

The U.S. Residential Finance Market – The Road to Recovery

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We have met the enemy...

Since late 2008, the U.S. has experienced the worst economic crisis since the Great Depression. Furthermore, the nexus of what has become known as the Great Recession was unsustainable residential mortgage lending on excessively lenient terms. It has been said that success has many parents but failure is an orphan. Never was this truer than during the recent economic hardships. Where one points the finger of blame is largely determined by one's political beliefs. Those on the left blame greedy bankers who, they claim, exploited the innocent poor. Those on the right point to the role of government agencies who extended guarantees to packages of poorly underwritten mortgages, thereby allowing private investors to feel they could neglect to perform due diligence.

In truth, there is more than enough blame to go around. Yes, politicians pushed the Government Sponsored Agencies to expand their purchases and guarantees of sub-prime mortgages in the name of extending home ownership to more working class families. Far from being duped, most marginal borrowers were more than happy to accept a loan they never thought they could obtain to buy a house they never imagined they could own. Prime borrowers took advantage of historically low rates and plentiful availability of credit to buy second homes or to withdraw appreciating value through home equity loans or refinancing into a larger first mortgage. Originators were more than happy to earn fees based on loan volume while banks and investment banks reaped lucrative returns from structuring and underwriting complex packages of these poorly underwritten loans. Credit rating agencies boosted their revenues by applying impressively complex, but in the end fatally shortsighted, analytics to justify unrealistically high ratings for senior tranches of these structured securities. In a period of historically low interest rates, ultimate investors seemed happy to delude themselves into believing that they were receiving excess returns for highly rated securities without correspondingly higher risk. Everyone seemed to be making out well as home prices spiraled upward, fueled by a complacent belief that this situation could be sustained indefinitely. In simple fact, we have met the enemy and they are us.

Unfortunately, arguments over assigning blame can obscure more fundamental problems and lead to faulty prescriptions for how to overcome our current malaise. Rather like a deer in the headlights, we are frozen by our confusion and lack of consensus on workable steps to promote recovery. Sorting out fact from overheated rhetoric is an important first step.

The Role of Collateralized Securities

The central role in the Great Recession played by sub-prime mortgage obligations has discredited all collateralized securities in the minds of many politicians and much of the general public. This is a serious overreaction. First, such securitization is hardly a new phenomenon. The mortgage market was transformed in 1970 when the U.S. Government National Mortgage Association (popularly known as Ginnie Mae) first guaranteed mortgage pass-through securities. By making broad diversified exposure to carefully underwritten residential mortgage credit easy to acquire and to liquidate, this innovation attracted significant new sources of investable funds into the housing finance market. Pension funds, fixed income mutual funds, insurance companies and

individuals now had a means of participating in this market without the prohibitive cost and operational details of acquiring whole loans one at a time. This is one of the great success stories of financial innovation but it was largely forgotten (or willfully ignored) by the popular press amid the upheavals in the sub-prime Collateralized Debt Obligation (CDO) market in recent years.

The alternative to securitized debt markets is for specialized institutions to operate on an originate-and-hold basis. This tends to create specialized financial institutions, such as traditional savings & loans, which have concentrated exposure to a specific category of debt instrument. Moreover, often such exposure is confined to a narrow geographic region, making the institution vulnerable to localized economic downturns. By limiting the potential for diversification, a financial structure based purely on a buy-and-hold approach to credit provision can be its own source of financial upheaval, as we saw in the S&L crisis of the late 1980s and early 1990s.

Subordination Also Works

Another common statement heard in the midst of the current crisis was, “You can’t make high quality instruments out of low quality collateral.” Despite being a sure applause line, this statement is fundamentally false. Subordination does work. For example, if you had a claim on the first 5% of the value in a pool of sub-prime mortgages, this would certainly be a claim that qualified for AAA status. After all, behind these pools were actual physical assets, homes and land. These may have been in less than the most desirable areas and the homes may have been of questionable construction. Nevertheless, there will always be a demand for shelter. Unlike certain types of derivatives where a particular configuration of rates or prices could result in a complete loss of an investor’s capital, it is hard to imagine how securities ultimately backed by claims on real physical assets can become totally worthless. An investor with an enforceable claim on the first 5% of the value in such a pool of assets is highly unlikely to suffer a loss.

