Examining Price Appreciation in Foreclosed Properties

by

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Submitted to the Department of Urban Studies and Planning in Partial Fulfillment of the Requirements for the Degree of Master of Science in Real Estate Development

at the

Massachusetts Institute of Technology

September, 2008

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ABSTRACT:

This thesis examines foreclosure sales of single-family homes in eight communities in the Boston Metro area and the price appreciation from purchase of a foreclosed property through to a subsequent fair market, arms-length sale. The post foreclosure sale price appreciation of the foreclosed properties is compared with price appreciation of fair market, arms length sales to discern the effects of a foreclosure on future price appreciation.

RESULTS

The magnitude of the price appreciation may be positively influenced, or in part, caused by investment to remediate defects in the property or to cure problems due to endemic disinvestment. On the other hand, it is quite probable there is a negative effect due to intractable problems and or stigma which cannot be cured with money or sweat equity; i.e. socio-economic factors such as changes in crime and poverty rates, macroeconomic conditions, floods or other natural mishaps. Price appreciation, as measured through actual repeat sales, from 8 cities in the Boston Metro area, indicate foreclosed properties appreciate more rapidly than normative, arm's length transactions in those same markets. The results were unclear for sales pairs initiated in 1991-1994, during a relatively flat market. However results are significant with sales pairs initiated in 1995-1997 and 1998-2000, during the real estate recovery and over various holding periods up to five years, using repeat sales data from 1987 through 2007. The Foreclosed Sale Pairs initiated from 1995-2000 dominated the Market Sale Pairs initiated during the same years over the two to five year holding periods.

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Acknowledgements

Thanks must be given to Dr. Henry Pollakowski and Dr. Lynn Fisher. Their measured guidance and thoughtful questions helped me explore the topics discussed herein. Maurice Dalton lent help with the Warren Group data while Sheharyar Bokhari initiated Stata programming and taught a man to fish. Thanks for that. The Warren Group provided invaluable data, without which this research would have been impossible.

Finally I would like to thank my wife, Christina and my two sons, Aidan and Fritz for putting up with an absentee husband and father for much of the year. Coming home to your smiling faces every night made all the difference.

TABLE OF CONTENTS

TABLE OF FIGURES

Chapter 1: Introduction

Foreclosures are an integral, though dissonant, part of the mortgage industry. Foreclosure is the process by which a lender forces the sale of the property securing the mortgage. Everything from loan-to-value ratios to mortgage pricing to credit decisions are based on and priced off of historical loss severity and default rates and a borrower's perceived propensity to default. In more concrete terms, everyone wants to avoid foreclosures, especially the lending institutions.

1.A Historical Costs of Defaults

Research into historical default rates and loss severity is fairly common as its utility to lending institutions is naturally quite high. Lenders use the information to set credit standards, lending policies and ultimately interest rates for differing loan products. Commercial loan defaults peaked for loans originated in 1986. This cohort defaulted at approximately 31%, the highest level recorded. Loss severity varies, but was estimated, on average, by Ciocetti at somewhere north of 40%.[1] Hence the overall loss, on average to the lenders, was approximately, 12%. It is important to note not all defaults end in foreclosure.

Single-family foreclosures peaked in the early 1990's and are spiking once again. With a strong probability of severe loss severity it is obvious why the credit of the borrower, the equity position in the property and the value of the underlying property are so important (or should be, or should have been) to lenders. As we all know now, the advent of Collateralized Mortgage Backed Securities, removed the incentive to keenly qualify the borrower and property by allowing lenders to quickly package and sell the loans to third parties, thus relieving themselves of any future credit risk. Despite historical cyclicality in the single family real estate market, with its attendant waves of defaults and foreclosures, the great financial engineering machinations of Wall Street and beyond had devised a way to sidestep credit and property value issues by offloading the loans themselves, and by doing so the attendant risk, to willing third party investors hungry for "yield" in a post industrialized, deflationary, low yield world. As we know, and discuss later, the cycle did not disappear, there was no new paradigm and the moral hazard introduced by the clever financial engineering, while handsomely rewarding a few, only served to leverage the negative effects of the inevitable downward swing of the cycle.

1.B The Borrower's Put

In theory there are two main motivating factors or precipitating causes for mortgage default. Lack of sufficient income to cover the payments and ancillary expenses is traditionally noted as the primary reason homeowners fall behind on payments and eventually end up in foreclosure. However there is another important, but perhaps less well understood, rationale for mortgage default. This second, subtler, effect can be termed the equity theory. More precisely I mean negative equity, as in the mortgage is worth more than the house. Research indicates as house loan-to-value ratios climb closer to 1, the risk of foreclosure climbs. Furthermore as the value of

[1] Ciocetti, B.A., Loss Characteristics of Commercial Mortgage Foreclosure, Real Estate Finance, 1997, 14:1, 53-69.

the house falls below the value of the mortgage a negative equity situation develops. A small down payment can be wiped out by a decline in house prices, due to the resultant leverage. Harding, Miceli and Sirmans (2000) wrote on high LTV ratios. At LTV ratios near one, disinvestment in maintenance was common, with borrowers spending less than lower LTV borrowers, on average.[2] The result of falling house prices can be a negative equity position for the borrower, and a real problem for the lender.[3] If we assume that borrowers (people) are all rational economic actors (not likely) and the market price outlook is bleak the most financially advantageous option is to stop making payments, hand over the keys to the lender and walk away from the property.

This second phenomena is what David Geltner at MIT has termed "the borrower's put option".[4] A put option, as in the stock market, gives the holder the right to sell a certain security at a certain price for a certain amount of time. As he notes "In the case of a non-recourse mortgage, the underlying asset is the collateral property, and the borrowers ability to default on the loan effectively gives him the ability to sell the property to the lender at a price equal to the outstanding loan balance. By defaulting on the loan, the borrower is said to "put" the property to the lender, thereby ridding himself of a liability equal, at least in book value, to the outstanding loan balance."[5]

It is quite likely that an interaction of both the income and equity theories is in play in many if not most foreclosures in the single family housing market. High initial loan-to-value ratios, combined with either rising interest rates and or falling house prices can set off a wave of foreclosures. Although it has been well chronicled it is worth mentioning that the most recent wave of foreclosures was either initiated or exacerbated by excess liquidity in the market, manifested through lax lending practices which resulted in large numbers of under-qualified borrowers borrowing too much money with or without onerous and largely opaque and complex terms. The result has been a massive wave of foreclosures the magnitude of which is still unknown.

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[2] Harding, J., T. Miceli and C.F. Sirmans, Do Owners Take Better Care of their Housing than Renters, Real Estate Economics, 2000, 28:4, 663-81.

[3] Negative equity is dealt with far differently in Asian countries. R.N.Lai, S.E. Ong and T.F. Sing explain in their 2006 paper "Values of Mortgages with Top-Up Payments" published in the International Journal of Theoretical and Applied Finance, Vol 9, #5. "Negative equity is a potential trigger of default by mortgagors, who may be financially better off by defaulting then continue servicing the mortgage. Mortgage documents in these Asian countries are commonly written with a provision to cushion the default risk by allowing the banks a wide leeway to request for a top-up when they are uncomfortable with the security margin in relation to the outstanding loan. Interestingly banks rarely take action when the value the value of the property falls below the mortgage outstanding as long as the mortgagor continues to service the loan. This suboptimal behavior is motivated by the fear that the bank's action of demanding for the mortgage top-up may lead to the borrower's default on the mortgage."

[4] Geltner, Miller, Clayton, Eicholtz, Commercial Real Estate Analysis and Investments pg. 400.

[5] Ibid.

As we have seen the "subprime crisis" has sent tremors through the financial establishment in the U.S. as well as globally. Few are the Insurance Companies, Banks or Wall Street institutes (hedge funds, I-Banks, private equity) that have not felt the effects of the growing crisis. Due to my lack of ability to prognosticate accurately the future extent of the crisis I have decided to examine the closest analogue available: the previous housing slump and foreclosure spike of 1990-1995 and the nascent recovery in the residential market through the year 2000. I will examine several different time periods and then consolidate all the data to summarize the findings.

The reason for examining the previous cycle is to gain an understanding of the effects of foreclosure on underlying property values. More importantly I seek to measure the performance of those foreclosed properties subsequent to the foreclosure sale. My hypothesis is that single-family properties sold through foreclosure should provide greater than average returns to buyers or investors. By this I mean that a foreclosed property will have a greater capital return, on a percentage basis, than a similar property purchased in an arm's length transaction at fair market value.

Chapter 2: Literature Review

2.A The State of The Nation and How Did We Get Here?

Foreclosures have recently been garnering a large amount of attention in the public media. As the current real estate crisis unfolds everyone from neighborhood assistance groups to Congress, the White House and The Federal Reserve have been clamoring to either cure, deny or solve the problem, or some combination of all three. The Wall Street Journal predicted on June 24, 2008 that US home prices would, on average, decline 25% from their peak in 2006.[6] They noted a decline of that magnitude is on par with the Great Depression. It goes without saying that a 25% decline in a roughly $30TN asset class is a cataclysmic destruction of wealth, and in quite a short period of time. A $7.5TN loss in household wealth dwarfs the downturn of the precious cycle. The decline in the wealth effect, using the home as an ATM by financing out equity to then put back into the economy as consumption, is yet to be measured.

Despite popular press fear mongering, or fire stoking, it must be remembered that a fair amount of the predicted decline is a retracement of recent gains. That may be cold comfort to those that purchased at the peak of the frenzy, yet it should lend some comfort to the rest of the country, and particularly to economists who fear another nasty bout of either disinflation or stagflation. Aggravating those fears of stagflation is a super commodity bull run. I intentionally decline to call it a bubble, as a bubble implies what Allen Greenspan famously termed "irrational exuberance" during the tech stock bubble. By irrational exuberance I believe Greenspan intended to elucidate the connection between earnings and price, ability to create free cash flow, or more generically some measure of intrinsic value. The current bull run in oil, gas, iron, and other metals and agricultural commodities is based in large part on the structural shift in the world economy, especially in India and China. As two billion people enter the world economy vast shifts in labor and resource usage patterns are emerging. Cheap labor drove factories overseas and artificially pushed down inflation rates for the developed world. At the same time consumption in developed countries poured massive amounts of dollars and euros to emerging producer nations, who then effectively recycled the money back into the hands of Western consumers through purchases of US Treasury bonds, hence pushing down yields on everything from the 10 year note to car loans, credit card rates, equity lines and of course home loans.

Hence the changing forces of globalization have had a great impact on the US housing market. And now we are suffering through the secondary, knock-on effect of cheap offshore production, increased consumption and low rates. China and India have begun to accumulate wealth. With wealth comes consumption of oil, metals, concrete, cars and homes. The average US consumer uses approximately 50 barrels of oil a year. The average Chinese uses just 2 barrels. If the average Chinese move to consume one tenth what the average US citizen consumes the increase in yearly barrels used in China will be 3.9BN barrels a year. Whether one believes in Hubberts Peak[7] or not it is hard to see how that increase can be accommodated, even in the intermediate

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[6] Wall Street Journal, Print Edition, June 24, 2008.

[7] Theory first espoused by King Hubbert in the late 1956 to accurately explain how and why US oil production would peak in the late 1960's. Mark Williams wrote in February 2005 MIT

term, by planned or prospective oil exploration around the globe. Furthermore as wealth grows diets tend to shift from grains to meat. Meat is nothing more than a very inefficient grain conversion system. This is partially to blame for the huge run-up in grain prices. In concert with growing appetites for meat grain is also now being converted into fossil fuel substitutes, further pressuring agricultural commodities.

Essentially our current real estate crisis and ensuing foreclosure epidemic has been in progress for years and was perhaps an inevitable result of long term population growth, successful efforts at globalization and the combination of global forces conspiring to provide cheap credit, easy credit terms unlocked by the moral hazard of the mortgage banking system (before the RMBS market shut down) and the unquenchable thirst for the American Dream, as realized by home ownership. (Even President George Bush aggressively pushed the "Ownership Society" in his first term.

The discussion above is not meant to be an exhaustive dissection of the causative forces behind the current crisis. Even without the exogenous forces (nee, shocks perhaps) the relentlessly churning real estate cycle, as prescribed by economic laws of supply and demand and their elasticities (please talk to Dr. Bill Wheaton and MIT for clarification on this issue), would still have conspired to create another, at least, modest downturn. This point in macroeconomic history only laid the foundation for a far more severe oscillation in the normal cycle, adding enormous amounts of tinder, fuel and accelerants to an already very dry situation. Therefore the brief history is meant to give some appreciation for how we got where we are today. The more interesting (and difficult) question is where do we go from here. There is little doubt that foreclosures, already high by historic standards, will continue to rise for some time. It remains to be seen how much pain will be inflicted upon homeowners, lenders and the national economy during this downturn. In an election year (and beyond) there will certainly be government action, reaction, regulation, bailout or what-have-you. However, with what appears to be a structural shift in the world economy this real estate market, and real estate recession is now buffeted by many external factors not present in the early 1990's.

That being said the closest analogue to the foreclosure crisis circa 2008 is the previous real estate cycle, specifically the bust of the early 1990's. Despite the enormity of the previous bust there has been little scholarly work undertaken on the subject of foreclosures and appreciation. There is a large body of work from popular magazines, newspapers and journals written during the downturn. In addition some efforts have been made to understand the causes and effects of the

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Technology Review(www.technologyreview.com), "In 1969 Hubbert predicted a graph of world oil production over time would look like a bell curve, with a peak around the year 2000." This theory is extensively covered in Kenneth Deffeyes "Beyond Oil: The View from Hubberts Peak". Williams further notes the announcement by Saudi Arabia in 2003 that it could not produce more oil in response to the Iraq war as an important turning point and acknowledgement that "there was no major underutilized source of oil left on the planet." The theory was substantially confirmed in my interview with Roger Solly, hydro-geologist in exploration with Norwegian state oil company StatOil in May, 2008.)

1980's upswing and subsequent bust. Furthermore research on historical remediation efforts has been undertaken.

Nearly all the research on the previous cycle focused on the problem, how to solve the problem, how to help homeowners, how to save banks and the like. It was, as you may remember, politically and socially expedient to focus efforts on the cleanup. The stability of the greater economy was at stake, the banking system needed to be righted: hence the birth of Resolution Trust Corporation, basically a taxpayer financed bailout. In addition there were (and are) efforts to educate borrowers in hopes of averting another dislocating foreclosure wave. Whether or not it is possible to preclude such natural occurrences is another question beyond the scope of this report and best left to social scientists. Regardless, no research, to date, has focused on the subsequent effects of those foreclosures. More precisely no one has quantified the return to those intrepid purchasers of foreclosed properties.

Perhaps it would have seemed uncouth at the time to be looking (lurking) for profits in the shadow of despair. More importantly it is impossible to measure appreciation without waiting for enough time to elapse for the foreclosed properties to sell again. Hence, I believe this is an opportune moment in history to calculate the returns to foreclosed homes and compare them with the returns to market transactions. In order to do this we can look at the existing foreclosure literature to gather a greater understanding of the process and its effects.

I will not spend any space on the general foreclosure process as it is fairly well known. The process varies from state to state with every jurisdiction enacting its own time frames and legal frameworks. Suffice to say within 90 days, in most locales, a lender can forcibly evict an occupant and take title to the underlying property securing the mortgage. The mechanics matter little as the end result is the same. More interesting in light of this paper is how and why borrowers end up in the foreclosure process. Is it a long slow decline in the ability to pay or is there a trigger event? Are there more similarities or differences in foreclosure cases?

