when examined in graphs and tables appear to be markers of change. Labor market conditions suggesting changes in residential real estate market prices include unemployment rates and average hours worked.

As a brief summary: local average residential selling price correlates at statistically significant levels with the local measures of employment, income and debt; the cost of money manifested in the FreddieMac rate, the dominant form of financing and with several of the measurable market choices of financing sales. Local choice of financing correlates at statistically significant levels with the cost of money as manifested in the FreddieMac rate. Correlations were found for: conventional mortgages, PMI mortgages, seller financed sales, and FHA, FmHA and VA financing. In general the CPI correlates best with local property prices followed by Adjusted Gross Income.

Figure 26

Cross market comparison

The next evaluation was an attempt to verify that the use of financing in the Saginaw, Michigan market was reasonably typical of financing method use by buyers and sellers in other U.S. markets. In1981, a survey was created and a mailed to one multiple listing service in each U.S. state. All MLS services were Board of Realtor organizations. The intent was to take a snapshot of the use of financing within geographically dispersed real estate markets in the years 1979 and 1980.
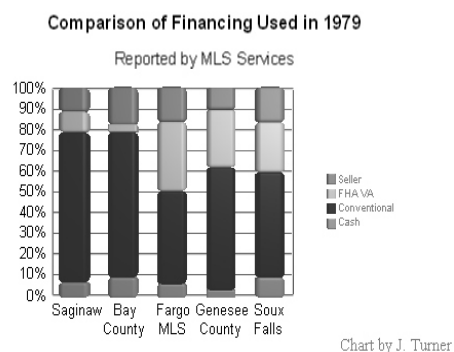
Unfortunately, a number of obstacles arose which created minimal response to the survey. In part, some MLS services were simply not interested, some were advised by their legal counsel not to share data and others did not have records within a computer or available in a book. However, data appropriate for this analysis was secured and five MLS market activities could be compared. The MLS locations were: Saginaw County, Bay County and Genesee County,

Michigan; Fargo, North Dakota and Sioux Falls, South Dakota.

To compare other markets with the Saginaw observations, financing methods were broken into five types: cash, conventional, government financed, seller financed and "other.". Those terms were consistently used by each MLS herein. Cross-market cash sales were those sales reported and labeled by each MLS as "cash." Conventional financing as listed in the graphics and text means sales reported as being financed by a commercial lender as either a new conventional loan (20%+ down payment) or as a new lender financed loan insured as a PMI (Private Mortgage Insurance with 5 to 10% down payment). PMI loans are sometimes termed MGIC loans (Mortgage Guarantee Insurance Corporation). Government backed financing is the term used in the graphics and text to refer to VA and FHA loans. In a very few cases Farmers Home Administration (FmHA) loans were included as government backed loans. Sales financed with a down payment to the seller and with the seller financing the remaining balance are referred to as either seller financed sales or land contract sales.

Graphics illustrating the relative use of similar types of financing in each geographic location are presented in Figures 26 and 27. Figure 26 presents the data from the five MLS services for calendar year 1979. Figure 27 presents the data for calendar year 1980.

The results for 1979 do show similarity in overall relative use of financing. Figure 27 shows a similar pattern for 1980, but the use of government financing has diminished overall. A movement from conventional financing to other forms in all markets begins to surface in 1980. Seller financed and cash transactions represent similar percentages of use in the individual markets. The greatest absolute use of conventional loans is in the three Michigan counties.

There is cross-market variation in the use of government (FHA, VA and FmHA) financing. Explaining the reasons for this variation might make a make a good follow up study. However, for purposes of this analysis, it is clear that the overall utilization of cash, conventional and seller financed residential sales does not support the concept that the Saginaw County residential real estate market is anomalous. Financing use data within Saginaw county is similar to uses within other markets.
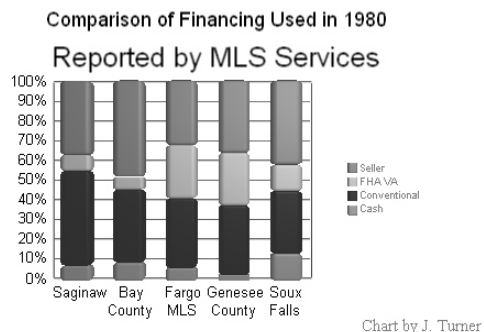
Figure 27

Another example of market similarity is found by examining data from Bay County, Michigan. As Figure 28 illustrates, the use of most frequently found forms of financing in Bay County is similar to that found in Saginaw County. Note that cash sales became a dominant financing method in 2008 and the slope of land contract sales suggests similarity to Saginaw.

Figure 28

Statistical Procedures and interpretation

A primary purpose of this study was to identify commonly available, market derived statistics that could be used by assessors, appraisers, equalization directors to identify legally appropriate and statistically reliable"markers" of changing property values. To achieve that goal a process was developed that scrutinized attributes of about sixty thousand individual sales providing a data set of over 700,000 observations spanning three and one-half decades. Data related to employment, cost of living, affordability and personal debt were acquired and utilized in the analyses. The study period encompassed calendar years 1974 through 2009 inclusive. However, observations from calendar years 1999 and 2000 have not been processed sufficiently to fully utilize them. After the missing two years of data have been processed and proofed, it is expected that an more academically formalized study will be published. Enough data has been analyzed that production of this report is a reasonable proposition. The research is also being released in hopes it will be useful as fundamental market conditions continue to affect individual property values.

The developed process is presented here for peer review. It is believed the process can be easily replicated in most assessing jurisdictions. For those wishing to experiment, "Markers" of change were developed in the following way:

1. From the universe of observations and metrics generated by federal, state and non-government entities, the initial scores of twenty metrics were judged appropriate for further testing (t Test >1.9996 in all cases; Pearson correlation scores with the average annual selling price of residential property were estimated but not used for initial screening.)

2. Single regressions of each metric were run against the average annual selling price; tests were then recorded for financing and the annual Freddie Mac 30 year mortgage interest rate

3. These potential markers of changing property value were divided into four categories: Demand, Supply, Affordability and Financing

4. Beginning with the highest Pearson Correlation score per category, one metric from each of the four categories was selected for use in multiple regression analysis

5. tests were repeated using various individual metrics by category (described in the text)

6. Results of final regressions indicate robust data with adjusted R square scores ranging from 0.798 to 0.922, F scores > 1084 and F Significance scores =< 2.54E-06 in all cases.

Analyses were completed for four time periods First, for all available metrics during the entire 1974 through 2009 time period. Then, regressions were conducted using metrics available for each of three temporal components of the entire study: 1974 to 1985(early period); 1986 through 2005 (middle period); and 2001 through 2009(late period). The dependent variable for all metric correlations was Average annual selling price. Final metrics chosen for regression in each time period were based upon the highest Pearson Correlation score (>0.50) and results of reiterative experiments whereby one metric was replaced by a metric from the same category with a similar,

but lower, Pearson score until a combination of one metric from each of the four categories produced the highest adjusted R Square value, the highest Pearson correlation, the lowest probability of chance, the lowest reported standard error. "Best" combinations changed by time period.

Tables documenting results follow in this sequence: (1) t Test and Pearson result; (2) "P" score and R square scored from regression of single variable and average annual selling price or regression of choice of financing and Freddie Mac annually reported average 30 year fixed interest rate; (3) listing of observations as assigned categories; and (4) illustrative table of regression results utilizing a one observation from each category and average annual selling price.

Time periods were originally divided by using choice of financing as the separation point. So, the initial period began with the initial year of observations and concluded when the use of land contracts returned to less than 20 percent of the market and conventional financing returned to more than forty percent of the market. The mid-period began at the end of the first period and ended when conventional financing dropped below forty percent of the market as cash sales began to skyrocket (2005). Originally, 2005 marked the end of the middle time period. However, the last time period contains so few years that the analysis of the last period utilized data from 2001 through and including 2009. Thus, data from 2001, 2002 and 2003 are included in the middle and late periods.

This is a preliminary report. Data analysis have not been completed for calendar years 1999 and 2000. In some cases, data was not available for each component for the entire 35 year time period. In such instances, comparisons for a shorter duration comprised of years in which data was available were utilized.

