Securities Litigation and the Housing Market Downturn

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I. INTRODUCTION

It is undoubtedly the case that, in many of the securities class action lawsuits that investors have filed against financial institutions due to their losses in the wake of the recent financial crisis, plaintiffs will be able to point to statistically significant and substantial price drops associated with firm-specific disclosures of writedowns and losses associated with securities whose value has been negatively impacted, perhaps dramatically so, by the downturn in the real estate market.¹ But the existence of such a

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¹ This is, of course, as are all our observations, a generalization. Our goal in this paper is not to address any particular case or set of facts but to canvass the general securities class action landscape.
statistically significant and substantial negative price reaction is hardly the end of the analysis necessary to assess the claim that investor losses attributable to this price reaction result in recoverable damages. There are still the questions of whether, and if so when, disclosure deficiencies by financial institutions occurred, whether the requisite scienter associated with these disclosure deficiencies existed, and whether investor losses are attributable to these disclosure deficiencies (this last issue being the requirement of loss causation in Rule 10b-5 causes of action).

The key unifying issue that must be addressed in answering these questions, and perhaps the most fundamental of all the issues raised in the current wave of securities class action litigation arising out of the financial crisis, is the extent to which the downturn in the housing market, and the resulting financial institutional writedowns and losses on securities with substantial real estate exposure, was foreseeable earlier in time. It is this foreseeability issue that our Article will focus on, including a detailed discussion of why this issue is legally central as well as our own analysis of housing data and market spread data that speaks to the foreseeability of the housing market downturn. We will focus on the foreseeability of the housing market downturn beginning in 2006, as the vast majority of the class periods specified in the securities class action complaints filed against financial institutions begin in 2006, if not earlier.

In Part II, we begin by briefly discussing the context in which much of the securities class action litigation against financial institutions is occurring. Specifically, much of the litigation is a response to the announced writedowns and substantial investor losses that began in earnest in the fourth quarter of 2007 on securities, such as collateralized debt obligations (CDOs), asset-backed commercial paper (ABCP), and mortgage-backed securities (MBS) with exposure to the real estate market. It is the conjunction of these announced writedowns with investor losses that leads us to conclude that, in many cases, it is likely that there will be statistically significant and substantial price drops associated with announced writedowns and losses.

Part III then discusses in detail why the foreseeability of the housing market downturn is of great importance in assessing the legal soundness of many securities class action complaints. It is important to emphasize at the outset that when analyzing the foreseeability issue, the expectations of the market concerning the likely future course of housing prices are of primary legal importance. That is to say, the fact that some observers believed that housing prices might or would suffer a serious downturn does not by itself establish that the housing market downturn was foreseen by the market. After all, there will always be observers who disagree with the market’s expectations, whatever those expectations happen to be. As Part III explains, the market’s expectations of the

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4. *Id.* at 163–94.
likely future course of housing prices affects the analysis as to whether there was a disclosure deficiency by a financial institution. As Part III also explains, the foreseeability of the housing market downturn also affects whether there was the requisite scienter (intentional or reckless misconduct) for any such disclosure deficiencies, and, even assuming misconduct with the requisite scienter, whether any of the losses suffered by the security holders of the financial institutions can satisfy the loss causation requirement.

Part IV then discusses the relevant academic literature. As we discuss, a basic finding of this literature is that housing prices are the primary explanatory factor in accounting for mortgage delinquencies and housing foreclosures, including the spike in delinquencies and foreclosures in 2007 and 2008. On a related note, several studies have found that the underwriting quality of mortgages is significantly less important as an explanatory factor for delinquencies and foreclosures, including the spike in 2007 and 2008.\footnote{For citations and a discussion of these studies, see infra Part IV.} Indeed, they document that along several dimensions, such as borrowers' FICO scores, underwriting quality did not appear to deteriorate during the period leading up to the financial crisis.

Parts V and VI constitute the heart of our analysis. In these Parts, we turn to our own analysis of the foreseeability of the housing market downturn, utilizing housing data in Part V and market spread data in Part VI. In terms of our housing data, we first document that the substantial and sustained housing market downturn began in September 2007 and intensified in the fourth quarter (October–December 2007), rather than starting in the fourth quarter of 2006 or first quarter of 2007, despite common claims to the contrary. We document that this housing downturn was statistically quite unlikely if one estimates probabilities based on historical housing price data, the time series of which begins in January 1969. After discussing the housing price data, we turn in Part V to an exploration of the variables that might explain the changes in monthly housing sales. We show that standard explanatory variables that have historically accounted for a substantial portion of the variation in changes in housing sales would have “predicted” positive housing sales during the September–November 2007 period, consistent with the view that the housing market downturn was unanticipated. We conclude Part V by presenting direct evidence of the market’s expectations about future housing prices based on the pricing of housing futures traded on the Chicago Mercantile Exchange (CME). It is worth emphasizing that the CME housing futures market is an institutional market in which the participants have their own money at stake. This evidence is consistent with the view that it was only during December 2007 and January 2008 that the market anticipated a serious downturn in housing prices.

Part VI tackles the issue of the foreseeability of the housing market downturn from a different angle. In this Part, we present data on various market spreads that impound information concerning market expectations as to the value of asset-backed securities and, specifically, asset-backed securities with substantial exposure to the real estate market. As with the housing data, we argue that this data is consistent with the view that the downturn in the housing market was in fact not foreseen prior to the fourth quarter of 2007. We document, for instance, that the market pricing of AAA asset-backed securities only experienced a substantial fall in value in the second half of October 2007. This is of
particular note, as many of the securities that resulted in substantial writedowns and losses were rated AAA or better (so-called “super seniors”). Part VII concludes with some final comments.