2.B Negative Equity- "Necessary but Not Sufficient Condition"

Two senior economists from the Federal Reserve Bank of Boston, Christopher L. Foote and Kristopher Gerardi, along with a research assistant Paul S. Willen (FGS) recently wrote an interesting paper examining foreclosures titled "Negative Equity and Foreclosure: Theory and Evidence". They analyzed data from over 100,000 Massachusetts homeowners with negative equity in the early 1990's. Less than 10% of those homeowners subsequently lost their homes. As they point out this is "completely consistent with economic theory, which predicts that from the borrowers perspective, negative equity is a necessary but not sufficient condition for foreclosure".[8] They insist that households need to experience negative equity and an external

[8] Foote, C.L., Gerardi, K., Willen, P.S., Negative Equity and Foreclosure: Theory and Evidence. Public Policy Discussion Papers, Federal Reserve Bank of Boston, June 5, 2008.

economic shock that severely decreases their ability to service the debt. "Cash-flow problems without widespread negative equity do not cause foreclosure waves."[9]

FGS use an econometric model to estimate between 6,500 and 7,600 of the 94,600 borrowers with negative equity in 2007:Q4 will suffer foreclosure. They further discuss loss mitigation programs and dismiss loan modification programs as presenting the same moral hazard as the original lending programs. Despite difficulties in identifying those who are at risk of foreclosure due to both negative equity and cash-flow problems FGS suggest some form of lender forbearance may be the most attractive and least costly avenue to helping avoid a foreclosure crisis. Where loan modification programs will help all borrowers, regardless of status "borrowers who do not need help are unlikely to find forbearance attractive, because this policy alters only the timing of repayment, not how much is owed."[10]

2.C Prior Research on Foreclosure Discounts

2.C.1 Hedonic Methodology

Much previous real estate appreciation research has used hedonic modeling. Hedonic methods depend on inputting all the relevant characteristics of a property, as hedonic modeling values real estate as the sum of its parts, assigning values to all characteristics that may influence value: i.e. number of bedrooms, bathrooms, presence of a deck, garage, age of house etc. All the components must be entered and scored and then a group of observations can be regressed to determine the value of each component and subsequently the value of any distinct piece of property by summing all the valuable components. Hence the price is a function of the components of the property and its location and, in this instance, whether or not it was a distressed sale. However, real estate is incredibly idiosyncratic and inefficient. Therein lies the problem with Hedonic modeling. How can one be sure he or she has captured all the relevant components of a property that add to its value? Only with an extremely large sample sizes can one be sure to exclude unwanted effects from missed variables. Nonetheless the hedonic method was the first method used to measure real estate appreciation with foreclosures. Hedonic methodology is still used in constructing indexes and to predict prices across markets.

In 1990 Shilling, Benjamin and Sirmans (SBS) measured appreciation from a normal, market sale to a foreclosure sale using a Hedonic methodology. Their research, unfortunately, was limited to only, 62 observations, all condominium sales, in 1985, in a single complex in Baton Rouge, Louisiana. The study included condominiums sold in the open market and also units "liquidated" by a local lender. SBS estimated that properties that end up in foreclosure, sell, on average, for a 24% discount to market sales.[11] The mean price per square foot of the distressed properties was $59.29 and the mean of the comparable properties was $66.28. They note "the

[9] Ibid, pg. 3.
[10] Ibid., pg. 4.
[11] J.D.Shilling, J.D.Benjamin and C.F. Sirmans, "Estimating Net Realizable Value for Distressed Real Estate", Journal of Real Estate Research, 1990, Volume 5, Issue 1, pages 129-141.

regression analysis indicates that the discount on distressed real estate is roughly 24% of market value. The size of the discount is not surprising since the market value of these properties must be adjusted for the probability of receiving an offer to purchase during the expected marketing period as well as for the net carrying costs of the property." They conclude there are two reasons market value overstates the net realizable value of a distressed sale. First, lenders either prefer, or need to sell in a compressed time frame, to remove the nonperforming loan and the property from their books. Second, SBS hypothesize that appraisers must take into account the cost of carrying the properties.

In 1994 Forgey, Rutherford and Van Buskirk (FRV) used a hedonic method, which added zip code as one of the variables. They used a sample of 2,282 sales, of which 280 were foreclosure sales. The data was from the Arlington, TX Multiple Listing Service from July 1991 to January 1993. This time period corresponded to the national downturn and a deep economic slump for Texas. FRV found a 23% estimated discount to market sales, based on their sample of 2,282 single-family sales.[12]

Hardin and Wolverton (HW), in a 1996 study, used a hedonic methodology to once again measure the comparative discount between foreclosed property sales and fair market sales. Their method varied slightly with the inclusion of city dummy variables. Further, they examined income producing apartment prices. The study uses market rent as a variable to attempt to control for quality difference across the apartments in the sample. The data set comprised 90 income producing apartment sales, 10% of which were foreclosure sales. The sales were all to non-institutional buyers. The apartment buildings were from 25-132 units. HW found a 22.1% discount for foreclosure sales relative to market sales. In their conclusion HW attempt to explain the reason for the significant discount effect. They note "Rationalizations found in the literature are that foreclosed property owners appear to be motivated by satisfaction of regulatory capital requirements, control over negative stock price effects, and protection of credit ratings. As a consequence, this class of property sellers does not fit the market value definition of a typically motivated seller, and they have a rationale for accepting reduced market prices in exchange for a quick sale."[13]

2.C.2 Rebuttal of Hedonic Model Price Discount Results

A 1997 comment paper, written by Carroll, Clauretie and Neill (CCN) questioned the results obtained above and extended the work of FRV, using a sample of 2,000 sales from Las Vegas, Nevada from 1990-1993. In the introduction they posit, "There is no reason to suspect, a priori, that the selling price of a property will be affected by who the seller may be. A 23% discount should afford ample opportunities to make excess profits, even after transaction costs, by trading in such properties. In the extreme, imagine buying a property at a 23% discount because it is

[12] F.A. Forgey, R.C. Rutherford, M.L. Van Buskirk. "Effect of Foreclosure Status on Residential Selling Price" Journal of Real Estate Research, 1994, Volume 9, Issue 3, pages 313-319.
[13] W.G. Hardin III, M.L. Wolverton, "The Relationship between Foreclosure Status and Price", The Journal of Real Estate Research, 1996, Volume 12, Issue 1, pages 101-120.

foreclosed and then selling it without any repairs whatsoever the next day under non-foreclosed status. Are we to believe there will be a 23% appreciation in this short period?"[14]

CCN disavow the results of the previous research mainly on the basis of illogical or missing controls. The conclusion they reach is that foreclosed properties do not truly sell at a discount to the prevailing market sale price. They instead theorize, "that foreclosed properties sell at a discount because of the condition of the property itself, the condition of the neighborhood within which the property lies, or both."[15] Previous results, including those of FVR, would appear to be abrogated by CCN's assertions. The core disagreement is over how to control for neighborhood quality and to some degree property quality. When using a similar methodology to FVR CCN obtained similar results. However CCN extended the work of FVR by controlling for location and obtained far different results.

FVR controlled for location with zip codes. However they were entered as cardinal variables instead of nominal variables. CCN's results indicate that correctly controlling for zip codes as nominal variables significantly contributes to the "Foreclosure Effect". For their research CCN chose non-foreclosed properties within one block of the foreclosed properties. Modern cities can be very finely grained with large changes in neighborhoods from block to block. Depressed neighborhoods seem to create a critical mass of disinvestment and foreclosures, a vicious cycle with a built in feedback loop that creates more and more foreclosures. As such, tightly controlling for location (proximity to foreclosures) is the only way to accurately reflect the impact of the immediate neighborhood condition on pricing.

CCN's data consisted of 1,974 sales in Las Vegas, 385 of which were foreclosed properties sold by HUD and 19 by other lenders. They included 969 properties within one block of the HUD or lender owned properties. Another 602 properties not within a block of the foreclosed properties were analyzed. The results are stunning. "In the log-linear model without zip code dummies, houses in HUD neighborhoods sell for 11.58% less than houses with the same characteristics, while HUD foreclosures sell for an additional 8.38% discount. Introducing zip code dummies reduces the discount on properties in HUD neighborhoods to 8.31%, with HUD foreclosures selling for a mere .17% less than other neighborhood properties."[16]

2.D "Foreclosure Effect Versus "Location Effect"

The ultimate conclusion of the comment paper, "We must conclude that foreclosed properties sell for lower prices because of hidden defects (leading to negative equity when discovered) or due to neighborhood characteristics. Arbitrage possibilities appear to be unattainable in the efficient market sense"[17] leaves numerous questions of causality open. If the discount is truly a neighborhood discount what happens after the foreclosure sales? If there is excess appreciation

[14] T.M. Carroll, T.M. Clauretie, H.R. Neill, "Effect of Foreclosure Status on Residential Selling Price: Comment" Journal of Real Estate Research, 1997, Volume 13, Issue 1, pages 95-102.
[15] Ibid, page 95.
[16] Ibid, page 100.
[17] Ibid, page 102.

in the foreclosure sales is this appreciation based on neighborhood appreciation or some other aspect of the foreclosure wave?

Perhaps the severe disinvestment wrought by a foreclosure wave creates an inflection point in the neighborhood. Only when the neighborhood has severely declined do investors sense it is the time to buy and renovate and hence the neighborhood, and the foreclosed properties, profit from new investment, low starting point and a structural shift in the neighborhood. Or perhaps foreclosure appreciation rates are truly neighborhood rates cloaked by the presence of a foreclosure incident.

There is research on differential historical appreciation rates in depressed versus affluent towns that sheds some light on the conundrum. Research by Karl Case and Maryna Marychenko (CM) in 2001 looked at appreciation rates in 235 zip codes in the Boston metro area. They found "prices turned around early in 1992 and rose steadily through the end of the observation period in 1998. During this period, the high end of the market substantially outperformed the low end. Nominal price increases in the highest income group of ZIP codes were three times greater than the price increases in the lowest income group of ZIP codes."[18] Annualized increases in value, from 1983 to 1998 were broken down by zip code into quintiles and also the top and bottom 10% of zip codes, as defined by median income. From 1983 to 1998 the top 10% of zip codes appreciated at an average of 7.9% annually while the bottom 10% appreciated 6.4% annually. From Q2 1992 to Q2 1998 the top 10% again outperformed the bottom 10% with an annualized gain of 5.9% versus 2.0%.[19] This time period corresponds with the time frame analyzed in this study. Furthermore the cities in this study are all included in the 235 zip codes of the CM study. It would appear that location, location, location is more than quaint advice parents and brokers impart to would-be first time buyers. Perhaps it could be rephrased as the rich get richer and the poor get poorer.

Research by William Wheaton and Denise DiPasquale support CM's findings. They theorize that everyone maximizes their happiness and effectively everyone achieves, in a rational world, optimal, equal happiness. In financial terms this means one pays more to live at the city center, to be close to employment and amenities. This premium, in theory, offsets neatly the cost to commute to and from the employment center. Hence the lower cost of housing in far-flung suburbs and exurbs is just compensation for commuting expenses, be they real dollar expenses or the cost of lost time and opportunity.[20] In time of job loss or transportation cost increases, we would expect a return to the city core and to the more affluent inner suburbs, a reverse migration and growth in the housing price differential between the city and the outer suburbs. Anecdotal evidence suggests such a shift is now taking place due to the rapid increase in the cost of petroleum distillates. Public transportation is also seeing increased ridership in Boston and other cities. So-called "Smart Growth" residential projects located at or near public transportation tend to outperform, in terms of rent and sales velocity, less convenient locations.

[18] Kase, C., Marychenko, M., "Home Price Appreciation in Low- and Moderate- Income Markets", Low-Income Homeownership Working Paper Series, Joint Center for Housing Studies of Harvard University, August, 2001.
[19] Ibid, page 8.
[20] Wheaton, W. C., DiPasquale, D. Real Estate Economics, 1996.

Hence, during downturns in the economy the poorer, outer suburbs decrease in price more than the inner suburbs or city itself. Furthermore they are later to rise during the next cyclical upturn. It is no surprise that long depressed cities located 20 miles or more outside Boston produce a disproportionate number of foreclosures. Job losses have been steep during previous declines. As workers lose their jobs in the outer suburbs they necessarily search for work in the closest employment center available, typically the center city, in this case Boston. Hence their transportation costs surge and they, on average, seek homes and apartments closer to Boston, or have less to spend on housing in their chosen suburb. This price differential, based primarily on employment availability and proximity, to a certain degree drives the cycle and induces the strong swings in rents and prices seen in the outer suburbs. As workers commute further or move elsewhere prices (and sometimes rents) fall and create negative equity, negative cash flow and ultimately waves of foreclosures.

2.E Repeat Sales Methodology

To overcome the limitations of hedonic modeling Anthony Pennington-Cross (PC) used repeat sales in a 2006 paper to estimate the price discount of foreclosed sales. PC sought to understand whether repeat sales pairs consisting of a market sale and ending with a foreclosure sale appreciate in a systematically different manner than market to market repeat sales pairs. He finds that "the results indicate that the expected appreciation rates for foreclosed property…are lower than area appreciation rates."[21] He further speculates "the cause of this heterogeneity of appreciation rates may be due to changes in the neighborhood characteristics or changes in the characteristics of the property. For example, the neighborhood could suffer from increased crime or a reduction in school quality or the property could be flooded and not be fully repaired."[22]

It is evident that there are a myriad of factors, which influence specific property values. To enumerate and measure them all, as in an exploded regression analysis, is nearly impossible. Nonetheless it is possible to regress what we surmise are the major contributing factors to price appreciation to gain an understanding of the causative forces behind the results.

PC specified three regression series to test variables he thought contributed to the cumulative appreciation discount he found; 22%. He notes the discount is not just bunched at the time of foreclosure sale but is cumulative over the life of the loan or ownership period. PC compares 2,280 observations against the OFHEO metropolitan area house price levels to ascertain the discount. Next he looked at the time a property was owned by a lender, the time in pre-foreclosure or pre-reo, different legal statutes concerning foreclosure in the areas of the observations (whether judicial foreclosure process, statutory right of redemption or a state where the lender cannot declare a deficiency judgment), initial loan-to-value ratio, spread of the contract loan rate at origination over the market interest rate and the loan amount.

[21] Pennington-Cross, A. "The Value of Foreclosed Property", The Journal of Real Estate Research,2006, Volume 28, Issue 2, pages 193-214.
[22] Ibid, page 194.

While the overall discount, as mentioned, was significant at 22%, the coefficients of the variables have far more explanatory power. The adjusted R2 of the first specification, which only considers time as reo or pre-reo is .587. Hence the first regression accounts for 59% of the foreclosure discount. More time spent as property owned by the lender means an increased discount. PC speculates that as property is held losses are increasing, bargaining power is decreasing and pressure to sell is mounting.[23] In addition loans, which get into trouble earlier have increased discounts.

Specification II includes legal and housing market conditions and produces an adjusted R2 of .603. Specification III includes "other mortgage related factors" and produces and adjusted R2 of .64. Interestingly PC found where metropolitan prices have declined the discount is larger. The loan information yields some interesting results. Higher loan-to-value ratios are linked to lower discounts. This, at first, appears counter intuitive as higher LTV's are positively linked to greater incidence of foreclosure. However PC theorizes that higher LTV ratios fall into foreclosure more quickly and hence suffer lower discounts than lower LTV ratio loans that default later in their life.

PC concludes "While the results do not indicate that the foreclosure itself causes the price appreciation deviation, they are consistent with the notion that foreclosure proxies for other neighborhood- or property-specific characteristics, such as a neighborhood in decline."[24] While there is some understanding of what causes the discount, there is still a fair amount of variability left unexplained. Nonetheless the repeat sales methodology produced similar results to the hedonic models discussed above. In addition an attempt was made to quantify the effects of several different variables and their component contribution to the cumulative discount found in the repeat sales model.

In the next section I explain the data and methodology of my repeat sales analysis. This analysis, instead of looking at the cumulative discount of a sale pair that ends in a foreclosure, wipes the slate clean and starts with a foreclosure as the first of two sales in the pair. This method, while similar, seeks to answer a different question. Although the "Foreclosure Discount Effect" and subsequent appreciation are really two sides of the same coin I believe I can be cavalier in this study and ignore the previously answered question. I will ignore the discount and look at the subsequent behavior. Although the discount will not factor into my study the reason behind it will be addressed. Whether either or both effects are based on "Location Effect" or "Foreclosure Effect" is an interesting question. However, in the end, to an investor, particularly to a contrarian minded, value based, arbitrage-seeking investor, the reasons should not matter as long as they have the confidence they will make money. It is another question entirely whether one can profit without understanding the underlying mechanics of the market in which they choose to invest!