BEGIN PRESENTATION OF TEST RESULTS AND DEFINITIONS

TABLE 1 — T TEST RESULTS: EACH VARIABLE AND ANNUAL SELLING PRICE				
"OBSRVTN" = Observations = number of years				
VARIABLES (1974-2009) esc 1999 & 2000)	OBSRVTN	P(T<=T) Two Tailed	T Critical Score	Pearson Score
Days on Market (DOM)	34	9.66E-16	2.034515	0.246799
Financing: Assume existing loan	34	9.22E-16	2.034515	-0.633800
Financing: Cash sale	34	9.25E-16	2.034515	0.537085
Financing: Comm lender loan (Conv.)	34	9.42E-16	2.034515	0.224985
Financing: Govt (FHA/FmHA/VA)	34	9.26E-16	2.034515	0.516424
Financing: Other	34	9.23E-16	2.034515	-0.074260
Financing: Seller	34	9.25e-16	2.034515	-0.57783
Freddie Mac 30 yr fixed rate interest	34	9.24E-16	2.034515	-0.696180
Local (county) unemployment rate	34	9.24E-16	2.034515	-0.438750
National unemployment rate	34	9.23E-16	2.034515	0.633580
Number of properties sold by MLS	34	1.93E-15	2.034515	0.713452
Consumer Price Index (Detroit report)	34	9.74E-16	2.034515	0.935629
Statewide Average Weekly Wage	34	1.15E-15	2.034515	0.9416575
VARIABLES ABBREVIATED TERM				
County average Adj. Gross Income	26	4.83E-08	2.022691	0.941833
Bankruptcies (U.S. East. District Court).	30	3.41E	1.999624	0.860431
Foreclosures (completed deed issued)	28	1.07E-15	2.034515	0.539223
Household Debt (Fed. Reserve estimate)	11	8.62E-08	2.018082	-0.289490
Average hours worked in county	8	9.38E-16	2.034515	-0.357970
Ratio of solds to new foreclosures	28	9.24E-16	2.034515	-0.286800
Discount (Price difference list and sold)	29	9.6E-16	2.034515	-0.020030

Created by Michigan Property Consultants L.L.C.

Single regressions were executed using average annual selling price as reported by the MLS and individual metrics listed in Table 2. Financing choices were examined using the metric and the Freddie Mac rate.

Table 2 REGRESSION - SINGLE METRIC AND DEPENDENT VARIABLE

Dependent Variable	Independent Variable	Years compared and notes	P score	Adj. R^2
Market statistics correlated with average annual selling price				
Average Price (all sold)	Days on Mkt (DOM)	1974 to 2009 except 1999 and 2000	4.41E-16	.8379
Average Price (all sold)	Percent of list price received (Discount)	1974 to 2009 except 1999 thru 2005	1.79639E-14	.8453
Average Price (all sold)	Number of properties sold	1974 to 2009 except 1999 thru 2005	1.26196E-16	.8807
Average Price (all sold)	Conventional/PMI loans	1974 to 2009 except 1999 and 2000	1.47849E-05	.9360
Average Price (all sold)	Gov't backed financing FHA/AV/FmHA	1974 to 2009 except 1999 and 2000	0.01049	.9360
Average Price (all sold)	Seller (Land Contract) backed financing	1974 to 2009 except 1999 and 2000	5.35482E-10	.9360
Average Price (all sold)	"Other" Financing	1974 to 2009 except 1999 and 2000	0.00417	.9360
Average Price (all sold)	Assumption of existing mortgage	1974 to 2009 except 1999 and 2000	1.30952E-05	9360
Indicators of money available for a purchase (Affordability)				
Average Price (all sold)	Unemployment rate	1974 to 2009 except 1999 and 2000	3.40435E-10	.6718
Average Price (all sold)	Average Weekly Wage Statewide	1974 to 2009 except 1999 and 2000	2.14682E-31	.9541
Average Price (all sold)	Consumer Price Index (Detroit)	1974 to 209 except 1999 and 2000	1.19E-30	.9524
Average Price (all sold)	Local Foreclosure sales	1982 to 2009 except 1999 and 2000	2.12655E-06	.5734
Average Price (all sold)	County avg Adj. Gross Income	1983 to 2008 except 1999 and 2000	1.49655E-22	.9417
Average Price (all sold)	Personal bankruptcies filed in state	1980 to 2008 except 1999 and 2000	6.31E-14	.8506
Average Price (all sold)	Fed Reserve reported statewide H.H. debt	2001 to 2009	2.6606E-06	.8210
Average Price all sold	National 30 yr Mortgage Rate	1980 to 2009 except 1999 and 2000	6.48E-12	.9559
Relationship between FreddieMac reported 30 year fixed rate mortgage and financing used locally				
National 30 year rate	Commercially available mortgage/pmi loans	1974 to 2009	1.06E-11	.7183
National 30 year rate	FHA/FmHA/VA financing	1974 to 2009	5.8016E-9	.6066
National 30 year rate	Seller (Land Contract) financing	1974 to 2009	1.6976E-10	.6740
National 30 year rate	"Other" financing	1974 to 2009	7.44E-10	.6475
National 30 year rate	Cash (Buyer supplied financing)	1979 to 2009	7.18E-18	.5496
National 30 year rate	Assumption of existing commercial mtg	1974 to 2009	8.4448E-9	.5986

CATEGORIES - DEFINITIONS, SOURCE DATA AND ASSIGNMENTS

     Supply - The market is limited to those properties classified as residential that are serviced by the Saginaw County, Michigan multiple listing service (Board of Realtors). Two metrics are labeled Supply metrics: (1) Foreclosure deeds and (2) the ratio of annual MLS sales to new Foreclosures deeds in each year for which data was available. A useful observation considered a supply metric (number of new listings annually) was not reported consistently and could not be used. Available new listing information is presented in Figure 21 as the *percent of listings sold annually*.

Table 3	Local Supply of residential parcels	Annual Demand	Foreclosure Supply
Year	Number per County Equalization	Sold thru MLS	Foreclosure Deeds
1980	66,644	1309	243 (1982)
1985	67,892	1476	207
1990	69,071	1520	126
1995	71,306	1878	93
2000	74,155	2441	284
2005	77,973	1912	528
2010	78,646	2090	1,000

     Demand- Is defined as the number of properties sold annually through the local multiple listing service (Saginaw County Board of Realtors). Metrics within the study labeled as indicators of "Demand" are the **number properties sold annually** through the multiple listing service and the number of days between the original list date and final sale date (**DOM**) and the difference between the original listed price and the eventual selling price (**Discount**).

     Financing - Financing is defined as the type of financing accepted by participants in a transaction to facilitate the conveyance of title to the real estate in exchange for cash in U.S. denominations, or agreed upon "cash equivalent"terms. Five categories were identified:

- **Assumptions** (Buyer is permitted to legally become responsible for all terms and conditions of an existing loan while the Seller is relieved of his or her existing loan obligation)
- **Cash** (buyer provided payment with no loans involved)
- **Conventional** loan (Loan provided by a commercial lending institution such as a bank or by a privately owned lender such as a credit union; includes loans having PMI requirements)
- **Government** backed loans commonly called FHA, Va and FmHA (Farmers Home Administration) loans
- **Land contract** (seller provided financing where the seller retains a portion of ownership

pending incremental payments from the buyer; complete title transfers at a date following the last incremental payment which fulfills the terms of sale)

•   **Other** - Transaction financing reported as "Other" by the multiple listing service

Affordability - Is the consumer's capacity to afford a house. Measures include three parameters: the capacity to pay the required down payment, the capacity to pay the monthly payment and the capacity to make the required payments without exceeding lender guidelines for debt. Market affordability metrics are "general" measures and should be distinguished from tests applied to a specific loan applicant. Metrics used in this study are listed alphabetically:

◇   Adjusted Gross Income - the average annual adjusted gross income reported to the Michigan Department of Treasury through individual income tax filings. Reported by the Michigan Department of Treasury on county-by-county basis. Data herein provided by Office of Revenue and Tax Analysis. In years not available an estimate was created via interpolation.

◇   Average Weekly Hours Worked - Old copies of Labor Market News published by state of Michigan. Limited copies available at http://www.milmi.org/?PAGEID=67&SUBID=151

◇   Average Weekly Wage - Source Michigan Department of Licensing and Regulatory Affairs. Records Accessed 6/9/2011, http://www.michigan.gov/uia/0,1607,7-118-1328-78735--,00.html

◇   Bankruptcy - Annual personal bankruptcy as reported by U.S. Federal Bankruptcy Court.