II. THE WRI TEDOWNS AND INVESTOR LOSSES

The fact that plaintiffs will likely be able to point, at least in many cases, to statistically significant and substantial price drops in reaction to a financial institution’s announcement of a sizeable writedown can be surmised by simply comparing the quarters during which substantial bank writedowns and losses associated with real estate exposure occurred with the stock performance of the S&P financial index, which consists of the financial firms in the S&P 500 index, for the same time period. Such a comparison can be done by simply looking at Figures 1 and 2.

Figure 1, below, presents the distribution of bank writedowns and losses associated with subprime mortgage exposure, an important source of real estate exposure, through the end of the second quarter of 2008, as well as the actual aggregate losses for various financial institutions for this period.

Figure 1

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7. Data Source: Bloomberg L.P. (on file with authors).
Figure 2, below, is a graph of the performance of the S&P financial index through the end of the second quarter of 2008.

**Figure 2**

As is reflected in Figure 1, there were substantial bank writedowns and losses associated with subprime exposures to the housing market in the fourth quarter of 2007 and the first quarter of 2008 (with the writedowns and losses in the second quarter of 2007 being far smaller as a percentage of the total writedowns and losses, and those prior to this quarter being de minimis). In terms of stock price performance, Figure 2 shows that, for the two quarters with the bulk of the writedowns and losses (4Q 2007, 1Q 2008), financial institutions’ stock prices suffered, with the most substantial price declines during this time period not occurring until the first quarter of 2008.

III. THE CENTRAL LEGAL IMPORTANCE OF THE FORESEEABILITY ISSUE

The issue of when the housing market downturn was foreseeable lies at the heart of many of the legal issues at stake in the current wave of securities class action litigation arising from the financial crisis. If the housing market downturn that began in earnest in the fourth quarter of 2007 was foreseeable, then at least arguably many of the losses that

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8. Data Source: Standard & Poor’s, S&P 500, http://www2.standardandpoors.com/portal/site/sp/en/us/page/topic/indices_500/2,3,2,2,0,0,0,0,0,0,0,0,0,0,0,0,0,0.html (last visited Oct. 15, 2009).
financial institutions suffered, and hence their security holders’ losses, were likewise foreseeable. These foreseeable investor losses, so the argument typically goes, support and indeed substantiate claims that there were disclosure deficiencies by financial institutions that were made with the requisite scienter (if the cause of action is Rule 10b-5), which resulted in recoverable damages.

We will now discuss how plaintiffs attempt to establish disclosure deficiencies, scienter, and recoverable damages by relying on the contention that the housing market downturn was foreseeable during the purported class period. In so characterizing plaintiffs’ claims and arguments, we do not have any particular class action complaint in mind; rather, we will present what we view as a typical or common set of arguments. In presenting these sets of arguments and our subsequent discussion of them we focus purely on the housing foreseeability issue and do not address other important considerations that might affect the assessment of these arguments.9

A. Disclosure Deficiencies

The claim that the housing market downturn that began in the fourth quarter of 2007 was foreseeable during the purported class period is typically used in a variety of ways to support the argument that the financial institution in question is responsible for a disclosure deficiency that is actionable under the securities laws. We now present the standard ways in which purported disclosure deficiencies rely on the contention that the housing market downturn was foreseeable.

If the financial institution had substantial holdings of securities with exposure to the real estate market during the class period (a category that includes the vast majority of financial institutions named as defendants), then one of the primary disclosure deficiencies commonly asserted resides in the failure of the financial institution during the class period to fully disclose detailed information on the exact size of these security holdings, as well as the nature of these exposures to the real estate market, such as whether the exposure was to subprime, Alt-A, or prime borrowers. Moreover, the purported failure of a financial institution to fully disclose off-balance sheet exposures to securities tied to the real estate market, such as the provision of liquidity puts on ABCP,10 are also often pointed to as constituting an actionable disclosure deficiency. Balance sheet positions, off-balance sheet exposures, and the nature of the resulting exposure to the real estate market all constitute materially important information, so the argument continues, given the foreseeability of the housing market downturn and hence the likely losses the financial institution faced as a result.

The foreseeability of the housing market downturn is a crucial step in the argument for the existence of a disclosure deficiency, as the mere fact that there was a statistically significant and substantial stock price drop associated with, for example, a fourth quarter 2007 announcement of losses on CDO positions with real estate exposure does not establish that information concerning these CDO positions should be viewed as “material” information during the purported class period (which would be an earlier point

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9. For instance, an important issue in assessing whether there was a disclosure deficiency is the “truth on the market” defense, i.e., that the market already knew the truth that was supposedly concealed or misstated by the financial institution. For a discussion of this issue, see Bethel, Ferrell & Hu, supra note 3, at 207–11.

10. These are contractual guarantees by a financial institution to purchase ABCP under certain conditions.
in time). If the market cares about the size and nature of a financial institution’s CDO positions in the fourth quarter of 2007 purely because of a downturn in the housing market at that time, or an expected downturn in the housing market at that time, then one would not expect that information concerning the size and nature of a financial institution’s CDO positions to necessarily be of importance at a point in time when the market did not have these housing market concerns. It is worth noting that the potential non-materiality of this information during the purported class period remains even if there were some observers during the purported class period whose views differed from that of the market’s.