[23] Ibid., page 210.
[24] Ibid., page 211.

Chapter 3: Data and Methodology

3.A Data Source and City Choice

The sole source of data for this study is single family home repeat sales data from The Warren Group, in Boston, MA. The Warren Group has collected and published real estate related news and transaction data since its founding in 1872. The Warren Group collects data from every deed and mortgage recorded in Massachusetts, Connecticut and Rhode Island.[25] The database includes roughly 65 variables on every property record. These variables include street address, latitude and longitude, square footage, bedroom count, date of last sale, sale price, deedtype and saletype. A complete list of the variables can be found in the appendix. The repeat sale data set has been tracked for decades but became far more complete in 1987. Nearly all of Massachusetts, with the exception of a few towns with incomplete data, are covered.

Initially I looked to use data from a few locales in the Boston Metro area. However, it readily became apparent that a larger sample size was needed. As such 8 local cities (Brockton, Chelsea, Everett, Lowell, Lynn, Revere, Somerville, Taunton) were chosen for their relatively depressed economies and large number of foreclosures during the preceding real estate cycle. Summary data from the 1990 and 2000 Census is located in the appendix to familiarize readers with the cities in this study. As noted in the literature review foreclosures tend to be concentrated in poorer neighborhoods and towns. All of the cities are considered part of the greater Boston Metro area.

During the real estate boom of the 1980's these cities were generally the last places to participate in the boom. Even so, there was little new construction in many of the cities. As the tide turned and the market crashed they were particularly hard hit by falling home prices and a disproportionate number of foreclosures. Hence these cities were a natural choice to measure the effect of foreclosures.

For contrast I examined several affluent communities in the Boston area. As one might suspect, there are few foreclosures in the more affluent communities. Examining a number of Boston's affluent suburban communities including Weston, Wellesley, Dover, Lexington and Andover yielded few foreclosures. Hence my ability to measure appreciation subsequent to foreclosures in affluent towns, and by extension, in more expensive properties, was thwarted. Previous research, as well as anecdotal evidence, suggests foreclosed homes in desirable communities sell at a smaller discount than those in less desirable communities.

Due to lack of significant data in the affluent communities I have focused on economically depressed cities. Where foreclosures are generally clustered most densely in depressed cities and towns I believe I will capture most of the effect of foreclosures on subsequent pricing. Depressed cities and towns produce a disproportionate number of foreclosures. The affluent towns mentioned above can be thought of as a distinct product, nearly a different market. Whereas buyers and borrowers in depressed cities are very sensitive to interest rate moves or other

[25] www.TheWarrenGroup.com

external shocks buyers in towns like Wellesley and Lexington are generally more educated, professionally employed and on the whole far more insulated from the vagaries of exogenous shocks in the economy or the housing market. As noted in the literature review LTV's closer to one are positively linked with increased incidents of foreclosure. Affluent buyers putting down 20, 30 or 50% down payments are far less likely to default and in turn do not produce foreclosure evidence for us to study!

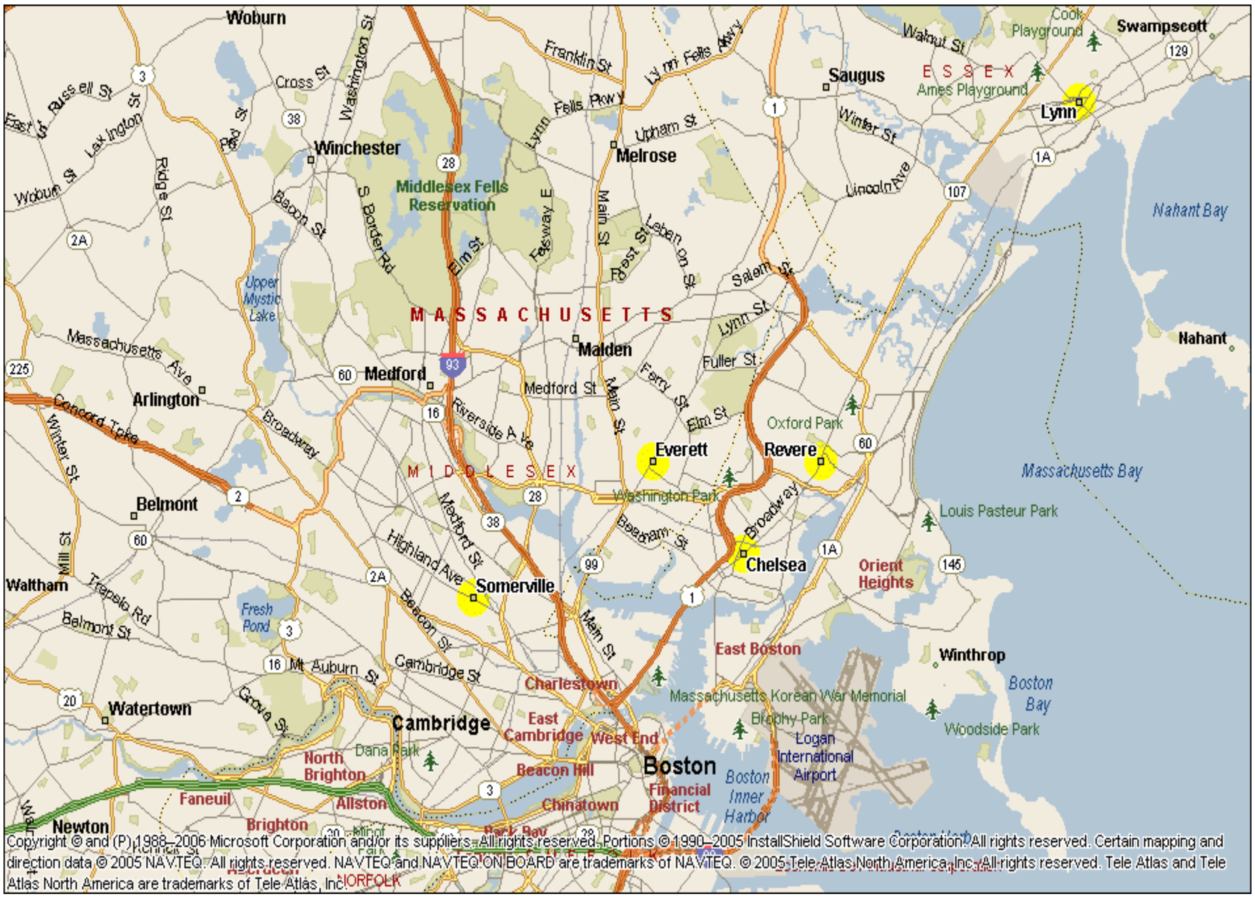

Figure 1 Map of Metro Boston with Cities Highlighted

As noted all of the cities in this study are located in the Greater Boston area. Manufacturing flourished in New England during the 19th Century. Most of the large mills in the region were hydro-powered. As power generation became more widespread manufacturing started to move first to the Southeastern US and ultimately overseas to low cost labor providers in Mexico and Southeast Asia. Many of the large manufacturing cities in New England experienced precipitous declines in their fortunes. Job losses led to population declines and to overall declines in the cities. Disinvestment in commercial and residential property became the norm and over time the fabric of the neighborhoods disintegrated. Entire cities dissipated and slowly morphed into blighted relics, littered with enormous, functionally obsolete and abandoned mill buildings. In many ways the cities are still trying to regain their previous standing.

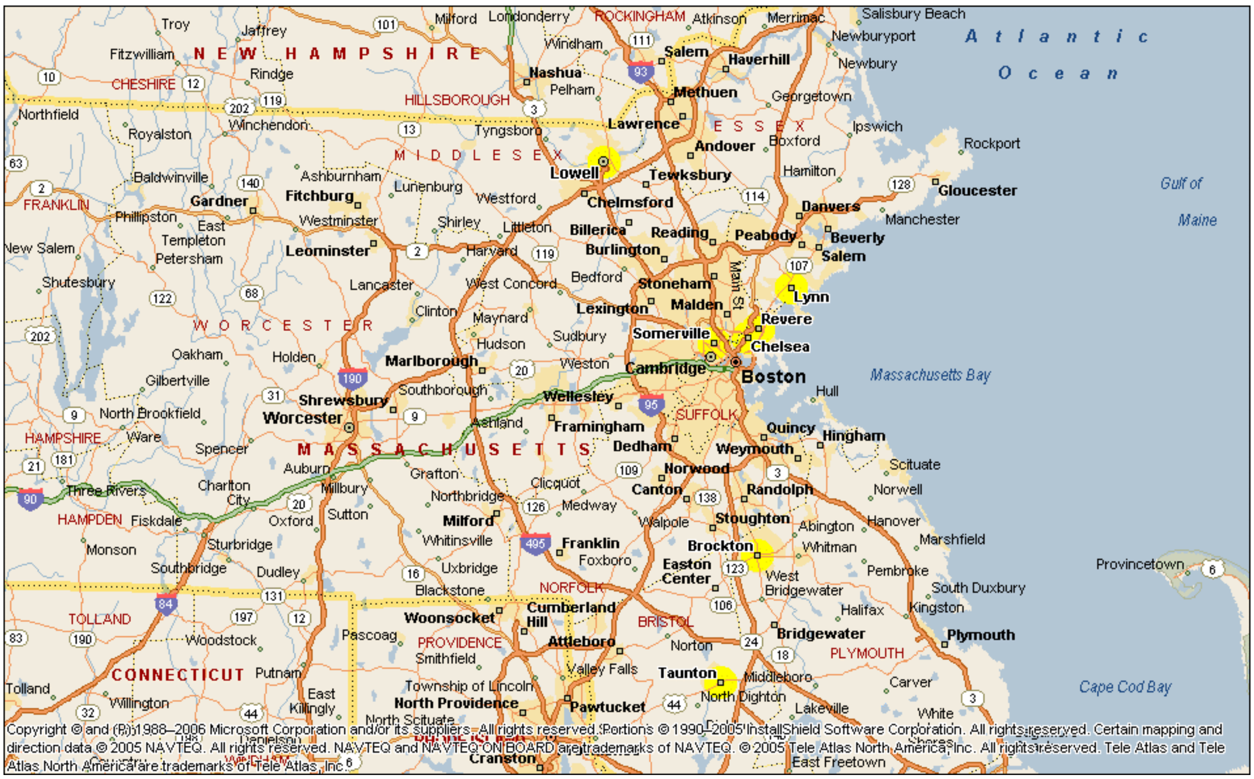

Figure 2 Map of Greater Boston with All 8 Cities Highlighted

3.B Methodology

To ascertain Foreclosure sale (and market sale) appreciation I used a repeat sales procedure. The hedonic model certainly has some predictive and explanatory power however it is too cumbersome and inaccurate for my purposes. Instead of searching in the dark trying to predict price appreciation from a model I have chosen to use historical data to arrive at actual, ex-post, returns in the real world.

Data sorting and manipulation was performed in Stata version 10. Data subsets were then output into Excel spreadsheets. Annual appreciation rates and other counts were performed in Microsoft Excel. In Stata I took a number of steps to limit the sample size and clean the data for analysis. In the SALETYPE category all non-arms length sales were dropped. Similarly all Nominal Sales (sales with recorded prices of $100 or less) were dropped. In addition all “Intra-Corporate” and “Intra-Family” and “LowPrice/HighYield” sales were dropped as the recorded sale prices may reflect non-market considerations, which may influence the sale price in unpredictable manners. Furthermore, for any duplicate entries the second observation in the pair of duplicate sales, as evidenced by identical PROPID and identical SALEPRICE was dropped. All sales prior to 1990 were dropped from the data set. In addition all sales after 2005 were dropped from the data set.

3.C Time Series

There was a spike in foreclosures in the Boston Metro area in the early 1990’s. I initially sought to examine this period and limited the initial foreclosure sales time frame to the years 1990-1994. Hence all data before 1990 was dropped. The other reason for this decision was to limit the effect of the previous cycle on the data. More importantly the Warren Group data is only complete from 1987 forward, so properties with recent foreclosures or other non-arms length sales cannot be identified.

However, the residential real estate market was rather flat after the early 1990’s downturn. Hence I thought it would be instructive to also analyze sales pairs initiated in 1995-2000 and their subsequent sales from 1996 through 2005. This later timeframe was a much more vibrant and volatile period in residential real estate sales and I suspected would yield interesting results.

One of the greatest challenges in undertaking repeat sales investigations is to control for the holding period. The holding period may be the greatest contributor to performance (see discussion later). However even with data from 8 cities there were still not enough foreclosure sales pairs to do a year-by-year analysis. Therefore I grouped data into year brackets. I broke the data into four subsets: sales pairs initiated (first sale) in 1990-1991, sales pairs initiated in 1992-1994, sales pairs initiated in 1995-1997 and sales pairs initiated in 1998-2000. The subsequent sales in the pairs occurred from one to five years after the initial sales. Table 1 below displays the breakdown in data into four subsets.

Table 1

Time Series Data

Sales Pairs Examined

Initial Sale Years	**Subsequent or Closing Sale Years**
1990-1991	**1992-1996**
1992-1994	**1995-1999**
1995-1997	**1996-2002**
1998-2000	**1999-2005**

3.D Foreclosure Data Set

From this expurgated data set two subsets of data were culled. The first subset was all properties with a foreclosure. All property ID's (PROPID) with "Foreclosure" in the DEEDTYPE category were grouped into a temporary file. The full data set was then polled, or compared against the temporary foreclosure file. This action then restored all matching PROPID's from the full data set into a new file and grouped all the sales by PROPID. Hence the new file contained all PROPID's with DEEDTYPE "Foreclosure" and all their precedent and subsequent sales. The variable "sale_year" was then converted into new variables, one of which was "Y" for year(actual year of sale). Another new variable was calculated as "Years Elapsed". "Years Elapsed" measures the years between a pair of sales. Unfortunately many of the actual dates (with month and day) were missing and any incremental accuracy from their use was lost. One more variable was created in Stata, "Price Difference". This variable subtracted the previous sale price from the most recent sale price and output the difference.

Table 2

Time Series Data

Foreclosure Sales Pairs Examined

Initial Sale Years	**Subsequent or Closing Sale Years**
1990-1991	**1992-1996**
1992-1994	**1995-1999**
1995-1997	**1996-2005**
1998-2000	**1999-2005**

3.E Market Sale Data Set

The second subset comprised all sales without "Foreclosure" in the DEEDTYPE category. The methodology was similar to that used for the Foreclosure data, however any PROPID with "Foreclosure" in the DEEDTYPE category was dropped altogether. This did eliminate some market price repeat sales pairs. However this step was taken to ensure any persistency of effects from foreclosures was not present. For instance, if there were a foreclosure sale in 1991 and then a pair of market sale in 1992 and 1993 the entire grouping of three sales was dropped. An extension of this research would be to measure the persistency of foreclosure appreciation rates by analyzing the second and third market sales subsequent to the initial foreclosure sales. Furthermore one could analyze market sales before and after a foreclosure. Although surely instructive these exercises were beyond the scope of this report.

When output to Excel the market repeat sales pairs far outnumbered the foreclosure sales pairs. This result is partly a product of the time period and locations (Cities) studied. In more affluent cities and towns there were far fewer foreclosures and much higher ratios of market sales to foreclosure sales. It has oft been argued that foreclosures beget more foreclosures as vacant, abandoned buildings suffer disinvestment and vandalism, creating a neighborhood wide decline. This likely contributes to the sub-par appreciation rates discussed in the literature review. This sub-par performance may well sow the seeds of greater appreciation subsequent to the foreclosure wave.

Table 3

Time Series Data

Market Sales Pairs Examined

Initial Sale Years	**Subsequent or Closing Sale Years**
1990-1991	**1992-1996**
1992-1994	**1995-1999**
1995-1997	**1996-2005**
1998-2000	**1999-2005**

3.F. Final Calculations

The subset data is used to measure foreclosure sale pair appreciation in Excel by sorting foreclosure sales by year of initial sale. Next the price difference (gain or loss) was divided by the initial sale price to compute an absolute return. The absolute return is divided by the years elapsed to compute the annual appreciation of the sale pair. All observations reporting over 100% annualized returns are dropped from the reported results as they likely represent either large-scale renovations, significant additions or assessor or registry level data errors. All of the dropped observations are listed in the Appendix.