The essential question, of course, is how much subordination is enough to justify a top credit rating. This is precisely the type of question that simply has no clearly definitive answer. Different types of analysis will lead to different conclusions. The only certain thing about the situation is that no one can know for sure. This is not necessarily a prohibitive problem. Markets deal with this type of issue all the time. Equity markets are a prime example of this same situation as anyone who watches CNBC can attest. Different analysts will look at the same known facts and reach very different conclusions. Indeed, security prices are the result of balancing competing views. An equilibrium price is low enough that there are sufficient optimists who think they will go higher to be willing to hold the existing stock of the security but high enough to discourage less optimistic investors from seeking to buy. *The crucial requirement for this type of market to work effectively is that a large number of analysts have access to broad and deep sources of information on which to base their views. This is the central feature that is missing in the market for complex instruments collateralized by a large number of small idiosyncratic obligations.*

Complexity, Technology and Vested Interests

To a degree, the sub-prime mortgage crisis was the culmination of a decades long process of technology transforming the structure of financial products and the fabric of financial markets. The overriding feature of this transformation has been a massive growth in complexity. A strong case can be made that the advent of personal computers and spreadsheets in the early 1980s was instrumental in creation of the interest rate swaps market. The PC and spreadsheets empowered business practitioners to develop

their own software functionality with previously unmatched speed and flexibility. No longer was it necessary to operate through preparation of detailed specifications and a painfully slow waterfall implementation process to develop a new financial product. The high priesthood of computer systems people were elbowed to the sideline by the democratization of access to both software development tools and localized computing resources. In the words of a common complaint among professional data processing staff at the time, “The users are revolting – in both senses of the term.”

Of course, one result of this helter-skelter development process was a deterioration in testing and quality assurance. This gave rise to recurring problems with inadvertent software bugs and, less frequently, overt manipulation of valuation procedures. Model risk became a new term in oversight and control circles. While some of these problems continue to occur even today, rigorous enforcement of regulatory and internal model review standards generally serves to keep such problems to a minimum.

Two other characteristics of technology-driven growth in complexity have been harder to address. These are:

- The cultural divide between “quants” and general business managers that I refer to as the Danger of Two Cultures.
- The daunting obstacle that two sources of complexity create for effective risk assessment.

Behavioral Obstacles and the Danger of Two Cultures

The development of a highly quantitative subculture in finance has led to a situation similar to the one C.P. Snow described in a 1959 essay entitled *The Two Cultures and the Scientific Revolution*¹. In it Snow highlighted the often willful lack of communication between scientists and literary intellectuals². In all too many cases, Snow argued, formal training compounded inherently different mindsets to produce a nearly complete lack of understanding and communication across these two cultures. Scientists, he found, often had little interest in or exposure to imaginative literature. On the other side, literary intellectuals often treated their realm as the whole of culture, blithely oblivious to the scientific edifice of the physical world as “in its intellectual depth, complexity and articulation, the most beautiful and wonderful collective work of the mind of man.”

The split between “quants” and the larger community of traditional finance managers gives rise to a similar lack of communication. Quantitative techniques and statistical risk management are little more than opaque black boxes for all too many general financial executives. What is more, those who do understand the technical details often have limited insight into broader structural and behavioral issues. They also have little incentive to make their work more transparent to outsiders since this would undermine the “mystique” that surrounds their skill set.

In some cases a lack of technical insight has little or no serious consequences. After all, few of us can understand the technical mechanics of a modern automobile but that does not inhibit our ability to drive. In the case of financial management, however, the impact of Two Cultures can be serious indeed. This is primarily because running a financial institution demands a constant series of large and small decisions under uncertainty. Such decisions can never be effective if they are made mechanically. Effective

¹ Snow, C.P., *The Two Cultures and the Scientific Revolution*, Cambridge University Press, 1959.