Another standard argument for why financial firms who reported large writedowns and losses in the fourth quarter of 2007 and first quarter of 2008 are responsible for disclosure deficiencies, and hence are liable for investors’ losses, focuses on these firms’ public disclosures of the value of their security holdings during the purported class period, again a period which often begins in 2006 or earlier. Even if a financial institution did not separately disclose the value of specific holdings of securities throughout the purported class period, such as the value of its CDO positions, it is still nevertheless possible that these valuations were included in the calculation of a more aggregated value of the firm’s security holdings that the firm released to the market during the purported class period. On a closely related note, a common claim is that larger reserves should have been held in anticipation of future losses. Once again, the foreseeability of the housing market downturn plays a crucial role in the argument as to why there was a disclosure deficiency as a result of these valuation disclosures or failure to establish sufficient reserves. If the downturn and the resulting writedowns and losses on these security holdings and exposures were foreseeable, then the alleged disclosure deficiency consists in the public disclosures of aggregate valuation figures that were improperly inflated as a result of the failure to incorporate the looming housing market downturn or the misleadingly low levels of reserves set aside in anticipation of future losses.

To buttress these two disclosure deficiency theories, or sometimes as a basis for concluding that there was another separate disclosure deficiency, there is often an extensive discussion by plaintiffs of the deteriorating underwriting quality of mortgages during the purported class period as measured by the credit quality of borrowers, and documentation thereof, in relationship to the types of mortgages borrowers were assuming (such as mortgages with adjustable rates or interest-only mortgages). This discussion forms the basis for the claim that the overall quality of the pools of mortgages, against which securities were being issued, was deteriorating sharply over time and, hence, the risks, which were purportedly not adequately disclosed, to financial institutions with exposures to these mortgages, whether via CDOs, ABCP, or MBS. As before, the contention that there was a foreseeable housing market downturn typically

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11. See Bethel, Ferrell & Hu, supra note 3, app. 5A. The statements in our Article characterizing the complaints are based upon the authors’ reading of the complaints listed in Appendix 5A.

12. Besides the foreseeability issue, there are other important issues that need to be taken into account in assessing this argument concerning valuation, including the appropriate accounting treatment used in generating publicly disclosed valuations (such as market-to-market versus market-to-model treatment in generating valuations). See, e.g., FIN. ACCOUNTING STANDARDS Bd., STATEMENT OF FIN. ACCOUNTING STANDARDS No. 115: ACCOUNTING FOR CERTAIN INVESTMENTS IN DEBT AND EQUITY SECURITIES (1993).
plays an important role in the discussion concerning deteriorating underwriting quality, as it is the interaction of a housing market downturn and poor underwriting quality that is claimed to have led to the substantial writedowns and losses suffered by financial institutions. The reliance on this interaction effect implicitly recognizes that in a world of appreciating housing prices but poor underwriting quality, financial institutions’ writedowns and losses would have been far less—perhaps largely non-existent—given the ability of the house itself to serve as a sufficient guarantee of payment.

In the context of ERISA class action litigation, which forms an important component of the overall securities class action litigation being pursued against financial institutions, the alleged disclosure deficiency claim often consists of the argument that the ERISA fiduciaries improperly failed to disclose that investing in the firm’s stock was an “imprudent” investment given the financial institution’s exposure to securities the values of which are substantially tied to the value of the real estate market. As with the other disclosure deficiency theories already discussed, this argument again typically hinges on the foreseeability of the housing market downturn, given the need to establish that this exposure was risky or likely to generate losses (and hence “imprudent”).

B. Scienter for Disclosure Deficiencies

A common claim in the securities class action litigation is the contention that senior management at a particular financial institution recklessly accumulated positions or exposures to securities the values of which were tied to the real estate market. The allegation of recklessness is often based on the further contention that senior management should have known, or did in fact know, that the values of these securities were likely going to fall, perhaps precipitously, given that it was foreseeable during the purported class period that the housing market would experience a serious downturn. These general statements concerning the predictability of future MBS, CDO, and ABCP losses at a particular point in time due to the foreseeable downturn in the real estate market are sometimes calibrated to reflect the degree of subordination that the security had (such as whether the security was in the super-senior, mezzanine, or equity tranche) and the nature of the underlying exposure to the housing market (such as subprime, Alt-A, or prime mortgages). In other words, there is a recognition that, even adopting the position that the housing market downturn was foreseeable, the resulting losses on MBS, CDO, and ABCP exposures will also be a function of additional factors.

C. Damages for Disclosure Deficiencies

An issue that has become of central importance, particularly in the aftermath of the Supreme Court’s 2005 decision in Dura Pharmaceuticals, Inc. v. Broudo,13 is the necessity of establishing “loss causation” as a prerequisite for recovering damages in Rule 10b-5 actions. “Loss causation” is the requirement that the losses for which investors seek recovery must be traceable to the alleged disclosure deficiency.14 One formulation of the “loss causation” requirement is that losses must be attributable to the removal by a “corrective disclosure” of “inflation” that was present at the time of