Chapter 4: Results

4.A Caveats

The data subsets described above were all treated similarly. Price appreciation is calculated by dividing the "Price Difference" by the first of the paired sales. This is then divided by the years elapsed to arrive at an annual appreciation rate. Keep in mind these are unlevered appreciation rates. Most buyers, especially buyers of foreclosed properties will have taken mortgages of at least 80% loan-to-value. On many of the more recent transactions LTV's are 90% and above. In the early 1990's LTV's were typically between 80-90%. Levered returns, where positive, are obviously far higher than the unlevered returns reported in this study. However it must also be noted that I have not taken into account transaction costs, which can range from 4-6% of purchase price. These returns also do not account for either income tax shields from mortgage debt nor the value of occupying the house through some imputed rent calculation.

Instead of applying assumed frictional costs and adding back average imputed rents gleaned from regional indices I left the performance numbers raw, as they are. One can assume and apply factors customary and appropriate to their economic condition and region of the country. In the same manner, if examining a prospective investment one can lever these returns, in a hypothetical sense, with current LTV ratios and interest rates.

The average annual appreciation numbers are all reported as percentile returns. It would be just as simple to report absolute dollar returns, however I believe the information would be far less instructive and not applicable in a wider sense to a diversity of regions with widely varying median single family home prices.

4.B Foreclosure and Market Sales Pairs Initiated in 1990-1991

The first subset examined is comprised of sales pairs initiated in 1990 and 1991. The initial impetus behind this research was to examine the foreclosure wave during the early 1990's, which may prove useful during the current crisis. Previous research indicated a "Foreclosure Effect", which, as discussed may really just be "Location Effect". Hence I thought it would be interesting to examine what happens after the foreclosure sale. By looking at the next fair market sale and comparing the pair to a pair of fair market sales we would answer two questions. First it would either confirm or deny the presence of a "Foreclosure" or "Location Effect" and support (or not) whether the single-family home market is an efficient market. Second, the results would yield valuable information as to the returns available to investors (homeowners, lenders etc) in foreclosed properties.

My initial hypothesis was that the single-family market was not efficient. Just go house hunting for a few months and you quickly get the sense (anecdotal of course) that there are so many variations in the physical product and so many motivations of the individual participants that the market can hardly function efficiently in an economic theory sense. However as the tabular results below indicate there was no clear out-performance by the foreclosed sales pairs. Neither group dominated over the full time periods tested.

Table 4

Foreclosure Sales Pairs Initiated in 1990-1991				
Holding Period (Years)	1	2	3	4 & 5
Average Annual Appreciation	-10%	-8%	-3%	-5%
Net Number of Observations	74	18	11	8
Observations Dropped	9	3	0	0
Initial Purchase in Years 1990-1991				
Corresponding Sales in Years 1992-1997				

The sample sizes for the foreclosure pairs declines with time, hence the combined holding period for years 4 & 5. Interestingly the market pair sample size increases as time goes by, indicating that either foreclosure buyers are buying and flipping the houses, or during this time period, when the market was still in decline, perhaps they needed to sell again to escape the burden of the carrying costs. I suspect fair market buyers may have been more stable and looking for a place to stay, hence the increased tenure.

Market Sales Pairs Initiated in 1990-1991				
Holding Period (Years)	1	2	3	4 & 5
Average Annual Appreciation	9%	-4%	-5%	-4%
Net Number of Observations	34	64	105	289
Observations Dropped	5	0	0	0
Initial Purchase in Years 1990-1991				
Corresponding Sales in Years 1991-1996				

Table 5

The lack of significant out-performance may be due to any number of factors. It may be that a number of the buyers were speculative investors, drawn by low prices and the opportunity of a quick profit. Further there is no way to know how much buyers spent to rehabilitate either the foreclosed properties or the market sales. It seems reasonable to assume the foreclosed properties suffered greater disinvestment and needed more work. Then again, the buyers may have been less financially capable of performing needed renovations. Hence, throughout this study the question will remain as to the level of contribution to the performance of rehabilitation or more simply- “How much did they put into it?” Therefore, although the performance numbers tell the story, they must also be looked at critically, as I believe the issue of post purchase investment is not insignificant in the context of foreclosed properties sold quickly for a profit. One last note, profit-seeking investors do well to invest as little as possible (as little as necessary) post sale to achieve a quick profit. This makes estimating post sale investment even trickier.

A graph of the returns is provided on the next page.

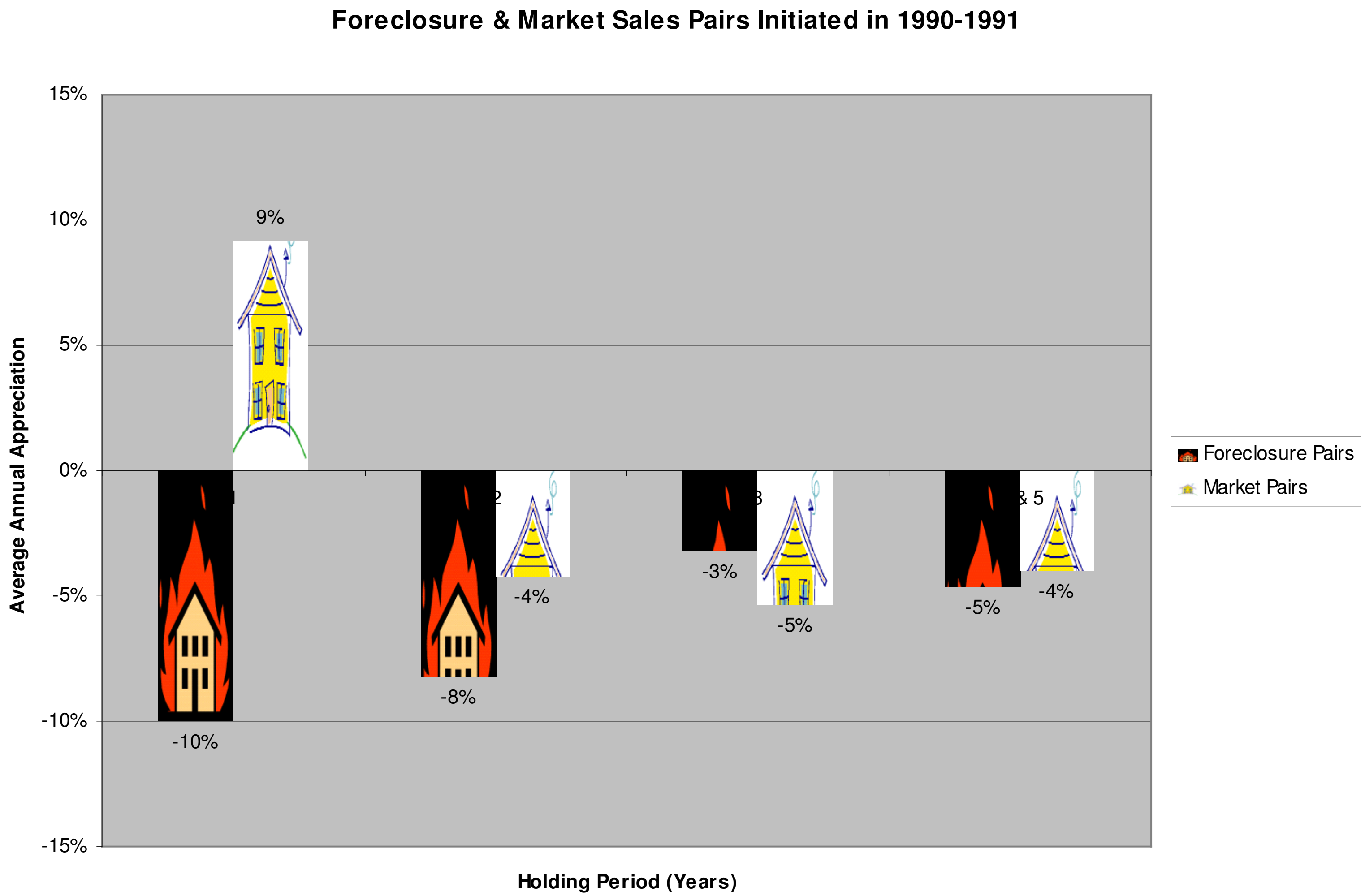

Figure 3 Foreclosure & Market Sales Pairs 1990-1991

4.C Foreclosure and Market Sales Pairs Initiated in 1992-1994

As noted previously there were not enough foreclosure pairs to examine sales year by year, hence the four groupings of initial sale years. This second group is comprised of sale pairs initiated in the years 1992-1994. The residential market was still in decline during these years, which colored the results of the earlier grouping. The second grouping, I believed, would pick up on the nascent recovery in the residential market underway in the mid 1990's. Once again my hypothesis was that the Foreclosed Sale Pairs would outperform the market sale pairs over all holding periods. The performance difference could be due to low purchase price, excess volatility in riskier neighborhoods or a number of other factors.

As evidenced by the tables below the hypothesis did not hold true. There was not a significant performance advantage to the foreclosure sale pairs. In fact the Market Sale Pairs posted higher average returns over all four holding periods

Table 6

Cleaned Foreclosure Sales Pairs Initiated in 1992-1994				
Holding Period (Years)	1	2	3	4 & 5
Average Annual Appreciation	-8%	-6%	-1%	5%
Number of Observations	527	77	33	45
Observations Dropped	23	2	1	0
Initial Purchase in Years 1992-1994				
Corresponding Sales in Years 1993-1999				

Cleaned Market Sales Pairs Initiated in 1992-1994				
Holding Period (Years)	1	2	3	4 & 5
Average Annual Appreciation	11%	4%	4%	6%
Net Number of Observations	122	183	247	687
Observations Dropped	14	3	1	2
Initial Purchase in Years 1992-1994				
Corresponding Sales in Years 1993-1999				

Table 7

There are several possible explanations for the lack of differential returns. The market, although recovering, was still rather flat. Evidence suggests better neighborhoods recover more quickly. If the bulk of the foreclosures were in more depressed neighborhoods within their respective cities sales in those cities would likely underperform, relative to the city average in the beginning of a recovery. Similarly, the market sales may also have represented good values in somewhat better neighborhoods and would then, perhaps, have recovered more quickly. Indeed market buyers may have been more financially capable of maintaining and rehabilitating their properties, resulting in higher repeat sales prices.

The only way to truly tease out the location effect is to map the sales and control for neighborhood variations. This would separate "Location Effect" from "Foreclosure Effect". Unfortunately that control is beyond the scope of this report. It may not matter to an investor as the return is the return. To take a more sophisticated approach, one which a typical homebuyer would not likely apply, investors would want to understand the location versus foreclosure return dynamics.

The results are reproduced in graphical format on the next page.

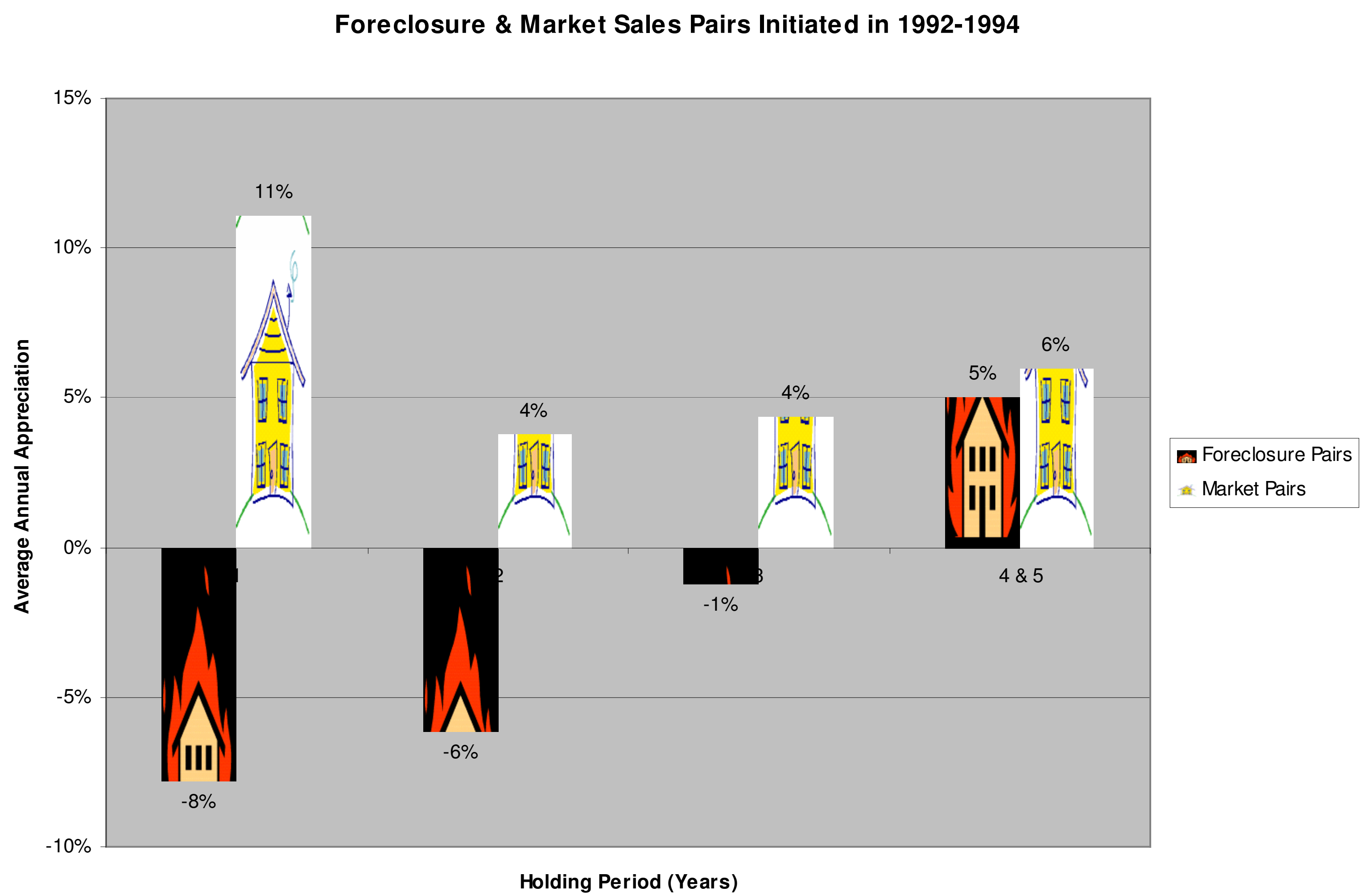

Figure 4 Foreclosure & Market Sales 1992-1994

It is worth discussing the returns in terms of relative risk. If depressed neighborhoods are truly more volatile (they appear to be so) and by extension a riskier investment, then an investor should be compensated for accepting increased risk. The data from 1992-1994 do not indicate any excess compensation for purchasing foreclosed properties. It may be that entire cities are considered equally risky and that no risk premium to foreclosed properties was warranted at the time.

This idea intrigued me and led me to look at the next time frames available, bringing repeat sales up into the middle of our most recent boom. Investors did not receive excess compensation for purchasing foreclosed properties in severely depressed cities during a relatively flat to slightly upward trending residential market (1990-1994). Would investors making the same bet, buying foreclosed properties in depressed cities only now during a strong upward surge in the residential market (1995-2000) be compensated or realize a risk premium upon subsequent repeat sale?

4.D Foreclosure and Market Sales Pairs Initiated in 1995-1997

Once again the data was split into two subsets. The first subset is comprised of initial sales from 1995-1997. The only challenge in examining this later time frame is the number of foreclosures was in decline. Therefore the sample sizes are somewhat smaller than I would like. Nonetheless the Foreclosure Sale Pairs dominated the Market Sale Pairs over all holding periods except Year 1. As you can see in the tables below the results were dramatic.