    Eastern District: records accessed 4/22/11 www.mieb.uscourts.gov/statistics/index.html

◇   CPI - U.S. Bureau of Labor Statistics data, Source: http://data.bls.gov/pdq/SurveyOutputServlet accessed May 26, 2011

◇   Discount - The difference between the for sale price at the time of listing and the final selling price. Calculated by author.

◇   Foreclosure deeds issued annually, Saginaw County Register of Deeds

◇   Freddie Mac annually reported and 30 year fixed rate mortgage interest, Source: www.freddiemac.com/pmms/pmms30.htm

◇   Per Capita and Personal Income, Michigan Department of Technology, Management and Budget, at http://milmi.org/cgi/dataanalysis/areaSelection.asp?tableName=Income

◇   Ratio of "Solds" to "Foreclosure Deeds" generated by the author using MLS and Register of Deeds data

◇ Unemployment statistics, Saginaw County, State of Michigan Labor Market Information, available at http://milmi.org/cgi/dataanalysis/AreaSelection.asp?tableName=Labforce

◇ Unemployment Statistics, United States, U.S. Bureau of Labor Statistics, available at http://www.bls.gov/cps/cpsaat1.pdf

Note: A sub-market of properties for sale by owner exists, but is small. Such properties are often not marketed as extensively, nor exposed to as many potential buyers, as MLS sales. Such sales are not included within the data.

PEARSON CORRELATIONS AT t TEST AND CATEGORY ASSIGNMENT

t Test Results METRIC Alphabetized	Data Years	1974 2009 All Years	1974 1985 First Period	1986 2005 Mid Period	2001 2009 Last Period	CATEGORY
County Avg Adjusted Gross Income	24	Partial Data		0.98632	-0.34006	Affordability
Consumer Price Index (Detroit)	34	0.93563	0.97360	0.99262	-0.61180	Affordability
Annual Personal Bankruptcy Filings	30	Partial Data		0.94389	0.05566	Affordability
Annual "Solds" reported by MLS	34	0.71345	-0.26748	0.85426	0.52973	Demand
Freddie Mac Annual Avg 30 Yr Rate	34	-0.69618	0.83107	-0.95382	0.44485	Affordability
Financing - Assume existing loan	34	-0.63380	0.69024	-0.80858	Not used	Financing
National Unemployment Rate	34	0.63358	0.33644	-0.48448	0.11016	Affordability
Financing - Seller Land Contract	34	-0.57783	0.61474	-0.92869	-0.86537	Financing
Foreclosure Deeds annually	28	Partial Data		0.82912	-0.50112	Supply
Financing - Cash - no financing	34	0.53709	0.50132	0.23045	-0.51829	Financing
Financing - Gov't (FHA/VA/FmHA)	34	0.51642	-0.21084	0.08955	-0.65961	Financing
County Avg Unemployment Rate	34	0.43875	0.33378	-0.25670	-0.60585	Affordability
Average Labor Force Hours Worked	8	Partial Data				Affordability
Household Debt (Fed. Reserve)	11	Partial Data			-0.28949	Affordability
Ratio of annual MLS sales/Foreclosures	28	Partial Data		-0.50999	0.46921	Supply
Days from list to sale (Days on Market)	34	0.24680	0.71396	-0.57677	-0.17185	Demand
Financing - Commercial Loan (Conventional)	34	0.22499	-0.75000	0.64096	0.87794	Financing
Financing - reported as "Other"	34	0.07426	0.62273	-0.49336	-0.35102	Financing
Difference btwn list and sold price (Discour	34	Partial Data	-0.72157			Demand
Weekly Wage (averaged statewide)	34	0.94166	0.96714	0.99605	-0.56802	Affordability

Figure 29

METRICS RANKED BY PEARSON SCORE IN STUDY PERIOD AND CATEGORY

METRIC Ranking =>[0.50] All Ye		1974 to 2009					
Full Term		Pearson		First Period		Pearson	
Freddie Mac Annual Avg 30 Yr R	6	-0.69618	Affordabilit	Freddie Mac Annual Avg 30 Yr Rate	3	0.83107	Affordability
National Unemployment Rate	8	0.63358	Affordabilit	Weekly Wage (averaged statewide)	2	0.96714	Affordability
Annual Personal Bankruptcy Filin	4	0.83458	Affordabilit	Consumer Price Index (Detroit)	1	0.97360	Affordability
County Avg Adjusted Gross Inco	2	0.91794	Affordabilit	Difference btwn list and sold price (Disc	5	-0.72157	Demand
Consumer Price Index (Detroit)	2	0.93563	Affordabilit	Days from list to sale (Days on Market	6	0.71396	Demand
Weekly Wage (averaged statewid	1	0.94166	Affordabilit	Financing - Commercial Loan (Conventi	4	-0.75000	Financin
Annual "Solds" reported by MLS	5	0.71346	Demand	Financing - Cash - no financing	10	0.50132	Financin
Financing - Assume existing loan	7	-0.63380	Financing	Financing - Seller Land Contract	9	0.61474	Financin
Financing - Seller Land Contract	9	-0.57783	Financing	Financing - reported as "Other"	8	0.62273	Financin
Financing - Gov't (FHA/VA/FmH/	12	0.51642	Financing	Financing - Assume existing loan	7	0.69024	Financin
Financing - Cash - no financing	11	0.53709	Financing				
Foreclosure Deeds annually	10	0.53922	Supply				
Mid-Period		Pearson	1986 -2005	Last Period		Pearson	2001 - 2009
Freddie Mac Annual Avg 30 Yr R	4	-0.95382	Affordabilit	Consumer Price Index (Detroit)	4	-0.61180	Affordabilit
Annual Personal Bankruptcy Filin	5	0.94389	Affordabilit	County Avg Unemployment Rate	5	-0.60585	Affordability
County Avg Adjusted Gross Inco	3	0.98632	Affordabilit	Weekly Wage (averaged statewide)	6	-0.56802	Affordability
Consumer Price Index (Detroit)	2	0.99262	Affordabilit	Annual "Solds" reported by MLS	7	0.52973	Demand
Weekly Wage (averaged statewid	1	0.99605	Affordabilit	Financing - Seller Land Contract	2	-0.86537	Financin
Days from list to sale (Days on I	11	-0.57677	Demand	Financing - Gov't (FHA/VA/FmHA)	3	-0.65961	Financin
Difference btwn list and sold pric	9	0.81394	Demand	Financing - Cash - no financing	8	-0.51829	Financin
Annual "Solds" reported by MLS	8	0.85426	Demand	Financing - Commercial Loan (Conventi	1	0.87794	Financin
Financing - Seller Land Contract	6	-0.92869	Financing	Foreclosure Deeds annually	9	-0.50112	Supply
Financing - Assume existing loan	7	-0.80858	Financing				
Financing - Commercial Loan (Cc	13	0.64096	Financing				

Figure 30

SELECTION OF METRIC FOR INCLUSION AS MARKER COMPONENT

The challenge was to create a process that would meet statistical criteria for acceptability as reliable indicators of changing property values when a shortage of cash or cash equivalent sales exists. Such conditions are present now in many real estate markets and were present during the late 1970s and 1980s as conventional mortgage interest rates exceeded sixteen percent. The process as developed utilizes a multiple regression of several metrics falling into four fundamental categories and visual examinations of graphed, plotted or tabular data. The categories are the well known and basic components of residential markets: Demand, Supply, Affordability and transaction Financing.

Pearson correlations were performed on all 20 variables at the time of the initial t Test. Figure 29, provides the results for all variables with correlations equal to or greater than 0.50. Only variables which exceeded that threshold were subjected to categorization and then tested as part of multiple regression analyses using between three and four independent variables and average annual selling price as the dependent variable.

Once a metric for each category was selected, a minimum of four multiple regression analyses were conducted using them. These regressions were performed based upon the four temporal periods associated with the study. They consisted of: the entire time period for which data was available (1974 thru 2009 inclusive; the early time period (1974-1985); the middle time period (1986-2005) and the late time period (2001-2009).