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14. Id. at 342.
purchase.\textsuperscript{15} “Inflation,” in turn, is the difference between the actual price of the security and the price the security would have had but for the misconduct (the “but for world”), i.e., the price that would have been obtained if the disclosure deficiency had not occurred.\textsuperscript{16} A “corrective disclosure,” as we have discussed at length in another article, is properly viewed as a disclosure that publicly reveals the firm’s earlier misconduct to the market.\textsuperscript{17} In this connection, it is worth noting that the Second Circuit, in \textit{Lentell v. Merrill Lynch & Co.},\textsuperscript{18} indicated that if a risk was fraudulently concealed by a firm, then the realization of that risk can serve as a corrective disclosure if such a realization unveils to the market the earlier actionable misconduct.\textsuperscript{19}

To establish loss causation, it follows from the above discussion that it is insufficient to merely point to statistically significant and substantial price drops in reaction to a financial institution’s announcement of writedowns and losses. The mere fact that a firm has bad news, even terrible news, does not render the announcement of such news a revelation of earlier misconduct. To conclude otherwise would be reminiscent of the questionable “true financial condition” theory of loss causation, in which a disclosure that reveals information concerning the firm’s financial condition can be a corrective disclosure even if “no wrongdoing or error has been identified.”\textsuperscript{20} Not surprisingly, this theory of loss causation has been increasingly rejected by courts.\textsuperscript{21} As a result, the crucial move, once again, is the contention that these writedowns and losses were somewhat predictable at an earlier point in time, given the foreseeability of the housing market downturn. This renders fraudulent the failure by the financial institution to publicly discuss at an earlier point these potential losses, or at least the risk of these potential losses. The revelation of the writedowns and losses, according to this logic, can then serve as a corrective disclosure, given that it was precisely this type of information that should have been revealed earlier, but was fraudulently concealed.

Moreover, even if there was a negative stock price reaction (after controlling for market and industry effects) to a corrective disclosure, only that portion of the negative stock price reaction that is attributable to the removal of “inflation” present at the time of purchase should be recoverable. This is consistent with the loss causation requirement.\textsuperscript{22} A negative, firm-specific stock price reaction reflecting damage to the company’s reputation, for instance, would not be attributable to the dissipation of “inflation” that was present at the time of investors’ purchases. “Inflation” at the time of purchase would not include future reputational harm caused by a corrective disclosure, given that “inflation” is measured by reference to the “but for world,” the world in which the disclosure deficiency never occurred. In the “but for world,” such reputational harm by

\begin{itemize}
\item \textsuperscript{15} Ferrell & Saha, \textit{supra} note 2, at 172–75.
\item \textsuperscript{16} \textit{Id.}
\item \textsuperscript{17} \textit{Id.}
\item \textsuperscript{18} \textit{Lentell v. Merrill Lynch & Co.}, 396 F.3d 161 (2d Cir. 2005).
\item \textsuperscript{19} \textit{Id.} at 173.
\item \textsuperscript{22} See Ferrell & Saha, \textit{supra} note 2, at 179–85.
\end{itemize}
definition would not have occurred. We labeled the non-recoverable portion of the 
negative stock price reaction in an earlier article as “collateral damage.”

Besides the non-recoverability of collateral damage following from the standard 
definition of “inflation,” there is a powerful economic reason to exclude such damages. 
As a result of the Supreme Court’s decision in Blue Chip Stamps v. Manor Drug Stores,

it is well established that “holder claims”—claims that include those filed by investors 
that purchased their shares prior to the actionable disclosure deficiency and held those 
shares through the corrective disclosure—cannot recover any damages. However, holder 
investors do suffer from collateral damage, such as harm to the company’s reputation, to 
the same extent as investors who purchased after the actionable disclosure deficiency and 
also held through the corrective disclosure. If the former set of investors cannot recover 
these damages, there is no reason to conclude that the latter set of investors should be 
able to.25 In contrast, investors who did purchase after the disclosure deficiency did 
suffer a particular harm which holder investors did not, i.e., purchasing at an inflated 
price and thereafter suffering from the dissipation of that inflation. Holder investors are 
differently situated with respect to this harm because they purchased at a price that was 
not inflated.

IV. RELEVANT ACADEMIC LITERATURE

A number of academic studies document that declining housing prices are a primary 
determinant of mortgage delinquencies and foreclosures, including the spike in 
delinquencies and foreclosures experienced in 2007 and 2008. This basic finding further 
highlights the central importance of determining when the housing market downturn 
became foreseeable. Indeed, there is substantial evidence in the academic literature that 
the decline in housing prices was in fact substantially more important as an explanatory 
factor for the spike in delinquencies and foreclosures in 2007 and 2008 than poor 
underwriting quality.

Perhaps the paper closest to ours is that of Gerardi, Lehnert, Sherland and Willen, 
who examined whether market participants anticipated the spike in foreclosures that 
occurred in 2007 and 2008.26 The paper finds that subprime mortgages originated in 
2005–2006 were not all that different from earlier subprime mortgages, and that these 
earlier vintages of subprime mortgages had performed well.27 The paper also documents 
that the decline in housing prices was more important than other factors, including 
underwriter quality, in explaining the spike in foreclosures in 2007 and 2008.28 On the 
issue of underwriting quality, the paper further explains that, “[o]ne of our key findings is

23. Id. at 181.
25. For a good discussion of the Blue Chip issues and the concept of collateral damage, see Brad Cornell 
& Bradford Rutten, Collateral Damage and Securities Litigation (July 16, 2009) (unpublished manuscript, 
26. See Kristopher Gerardi et al., Making Sense of the Subprime Crisis, in BROOKINGS PAPERS ON ECON. 
ACTIVITY (forthcoming 2009), available at http://www.brookings.edu/economics/bpa/~/Media/Files/Programs 
27. Id. at 2.
28. See, e.g., id. at 13 (“[E]ven with the worst combination of underwriting characteristics, the predicted 
default rate is about half of the actual default rate experienced by this group of loans.”).
that most of the uncertainty stemmed from uncertainty about the evolution of house prices and not from uncertainty about the quality of the underwriting."