The hypothesis that Foreclosed Sales Pairs return more than Market Sales Pairs is strongly supported by the 1995-1997 data. Causation remains unclear. Without controlling location down to a neighborhood or even micro-neighborhood level we cannot be sure that the "Foreclosure Effect" is not in reality "Location Effect". That being said, as a first hand witness to the previous real estate cycle and a lifelong resident of the Boston Metro area it is clear that the depressed cities chosen for this study were (and in some cases still are) significantly stigmatized. I do not dispute neighborhood differences vis-à-vis disinvestment and lack of maintenance. However to either an outside observer, or even a potential investor, all the neighborhoods had similar problems and deterioration. A buyer has access to the same schools, same infrastructure, same crime problems and same city government regardless of neighborhood. Whether investors explicitly demand a risk premium for investing in these cities I cannot answer definitively. It seems reasonable to expect either an explicit or implicit risk premium demanded through a discounted purchase price.

Table 8

Cleaned Foreclosure Results for Sales Pairs Initiated in 1995-1997				
Holding Period (Years)	1	2	3	4 & 5
Average Annual Appreciation	11%	23%	19%	31%
Net Number of Observations	256	28	4	21
Observations Dropped	36	4	1	3
Initial Purchase in Years 1995-1997				
Corresponding Sales in Years 1996-2002				

Table 9

Cleaned Market Results for Sales Pairs Initiated in 1995-1997				
Holding Period (Years)	1	2	3	4 & 5
Average Annual Appreciation	23%	15%	16%	18%
Net Number of Observations	190	330	500	852
Observations Dropped	39	0	2	4
Initial Purchase in Years 1995-1997				
Corresponding Sales in Years 1996-2002				

Once again a graph of the 1995-1997 sales pairs is reproduced below.

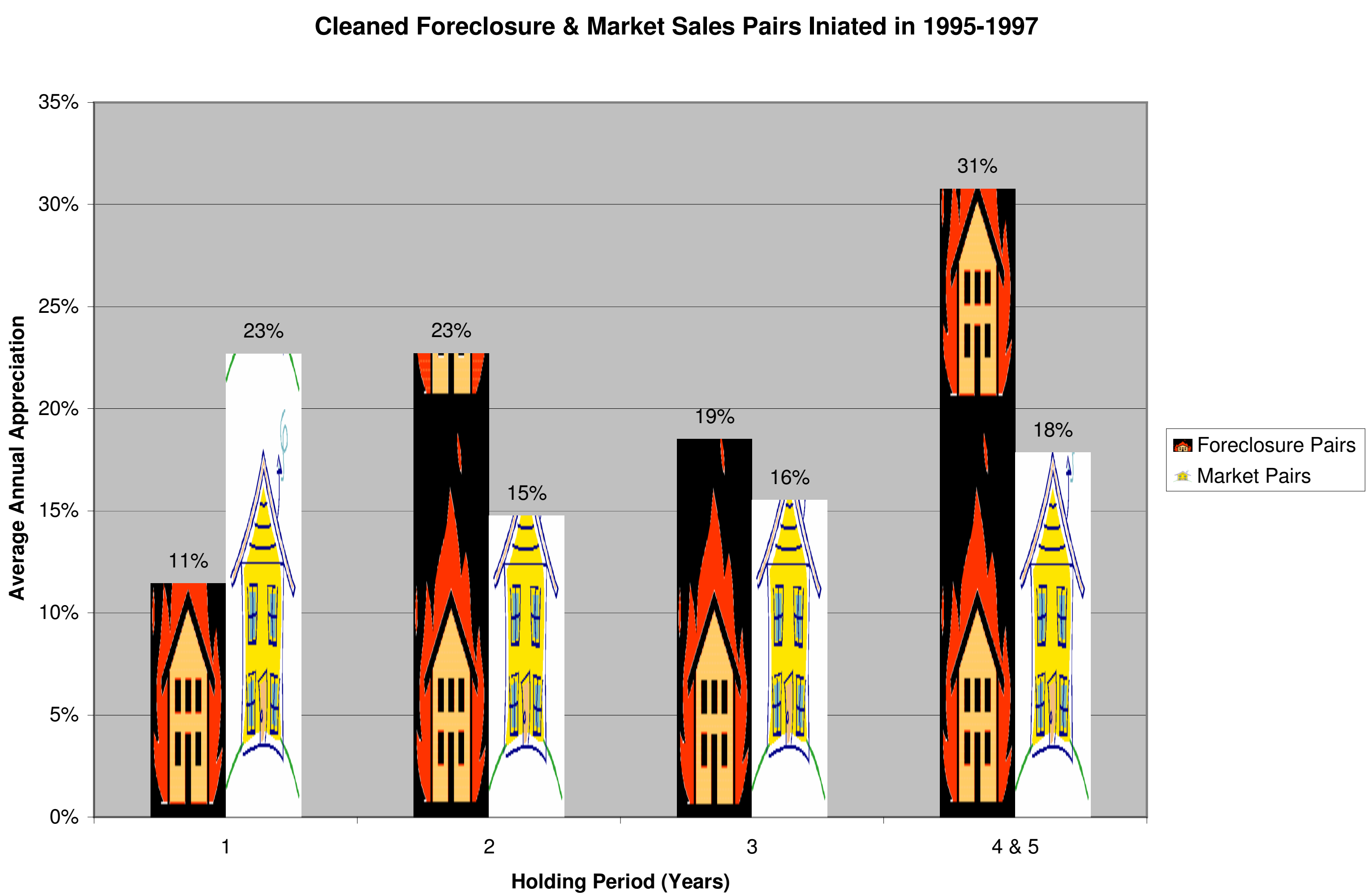

Figure 5 Foreclosure & Market Sales 1995-1997

4.E Foreclosure and Market Sales Pairs Initiated in 1998-2000

The second subset is comprised of initial sales from 1998-2000. Once again the foreclosure sample size is quite small. Nonetheless, as with sales pairs initiated in 1995-1997, the Foreclosure Sale Pairs dominated the Market Sale Pairs over all holding periods.

The hypothesis that Foreclosed Sales Pairs return more than Market Sales Pairs is again strongly supported by the 1998-2000 data. The previous discussion of the results from 1995-1997 is relevant here as well. Causation remains unclear. Without controlling location down to a neighborhood or even micro-neighborhood level we cannot be sure that the "Foreclosure Effect" is not in reality "Location Effect".

Table 10

Cleaned Foreclosure Results for Sales Pairs Initiated in 1998-2000				
Holding Period (Years)	1	2	3	4 & 5
Average Annual Appreciation	30%	35%	30%	41%
Net Number of Observations	84	7	7	7
Observations Dropped	13	3	0	2
Initial Purchase in Years 1998-2000				
Corresponding Sales in Years 1999-2006				

Table 11

Cleaned Market Results for Sales Pairs Initiated in 1998-2000				
Holding Period (Years)	1	2	3	4 & 5
Average Annual Appreciation	28%	21%	22%	21%
Net Number of Observations	328	558	649	1205
Observations Dropped	38	2	1	2
Initial Purchase in Years 1998-2000				
Corresponding Sales in Years 1999-2006				

As discussed previously foreclosures beget foreclosures as vacant houses are not maintained and eventually are boarded up, usually vandalized and eventually sold. Therefore, while it seems quite likely that there is evidence "Location Effect" at the same time that "Location Effect" is, in no small part, created by the foreclosures in that location. Whereas CCN effectively debunked the foreclosure discount and largely attributed it to location instead, they did not consider the cause behind the location discount. CCN proved that when location is properly controlled, the foreclosure sale price discount disappears. Meaning the properties sold through foreclosure sell at roughly equivalent prices when compared to other properties in their neighborhood. However, the study also indicated foreclosure sales achieved lower sales prices relative to market sales in other parts of the cities studied.

I suspect the cumulative negative effect of a cascade of foreclosures is one of the main determinants of price in depressed neighborhoods. The neighborhood may or may not be similar in makeup to the rest of the city. If two neighborhoods are substantially similar and one suffers the trigger of a wave of foreclosures it is no small leap to make the connection between an ensuing price discount and the preceding foreclosures. Hence the “Location Effect” which is masquerading as “Foreclosure Effect” may, in large part, actually be “Foreclosure Effect”. This line of reasoning blurs the understanding of whether foreclosures effects on price are direct or indirect. I believe that the effects are both direct, through lower prices accepted due to rapid marketing time frames, atypical seller motivation (lenders cleaning up balance sheets etc.) and indirect as the net effect of rundown properties is decreased values and more foreclosures. It is easy to see why it is oft referred to as a vicious cycle. Depressed cities have long suffered this self-reinforcing feedback loop. However, the good news is that foreclosed properties appear to represent a great opportunity to earn excess returns in the residential housing market-if only you choose the right part of the cycle, that being when the market has turned and begun the next phase of positive momentum.

Below is a graph of the results from sale pairs initiated in 1998-2000.

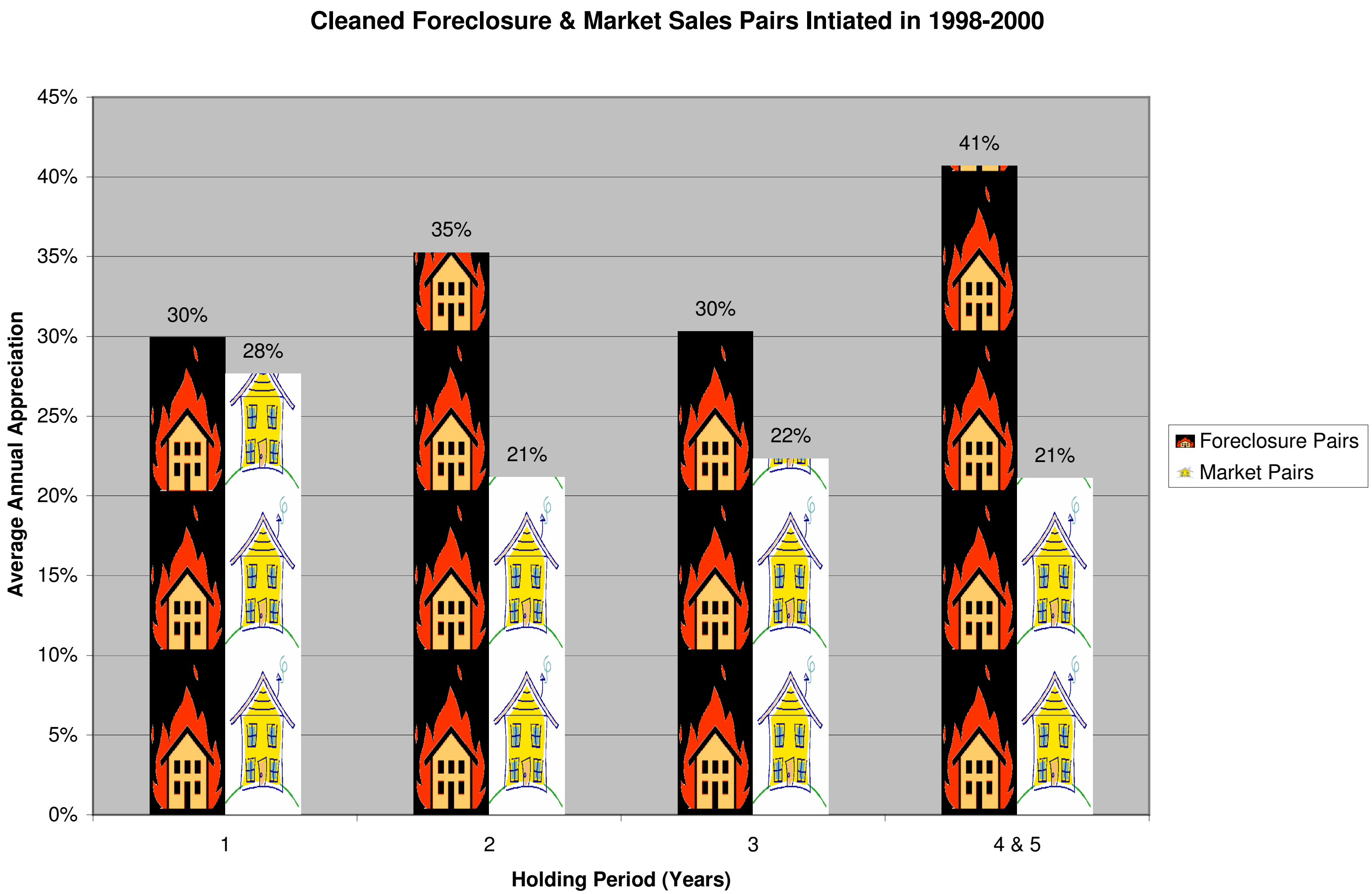

Figure 6 Foreclosure & Market Sales 1998-2000

Chapter 5: Conclusions & Considerations

Interpretations of the results are far too wide ranging to completely enumerate and discuss. For example, it is quite likely that foreclosure buyers have a far different set of expectations when entering a purchase than do fair market property buyers. Foreclosure buyers are bargain hunters who may or may not be more sophisticated buyers. We might expect investors in foreclosed properties to understand their market, the valuation, rehabilitation costs and profit potential of such properties. Then again a great number of owner occupant buyers may be less sophisticated bargain hunters looking to get any form of housing at the lowest cost available and ignore potential defects and distress in the property and neighborhood in the process. In addition they may already live in the blighted neighborhood and be inclined to overlook issues and challenges at which others might balk.

Fair market buyers are primarily owner occupants who expect to live in the home for several years. I would expect a smaller number of investors in this market place. Fair market buyers are also likely to be better financed and can, in theory, overreach for a property they desire. At the same time they are likely better educated and again, in theory, should make better decisions about pricing and financing. That being said a home is quite often more an emotional decision than a financial one.

It is quite difficult to tease out the motivations of different sets of buyers. Furthermore it is even more complicated to assign effects to their motivations and then forecast returns to various types of properties. However with repeat sales price appreciation numbers one could either toil on the ground to truly understand the underlying factors in a micro-neighborhood or rather more casually cast a blind eye to some of the more intractably difficult to elucidate problems and invest based on historical returns. That of course may take some faith that the past will in some way be a prelude to the future. With a grain of salt or two it may be appropriate to keep in mind the words of General Santayana who famously quipped, "Those who forget the past are doomed to repeat it." And based on my research that actually would not be so bad for investors in foreclosed properties.

Regardless this is an apropos time to examine foreclosures, especially in Massachusetts. FGS find, in 2007:Q4, "approximately 94,600 Massachusetts borrowers are in a position of negative equity." This represents approximately ten percent of all Massachusetts borrowers.[26] Though it may be verboten in economics to intone, "it is different this time", I think now the statement rings true. Unfortunately I am not espousing a paradigmatic shift in equity markets, which leads to never-ending parabolic price growth. Instead I believe, there will be greater incidence of foreclosure due to new and exotic debt vehicles happily sold (and bought) into the marketplace, fueling growth on the positive swing of the real estate cycle. Evidence suggests a substantial increase in the LTV and debt-to-income ratios of subprime borrowers over the last preceding

[26] Foote, C.L., Gerardi, K., Willen, P.S., Negative Equity and Foreclosure: Theory and Evidence. Public Poloicy Discussion Papers, Federal Reserve Bank of Boston, June 5, 2008.

downturn during the 1990's.[27] FGS therefore expect " a higher percentage of borrowers with negative equity in 2007 to subsequently default on their mortgages, compared with negative equity borrowers in the early 1990's."[28]

At this point the extent of the current crisis falls into the "things we know we don't know" category. What we know is that, based on historical patterns the current crisis will likely get worse. Furthermore, extrapolating from previous real estate recessions and adding in new pressures such as subprime may complicate predicting the future but in no modeling I can envision are they a palliative for the current foreclosure wave. There really is no best-case scenario. People are being displaced from their homes without options for adequate housing. What little equity was once invested into many of these foreclosed homes has been or will be lost. Lenders that have so far avoided massive writedowns either did not participate in residential mortgage origination, have the losses hidden awaiting future writedowns, or actually practiced proper risk management. All the other lenders will feel as much or more pain as the homeowners. The bankers and mortgage brokers complicit in the subprime mess (I wish them no ill will- caveat emptor, right?) may soon be out of jobs as originations dry up and banks with large losses "right size" their businesses. Said brokers may be the next wave of foreclosures; adding to the feedback loop, further pressuring prices.