Various combinations of metrics within each of the four categories were tested for each time period. For example, in the mid-period analysis, two combinations were similar. Both used Seller financing, CIP affordability and foreclosure deeds as metrics, but one used DOM as a measure of demand and the other used the number of properties sold. The adjusted R square factors were very similar and the measures of demand were not significant. However, the analysis using the number of properties "sold" had a slightly lower standard error and a "p" score far closer to the 0.05 threshold. Therefore, the combination of Seller Financing, the number of properties sold annually, the consumer price index and the number of foreclosure deeds was selected as the best regression for the time period shown in Figure 30.

Period	Table 4		Best Metrics for use in specific time periods	
Period	Affordability	Demand	Financing	Supply
Early	CPI	Number Sold	Land Contract	N/A
Middle	CPI	Number Sold	Land Contract	Number of Foreclosure deeds
Late	CPI	Number Sold	Conventional	Number of Foreclosure deeds

The best regression results for each of the three time periods comprising the study follow.

Best Metrics by Time Period

Early Period Analysis (1974 - 1985)

Characterized by extremely high mortgage interest rates (>16%) and a switch from conventional to seller financing as the dominant form of financing.. Metrics available to compare with average annual selling price include thirteen of the twenty measures. They were: assumptions, cash sales, conventional financing, government backed financing, seller backed financing, other financing, DOM, Freddie Mac rate, local and national unemployment statistics, number of properties sold annually, the CPI, hours worked weekly, average weekly wage. All financing choices occupied less than 20 percent of the market except conventional and land contract financing. The period began and ended with conventional loans being used more than 40 percent of the time with an average use of 48 percent and a peak use of 76 percent. Use of Land contracts averaged at 21 percent of transactions for the period, peaked at 50 percent of all transactions and were used in 16 percent of 1974 and 20 percent of 1985 transactions.

The best fitting measures of change by category were: Affordability (CPI), Demand (number of properties sold), Financing (land contract/seller financing) and Supply (no unique metric available).

Middle Period (1986 – 2005)

SUMMARY OUTPUT		Note: Only one measure of: Affordability, Demand and Financing				
Early Period Best Metrics		1974 to 1985 inclusive				
Regression Statistics			Pearson Correlation		Category	
Multiple R	0.999653566					
R Square	0.999307251		Seller	0.614736	Financing	
Adjusted R Square	0.888042196		Nbr Sold	-0.26748	Demand	
Standard Error	1195.851401		CPI	0.973596	Affordability	
Observations	12					

ANOVA

	df	SS	MS	F	Significance F	
Regression	3	18566084435	6188694812	4327.575	3.53851E-13	
Residual	9	12870545.16	1430060.573			
Total	12	18578954980				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	ower 95.0%
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Seller	147.2947516	42.36372316	3.476907614	0.006972	51.46135202	243.128151	51.46135
Sold	6.937278518	0.855623402	8.1078644	1.99E-05	5.001723915	8.87283312	5.001724
CPI	329.6325991	24.18598505	13.62907479	2.59E-07	274.9200999	384.345098	274.9201

Figure 31

Characterized by consistent use of conventional mortgages (>40%) with competing financing choices being utilized individually in less than twenty percent of transactions except for government backed financing. Government backed financing exceeded 20 percent of all transactions in five years, peaking at 28 percent. The average use of government financing during this period was 18 percent. The average use of conventional financing was 54 percent. Conventional financing never fell below 42 percent of the market and in three years exceeded 60 percent of the market. Metrics available to compare with average annual selling price include seventeen of the twenty measures. The three missing measures were: difference between listing and selling price (discount), average household debt and average hours worked weekly.

Metrics were available for all four categories (Supply, Demand, Affordability and financing) The best fitting measures of change by category were: Affordability (CPI), Demand (number of properties sold), Financing (land contract/seller financing) and Supply (annual foreclosure deeds). Of many tests, results of the regression analysis with the lowest error rate, highest probability and best R square statistics is shown in the next table.

Middle Period Analysis

SUMMARY OUTPUT

Middle Period Best Metrics   1986 to 2005 inclusive

Regression Statistics			Pearson Correlation		Category
Multiple R	0.99949008		Seller	-0.920490890	Financing
R Square	0.99898042		Sold	0.817277059	Demand
Adjusted R Square	0.92182206		CPI	0.989537649	Affordability
Standard Error	2856.91815		Deeds	0.734113674	Supply
Observations	17				

ANOVA

	df	SS	MS	F	Significance F
Regression	4	1.03962E+11	2.6E+10	3184.349951	4.86291E-18
Residual	13	106105757.1	8161981		
Total	17	1.04069E+11			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A
Seller	-961.89474	183.3447997	-5.24637	0.000157853	-1357.987095	-565.8023793
Sold	-5.8181568	5.455333811	-1.06651	0.305600899	-17.60368891	5.967375401
CPI	584.640048	63.84578612	9.157066	4.94834E-07	446.7096126	722.5704825
Deeds	31.5093348	7.379135947	4.270057	0.000912564	15.56768078	47.45098875

Figure 32

Ending Period (2006 - 2009)

This period begins as evidence of a price decline and a pending fiscal crisis for commercial and governmental housing lenders becomes noticeable. Housing prices within the Saginaw County market peaked in 2005 at an average annual selling price of $113,000. In the same year, the use of cash to finance a sale was 9.9 percent and conventional loans were used in 78.7 percent of transactions. However, the period is characterized by the rise of the cash sale as the dominant financing method. In 2008, 39.28 of all completed transactions were consummated as cash sales and only 35.21 percent were convention loan financed transactions. This period is also characterized by a significant reduction of the average annual selling price of residential properties. The average annual selling price by 2009 had declined by $37,322 to $75,973. This represented a loss of 32.9 percent from 2005. Personal bankruptcies, reached dramatic heights in both 2005 and 2009.

The ratio of homes sold through the MLS to the number of mortgage foreclosure deeds recorded within 2005 year dipped to less than three sales for every new foreclosure. A ratio of less than 3 to 1 appeared in each period with reduced average annual selling price - the first and last periods of this study. In contrast, the middle period experienced continually increasing property values. The single metric most correlated with price in the middle period, was CPI. During the period, the ratio of annual properties sold to the number of foreclosures average 10.6 to 1 and rose

as high as 20.2 to1. Because the impact of personal bankruptcies, mortgage foreclosures and other factors affecting loan origination and affordability have only manifested themselves for less than five years, statistical analysis of the last period includes observations from the year 2001 to 2009. While it is preferable to extract information from a time period isolated by changes in specific behaviors, the data was examined as a period of shorter duration and as an overlapping period. Utilization of the longer time period does not appear to create a significant problem. The longer time period offers a more robust analysis by encompassing per and post change dynamics.

The results suggest data about the frequency of use of various methods of financing residential sales within a market should be routinely monitored. Significant changes from normal may indicate disturbances in market equilibrium. Such disturbances can lead to changes in the market value of residential real estate and the need for adjustments in the transaction price based upon the method of financing used.

Last Period Best Metrics   Begins 2006; Data from 2001 to 2009 inclusive

SUMMARY OUTPUT

Yrs 2001 to 2009

Regression Statistics			Pearson Correlation		Category
Multiple R	0.99942437		Conv.	0.877941177	Financing
R Square	0.99884907		CPI	-0.611796221	Affordability
Adjusted R Square	0.7981585		Sold	0.529727830	Demand
Standard Error	4572.46811		Deeds	-0.501116752	Supply
Observations	9				

ANOVA

	df	SS	MS	F	Significance F
Regression	4	90723661748	2.27E+10	1084.823808	2.54294E-06
Residual	5	104537323.3	20907465		
Total	9	90828199071			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A
Conv.	856.699612	143.2659769	5.979784	0.001874224	488.4226943	1224.97653
CPI	-659.15031	260.0811081	-2.5344	0.052248832	-1327.710082	9.409462057
Sold	69.5461392	18.47666039	3.763999	0.0131035	22.05037161	117.0419067
Deeds	51.3297521	18.76578368	2.735284	0.041021492	3.090769473	99.56873473

Figure 33

It is interesting to note, the data also demonstrate consistently varying discounts from the list price which appear to be related to the type of financing used. For example, during the 1970s, the least used financing (cash and L.C.) appear to be related to the greatest variation between the listed price and the sold price. At the other end of the spectrum, government backed financing (VA and FHA) had the smallest difference between the list price and the sold price.