Finally, this paper found that market participants such as analysts widely predicted continued housing price appreciation during the 2004–2006 period, albeit appreciation at a more modest pace. There was no consensus in the academic literature during the 2004–2006 time period as to whether housing prices were in some sense overvalued, with different papers taking different positions on the issue (and adopting different measures of what constitutes “over-valuation”).

Mayer, Pence, and Sherlund report “substantial evidence that declines in house prices are a key factor in the current problems facing the mortgage market.” This paper also reports a number of interesting findings on underwriting quality over the 2003–2007 period. They found “little evidence that the rise in delinquencies through mid-2008 was linked to “novel and complicated mortgages products.” An example of a novel and complicated [mortgage] product was a “short-term hybrid” mortgage that often employed two- or three-year teaser rates. Moreover, they document that the median FICO credit score for mortgages in subprime and Alt-A mortgage pools remained quite stable over the June 2003–2007 time period with the median FICO credit score for subprime mortgages being 615 in 2003 and 613 during the January–June 2007 period. The median FICO credit score for Alt-A mortgages was 710 in 2003 and 707 during the January–June 2007 period.

The importance of housing prices in explaining mortgage delinquencies and foreclosures is reflected in other papers. Gerardi, Shapiro, and Willen found, based on the default behavior of a large, detailed sample of Massachusetts homeowners tracked over time, that housing prices were the primary drivers of defaults. Sherlund found, based on the default behavior of subprime mortgages that were securitized over the 2000–2007 period, that “[h]ousing price appreciation seems to be the primary determinant of default and prepayment behavior.”

Consistent with the importance of the decline in housing prices in accounting for delinquencies and foreclosures are a series of academic studies that find that borrowers with negative equity in their home (i.e., the mortgage is larger than the value of the house) are more likely to default on their mortgage. These studies include those of

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29. Id. at 6.
30. Id. at 45–47.
33. Id. at 28.
34. Id. tbl.2, panel C.
We begin our analysis of housing data in Part A by examining monthly changes in both nationwide and regional housing prices. This analysis shows that the sustained housing market downturn began in September 2007 and continued throughout the fourth quarter of 2007. In contrast, the housing price declines in the fourth quarter of 2006 and January 2007 were more modest and quickly abated (as had happened in the past with nationwide housing downturns) until September 2007.

As a result, the central issue is whether the housing market downturn that began in September 2007 was foreseeable. We address this issue in a number of ways using housing data. Part A also calculates the likelihood of the September–December 2007 housing downturn occurring based on historical housing price movements. Part B then addresses the probability of a housing market downturn occurring using historical housing sales data. Finally, Part C presents evidence of the market’s expectations of future housing prices based on the prices of housing price futures traded on the CME. We view this evidence as particularly powerful, as it constitutes direct evidence of what sophisticated market participants, with their own money at stake, believed about the future of housing prices. All three sets of analyses, using various types of housing data, are consistent with the contention that the housing market downturn that began in September 2007 was not generally foreseen by the market.

A. Housing Prices

1. Nationwide Housing Prices

Figure 3 below graphs the history of year-over-year changes in monthly nominal nationwide housing prices from January 1969 (the first month such data are available) and the statistical significance of these changes.

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38. Given that housing price data are available on a regional basis (Northeast, Midwest, South, and West), we calculated a nationwide housing price series by weighting the regional data. The regional weights were calculated using optimal portfolio theory, which maximizes the mean-variance objective function. Statistical significance was calculated using the standard deviation of monthly year-over-year changes for the period of January 1969–December 2005. Housing prices are a weighted average of the prices of Northeast (22%), Midwest (22%), West (28%), and South (28%). Housing prices used are Median Existing Single Family Home Prices retrieved from the National Association of Realtors (on file with authors).
One basic fact, well-recognized in the academic literature on housing prices, is readily apparent from Figure 3. Prior to 2006, nationwide price declines were quite rare, with such declines occurring with statistical significance in only five months (November and December 1990; July 1992; and January and February 1993) with the trend quickly reversing itself after such declines. Indeed, even during the deep recession of 1981–1982, housing prices did not fall nationwide. Rather, consistent with the observations of Case that the housing market has historically cleared through drops in housing sales (and starts) rather than reductions in price (a "quantity-clearing market"), the market cleared during the 1981–1982 recession, as we will document later by a dramatic fall in housing sales.

The nominal year-over-year changes in monthly housing prices for the subperiod of January 2006–September 2008 are reported in Figure 4 below.  

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40. Housing prices are a weighted average of the prices of Northeast (22%), Midwest (22%), West (28%) and South. Housing prices used are Median Existing Single Family Home Prices retrieved from the National Association of Realtors (on file with authors).
Figure 4 documents that there were nationwide housing price declines during the four months of August 2006–November 2006, a very modest decline in December 2006 that was not statistically significant, and a further decline in January 2007. These declines were similar in magnitude to those that occurred in the five months during the 1990s that also experienced statistically significant nationwide housing declines but which had quickly reversed themselves. The subsequent February 2007–August 2007 time period was essentially flat. Based on this reversal of the downward trend in prices, it would have been rational for financial institutions, during that point in time, to expect that the worst was over and anticipate a recovery in the housing market. Indeed such short-lived periods of price declines were the norm in the past 40 years. As Figure 4 shows, the months of July and August 2007 did, in fact, experience positive changes in prices, further bolstering any expectation of a recovery. However, we now know with the benefit of hindsight that such expectations turned out to be inaccurate.