Large scale loan modification or forebearance schemes may help some homeowners, but most will have to just take their lumps as the property and debt markets take their course. With inflation (stagflation?) around the corner (Someone has to pay for the wars right?) mortgage rates are likely headed upward. Availability and pricing of debt may be undergoing a structural shift in which it is harder and dearer to procure. This shift will obviously not be the fuel of the next real estate price surge. Rather, it is the halon and wet sprinkler system combining to douse, in the short and intermediate term, any remaining embers which would seek to reignite the previous boom.

There are positives, which should warm the hearts of value investors and those that "know better". Real estate prices decoupled from incomes in the early 2000's and never looked back until late 2005. As Robert Shiller (and William Wheaton) has pronounced time and time again, this just was not sustainable. Whatever the underlying cause of the income/price mismatch buyers can only pay a certain amount of their income toward housing. Water and oxygen may be free in some locales but one must generally pay for food and clothing (not to mention Ipod's, cell phones, plasma TV's, cars, soda, Fritos, diapers etc. etc.). So in this instance Shiller had it right, there could not be a paradigmatic shift in the price/income ratio, it has been and is mean reverting. We would all do well to take the long view remember that. That being said, the glorious inefficiency of the residential market and its persistency of returns leave plenty of room for profits, even excess profits (the kind for which we all search).

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[27] Foote, C.L., Gerardi, K., Goette, L., Willen, P.S., "Subprime Facts: What (We Think) We Know About the Subprime Crisis and What We Don't", Federal Reserve Bank of Boston Public Policy Discussion Paper No. 08-2.
[28] Foote, C.L., Gerardi, K., Willen, P.S., Negative Equity and Foreclosure: Theory and Evidence. Public Poloicy Discussion Papers, Federal Reserve Bank of Boston, June 5, 2008.

So though it may take a cold heart, or at least an appetite for opportunity and a calculating mindset, to search for profit while others listlessly suffer through foreclosures I don't believe this is s zero sum game in any sense. One must wait for the bottom of the cycle. Contrary to what we sometimes see in the stock market the residential cycle is fairly long and has not historically produced a V-shaped bottom. However, once one is reasonably convinced the time is right they should begin to buy, as soon and as much as possible. For, just as there is a feedback loop on the way down, so there is a feedback loop on the way back up. I firmly believe that the best course of action is to buy as many depressed properties as possible in very close proximity to each other, preferably on the same street. As the houses are cleaned up other owners will begin to reinvest and new buyers and investors will be attracted. Hence it takes a few pioneers with vision and a stock of dry powder, (or available liquid-choose your metaphor) to trigger the next phase in the real estate cycle.

Actual investment and business strategies will have to be the topic of another paper, however I believe it is worth discussing the global macro-economic situation briefly once more. There is no escaping the inflationary signals. Perhaps they are all false signals. I believe oil is overpriced and some of the current profits from $140/bbl. oil will be reinvested to extract greater amounts of oil from the ground. Colorado, Wyoming, Alberta and the waters off Brazil and under the polar ice cap hold enormous oil reserves; the only drawback being extraction methods and costs. Other commodity prices will likely rise and fall over time. Of greater concern is the true integration of China and India into the world economy. They have bestowed unmitigated benefits to the world over the last 30 years in the form of cheap goods and cheap credit (I don't mean to belittle the plight of industrialized country manufacturing workers or ignore pollution, global warming or other related problems).

China and India, and to a lesser extent Indonesia and all of Southeast Asia have entered a new phase in their march to modernization and prosperity. Instead of an unlimited supply of labor so cheap as to be an after thought in the cost of inputs, labor costs are now being globalized and commoditized. Manufacturers in China have begun to seek cheaper labor pools in Vietnam and other developing countries. However the list of "cheap labor" countries is dwindling rapidly. As Chinese and Indian laborers demand and receive better working conditions and greater pay they become the inflationary force behind higher product prices worldwide. Furthermore their wage gains contribute to internal consumption of everything from foodstuffs to consumer goods like cell phones, computers, appliances, automobiles and any other Western convenience you can name. This internal consumption and competition for goods, services and commodities will have a tremendous impact on the global prices and global stability. It may be a good thing in the long term to begin to close the wealth gap between East and West. But it may also be very painful, on a global scale to integrate nearly half the world's population into a more modern global society.

These global forces are far from irrelevant to real estate investment in the United States and other industrialized nations. One must truly seek to understand the yield curve to profitably invest for the long term. Inflation, mortgage rates, immigration patterns and global demand and consumption are very likely to change considerably over the next ten to twenty years. These perceived difficulties also present opportunities for investment the world over. Over half the world's population lives in what the West considers substandard housing. Who will build them new housing? At what cost will it be built and with what and whose materials?

For those who prefer to stay closer to home the results of this admittedly limited study indicate that the residential market is not truly efficient and that there is potential opportunity for those willing to take risk and do a little neighborhood building. So despite a very complicated global picture, and a trough that may be deeper than in the past, we must remember that residential real estate in particular is a cyclical industry. Neighborhoods rise and fall and rise again. People move to the suburbs from the city and then back to the city again. Institutions, REIT'S and Private Equity Funds allocate dollars to real estate in good times and bad. To wrest outsized profits from the residential real estate market one should wait until the market starts to recover, lever their funds, allocate them to foreclosed properties, ride the cycle for between two and five years (possibly longer), collect rents and sell when target returns are met or market conditions change. By then there will be another challenge, another opportunity somewhere, awaiting capital and entrepreneurial vision and drive.

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APPENDIX 1

MIT Sales Transaction Record Layout – amended 12/15/2006

	FIELD NAME	DESCRIPTION	TYPE	LENGTH
1	PROPID	Internal Property Record Number (for updating)	Number	9
2	TRANID	Internal Sales Transaction Number (for updating)	Number	9
3	MODITYPE	Indicates whether this is an "Add", "Change" or "Delete" Record	Text	1
4	SOURCE	Record Source - Sales trxn - 'S'	Text	1
5	STATE	State Code of situs address	Text	2
6	COUNTY	Full county name of situs address	Text	15
7	CITY	Town/city name of situs address	Text	20
8	STNUM	Number Portion of Situs Address Street Number	Number	5
9	STNUMEXT	Additional Situs Street Number characters – as in 82-84	Text	5
10	STREET	Situs Address Street name including directionals	Text	25
11	LOTCODE	Describes Content of Situs address Unit field – Lot or Parcel or Unit	Text	1
12	UNIT	Situs address Lot, parcel or unit number	Text	6

13	ZIPCODE	Zip5 – 5 digit portion of situs zip code	Text	5
14	PLUS4	Plus4 portion of situs zip code	Text	4
15	CARRIER_RT	Postal Carrier Route of Situs	Text	8
16	LATITUDE	Global Latitude relative to the Equator	Number (decimal)	10.6
17	LONGITUDE	Global Longitude relative to Greenwich England	Number (Decimal)	11.6
18	CNSSTRACT	US statistical census tract	Text	6
19	CNSSBLCK	US statistical census block	Text	4
20	BUYER1FN	First name + middle initial portion of Buyer1	Text	15
21	BUYER1LN	Last name portion of Buyer1 (includes company names)	Text	25
22	BUYER2FN	First name + middle initial portion of Buyer2	Text	15
23	BUYER2LN	Last name portion of Buyer2 (includes company names)	Text	25
24	BUYERREL	Relationship of Buyer1 and Buyer2	Text	15
25	SELLER1FN	First name + middle initial portion of Seller1	Text	15
26	SELLER1LN	Last name portion of Seller1 (includes company names)	Text	25
27	SELLER2FN	First name + middle initial portion of Seller2	Text	15
28	SELLER2LN	Last name portion of Seller2 (includes company names)	Text	25

29	SELLERREL	Relationship of Seller1 and Seller2	Text	15
30	BOOK	Town Clerk book/volume number – this sales trxn	Number	5
31	PAGE	Town Clerk page number – this sales trxn	Number	4
32	PRICE	Consideration amount of this sales trxn	Number	9
33	DATE	Date of this sales trxn	Text	8 (yyyymm dd)
34	DEEDTYPE	DeedType of this sale trxn	Text	15
35	SALETYPE	Salestype of this sales trxn	Text	20
36	NOMINAL	"Y" indicates that this sales trxn consideration < $100	Text	1
37	VALIDSALE	"Y" indicates that this sale was arms-length trxn	Text	1
38	MORTGAGE	Mortgage amount of mortgage associated with this sales trxn	Number	9
39	LENDER	Lender name of mortgage associated with this sales trxn	Text	21
40	PROPUSE	Property Usage at time of Sale	Text	12

APPENDIX 2

Dropped Observations= Ann. APP > 100%

Foreclosure Observations 1998-2000

PROPID	LSTSLPR	sale_year	DEEDTYPE	CITY	PriceDiff	YearsElapsed	Price APP.	Ann. APP
2004516	54000	1998	Foreclosure	Lynn	70000	1	130%	130%
2007261	49500	1998	Foreclosure	Lynn	50500	1	102%	102%
2007338	34462	1998	Foreclosure	Lynn	56438	1	164%	164%
3183985	56000	1998	Foreclosure	Lowell	65500	1	117%	117%
972644	38000	1998	Foreclosure	Brockton	97000	1	255%	255%
973720	48000	1998	Foreclosure	Brockton	65000	1	135%	135%
974526	67000	1998	Foreclosure	Brockton	69000	1	103%	103%
1287469	55700	1998	Foreclosure	Chelsea	68300	1	123%	123%
960744	62000	1999	Foreclosure	Brockton	123000	1	198%	198%
965536	47500	1999	Foreclosure	Brockton	93500	1	197%	197%
969729	54129	1999	Foreclosure	Brockton	73871	1	136%	136%
3180401	50000	2000	Foreclosure	Lowell	49900	1	100%	100%
963834	40000	2000	Foreclosure	Brockton	102000	1	255%	255%
1373608	30100	1999	Foreclosure	Revere	94900	2	315%	158%
965661	52000	2000	Foreclosure	Brockton	163000	2	313%	157%
2000364	55000	2000	Foreclosure	Lynn	192500	2	350%	175%
3198430	25000	1998	Foreclosure	Lowell	245000	4	980%	245%
961685	35200	1999	Foreclosure	Brockton	158800	4	451%	113%

Market Observations 1998-2000

PROPID	LSTSLPR	sale_year	DEEDTYPE	CITY	PriceDiff	YearsElapsed	Price APP.	Ann. APP
952456	55000	1998	Land Court	Brockton	74900	1	136%	136%
955832	50000	1998		Brockton	61900	1	124%	124%

958924	53500	1998		Brockton	62100	1	116%	116%
961878	20000	1998		Brockton	82000	1	410%	410%
971819	49500	1998		Brockton	54500	1	110%	110%
1380176	77500	1998		Revere	100500	1	130%	130%
1993931	72500	1998		Lynn	72400	1	100%	100%
1999773	48700	1998		Lynn	49800	1	102%	102%
2004707	45000	1998		Lynn	73000	1	162%	162%
2007717	51000	1998		Lynn	74900	1	147%	147%
3292038	65000	1998		Taunton	113000	1	174%	174%
3292104	40000	1998		Taunton	118700	1	297%	297%
3292139	31500	1998		Taunton	113400	1	360%	360%
752318	130000	1999		Somerville	265000	1	204%	204%
755803	145000	1999		Somerville	166000	1	114%	114%
1993417	73000	1999		Lynn	76900	1	105%	105%
1995993	74000	1999		Lynn	85000	1	115%	115%
2001076	125000	1999		Lynn	130000	1	104%	104%
2003089	65000	1999		Lynn	77900	1	120%	120%
3176945	77500	1999	Land Court	Lowell	82400	1	106%	106%
3183332	70000	1999		Lowell	80000	1	114%	114%
3291136	52900	1999		Taunton	148000	1	280%	280%
3291853	64900	1999		Taunton	134889	1	208%	208%
3291890	54900	1999		Taunton	131500	1	240%	240%
752108	14000	2000		Somerville	216000	1	1543%	1543%
953448	80000	2000		Brockton	115000	1	144%	144%
969616	40304	2000		Brockton	171596	1	426%	426%
969628	38000	2000		Brockton	86900	1	229%	229%
1285251	141000	2000		Chelsea	149000	1	106%	106%
1992749	80000	2000		Lynn	149000	1	186%	186%
1996794	4000	2000		Lynn	265900	1	6648%	6648%
1998698	78000	2000	Land Court	Lynn	89000	1	114%	114%
1998806	73000	2000		Lynn	102000	1	140%	140%
2007437	70500	2000		Lynn	117000	1	166%	166%
3177313	125000	2000		Lowell	145000	1	116%	116%
3189164	60000	2000		Lowell	63000	1	105%	105%
3190149	65000	2000		Lowell	94900	1	146%	146%
3192443	5000	2000		Lowell	131000	1	2620%	2620%
969025	30000	1998		Brockton	72000	2	240%	120%
4043649	62500	2000		Brockton	187400	2	300%	150%
1289940	78500	1999		Chelsea	251500	3	320%	107%
969528	5000	2000		Brockton	255000	4	5100%	1275%
3291939	31500	1998		Taunton	223500	5	710%	142%

Foreclosure Sales 1995-1997

PROPID	LSTSLPR	sale_year	DEEDTYPE	CITY	PriceDiff	YearsElapsed	Price APP.	Ann. APP
483198	40000	1995	Foreclosure	Everett	94900	1	237%	237%

3187962	40000	1995	Foreclosure	Lowell	46000	1	115%	115%
3189174	17000	1995	Foreclosure	Lowell	37800	1	222%	222%
961275	20000	1995	Foreclosure	Brockton	37000	1	185%	185%
968062	16000	1995	Foreclosure	Brockton	87900	1	549%	549%
968977	32000	1995	Foreclosure	Brockton	43000	1	134%	134%
1366041	50500	1995	Foreclosure	Revere	59400	1	118%	118%
1367119	20250	1995	Foreclosure	Revere	89750	1	443%	443%
1375446	27100	1995	Foreclosure	Revere	102900	1	380%	380%
1375941	40000	1995	Foreclosure	Revere	53500	1	134%	134%
1993602	37000	1995	Foreclosure	Lynn	37000	1	100%	100%
1999176	27600	1995	Foreclosure	Lynn	83900	1	304%	304%
482643	38000	1996	Foreclosure	Everett	60000	1	158%	158%
949489	15201	1996	Foreclosure	Brockton	53549	1	352%	352%
953358	25000	1996	Foreclosure	Brockton	64675	1	259%	259%
956358	26200	1996	Foreclosure	Brockton	35800	1	137%	137%
958508	34000	1996	Foreclosure	Brockton	61000	1	179%	179%
2004613	15300	1996	Foreclosure	Lynn	102700	1	671%	671%
2981177	44373	1996	Foreclosure	Taunton	81627	1	184%	184%
3183742	25415	1996	Foreclosure	Lowell	36085	1	142%	142%
3189244	29500	1996	Foreclosure	Lowell	33400	1	113%	113%
3197660	55100	1996	Foreclosure	Lowell	74900	1	136%	136%
961984	20000	1996	Foreclosure	Brockton	59900	1	300%	300%
973108	35000	1996	Foreclosure	Brockton	63500	1	181%	181%
1998962	28500	1996	Foreclosure	Lynn	51840	1	182%	182%
2000120	32077	1996	Foreclosure	Lynn	43923	1	137%	137%
957046	39555	1997	Foreclosure	Brockton	39445	1	100%	100%
2004931	65000	1997	Foreclosure	Lynn	74900	1	115%	115%

			e					
2007049	21000	1997	Foreclosure	Lynn	39000	1	186%	186%
2978557	20000	1997	Foreclosure	Taunton	39700	1	199%	199%
3176042	59000	1997	Foreclosure	Lowell	65900	1	112%	112%
3193153	18000	1997	Foreclosure	Lowell	20500	1	114%	114%
972779	25000	1997	Foreclosure	Brockton	86000	1	344%	344%
1369430	25000	1997	Foreclosure	Revere	50000	1	200%	200%
2003095	26000	1997	Foreclosure	Lynn	34500	1	133%	133%
2003170	50000	1997	Foreclosure	Lynn	75000	1	150%	150%
957154	5000	1995	Foreclosure	Brockton	85000	2	1700%	850%
3190380	4927	1995	Foreclosure	Lowell	15173	2	308%	154%
966482	1000	1995	Foreclosure	Brockton	92000	2	9200%	4600%
955780	22500	1996	Foreclosure	Brockton	52500	2	233%	117%
965978	13500	1996	Foreclosure	Brockton	96500	3	715%	238%
1366412	22000	1995	Foreclosure	Revere	117000	4	532%	133%
2003121	21632	1995	Foreclosure	Lynn	86368	4	399%	100%
3687306	16000	1996	Foreclosure	Brockton	101300	4	633%	158%
956321	5000	1997	Foreclosure	Brockton	154900	4	3098%	775%