In conclusion, this report had three basic statistical goals: (1) any "marker" of change had to be correlated to the average annual selling prices of residential property reported by the M.L.S (2) a cross-market check of patterns in the choice of financing was used to identify potentially anomalous market conditions; e.g. similarities and deviations between choice of financing were scrutinized in five geographically distinct real estate markets located in three states, and (3) market facts, patterns of metrics and statistically valid testing procedures were combined to create a "process" that identifies   changing real estate values in a manner which satisfies State Tax Commission and judicial mandates referencing the evaluation of foreclosure, creative financing and other non-cash equivalent sale data.

Relevant Legal Considerations

In order to properly determine components which truly affect fair market value, one must consider legal mandates specifically related to fair market or *true cash value* of real estate.

The issue of external influences on value, may be handled in at least two ways by an assessor. First, in mass appraising, a cost less depreciation approach to value is often used. Applying standard costs assures meets a constitutional test for uniformity. The cost less depreciation process includes the application of an economic condition factor (ECF). An ECF modulates a cost minus depreciation value in a manner consistent with market influences lying outside of the property. The ECF process meets the "equity" requirement of the constitution.

However, the cost less depreciation approach itself has a way to consider outside value influences on a specific property. Depreciation has three components: physical deterioration, functional obsolescence and economic obsolescence.[6]   Economic obsolescence is the calculation embedded within a cost minus depreciation approach which adjusts for outside influences. A principle difference between economic obsolescence and an economic condition factor, is that an ECF is applied to several properties which constitute a geographic area influenced by the same external influence(s) on valuation; economic obsolescence is a calculation within the appraisal of one property.[7]

Estimating the impact of choice of sale financing or any other external influence on property value can be difficult. Yet it is one of the charges required of any appraiser, assessor, equalization director or property tax administrator. Over the years comprising this study, two significant events prompted state authorities to invoke important guidelines. On September 4, 1985 the Michigan Supreme Court required assessors to consider the impact of "creative financing" on the market value of real estate for assessing purposes. Within 45 days the Michigan Department of Treasury issued Bulletin No. 11 which prescribed methods for implementing the court order. On August 15, 2007, the Michigan Department of Treasury issued Bulletin No. 5 and Bulletin No. 6 which addressed the impact of mortgage foreclosures on assessments.

In its 1985 decision the Supreme Court quite elegantly separated decisions of buyers and sellers that benefit them in some way, from market decisions, that directly and measurably affect the value of real property. First the court distinguished between sale factors by quoting the Michigan Tax Tribunal:

"The Constitution requires assessments to be made on property at its cash value. This means not only what may be put to valuable uses, but what has a recognizable pecuniary value inherent in itself, and not diminished according to the person who owns or uses it." (Emphasis added by the court).

Then the court went on to connect an understanding of constitutional mandates regarding a determination of property value to decisions made by the people involved in the market. Interestingly, a reader of the entire passage from which the following quote was extracted will find a precedential linkage to early court cases and expert interpretation. The overall idea is, influences of value should not be hidden in legislative words, but found in the most common observations.

"A constitution is made for the people and by the people. The interpretation that should be given to it is that which reasonable minds, the great mass of the people themselves, would give it. 'For as the Constitution does not derive its force from the convention which framed, but from the people who ratified it, the intent to be arrived at is that of the people, and it is not supposed to be that they have looked for any dark or abstruse meaning in the words employed, but rather that they have accepted them in the sense most obvious to the common understanding."

The phrase "obvious to the common understanding" is important. Tension between citizens and a tax administrator lie within their respective understanding of when values are affected by market conditions such as the choice of financing utilized to consummate a real estate transaction. It is no surprise that citizens can't understand why the market value of their property doesn't go down when they see a preponderance of foreclosure sales. Assessment administrators are charged by law to make estimates of value which exclude sale prices that do not meet standards for validity. Foreclosures often fall in that latter category. Fortunately, the State Tax Commission, Michigan's court system and academic research have offered new guidance on this troublesome predicament.

STC Bulletin 6 of 2007declared: "If it is determined that sales from financial institutions are open market transactions the sales may be used if they have been verified." Verification includes but is not limited to: (1) the type of sale being reviewed is a measurable portion of the market; (2) the sale was properly exposed to the market; and (3) adequate statistical procedures can be utilized as an alternative to real property statements "to ensure the sales are an adequate part of the market."

Determination of True Cash Value required by the Constitutional

Michigan's Constitution of 1963 at Article 9, § 3 states in part: *The legislature shall provide for the uniform general ad valorem taxation of real and tangible personal property ... The legislature shall provide for the determination of true cash value of such property ... and for a system of equalized assessments.* Constitutions of 1850 and 1908 both required assessments at cash value.

True cash value and Michigan statutes

The statutory definition of "true cash value" is found in Michigan's Compiled Laws at the General Property Tax Act (MCL 211.27(1) as:*" the usual selling price at the place where the property to which the term is applied is at the time of the assessment, being the price that could be obtained for the property at a private sale*, as opposed to an auction or forced sale." [8]

Judicial Decisions

Michigan's Supreme Court determined that "true cash value" is synonymous with "fair market value" in CAF Investment Co. v State Tax Comm, 392 Mich 442, 450; 221 NW2d 588 (1974). Importantly, the assessment must reflect the probable price a willing buyer and a willing seller would arrive at through arm's length negotiation. Safran Printing Co v Detroit, 88 Mich App 376, 382; 276 NW2d 602 (1979)[9]

In County of Washtenaw v State Tax Commission, 422 Mich 346; 373 NW2d 697(1985) the Supreme Court held that the impact of creative financing must be considered in the state equalization process. Emphasizing that the assessment administrator is to utilize market facts rather than an administrative definition in reaching a decision about property values, the court noted the constitution requires an assessment at fifty percent of true cash value and that the constitutional mandate usually trumps any legislative mandate: "to hold that true cash value can be defined by the Legislature would, for all practical purposes, make the fifty percent limitation meaningless." "The general meaning of true cash value predated the Constitution of 1963, and it is not likely that the drafters would incorporate that phrase, with its long history of interpretation and settled meaning, only to have its future left to the whim of the Legislature." (Ibid. Washtenaw, pg 708)

A.G. Opinions

Ownership must be considered. Of the many forms of real estate purchase financing, only the land contract sale raises ownership issues derived from the transaction. The state Attorney General has opined that land contracts convey ownership and a land contract buyer is the owner of the property. The Attorney General Opinion 6107 of 1982 states the following: "The term 'taxpayer' is not defined within 1893 PA 206, supra. However, it is clear that in connection with the taxation of real property, the terms 'taxpayer" and 'owner' are synonymous." Furthermore, the opinion states: "It is to be noted that a recorded affidavit or memorandum of land contract is evidence that a transfer of an interest in real property has taken place. As indicated earlier, a land contract purchaser is viewed as the 'owner' and the 'taxpayer' of real property for assessment and taxation purposes" ...

The A.G. also considered the supply of money necessary for transactions, by addressing connections between national money lending policies and local financing. There are two obvious legal linkages to these external forces that can affect local real estate values. First, during the initial study period, Michigan land contract rates were capped at 11 percent annual interest. Today, mortgage rates charged by individuals and commercial lenders enjoy an exemption from state usury laws under some conditions, due to federal preemption. During that time period a form of creative

financing known as the variable rate mortgages arose. Variable financing rates are allowed if conditionally linked to a predetermined index *including national average mortgage rates*. This second local/national connection is expressed in extracts from A.G. Opinion Number 6000 (1981).

> "interest rate adjustments are linked to changes in a predetermined index which may include any criteria which is verifiable by the borrower and beyond the lender's control, such as the national average of mortgage rates, the average cost of funds to insured lenders, or the average treasury bill rate." ..."By using variable rate mortgages, lenders may maintain the return on their loan portfolios in a current market condition."

The idea that having a choice in local financing preempts the right of a state to control financing rates with usury laws is expressed this way in Opinion 6000:

> "... the state's usury laws relating to first lien residential real property loans have been preempted by the federal depository Institutions Deregulation and Monetary Control Act of 1980, supra. This federal regulation applies to lenders who are either federally regulated or otherwise federally approved, although a recent amendment to the act authorizes individuals who finance the sale of unencumbered residential real property in which they live to also take advantage of the federal usury preemption. 94 Stat 1648 (October 8, 1980); 12 USC § 1735f-7 note."