² Snow was a trained scientist who also wrote imaginative literature. As such, he was uniquely qualified to assess the problem of The Two Cultures.

decisions must reflect experience and judgment *conditioned by the available empirical evidence*. As finance has become ever more complex and quantitative, the communications gap between its Two Cultures has become ever more consequential. Most senior bank managers are unable to weigh the subtle details of modern quantitative finance and few state-of-the-art quants are well equipped to assist them (even if they were motivated to do so.)

I have no magic answer to the Two Cultures problem. The number of people with the background to feel genuinely comfortable in both cultures will continue to be limited. Recognizing their contribution as a bridge to facilitate communication across the organization and raise the level of insight on both sides of the cultural divide is a step in the right direction. Offering opportunities where representatives from both cultures can interact on substantive issues, such as senior policy committees, also will help. Beyond this, just raising awareness of the potential dangers from miscommunication and lack of insight across the groups can be helpful when important decisions depend on considerations from both perspectives.

Complexity and the Challenge of Risk Assessment

The growing complexity of financial products has advanced on two fronts. The first source of complexity is the wide variety of customized conditionality used to determine ultimate cash flows to investors. In general these conditions give rise to complex computational requirements for deriving accurate prices in the face of prevailing market conditions. Indeed, it is the growing availability of computing power that has enabled the development of these increasingly complex payment structures.

Unfortunately the computing challenge these products present for risk management is even more daunting. This is because analysis of risk demands consideration of many different future scenarios. While the conditional pricing analysis for each scenario can potentially be simplified relative to front office algorithms, the multiplicity of scenarios implies a much heavier computational requirement than is required for daily pricing and operational processing. This is a generic challenge facing all types of financial derivatives and can only be addressed by management being willing to allocate sufficient computing resources to support effective risk management simulations.

The second source of complexity presents a far more daunting problem. This is the challenge presented by collateralized securities being created based on an ever wider range of heterogeneous underlying obligations. What began as a way to package large commercial obligations or home mortgages subject to strict and inflexible underwriting standards has expanded to include auto loans, revolving credit card debt, trade receivables and even such things as future movie royalties. The infrastructure to provide ready access to all relevant risk related data on the underlying obligations has lagged far behind.

It can be argued that until recently the cost and availability of computer information storage, processing power and communication capacity presented significant obstacles to addressing this problem. Today those obstacles have largely disappeared. A system where the underlying details of every individual obligation in a mortgage-backed security (such as up-to-date information concerning payment status, geographically related comparables, original and current loan-to-value ratios and much more) along with the cash flow structure of the security and the implications of pre-existing defaults or repayments, could be maintained in a coherent database available to market participants. The main obstacle to this is institutional resistance to divulging information that is deemed to convey competitive advantage. Technology can create and maintain greater

transparency in these markets if the buy-side, regulators and the general public can muster the collective will to demand it.

In large measure the failure of markets to address these two problems is not surprising. The burgeoning complexity of payout structures combined with the absence of adequate data and the associated analytical tools to evaluate their implications have fostered ever greater opacity in credit markets. This generally works to the advantage of large sell-side firms. In a crisis, these firms themselves can fall victim to this opacity (consider Bear Sterns, Lehman Brothers, RBS and others.) Nevertheless, on a day-in and day-out basis, opacity clearly supports wider bid-offer spreads that serve to enrich those who make markets in these instruments. It is hardly surprising that sell-side firms oppose reforms to bring greater transparency to these markets with all the political pressure that their financial clout can command. What is surprising is how passive buy-side firms have been in accepting this situation as an unavoidable state of nature.

Market-driven Transparency

How could a detailed, up-to-date and readily accessible database with all relevant structural details of the underlying collateral become a standard feature of the markets for complex financial products? As Adam Smith would have said, we will not accomplish this by appealing to “the benevolence of the butcher, the brewer” or the investment banker. The dramatic improvement in transparency that technology now makes possible will only be fully realized and effectively maintained through a combination of regulatory coercion and appeals to self-interest.