Market Sales 1995-1997

PROPID	LSTSLPR	sale_year	DEEDTYPE	CITY	PriceDiff	YearsElapsed	Price APP.	Ann. APP
1986779	60000	1995		Lynn	91500	1	153%	153%
2002359	50000	1995		Lynn	75000	1	150%	150%
2005401	10000	1995		Lynn	107500	1	1075%	1075%
3180852	47000	1995		Lowell	70100	1	149%	149%
3182641	36000	1995		Lowell	42000	1	117%	117%
3190553	10000	1995		Lowell	34900	1	349%	349%
3291527	45000	1995		Taunton	97500	1	217%	217%
482740	60000	1996	Land Court	Everett	67000	1	112%	112%
953949	50500	1996		Brockton	56000	1	111%	111%
1289669	40000	1996		Chelsea	66000	1	165%	165%
1377352	60000	1996		Revere	66500	1	111%	111%
1988508	46000	1996	Land	Lynn	61500	1	134%	134%

			Court					
1990311	53000	1996		Lynn	94000	1	177%	177%
1990827	47000	1996		Lynn	95000	1	202%	202%
1992445	54000	1996		Lynn	65000	1	120%	120%
1994508	40500	1996		Lynn	44000	1	109%	109%
1998212	42500	1996		Lynn	77000	1	181%	181%
1999455	37500	1996		Lynn	40500	1	108%	108%
2972832	47000	1996		Taunton	80400	1	171%	171%
3177890	35000	1996		Lowell	38000	1	109%	109%
956995	25000	1997		Brockton	49900	1	200%	200%
958628	40000	1997		Brockton	52900	1	132%	132%
966478	10000	1997		Brockton	48000	1	480%	480%
966934	65000	1997		Brockton	76528	1	118%	118%
1991945	65000	1997		Lynn	84900	1	131%	131%
1997306	68500	1997		Lynn	74400	1	109%	109%
1998116	55000	1997		Lynn	57000	1	104%	104%
2000579	55000	1997		Lynn	55000	1	100%	100%
2007437	46000	1997		Lynn	82000	1	178%	178%
2981841	68000	1997		Taunton	116500	1	171%	171%
2984395	27000	1997		Taunton	78000	1	289%	289%
3179493	56000	1997		Lowell	68900	1	123%	123%
3195483	47000	1997		Lowell	72500	1	154%	154%
3291149	31500	1997		Taunton	108000	1	343%	343%
3291150	31500	1997		Taunton	87400	1	277%	277%
3291833	49900	1997		Taunton	76200	1	153%	153%
3291841	40000	1997		Taunton	119900	1	300%	300%
3291869	54900	1997		Taunton	95000	1	173%	173%
3291881	31500	1997		Taunton	117946	1	374%	374%
3291958	31500	1997		Taunton	98400	1	312%	312%
2974585	25000	1995		Taunton	65000	2	260%	130%
949986	68000	1997		Brockton	269000	3	396%	132%
2004012	5000	1996		Lynn	144900	4	2898%	725%
955872	10000	1997		Brockton	199000	4	1990%	498%
971230	21000	1996		Brockton	112500	5	536%	107%
2004185	1150	1997		Lynn	185850	5	16161%	3232%

Foreclosure Sales 1992-1994

PROPID	LSTSLPR	sale_year	DEEDTYPE	CITY	PriceDiff	YearsElapsed	Price APP.	Ann. APP
966021	19600	1992	Foreclosure	Brockton	20300	1	104%	104%
1380076	10000	1992	Foreclosure	Revere	168000	1	1680%	1680%
956521	5000	1993	Foreclosure	Brockton	110000	1	2200%	2200%
958372	32000	1993	Foreclosure	Brockton	34000	1	106%	106%
962760	28000	1993	Foreclosure	Brockton	37000	1	132%	132%
964903	21350	1993	Foreclosure	Brockton	28650	1	134%	134%

969572	21146	1993	Foreclosure	Brockton	40854	1	193%	193%
970063	31500	1993	Foreclosure	Brockton	43000	1	137%	137%
1999591	6000	1993	Foreclosure	Lynn	50900	1	848%	848%
2001374	12000	1993	Foreclosure	Lynn	67900	1	566%	566%
968228	10000	1994	Foreclosure	Brockton	43000	1	430%	430%
968589	42500	1994	Foreclosure	Brockton	102500	1	241%	241%
971017	33000	1994	Foreclosure	Brockton	60900	1	185%	185%
971257	40500	1994	Foreclosure	Brockton	77500	1	191%	191%
971317	22203	1994	Foreclosure	Brockton	53797	1	242%	242%
974820	32000	1994	Foreclosure	Brockton	34800	1	109%	109%
1370961	50000	1994	Foreclosure	Revere	125000	1	250%	250%
2003015	22400	1994	Foreclosure	Lynn	30100	1	134%	134%
2007213	26910	1994	Foreclosure	Lynn	36090	1	134%	134%
2007322	30000	1994	Foreclosure	Lynn	39000	1	130%	130%
2982429	50000	1994	Foreclosure	Taunton	59900	1	120%	120%
3185602	23218	1994	Foreclosure	Lowell	31882	1	137%	137%
3191180	20000	1994	Foreclosure	Lowell	35000	1	175%	175%
960355	30000	1994	Foreclosure	Brockton	62500	2	208%	104%
969572	35000	1994	Foreclosure	Brockton	94900	2	271%	136%
760318	1000	1993	Foreclosure	Somerville	79000	3	7900%	2633%

Market Sales 1992-1994

PROPID	LSTSLPR	sale_year	DEEDTYPE	CITY	PriceDiff	YearsElapsed	Price APP.	Ann. APP
968197	15000	1992		Brockton	79900	1	533%	533%
2968521	45500	1992		Taunton	59500	1	131%	131%
2968568	45500	1992		Taunton	81500	1	179%	179%
2972996	46900	1992		Taunton	81100	1	173%	173%
2974500	35000	1992		Taunton	61000	1	174%	174%
2981471	109000	1992		Taunton	134400	1	123%	123%
2984317	42000	1992		Taunton	153000	1	364%	364%
1986445	40000	1993		Lynn	125000	1	313%	313%
3173812	45000	1993		Lowell	87500	1	194%	194%

3196705	35000	1993		Lowell	42000	1	120%	120%
753010	24333	1994		Somerville	120667	1	496%	496%
956147	18000	1994		Brockton	62400	1	347%	347%
1988689	51000	1994		Lynn	52000	1	102%	102%
1999135	50000	1994		Lynn	50000	1	100%	100%
959016	12000	1993		Brockton	54500	2	454%	227%
1987036	140000	1993	Land Court	Lynn	2010000	2	1436%	718%
752741	120000	1994		Somerville	250000	2	208%	104%
1988931	10000	1992	Land Court	Lynn	52500	3	525%	175%
964617	3000	1993		Brockton	69900	4	2330%	583%
970598	74900	1994		Brockton	674100	5	900%	180%

Foreclosure Sales 1990-1991

PROPID	LSTSLPR	sale_year	DEEDTYPE	CITY	PriceDiff	YearsElapsed	Price APP.	Ann. APP
960537	2500	1990	Foreclosure	Brockton	104500	1	4180%	4180%
968770	25000	1990	Foreclosure	Brockton	42500	1	170%	170%
948753	65000	1991	Foreclosure	Brockton	85000	1	131%	131%
965443	26000	1991	Foreclosure	Brockton	42000	1	162%	162%
970351	16000	1991	Foreclosure	Brockton	56900	1	356%	356%
972942	49000	1991	Foreclosure	Brockton	52000	1	106%	106%
973060	28000	1991	Foreclosure	Brockton	51491	1	184%	184%
1992220	3000	1991	Foreclosure	Lynn	81400	1	2713%	2713%
2005271	30000	1991	Foreclosure	Lynn	48500	1	162%	162%
948856	30000	1990	Foreclosure	Brockton	70000	2	233%	117%
2000500	44100	1991	Foreclosure	Lynn	103400	2	234%	117%
4508587	90000	1991	Foreclosure	Taunton	742633	2	825%	413%

Market Sales 1990-1991

PROPID	LSTSLPR	sale_year	DEEDTYPE	CITY	PriceDiff	YearsElapsed	Price APP.	Ann. APP
1996445	60000	1990		Lynn	65000	1	108%	108%
2975221	65000	1990		Taunton	75000	1	115%	115%
962393	40000	1991		Brockton	64000	1	160%	160%
2972752	45000	1991		Taunton	63500	1	141%	141%
2984552	32000	1991		Taunton	78900	1	247%	247%
483402	12000	1991		Everett	88000	5	733%	147%

APPENDIX 3

Census QuickFacts

People QuickFacts	Brockton	Massachusetts
Population, 2006 estimate	94,191	6,437,193
Population, percent change, April 1, 2000 to July 1, 2006	-0.1%	1.4%
Population, 2000	94,304	6,349,097
Persons under 5 years old, percent, 2000	7.3%	6.3%
Persons under 18 years old, percent, 2000	27.8%	23.6%
Persons 65 years old and over, percent, 2000	11.7%	13.5%
Female persons, percent, 2000	52.1%	51.8%
White persons, percent, 2000 (a)	61.5%	84.5%
Black persons, percent, 2000 (a)	17.8%	5.4%
American Indian and Alaska Native persons, percent, 2000 (a)	0.4%	0.2%
Asian persons, percent, 2000 (a)	2.2%	3.8%
Native Hawaiian and Other Pacific Islander, percent, 2000 (a)	Z	Z
Persons reporting two or more races, percent, 2000	7.8%	2.3%
Persons of Hispanic or Latino origin, percent, 2000 (b)	8.0%	6.8%
Living in same house in 1995 and 2000, pct 5 yrs old & over	57.4%	58.5%
Foreign born persons, percent, 2000	18.4%	12.2%
Language other than English spoken at home, pct age 5+, 2000	28.4%	18.7%
High school graduates, percent of persons age 25+, 2000	75.9%	84.8%
Bachelor's degree or higher, pct of persons age 25+, 2000	14.0%	33.2%
Mean travel time to work (minutes), workers age 16+, 2000	28.2	27
Housing units, 2000	34,837	2,621,989
Homeownership rate, 2000	54.6%	61.7%
Median value of owner-occupied housing units, 2000	$128,300	$185,700
Households, 2000	33,675	2,443,580
Persons per household, 2000	2.74	2.51
Median household income, 1999	$39,507	$50,502
Per capita money income, 1999	$17,163	$25,952
Persons below poverty, percent, 1999	14.5%	9.3%
Business QuickFacts	Brockton	Massachusetts
Wholesale trade sales, 2002 ($1000)	668,656	127,129,789
Retail sales, 2002 ($1000)	1,313,341	73,903,837
Retail sales per capita, 2002	$13,787	$11,527
Accommodation and foodservices sales, 2002 ($1000)	114,297	11,789,582
Total number of firms, 2002	5,198	563,539
Black-owned firms, percent, 2002	12.6%	2.3%
American Indian and Alaska Native owned firms, percent, 2002	F	0.4%

Asian-owned firms, percent, 2002	2.5%	3.2%
Hispanic-owned firms, percent, 2002	3.5%	2.8%
Native Hawaiian and Other Pacific Islander owned firms, percent, 2002	F	S
Women-owned firms, percent, 2002	24.8%	28.7%

Geography QuickFacts	Brockton	Massachusetts
Land area, 2000 (square miles)	21	7,840
Persons per square mile, 2000	4,392.4	809.8
FIPS Code	9000	25
Counties	Plymouth County	

People QuickFacts	Chelsea	Massachusetts
Population, 2006 estimate	32,792	6,437,193
Population, percent change, April 1, 2000 to July 1, 2006	-6.5%	1.4%
Population, 2000	35,080	6,349,097
Persons under 5 years old, percent, 2000	8.1%	6.3%
Persons under 18 years old, percent, 2000	27.3%	23.6%
Persons 65 years old and over, percent, 2000	11.2%	13.5%
Female persons, percent, 2000	49.8%	51.8%
White persons, percent, 2000 (a)	57.9%	84.5%
Black persons, percent, 2000 (a)	7.3%	5.4%
American Indian and Alaska Native persons, percent, 2000 (a)	0.5%	0.2%
Asian persons, percent, 2000 (a)	4.7%	3.8%
Native Hawaiian and Other Pacific Islander, percent, 2000 (a)	0.1%	Z
Persons reporting two or more races, percent, 2000	6.6%	2.3%
Persons of Hispanic or Latino origin, percent, 2000 (b)	48.4%	6.8%
Living in same house in 1995 and 2000, pct 5 yrs old & over	50.0%	58.5%
Foreign born persons, percent, 2000	36.1%	12.2%
Language other than English spoken at home, pct age 5+, 2000	58.4%	18.7%
High school graduates, percent of persons age 25+, 2000	59.5%	84.8%
Bachelor's degree or higher, pct of persons age 25+, 2000	10.0%	33.2%
Mean travel time to work (minutes), workers age 16+, 2000	30.7	27
Housing units, 2000	12,337	2,621,989
Homeownership rate, 2000	28.9%	61.7%
Median value of owner-occupied housing units, 2000	$149,200	$185,700
Households, 2000	11,888	2,443,580
Persons per household, 2000	2.87	2.51
Median household income, 1999	$30,161	$50,502
Per capita money income, 1999	$14,628	$25,952
Persons below poverty, percent, 1999	23.3%	9.3%

Business QuickFacts	Chelsea	Massachusetts
Wholesale trade sales, 2002 ($1000)	D	127,129,789
Retail sales, 2002 ($1000)	222,296	73,903,837

Retail sales per capita, 2002	$6,452	$11,527
Accommodation and foodservices sales, 2002 ($1000)	29,217	11,789,582
Total number of firms, 2002	1,764	563,539
Black-owned firms, percent, 2002	7.9%	2.3%
American Indian and Alaska Native owned firms, percent, 2002	F	0.4%
Asian-owned firms, percent, 2002	F	3.2%
Hispanic-owned firms, percent, 2002	24.1%	2.8%
Native Hawaiian and Other Pacific Islander owned firms, percent, 2002	F	S
Women-owned firms, percent, 2002	16.9%	28.7%

Geography QuickFacts	Chelsea	Massachusetts
Land area, 2000 (square miles)	2	7,840
Persons per square mile, 2000	16,018.3	809.8
FIPS Code	13205	25
Counties	Suffolk County	

People QuickFacts	Everett	Massachusetts
Population, 2006 estimate	37,008	6,437,193
Population, percent change, April 1, 2000 to July 1, 2006	-2.7%	1.4%
Population, 2000	38,037	6,349,097
Persons under 5 years old, percent, 2000	5.9%	6.3%
Persons under 18 years old, percent, 2000	21.6%	23.6%
Persons 65 years old and over, percent, 2000	14.7%	13.5%
Female persons, percent, 2000	52.4%	51.8%
White persons, percent, 2000 (a)	79.7%	84.5%
Black persons, percent, 2000 (a)	6.3%	5.4%
American Indian and Alaska Native persons, percent, 2000 (a)	0.3%	0.2%
Asian persons, percent, 2000 (a)	3.2%	3.8%
Native Hawaiian and Other Pacific Islander, percent, 2000 (a)	0.1%	Z
Persons reporting two or more races, percent, 2000	5.4%	2.3%
Persons of Hispanic or Latino origin, percent, 2000 (b)	9.5%	6.8%
Living in same house in 1995 and 2000, pct 5 yrs old & over	57.0%	58.5%
Foreign born persons, percent, 2000	21.9%	12.2%
Language other than English spoken at home, pct age 5+, 2000	30.5%	18.7%
High school graduates, percent of persons age 25+, 2000	76.2%	84.8%
Bachelor's degree or higher, pct of persons age 25+, 2000	14.7%	33.2%
Mean travel time to work (minutes), workers age 16+, 2000	34.8	27
Housing units, 2000	15,908	2,621,989
Homeownership rate, 2000	41.4%	61.7%
Median value of owner-occupied housing units, 2000	$164,500	$185,700
Households, 2000	15,435	2,443,580
Persons per household, 2000	2.45	2.51
Median household income, 1999	$40,661	$50,502
Per capita money income, 1999	$19,845	$25,952