Nationwide housing prices began to fall on a substantial and sustained basis in September 2007, and continued unabated throughout the fourth quarter of 2007 and beyond. It was these housing market declines, and specifically the housing price declines in the fourth quarter of 2007 (two out of these three months experienced declines in excess of 5%), that were simultaneous with the large writedowns and losses that financial institutions announced in the fourth quarter of 2007.

It is clear from Figure 4 that the changes in monthly housing prices only became statistically significant on a sustained basis (with some monthly declines exceeding 5%) starting in September 2007 as housing price changes during the summer of 2007 were not statistically significant (and were virtually flat in any event).
2. Regional Housing Prices

Turning to the regional data on year-over-year changes in monthly housing prices, we investigated the extent to which these regional housing price changes tend to be correlated. This inquiry is important because many of the CDO portfolios were composed of underlying mortgage assets with varying degrees of geographic concentration. The geographic diversity of the assets potentially provided the benefits of diversification to the CDO portfolios because the impact of a downturn in one region could have been offset by rising prices in another region. Table I documents that over the January 1969–December 2006 period the historical incidence of all four regions (again defined as the Northeast, Midwest, South, and West) simultaneously experiencing a drop in housing prices was exceedingly low, at 0.4%. Even a synchronized housing drop among three of the four regions was quite rare with an incidence of just two percent. In contrast, as is documented in Table II, all four regions for September 2007, as well as for all three months in the fourth quarter of 2007 (October, November, and December), experienced a simultaneous drop in housing prices. This unprecedented, simultaneous price drop in all four regions had a substantial impact on many CDO portfolios, negating the potential benefits of geographic diversification of assets. Once again, this analysis is consistent with the view that the housing downturn that began in September 2007 was serious, sustained, and, if one were to use historical housing data, unexpected.

B. Housing Sales

Figure 5 presents housing sales figures from January 1969–September 2008, along with the mean of the positive monthly housing sales and the mean of the negative housing sales figures over this period.

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42. All Tables are displayed at the end of this Article.
43. Mean + is the average of all positive returns and Mean - is the average of all negative returns. This calculation is the year-over-year percent changes from January 1969–July 2008. Data retrieved from the National Association of Realtors (on file with authors).
Consistent with Case’s observations, there has been a substantial drop in housing sales in times of economic stress. This is particularly noticeable in Figure 5 during the double-dip recessions of the early 1980s (1980 and 1981–1982). There were also noticeable falls in housing sales in other times of economic stress, including the recessions of 1974–1975, 1990–1991 and the current time period.

As can be seen in Figure 6, which focuses on the 2000–2008 sub-period, the decline in housing sales in the current time period substantially accelerated starting in September 2007. In contrast, the decline in housing sales in the fourth quarter of 2006 remained close to the historical mean of negative housing sales figures.

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44. Case, supra note 39, at 161, 175–76.
45. Supra note 43.
Given the importance of changes in housing sales as the primary means by which the housing market has historically cleared in times of economic stress, we examined the relationship between year-over-year percentage changes in monthly housing sales (our dependent variable) between January 1969 and December 2005 and, as independent variables, year-over-year percentage changes in: the U.S. unemployment rate, the production level of the purchasing managers’ index, the ten-year U.S. Treasury rate and, finally, whether the country was in recession.\textsuperscript{46} A description of these variables can be found in Table III. Table IV contains the regressions results. We then used the historical relationship of monthly housing sales with these independent variables, as identified by our regression analysis, to predict the housing sales changes for the in-sample period of 1969–2005 and for the out-of-sample period of 2006–2008. The results of this analysis are reflected in Figure 7.

\textsuperscript{46} We use an indicator variable that takes a value of one for each of the months identified by the National Bureau of Economic Research as recessionary. See Nat’l Bureau of Econ. Research, Business Cycle Expansions and Contractions, \textit{available at} http://www.nber.org/cycles.html (last visited Oct.15, 2009).
Figure 7

Figure 7 suggests that the key macroeconomic variables do a fairly nice job (with an adjusted R² of 48%) of predicting the movements in housing sales. However, these variables fail to predict the severe downturn in sales, particularly in the fall of 2007. The results presented in Table IV show that statistically significant deviation between model-predicted sales changes (which are positive) and actual sales changes (which are negative) occurred for seven consecutive months between September 2007 and March 2008. Thus, based on the historical relationship between these macroeconomic variables and housing sales, one would not have predicted the severe sales downturn in 2007.

C. Housing Futures Data

Perhaps the most powerful evidence concerning what was in fact expected by market participants is pricing data on housing futures traded by large, sophisticated institutional investors on the CME. These were three-month forward-looking contracts. It bears emphasis that these investors stood to lose their own money if their prediction about future housing prices was incorrect and therefore had an incentive to accurately predict the future course of housing prices. Figure 8 plots the value of the CME housing futures contracts starting in August 2006 when these contracts were first traded.