> "PL 96-221 also preempts state usury ceilings by allowing any rate of interest for virtually all first lien mortgages and mobile home loans as well as first lien mobile home installment contracts. Moreover, under PL 96-221, an individual selling his or her home and taking a first lien on the title or a land contract given in exchange for the sale of unencumbered property could be at any rate of interest. The states had the authority to override the federal preemption of the first lien mortgages and mobile home loans but had to take action before April 1, 1983. The state of Michigan did not take action before the deadline. With regard to other loans, states can override the preemption at any time."[10] Prior to federal preemption, land contracts were limited to eleven percent annual interest.[11]

Contemporaneously effective Michigan State Tax Commission Bulletins

STC Bulletin No. 11, October 14, 1985 announces that "the State Tax Commission has developed a method to account for creative financing" pursuant to a directive from Michigan's Supreme Court. "The effects of creative financing are to be considered for assessments conducted after January 1, 1986. (For the case see endnote 5, Washtenaw v State Tax Commission)

STC Bulletin No. 5, August 15, 2007 announces criteria for evidence of a declining real estate market...such as a reduced number of market sales without a reduction in the number of listings and an increase in the number of foreclosure sales.

STC Bulletin No. 6, August 15, 2007 states the proper selection of sales for inclusion in sales ratio studies "is critically important to the development of uniform and accurate assessments." The bulletin acknowledges "[T]he recent increase in foreclosures has caused those transactions to have an impact on the real estate market in some parts of the state." Bulletin No. 6 declared: "If it is determined that sales from financial institutions are open market transactions the sales may be used if they have been verified." Verification includes but is not limited to: (1) the type of sale being reviewed is a measurable portion of the market; (2) the sale was properly exposed to the market; and (3) adequate statistical procedures can be utilized as an alternative to real property statements "to ensure the sales are an adequate part of the market."

Market pricing, foreclosures and equilibrium

There are distinct ways to look at the impact of real estate foreclosures. When the number of foreclosure in a specific geographic area is relatively small compared to the supply of housing being marketed, the impact is strictly one of proximity. That is, if the foreclosed property is not well maintained or somehow perceived as a negative economic force, studies show a "proximate" effect: the value of nearby properties will be affected.[12] The affect extends to properties located between two hundred fifty feet and one eighth of a mile (660 feet)...not market wide.

Sometimes there are so many foreclosed properties that they alter the supply of available properties in such a way that the average price of all sales in the market is effected. That affect has been reported across the U.S. by many researchers in many markets since the year 2008. In a well executed study, researchers at the Massachusetts Institute of Technology (MIT) examined 1.75 million transactions across the state. They reported in 2009 that the abundance of foreclosures had depressed average prices by twenty-eight percent.[13] In 2011 Realty TRAC reported foreclosures prices averaged thirty-two percent less than non-foreclosure sales.[14] In Februrary 2012, the Case Shiller index for national composite housing prices illustrated that the national composite index was down 33.8 percent from its Q2 2006 peak. Research distinguishing between the nearby (proximate) effect and the market-wide effect of foreclosures can be found in the endnotes.[15]

When a market is in equilibrium, buyers and sellers generally conduct negotiations where neither feels an extraordinary pressure to buy or sell, there is adequate time to expose a property on the market and adequate competition to assure a fair market offer. Under these conditions, the relatively small number of foreclosed properties can be sold quickly and usually are regarded as not representative of market conditions.

Since data and metrics are available to study the impact of foreclosures in Michigan, an eleven year period (2000 - 2010) was examined. Eighteen counties within the state of Michigan were analyzed. Annual average selling price, number of MLS sales and the number of Sheriff's deeds were acquired for the years 2000 thru 2010 inclusive. There were two exceptions: Emmet County had only six years of available data and Macomb County had seven years. In both cases, data was available for the time period in which transaction prices fell from their peak. Therefore, that truncated county data was used.

For statistical analysis, it was hypothesized that their would be no meaningful relationship

between the number of foreclosure deeds and average market price for properties sold each year in a market (null hypothesis). If there was a correlation, and it could have been produced by chance only five percent or less of the time, then the null hypothesis would be rejected and an alternative hypothesis adopted. The alternative hypothesis was there is a valid correlation between the ratio of Sheriff's Deeds and average selling price. Data from shown in Table 2 as the "first year of decline" was tested for correlation between county scores and the ratio of foreclosures to total units sold. A statistical process (T test) showed a definite correlation with a probability of it happening by chance being far less than one percent (p= 2.135E-09). A measure of the strength of the correlation was made (Pearson Coefficient .399133).

In Figures 1, 7 and 8, one can see an impact on transaction pricing and on choice of financing when there is a dramatic rise in foreclosures. The impact on average selling price for the eighteen counties is illustrated in Table 2. In order for data to be included in the statistical analysis, the maximum average price had to be followed by at least two consecutive years of decline. Consequently, the table identifies a specific county then presents data for three consecutive years. The first year is the year that precedes two years of steady decline. Each year's data contains the average selling price for that market as reported by the local multiple listing service (MLS), the ratio of total sales annually in the market as reported by the MLS to the number of Sheriff's Deeds recorded at each Register of Deeds office and the change in average annual selling price from the preceding year to the current year as a percentage of the prior year's price.

From the last two lines of the table, one can see that in the year immediately preceding the first drop in prices, *the average number* of sold properties was six for every one foreclosure. When the ratio of all sold properties to foreclosures dropped to approximately 4:1, price drops were evident. Corresponding rounded median values were 5 and 4 respectively. As the plunge continued the ratio in some jurisdictions dropped to below 2 MLS sales for every Sheriff's deed. A T-test was run again using the price and ratio as shown above, but consisting of 190 scores for each variable aggregated from all years and all counties. Based upon a two tailed T-test, with unequal variances and zero difference between the means, the correlation (-0.387679613) between ratios and prices having had happened by chance was far less than 1 in a hundred. (p= 3.69E-87)

Comparison: Average transaction price, Ratio Sales to Foreclosures, Change in price

	Year prior to decline			Year of first decline			Year following first decline		
	Avg Price	Ratio	Price Change	Avg Price	Ratio	Price Change	Avg Price	Ratio	Price Change
Allegan	$167,665	12.22	0.54	$161,555	10.4	-3.66%	$144,465	7.62	-10.57%
Bay	$106,965	6.54	1.12%	$103,626	5.46	-3.07%	$93,641	5.47	-9.91%
Branch	$122,141	5.54	2.67%	$119,041	2.84	-9.01%	$98,274	1.94	-12.51%
Calhoun	$125,545	5.25	0.65%	$121,175	1.97	-5.45%	$118,765	1.17	-1.97%
Emmet	$304,552	6.45	14.70%	$300,546	5.14	-7.59%	$271,446	2.65	-9.66%
Genesee	$125,662	5.45	5.29%	$122,155	1.77	-9.97%	$108,796	1.51	-10.92%
Hillsdale	$107,400	2.51	1.50%	$99,762	1.72	-7.17%	$61,529	1.44	-18.40%
Ingham	$152,505	6.54	5.66%	$149,601	4.22	-2.04%	$145,074	2.66	-4.42%
Jackson	$142,447	5.57	6.16%	$135,452	1.97	-6.55%	$112,246	1.25	-15.65%
Kalamazoo	$159,527	5.71	1.91%	$152,555	4.00	-4.59%	$157,145	5.72	-2.97%
Kent	$161,540	4.67	1.50%	$145,554	5.34	-10.04%	$122,657	2.40	-15.62%
Lenawee	$146,151	5.54	5.55%	$144,565	5.00	-0.55%	$140,504	2.00	-2.60%
Livingston	$265,404	11.46	14.01%	$241,576	10.65	-5.66%	$230,529	5.61	-4.77%
Macomb	$176,565	16.00	2.71%	$174,924	12.12	-0.52%	$159,155	2.44	-9.05%
Saginaw	$115,610	4.02	5.51%	$107,996	2.14	-4.94%	$96,521	1.66	-10.65%
St. Joseph	$123,140	4.55	15.76%	$120,764	2.76	-1.15%	$114,140	2.21	-5.50%
Shiawassee	$123,450	4.55	15.55%	$118,166	2.76	-5.50%	$114,570	1.95	-5.04%
Washtenaw	$266,655	6.54	0.27%	$256,054	4.76	-2.59%	$251,050	2.67	-5.05%
Clare/Baldwin Monroe									
Mean		6.56			4.50			2.71	
Median		5.10			5.61			2.65	

Table 2

Table 3 provides more data for the entire eleven years with shaded areas highlighting the three years shown in Table 2. Five counties had prices peaking in calendar year 2004, five counties had prices peaking in 2006 and in eight counties prices peaked in 2005. Interestingly, every county but Jackson

County had the lowest average annual transaction price in 2009. Jackson County is the only county to show a dip in prices in 2010. All other counties saw some growth in the average annual selling price reported by the Board of Realtors. No county exhibited declines of fewer than two consecutive years. At maximum, prices ranged from a low of $106,963 to a high of $324,532.