Persons below poverty, percent, 1999	11.8%	9.3%

Business QuickFacts	Everett	Massachusetts
Wholesale trade sales, 2002 ($1000)	1,444,298	127,129,789
Retail sales, 2002 ($1000)	389,121	73,903,837
Retail sales per capita, 2002	$10,342	$11,527
Accommodation and foodservices sales, 2002 ($1000)	28,603	11,789,582
Total number of firms, 2002	2,346	563,539
Black-owned firms, percent, 2002	F	2.3%
American Indian and Alaska Native owned firms, percent, 2002	F	0.4%
Asian-owned firms, percent, 2002	S	3.2%
Hispanic-owned firms, percent, 2002	S	2.8%
Native Hawaiian and Other Pacific Islander owned firms, percent, 2002	F	S
Women-owned firms, percent, 2002	20.8%	28.7%

Geography QuickFacts	Everett	Massachusetts
Land area, 2000 (square miles)	3	7,840
Persons per square mile, 2000	11,253.6	809.8
FIPS Code	21990	25
Counties	Middlesex County	

People QuickFacts	Lowell	Massachusetts
Population, 2006 estimate	103,229	6,437,193
Population, percent change, April 1, 2000 to July 1, 2006	-1.8%	1.4%
Population, 2000	105,167	6,349,097
Persons under 5 years old, percent, 2000	7.3%	6.3%
Persons under 18 years old, percent, 2000	26.9%	23.6%
Persons 65 years old and over, percent, 2000	10.8%	13.5%
Female persons, percent, 2000	50.7%	51.8%
White persons, percent, 2000 (a)	68.6%	84.5%
Black persons, percent, 2000 (a)	4.2%	5.4%
American Indian and Alaska Native persons, percent, 2000 (a)	0.2%	0.2%
Asian persons, percent, 2000 (a)	16.5%	3.8%
Native Hawaiian and Other Pacific Islander, percent, 2000 (a)	Z	Z
Persons reporting two or more races, percent, 2000	3.9%	2.3%
Persons of Hispanic or Latino origin, percent, 2000 (b)	14.0%	6.8%
Living in same house in 1995 and 2000, pct 5 yrs old & over	50.0%	58.5%
Foreign born persons, percent, 2000	22.1%	12.2%
Language other than English spoken at home, pct age 5+, 2000	40.7%	18.7%
High school graduates, percent of persons age 25+, 2000	71.2%	84.8%
Bachelor's degree or higher, pct of persons age 25+, 2000	18.1%	33.2%
Mean travel time to work (minutes), workers age 16+, 2000	24.3	27
Housing units, 2000	39,468	2,621,989
Homeownership rate, 2000	43.0%	61.7%
Median value of owner-occupied housing units, 2000	$134,200	$185,700

Households, 2000	37,887	2,443,580
Persons per household, 2000	2.67	2.51
Median household income, 1999	$39,192	$50,502
Per capita money income, 1999	$17,557	$25,952
Persons below poverty, percent, 1999	16.8%	9.3%

Business QuickFacts	Lowell	Massachusetts
Wholesale trade sales, 2002 ($1000)	895,555	127,129,789
Retail sales, 2002 ($1000)	517,804	73,903,837
Retail sales per capita, 2002	$4,957	$11,527
Accommodation and foodservices sales, 2002 ($1000)	D	11,789,582
Total number of firms, 2002	5,310	563,539
Black-owned firms, percent, 2002	3.6%	2.3%
American Indian and Alaska Native owned firms, percent, 2002	F	0.4%
Asian-owned firms, percent, 2002	14.0%	3.2%
Hispanic-owned firms, percent, 2002	3.7%	2.8%
Native Hawaiian and Other Pacific Islander owned firms, percent, 2002	F	S
Women-owned firms, percent, 2002	27.3%	28.7%

Geography QuickFacts	Lowell	Massachusetts
Land area, 2000 (square miles)	13	7,840
Persons per square mile, 2000	7,637.4	809.8
FIPS Code	37000	25
Counties	Middlesex County	

People QuickFacts	Lynn	Massachusetts
Population, 2006 estimate	87,991	6,437,193
Population, percent change, April 1, 2000 to July 1, 2006	-1.2%	1.4%
Population, 2000	89,050	6,349,097
Persons under 5 years old, percent, 2000	7.3%	6.3%
Persons under 18 years old, percent, 2000	27.0%	23.6%
Persons 65 years old and over, percent, 2000	12.8%	13.5%
Female persons, percent, 2000	51.6%	51.8%
White persons, percent, 2000 (a)	67.9%	84.5%
Black persons, percent, 2000 (a)	10.5%	5.4%
American Indian and Alaska Native persons, percent, 2000 (a)	0.4%	0.2%
Asian persons, percent, 2000 (a)	6.4%	3.8%
Native Hawaiian and Other Pacific Islander, percent, 2000 (a)	0.1%	Z
Persons reporting two or more races, percent, 2000	4.9%	2.3%
Persons of Hispanic or Latino origin, percent, 2000 (b)	18.4%	6.8%
Living in same house in 1995 and 2000, pct 5 yrs old & over	54.3%	58.5%
Foreign born persons, percent, 2000	22.8%	12.2%
Language other than English spoken at home, pct age 5+, 2000	34.1%	18.7%
High school graduates, percent of persons age 25+, 2000	74.2%	84.8%
Bachelor's degree or higher, pct of persons age 25+, 2000	16.4%	33.2%

Mean travel time to work (minutes), workers age 16+, 2000	27.5	27
Housing units, 2000	34,637	2,621,989
Homeownership rate, 2000	45.6%	61.7%
Median value of owner-occupied housing units, 2000	$145,200	$185,700
Households, 2000	33,511	2,443,580
Persons per household, 2000	2.62	2.51
Median household income, 1999	$37,364	$50,502
Per capita money income, 1999	$17,492	$25,952
Persons below poverty, percent, 1999	16.5%	9.3%

Business QuickFacts	Lynn	Massachusetts
Wholesale trade sales, 2002 ($1000)	357,770	127,129,789
Retail sales, 2002 ($1000)	537,913	73,903,837
Retail sales per capita, 2002	$5,991	$11,527
Accommodation and foodservices sales, 2002 ($1000)	51,679	11,789,582
Total number of firms, 2002	4,990	563,539
Black-owned firms, percent, 2002	7.1%	2.3%
American Indian and Alaska Native owned firms, percent, 2002	F	0.4%
Asian-owned firms, percent, 2002	4.1%	3.2%
Hispanic-owned firms, percent, 2002	16.2%	2.8%
Native Hawaiian and Other Pacific Islander owned firms, percent, 2002	F	S
Women-owned firms, percent, 2002	33.1%	28.7%

Geography QuickFacts	Lynn	Massachusetts
Land area, 2000 (square miles)	10	7,840
Persons per square mile, 2000	8,230.1	809.8
FIPS Code	37490	25
Counties	Essex County	

People QuickFacts	Revere	Massachusetts
Population, 2006 estimate	46,833	6,437,193
Population, percent change, April 1, 2000 to July 1, 2006	-0.9%	1.4%
Population, 2000	47,283	6,349,097
Persons under 5 years old, percent, 2000	5.8%	6.3%
Persons under 18 years old, percent, 2000	21.0%	23.6%
Persons 65 years old and over, percent, 2000	16.6%	13.5%
Female persons, percent, 2000	51.6%	51.8%
White persons, percent, 2000 (a)	84.4%	84.5%
Black persons, percent, 2000 (a)	2.9%	5.4%
American Indian and Alaska Native persons, percent, 2000 (a)	0.3%	0.2%
Asian persons, percent, 2000 (a)	4.5%	3.8%
Native Hawaiian and Other Pacific Islander, percent, 2000 (a)	0.1%	Z
Persons reporting two or more races, percent, 2000	3.8%	2.3%
Persons of Hispanic or Latino origin, percent, 2000 (b)	9.4%	6.8%

Living in same house in 1995 and 2000, pct 5 yrs old & over	62.6%	58.5%
Foreign born persons, percent, 2000	21.0%	12.2%
Language other than English spoken at home, pct age 5+, 2000	29.1%	18.7%
High school graduates, percent of persons age 25+, 2000	76.7%	84.8%
Bachelor's degree or higher, pct of persons age 25+, 2000	13.5%	33.2%
Mean travel time to work (minutes), workers age 16+, 2000	29.6	27
Housing units, 2000	20,181	2,621,989
Homeownership rate, 2000	50.0%	61.7%
Median value of owner-occupied housing units, 2000	$168,200	$185,700
Households, 2000	19,463	2,443,580
Persons per household, 2000	2.41	2.51
Median household income, 1999	$37,067	$50,502
Per capita money income, 1999	$19,698	$25,952
Persons below poverty, percent, 1999	14.6%	9.3%

Business QuickFacts	Revere	Massachusetts
Wholesale trade sales, 2002 ($1000)	D	127,129,789
Retail sales, 2002 ($1000)	299,685	73,903,837
Retail sales per capita, 2002	$6,346	$11,527
Accommodation and foodservices sales, 2002 ($1000)	64,237	11,789,582
Total number of firms, 2002	2,920	563,539
Black-owned firms, percent, 2002	F	2.3%
American Indian and Alaska Native owned firms, percent, 2002	F	0.4%
Asian-owned firms, percent, 2002	13.4%	3.2%
Hispanic-owned firms, percent, 2002	8.2%	2.8%
Native Hawaiian and Other Pacific Islander owned firms, percent, 2002	F	S
Women-owned firms, percent, 2002	17.7%	28.7%

Geography QuickFacts	Revere	Massachusetts
Land area, 2000 (square miles)	5	7,840
Persons per square mile, 2000	8,000.5	809.8
FIPS Code	56585	25
Counties	Suffolk County	

People QuickFacts	Somerville	Massachusetts
Population, 2006 estimate	74,554	6,437,193
Population, percent change, April 1, 2000 to July 1, 2006	-4.0%	1.4%
Population, 2000	77,478	6,349,097
Persons under 5 years old, percent, 2000	4.5%	6.3%
Persons under 18 years old, percent, 2000	14.8%	23.6%
Persons 65 years old and over, percent, 2000	10.5%	13.5%
Female persons, percent, 2000	51.3%	51.8%
White persons, percent, 2000 (a)	77.0%	84.5%
Black persons, percent, 2000 (a)	6.5%	5.4%

American Indian and Alaska Native persons, percent, 2000 (a)	0.2%	0.2%
Asian persons, percent, 2000 (a)	6.4%	3.8%
Native Hawaiian and Other Pacific Islander, percent, 2000 (a)	0.1%	Z
Persons reporting two or more races, percent, 2000	4.8%	2.3%
Persons of Hispanic or Latino origin, percent, 2000 (b)	8.8%	6.8%
Living in same house in 1995 and 2000, pct 5 yrs old & over	44.5%	58.5%
Foreign born persons, percent, 2000	29.3%	12.2%
Language other than English spoken at home, pct age 5+, 2000	35.6%	18.7%
High school graduates, percent of persons age 25+, 2000	80.6%	84.8%
Bachelor's degree or higher, pct of persons age 25+, 2000	40.6%	33.2%
Mean travel time to work (minutes), workers age 16+, 2000	27.8	27
Housing units, 2000	32,477	2,621,989
Homeownership rate, 2000	30.6%	61.7%
Median value of owner-occupied housing units, 2000	$214,100	$185,700
Households, 2000	31,555	2,443,580
Persons per household, 2000	2.38	2.51
Median household income, 1999	$46,315	$50,502
Per capita money income, 1999	$23,628	$25,952
Persons below poverty, percent, 1999	12.5%	9.3%

Business QuickFacts	Somerville	Massachusetts
Wholesale trade sales, 2002 ($1000)	236,367	127,129,789
Retail sales, 2002 ($1000)	603,989	73,903,837
Retail sales per capita, 2002	$7,866	$11,527
Accommodation and foodservices sales, 2002 ($1000)	88,283	11,789,582
Total number of firms, 2002	5,854	563,539
Black-owned firms, percent, 2002	S	2.3%
American Indian and Alaska Native owned firms, percent, 2002	F	0.4%
Asian-owned firms, percent, 2002	6.6%	3.2%
Hispanic-owned firms, percent, 2002	6.4%	2.8%
Native Hawaiian and Other Pacific Islander owned firms, percent, 2002	F	S
Women-owned firms, percent, 2002	43.6%	28.7%

Geography QuickFacts	Somerville	Massachusetts
Land area, 2000 (square miles)	4	7,840
Persons per square mile, 2000	18,851.1	809.8
FIPS Code	62535	25
Counties	Middlesex County	

People QuickFacts	Taunton	Massachusetts
Population, 2006 estimate	56,074	6,437,193
Population, percent change, April 1, 2000 to July 1, 2006	0.2%	1.4%
Population, 2000	55,976	6,349,097
Persons under 5 years old, percent, 2000	7.1%	6.3%

Persons under 18 years old, percent, 2000	24.9%	23.6%
Persons 65 years old and over, percent, 2000	12.9%	13.5%
Female persons, percent, 2000	51.9%	51.8%
White persons, percent, 2000 (a)	91.7%	84.5%
Black persons, percent, 2000 (a)	2.7%	5.4%
American Indian and Alaska Native persons, percent, 2000 (a)	0.2%	0.2%
Asian persons, percent, 2000 (a)	0.6%	3.8%
Native Hawaiian and Other Pacific Islander, percent, 2000 (a)	Z	Z
Persons reporting two or more races, percent, 2000	2.2%	2.3%
Persons of Hispanic or Latino origin, percent, 2000 (b)	3.9%	6.8%
Living in same house in 1995 and 2000, pct 5 yrs old & over	59.6%	58.5%
Foreign born persons, percent, 2000	10.1%	12.2%
Language other than English spoken at home, pct age 5+, 2000	19.1%	18.7%
High school graduates, percent of persons age 25+, 2000	74.8%	84.8%
Bachelor's degree or higher, pct of persons age 25+, 2000	15.1%	33.2%
Mean travel time to work (minutes), workers age 16+, 2000	27.2	27
Housing units, 2000	22,908	2,621,989
Homeownership rate, 2000	61.2%	61.7%
Median value of owner-occupied housing units, 2000	$145,800	$185,700
Households, 2000	22,045	2,443,580
Persons per household, 2000	2.5	2.51
Median household income, 1999	$42,932	$50,502
Per capita money income, 1999	$19,899	$25,952
Persons below poverty, percent, 1999	10.0%	9.3%
Business QuickFacts	Taunton	Massachusetts
Wholesale trade sales, 2002 ($1000)	1,079,652	127,129,789
Retail sales, 2002 ($1000)	1,103,482	73,903,837
Retail sales per capita, 2002	$19,478	$11,527
Accommodation and foodservices sales, 2002 ($1000)	64,500	11,789,582
Total number of firms, 2002	3,610	563,539
Black-owned firms, percent, 2002	F	2.3%
American Indian and Alaska Native owned firms, percent, 2002	F	0.4%
Asian-owned firms, percent, 2002	F	3.2%
Hispanic-owned firms, percent, 2002	F	2.8%
Native Hawaiian and Other Pacific Islander owned firms, percent, 2002	F	S
Women-owned firms, percent, 2002	18.1%	28.7%
Geography QuickFacts	Taunton	Massachusetts
Land area, 2000 (square miles)	46	7,840
Persons per square mile, 2000	1,200.9	809.8
FIPS Code	69170	25
Counties	Bristol County	