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Figure 8

Historical CME Housing Futures - Composite Index

It is readily apparent from Figure 8 that during the fourth quarter of 2006 and first quarter of 2007 market participants in the CME housing futures market did not anticipate a decline in housing prices. Rather, what is observed is relative stability in market expectations until a decline in the fourth quarter of 2007 and then a precipitous drop at the very end of 2007 and beginning of 2008.

VI. ANALYSIS OF FORESEEABILITY: MARKET SPREADS

A variety of spreads that track market conditions are consistent with the period prior to the summer of 2007, including the fourth quarter of 2006 and first quarter of 2007, being largely devoid of general market turmoil. Many of these spreads indicate that the sharp deterioration in the markets first occurred during the summer of 2007 (and, importantly, for some spreads the initial sharp deterioration only occurred well into the fall of 2007). A number of these spreads also indicate that there was a partial recovery in September 2007, with another sharp deterioration in market conditions occurring in November and December 2007. To the extent that these various market spreads impact or reflect the market’s valuation of securities with substantial real estate exposure, these spreads can be useful, if analyzed appropriately, in assessing when the market began to anticipate the housing market downturn, as an anticipated housing market downturn could well affect any such valuation (of course, taking into account other factors, such as the level of subordination).

One much commented-upon market spread is the three-month TED spread, which is a measure of the cost to large banks of borrowing funds from other banks on a short-term,
unsecured basis. The three-month TED spread is the difference between the three-month London Interbank Offering Rate (which tracks the cost of funds in the unsecured London interbank lending market) and the three-month U.S. Treasury bill rate (used as a proxy for the risk-free rate). The TED spread was largely flat from the beginning of 2006 (and indeed before then as well) until the summer of 2007. In June 2007, there was a relatively modest increase in the TED spread, a return to more normal levels in July 2007, and then a dramatic spike in the spread occurring on August 9, 2007. The TED spread made a partial recovery in September 2007 to more normal levels but again steadily and dramatically worsened in November and December 2007. The general pattern is therefore one of market stability until August 2007, partial recovery in September 2007, and then substantial deterioration in the fourth quarter (October–December 2007).

One can see a broadly similar pattern if one looks at the difference between the yield on 30-day A2/P2 commercial paper yield and 30-day AA-rated non-financial commercial paper. This spread is one measure for tracking the yield premium required by the market for purchasing low-rated (A2/P2) commercial paper relative to high-rated (AA) non-financial commercial paper. This spread, like the three-month TED spread, deteriorated sharply in August 2007, staged a partial recovery in September 2007, and shortly thereafter experienced another sharp deterioration well into December 2007. The A2/P2 spread is depicted in Figure 9 below.

49. See Bethel, Ferrell & Hu, supra note 3, at 213.
50. Id.
51. Other commentators have similarly characterized the sequence of events in the second half of 2007. See, e.g., Stephen G. Cecchetti, Monetary Policy and the Financial Crisis of 2007–2008, 23 J. ECON. PERSP. 51, 62 (2009) (“Starting in early August 2007, fear led to hoarding of cash and a broad increase in risk premia. Matters then seemed to improve from late September until the end of November, when it became clear that financial institutions were experiencing large losses. A compilation of these losses from news reports in late 2007 suggested that commercial and investment bank losses in the subprime mortgage market had surpassed a combined total of $150 billion, while estimates several months later exceeded $400 billion. Risk spreads widened again in December 2007 and continued to deteriorate with investors’ and institutions’ continued flight to safe securities into the winter of 2008.”) (citation omitted).
If one examined the credit default swap spreads—which proxy for the risk of default on a firm’s debt against which the swaps are written—for the commercial and investment banks, one would once again observe a sharp increase in these spreads in August 2007, a substantial narrowing of the spreads in September, and then another sharp increase in the second half of October 2007 and continuing through the remainder of the year.

The values of ABX indexes are of particular interest as they are often pointed to as at least potential indicators of the value of MBS of various ratings (AAA and so forth) and particular vintages. Figure 10 below presents the value of various ABX indexes related to AAA-rated MBS of different vintages.
Figure 10

ABX.HE AAA Closing Prices since Jan 2007

As is clear from Figure 10, the value of the ABX indexes associated with AAA MBS does not experience a sharp deterioration until the second half of October 2007. While there was a relatively modest dip experienced in late July and August 2007, most of the lost value was recovered by September 2007. This is of particular importance because many of the securities with substantial real estate exposure that resulted in the writedowns and losses announced by financial institutions beginning in the fourth quarter of 2007 were rated AAA (or were “super seniors” which were considered even better than AAA). The loss in value for many of the ABX indexes continued to decline at a rapid pace in January and February 2008.

We conclude from our examination of these market spreads that there is little indication that the market anticipated the serious housing market downturn that occurred in the fourth quarter of 2007. And, after the market disruptions experienced in August 2007, there was an apparent stabilization of market conditions in September 2007. Much of the serious downturn in many of these market spreads only resumed in the fourth quarter (and for the ABX AAA indexes, only really began their initial serious fall in value in the fourth quarter of 2007).

53. See Bethel, Ferrell & Hu, supra note 3, at 195.
When the market foresaw the serious housing market downturn, which began in September 2007 and continued throughout the remainder of 2007 and beyond, will be one of the centrally contested issues in the securities class actions that have been filed against a large swath of financial institutions. The foreseeability of the housing market downturn plays a key role in the standard arguments by plaintiffs as to why there were disclosure deficiencies, scienter for those disclosure deficiencies, and loss causation for the sizable economic losses suffered by investors in financial institutions.