A "maximum loss" was calculated for each county. This calculation appears in the right-most column. Maximum loss is the difference between the maximum average annual price for the eleven year period and the lowest average annual price. 2009 was the year of the lowest annual average price for every county but Jackson County. Jackson County dipped to its lowest value in 2010. Mean and median prices were calculated for each individual year. They demonstrate average price peaked for all counties in calendar year 2006. According to both the mean and median, prices bottomed out in calendar year 2009 for this group. The mean and median maximum drop in average annual price is about thirty-eight percent.

YEAR	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Maximum Loss
Price												
Allegan	$133,148	$140,720	$148,723	$156,162	$152,097	$167,098	$167,663	$161,533	$144,465	$128,340	$136,921	23.45%
Bay	$97,963	$98,580	$97,817	$99,664	$105,776	$106,963	$102,828	$92,641	$75,370	$64,210	$70,923	39.97%
Branch	$94,480	$100,452	$104,320	$109,883	$118,959	$122,141	$110,041	$96,274	$91,586	$82,260	$79,013	35.31%
Calhoun	$102,968	$109,461	$111,880	$117,703	$124,754	$125,543	$121,175	$118,783	$94,494	$77,244	$90,747	38.47%
Emmet						$282,722	$324,532	$300,546	$271,448	$210,142	$237,543	35.25%
Genesee	$117,439	$124,967	$127,926	$132,857	$131,339	$135,662	$122,135	$108,796	$85,297	$70,431	$74,910	48.08%
Hillsdale	$91,776	$96,131	$99,351	$106,545	$101,639	$106,114	$107,490	$99,782	$81,329	$66,084	$74,695	38.52%
Ingham	$131,158	$135,032	$139,344	$146,401	$147,126	$152,805	$149,691	$143,074	$116,678	$95,341	$101,979	37.61%
Jackson	$118,407	$128,516	$122,012	$128,201	$134,182	$142,447	$133,432	$112,246	$80,529	$82,542	$81,629	43.47%
Kalamazoo	$127,422	$133,865	$135,780	$146,776	$154,287	$156,347	$159,327	$152,335	$137,145	$124,206	$133,171	22.04%
Kent	$131,591	$135,997	$146,319	$146,601	$153,024	$159,762	$161,840	$145,584	$122,837	$108,047	$118,632	33.24%
Lenawee	$125,274	$132,931	$134,900	$137,735	$145,151	$144,388	$140,504	$133,121	$103,887	$83,027	$83,585	42.80%
Livingston	$215,039	$245,478	$247,027	$232,786	$265,404	$241,876	$230,329	$206,688	$180,215	$148,853	$151,409	43.91%
Macomb	$152,971	$162,522	$164,748	$171,709	$176,363	$174,924	$159,135	$136,868	$125,692	$88,663	$95,144	49.73%
Saginaw	$90,096	$98,352	$99,291	$106,000	$109,967	$113,610	$107,998	$96,521	$81,222	$75,053	$80,079	33.94%
St. Joseph	$93,173	$97,052	$102,135	$107,380	$122,140	$120,784	$114,140	$121,881	$107,380	$79,316	$96,062	35.06%
Shiawassee	$101,841	$105,617	$112,662	$107,805	$122,450	$118,166	$114,570	$96,209	$82,630	$66,793	$96,062	45.45%
Washtenaw	$228,343	$237,449	$247,216	$258,926	$254,080	$266,633	$258,934	$251,090	$213,205	$183,473	$185,625	31.19%
Median	$118,407	$128,516	$127,926	$132,857	$134,182	$143,418	$136,968	$127,501	$105,634	$82,785	$95,603	38.04%
Mean	$126,052	$134,301	$137,732	$141,949	$148,749	$157,666	$154,765	$142,998	$121,967	$101,890	$110,452	37.84%

Table 3

Table 4 compares the ratio of MLS sales reported annually to the number of Sheriff's Deeds issued and expresses that ratio as a percentage. For example, in a county where there were four MLS sales for every one Sheriff's Deed, the ratio would be 4:1. Since there are five transactions in total (four sales and one deed) the decimal equivalent of one Sheriff's Deed in every five transactions is 0.20. The shaded years of the table illustrate the three year period beginning with the maximum price and the two consecutive years of decline in average annual transaction price. The dotted background illustrates the year in which new foreclosures occupied the greatest market share (ratio of MLS sales to Sheriff's Deeds). In this way one can view how the ratio of Sheriff's

Deeds to annual sales reported by the multiple list service changes with changing price. This does not consider any prior foreclosures which may have remained unsold and were still available in the market. For three counties new Sheriff's deeds reached their maximum ratio to sales in calendar year 2010.

A mean and median is calculated based upon what percent of market Sheriff's Deeds occupy. The last column presents the change from the year with the greatest number of sales to Sheriff's Deeds and the year with the fewest. Large ratios mean few foreclosures. It was expected that as the number of foreclosed properties increased, there would be some point where prices would drop. It happened at about between 3:1 and 4:1. The supply of housing contained so many foreclosures that the foreclosed properties become competitive with owner occupied and other houses that historically constituted market supply. Thus, supply is materially altered and buyers choose a foreclosed property as a substitute for traditional listings.

Note the high change in the ratio of MLS sales to newly recorded Sheriff's Deeds from the year 2000, (mean =16.50/1) to the point at which there is the smallest ratio (mean=2.25/1). The "High to Low" column contains a mean ratio reduction of 83.25% and a median of 83.63%. In 2006, when all counties were experiencing a generalized change in prices, the ratio of annually sold properties reported by the MLS to new Sheriff's Deeds had dropped to a mean value of 3.05 and the median value was 3.83. Considering one Sheriff's Deed and 4 MLS sales, price drops when Sheriff's Deeds represent (1 in 5) or (1 in 4) ownership changes.

YEAR	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Change High to Low	Change Peak Price
Ratio													
Allegan	46.08	26.41	24.29	24.15	21.44	16.21	12.33	10.40	7.89	6.19	7.03	86.58%	73.24%
Bay	11.05	8.75	6.57	6.79	7.68	6.34	3.46	3.47	2.63	3.44	2.68	76.17%	42.64%
Branch	7.10	5.01	4.08	4.03	4.07	3.34	2.84	1.94	1.76	2.21	1.83	75.24%	52.97%
Calhoun	6.84	4.00	4.31	3.19	3.18	3.23	1.97	1.17	1.44	1.68	1.51	78.94%	52.74%
Emmet						12.22	6.45	3.14	2.65	2.24	2.33	81.70%	47.19%
Genesee	5.15	4.45	4.15	3.77	4.37	3.43	1.77	1.51	1.48	2.28	1.74	71.17%	33.39%
Hillsdale	7.24	4.88	3.85	3.16	3.18	3.29	2.51	1.72	1.44	1.96	1.62	80.08%	65.33%
Ingham	16.88	16.50	14.40	24.02	12.39	8.84	4.22	2.86	2.79	3.25	2.91	83.49%	47.65%
Jackson	7.71	6.54	3.79	3.49	3.72	3.37	1.97	1.25	1.50	2.06	1.75	83.79%	56.37%
Kalamazoo	18.33	13.65	17.13	9.77	10.79	7.58	5.71	4.00	3.72	3.70	3.11	83.02%	68.83%
Kent	18.06	14.85	11.53	11.52	10.83	9.40	4.67	3.24	2.40	3.51	2.84	86.69%	74.16%
Lenawee	14.69	7.12	6.10	5.14	5.54	5.09	2.90	2.07	1.68	2.46	1.51	88.56%	62.28%
Livingston	28.07	21.79	11.96	13.62	11.46	10.63	3.61	1.95	1.53	2.03	1.97	94.53%	59.19%
Macomb	36.06	24.72	16.18	12.88	16.00	12.12	2.44	1.43	1.00	1.56	1.16	97.22%	55.62%
Saginaw	8.65	7.01	5.82	5.02	4.42	4.02	2.14	1.68	1.62	2.67	1.82	81.25%	53.50%
St. Joseph	7.70	3.52	3.48	4.07	4.55	3.76	3.21	2.40	1.64	2.14	1.93	78.65%	40.98%
Shiawassee	7.36	6.59	4.87	4.31	4.53	3.78	1.93	1.59	1.20	1.73	1.14	84.53%	38.40%
Washtenaw	33.59	24.81	16.07	13.72	12.98	8.34	4.76	2.67	2.10	2.50	2.20	93.73%	75.18%
Median	11.05	7.12	6.10	5.14	5.54	5.71	3.05	2.01	1.66	2.26	1.88	83.25%	54.56%
Mean	16.50	11.80	9.33	8.98	8.30	6.94	3.83	2.69	2.25	2.64	2.28	83.63%	55.54%

Table 4

Conclusions from preliminary study

Market and economic considerations

Where market facts similar to those used and categorized in this study are known or ascertainable, a reliable tool for evaluating when individual property values are being affected by changing market conditions can be developed. The tool is a process, using commonly available facts assigned to four basic categories, that may be evaluated with simple statistical tests found in many business software packages. The testing, combined with visual inspections of graphics representing the data and the application of professional judgement, creates a process believed to be sufficient to withstand judicial and administrative scrutiny.

According to information cited earlier and reports from other commonly available sources, the pace of new foreclosures entering the marketplace in 2011 continues to exceed the rate at which the property can be sold. This large supply of Real Estate Owned (REO) property competes with other private property for sale and may be expected to influence market prices.

In concurrent developments, the real estate marketplace is experiencing economic turmoil not seen for some time. A significant number of individuals have simply quit paying taxes on residential structures. This creates a supply of tax reverted publicly owned buildings. In some areas of the state, "land banks" or similar entities were formed with the intent of accumulating, rehabilitating and returning those properties to the marketplace. Tough economic conditions have led individuals to relocate. In general, both the number of people per household and the absolute population of certain markets has been steadily declining. As general population declines, the remaining population is aging. This affects demand four housing. Of course, as value declines, more property owners are making payments on mortgage balances that exceed the market value of

the property. This has led to reports of more and more property owners simply walking away from the property. An abundance of vacant houses which can become neglected or vandalized (even after rehabilitation by public or private agencies) contributes to blight; another negative influence on property values.

As the STC stated, places in Michigan are experiencing such sets of unique events with obvious consequences: far more housing is available at extremely low prices. Combine this with stagnant and falling average adjusted gross incomes reported on state income taxes and it is easy to see that Sellers of real estate must compete with an abundance of very low cost housing and reduced affordability issues. As this study documents, the result in the 1980s and at the present time, is an overall reduction of the average residential sale price.

In areas where the average annual price of residential property has seen a decline not yet attenuated, not only law, but by common sense and justice require appropriate taxation methodologies. Fortunately, the advent of the modern personal computer and inexpensive business software packages which contain fundamental statistical tools, makes it possible for even the smallest operations to identify and utilize abundant data produced by government and private agencies.

With the application of three standard statistical tests, useful indicators were culled from a universe of potential markers. A "t Test" was used to identify observations that meet requirements that samples match in a statistically appropriate way and not by chance; Pearson correlations quantified an independent variable's correlation with a specific dependent variable and adjusted R square values from single and multiple regression analyses provided an indication of the explanatory value of various independent variables with regard to changes in the dependent variable (in this case, Price). As few as three categories of measurement reliably identified specific markers which reliably indicate changing real estate prices.

The research identified four information categories that could serve as clear and practical indicators of market price fluctuations: indicators of potential financial resources **(Affordability)**; indicators of the number of potential buyers **(Demand)**; indicators of available, appropriate financing **(Financing)** and indicators of number of units available for sale **(Supply)**.

Statistically significant markers of changing real property values include:

1. Financing: a change from one dominant form of financing; particularly when the forms are dissimilar. For example, a switch from mortgages to land contracts or cash

2. Supply in terms of the number of foreclosed properties and the number of annual property sales through an MLS. In the studied market, reduced values were evidenced by the critical ratio was one new distressed property [foreclosure] for every three (or fewer) annual sales

3. With regard to foreclosures, there are two major issues to be examined in any market: adjusting the price of a specific foreclosed property to market value and the impact on overall market conditions expressed by the ratio of the number of foreclosures relative to

annual sale

4.   Affordability, including Unemployment rates and hours worked weekly by employees both correlated with price at significant levels

5.   Demand: changes from previous trends are important

This preliminary study encompassed enough years, observations and individual markets to produce credible results.   While calibration of conditions within each specific market is recommended and these results should be replicated by other researchers, the multi-state and interstate components suggest wide applicability.

Market and legal considerations

The 1985 conclusions of the Supreme Court and subsequent STC's guidelines have been supported by this research scrutinizing the Saginaw County, Michigan residential real estate market between calendar years 1974 and 2009 inclusive.   It identified three distinguishable temporal markets where value was affected. One period was characterized by record high mortgage interest rates and a very small decline in market values (1974 - 1984); another by relatively long period of market stability with continuously increasing market values (1985 - 2005) and one period (2006 - 2009) exhibited high rates of loan foreclosure and abruptly diminished market values.

Behavior in the Saginaw County market was compared to four other geographically distinct markets. No evidence of anomalous behavior in the Saginaw market (as compared to the other four markets) was evident. Buyer and seller behavior was similar in all five markets. The analysis found local variation but provided prima facie evidence conclusions drawn from the study may have application in other markets.

During this thirty-six year study period developments in economic theory, legal mandates, statistical procedures and in technology arose which makes compliance with court and state administrative mandates more practical. Briefly, the Supreme Court decided a case in 1985 which it emphasized the importance of obtaining measurable and valid indicators of value from marketplace facts. The court explicitly stated the type of financing that could be considered as a cash equivalent sale. It identified types of financing and market behavior that would need to be adjusted to cash equivalency. Mandatory STC guidelines were issued in 1985 and 2007 to assist assessors, equalization directors and others involved in property taxation. They dealt with creative financing and high mortgage and foreclosure rates. This study was undertaken to add another tool.

Statistically significant relationship were found between markers shown in the previous tables and the average annual selling price of residential property in the Saginaw County, Michigan real estate market. The court has properly ruled that a land contract price does not equate to a cash equivalent transaction. In order to determine a cash equivalent price when land contracts were the dominant financing choice, it was often necessary to consider the amount of down payment, the present value of payments made in the effective duration of the land contract payment and the

present value of any principle balance remaining at the time a complete "balloon" payment was required. It was also possible to use the paired associates technique to extract the cash equivalent value of a land contract sale.

The data herein demonstrate that during stable market conditions the most frequently used form of financing is what is commonly called the conventional loan. Cash sales are almost always present, but unless the market has deviated from its typical behavior, cash sales do not represent the typical transaction. Their behavior mimics land contracts sales more than other types of financing. While economic theory is consistent with the observation that cash sales receive a greater discount from the list price (on average) than conventional or government backed loans, cash sales are usually not utilized uniformly across the entire value spectrum of the market. Instead, they are relegated to lower priced properties and rarely exceed ten percent of all financing choices. A conclusion of this investigation is, unless the market is not in equilibrium, buyers and sellers will choose conventional financing in a clear preponderance of transactions.

Even with judicial and administrative guidance, identifying cash equivalent prices has created real challenges for those charged with fairly and accurately determining market prices. Furthermore, where clarity is lacking, disputes arise. Disputes over property value between taxpayers and property tax administrators is very costly and diverts resources. Without adding appeals which will be filed in calendar year 2011, more than 20,000 small claim and 10,000 full tribunal appeals are pending. State resources are being eaten up to pay for referees and others involved in the hearing process. An appeal filed in 2011 that proceeds to a hearing will not be resolved for more than two years. Hopefully, this research will help interested parties and will ameliorate the potential for disputes.

A conclusion of this study is that it is important to identify markets in equilibrium and establish metrics based upon normalcy. If property tax administrators create a data base of metrics deemed to be reliable indicators of market value and market conditions, those with insufficient sale data or those testing sale data, would have a new tool to assist them in decision making.

END NOTES

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