Based on our own analysis of housing price data, including housing prices, housing sales, housing futures prices, as well as various market spreads, we conclude that the evidence is consistent with the proposition that the serious housing market downturn was not generally foreseen by sophisticated market participants prior to the fourth quarter of 2007. Indeed, market conditions were relatively benign until the summer of 2007, with partial normalization of conditions prevailing in the early fall of 2007 in the aftermath of the summer shocks. More specifically, we conclude that the evidence is consistent with the housing market downturn not generally being foreseen in the fourth quarter of 2006 or the first quarter of 2007.
Table I

Observed Occurrence of Negative Year-Over-Year Housing Price Changes
January 1969 - December 2006

Panel A: Frequency per Individual Region

<table>
<thead>
<tr>
<th>Regions</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast</td>
<td>14.5%</td>
</tr>
<tr>
<td>Midwest</td>
<td>3.9%</td>
</tr>
<tr>
<td>South</td>
<td>6.6%</td>
</tr>
<tr>
<td>West</td>
<td>10.3%</td>
</tr>
</tbody>
</table>

Panel B: Frequency of Multiple Regions per Month

<table>
<thead>
<tr>
<th># of Regions with Negative Change</th>
<th>Frequency</th>
<th>Same as Getting # of Heads in a Row in Coin Toss</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>75.9%</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>15.8%</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>5.9%</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>2.0%</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>0.4%</td>
<td>8</td>
</tr>
</tbody>
</table>

Source: Housing prices used are Median Existing Single Family Home Prices retrieved from National Association of Realtors.

Table II

Months with All Four Regions Illustrating Negative Year-over-Year Housing Changes

<table>
<thead>
<tr>
<th>Month</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>September</td>
</tr>
<tr>
<td>2.</td>
<td>November</td>
</tr>
<tr>
<td>4.</td>
<td>September</td>
</tr>
<tr>
<td>5.</td>
<td>October</td>
</tr>
<tr>
<td>7.</td>
<td>December</td>
</tr>
<tr>
<td>8.</td>
<td>April</td>
</tr>
<tr>
<td>9.</td>
<td>May</td>
</tr>
<tr>
<td>11.</td>
<td>August</td>
</tr>
<tr>
<td>12.</td>
<td>September</td>
</tr>
</tbody>
</table>
Table III

Description of Regression Analysis

- **Dependent Variable:**
  - *Existing Single-Family Housing Sales* for the U.S. (Year-over-Year % change) as published by the National Association of Realtors on the 25th day of each month.

- **Independent Variables:**
  - *U.S. Unemployment Rate* (Year-over-Year % change) as published by the Bureau of Labor Statistics measures employment and unemployment (of those over 15 years of age) using two different labor force surveys conducted by the United States Census Bureau and/or the Bureau of Labor Statistics that gather employment statistics monthly.
  
  - *Production level of Purchasing Managers’ Index* (Year-over-Year % change), as published by the Institute for Supply Management is a monthly composite index of five sub-indicators (production level, new orders, supplier deliveries, inventories and employment level) based on surveys delivered to more than 400 purchasing managers from around the United States.
  
  - *10-Year U.S. Treasury Rate* (Year-over-Year % change).
  
  - *Months of Recession* (dummy variable) as maintained by the National Bureau of Economic Research is a chronology of U.S. business cycles and identifies the dates of peaks and troughs that frame economic recession or expansion.

- **Regression Output:**
  - Predict future *Existing Single-Family Housing Sales* based on the historical relationship between the above independent and dependent variables.
  
  - In-sample period for regression analysis: January 1969 through December 2005 (444 months).
  
  - Out-of-sample period for prediction: January 2006 through June 2008 (30 months).
  
  - Comparison of actual Year-over-Year % change in housing sales to predicted Year-over-Year % change for the entire in- and out-of-sample periods (474 months).
Table IV

Regression Results and Significant Negative Error Months

Panel A

<table>
<thead>
<tr>
<th>Regression results</th>
</tr>
</thead>
<tbody>
<tr>
<td>R Square 0.488</td>
</tr>
<tr>
<td>Adjusted R Square 0.483</td>
</tr>
<tr>
<td>Standard Error 0.102</td>
</tr>
<tr>
<td>Observations 444</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>t Stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.059</td>
</tr>
<tr>
<td>Unemployment Rate</td>
<td>-0.056</td>
</tr>
<tr>
<td>Purchasing Managers Index (PMI)</td>
<td>0.291</td>
</tr>
<tr>
<td>10 year Treasury Bill</td>
<td>-0.340</td>
</tr>
<tr>
<td>Recession</td>
<td>-0.073</td>
</tr>
</tbody>
</table>

Panel B

<table>
<thead>
<tr>
<th>Statistically significant and negative error months out of a total of 474 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Months</td>
</tr>
<tr>
<td>Count</td>
</tr>
<tr>
<td>Early 1980s</td>
</tr>
<tr>
<td>Late 1980s</td>
</tr>
<tr>
<td>Early 1990s</td>
</tr>
<tr>
<td>Late 2000s</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>22</td>
</tr>
</tbody>
</table>

Notes:

[1] Error is defined as the difference between the actual sales percent change and the predicted sales percent change.

[2] Statistically significant error is defined as months where the error divided by the standard error of regression is less than -1.96 (p ≤ .05).

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54. Error is defined as the difference between the actual sales percent change and the predicted sales percent change. Statistically significant error is defined as months where the error divided by the standard error of regression is less than -1.96 (p ≤ .05).