In addition to regulatory pressure, establishing such a system will require several things. The first is a well heeled insurgent organization with little or no stake in the current market arrangements to underwrite the technical development of such a system. Second it will require participation commitments from a core group of buy-side firms who would stand to benefit from the greater transparency, lower risk and sharper pricing that such a system would create. Finally, it will require commitment from some aspiring second-tier sell-side firms who would stand to benefit from a first mover advantage by being an early participant in such a transformative arrangement and the big increases in trading volume it would create. A major technology firm also must be involved. This could be in the form of a purely arms length vendor who is paid for the system’s development or as an equity partner or some combination of the two.

Essential to the success of such an arrangement will be assuring prompt and accurate updates to the information and establishing sufficient trading volume and associated liquidity to insure investors that they can transact in reasonable volume without significant impact on prevailing prices. Marketcore³, an intellectual property company, has designed a patented business method to achieve this goal. It is centered on provision of time-limited Transaction Credits™ to liquidity providers as well as those responsible for maintaining the continuous updating of the underlying data. These credits provide either discounts on future trades or privileged access to the uniquely valuable detailed data such a system makes available. Their terms of use also can be adjusted to drive business volume toward newly introduced products or areas where the exchange desires to promote market interest and liquidity. They also could be traded for cash as desired. In addition to liquidity providers, transaction credits can be allocated to originators and servicers as incentives for prompt and accurate updates to the detailed status information in the database.

³ See <http://www.marketcore.com/index.php>

In essence, Marketcore's patented technology leverages the most valuable commodity such a system creates, namely the consistently organized detailed data on the complex securities being traded, to solve the key challenges that such a new trading system faces, namely building reliable liquidity and assuring that the data are maintained in a timely and accurate fashion. Once established, the usage pattern of Marketcore's Transaction Credits™ becomes a valuable source of market intelligence. Such usage data can offer valuable insights into evolving market interest and areas where increased analytical attention may indicate emerging market concern about potential risk.

Of all the financial markets operating today, the housing finance market is among those most in need of Marketcore's innovation and also the most likely place for it to succeed. Many of the same financial institutions that would instinctively oppose this innovation (because it undermines the advantages they gain as market-makers from the prevailing level of opacity) also have a need to unburden themselves of existing mortgage assets. Revival of the residential mortgage CDO market would offer them a means to draw new sources of capital into this arena on a fully transparent and well informed basis. There is simply no way these investors will return to this market until such transparency is clearly available. As the old saying goes, "Fool me once, shame on you. Fool me twice, shame on me." Furthermore, if established on a firm foundation of currently updated information and stable incentives, a revived residential finance market would provide long-term investors with a valuable alternative that currently is simply not viable.

The stars are well aligned to support such a development. One indication of this is that the first such transformation is actually in initial operation. LexisNexis has collaborated with the Council of Insurance Agents and Brokers (CIAB) and Marketcore to create the LexisNexis Insurance Exchange⁴. It is initially focused on property and casualty policies but it has plans to expand into life and health as well as reinsurance. Since a similar mechanism would be equally applicable to various heterogeneous credit and derivative instruments, this might just be the beginning of a much broader market transformation.

If this transformation materializes, it will result in more robust and resilient credit markets. Such a structure would allow a wide variety of analysts to track and evaluate these securities based on reliable empirical data rather than on marketing hype or on complex top-down analytic techniques that are out of touch with the actual underlying collateral. In the end, such a structure would provide many opportunities even for those sell-side firms that will resist it the most. A more transparent market, built on access to reliable and up-to-date detailed data, will generate demand for new and innovative hedging instruments that these firms are so well equipped to provide. Given the broad social benefits that flow from more efficient allocation of savings into real investments with the best return, we all should work to realize this vision.

⁴ See, <http://www.businessinsurance.com/article/20120101/NEWS04/301019988>
<http://blogs.lexisnexis.com/insuranceexchange/2012/02/10/getting-left-behind-is-closer-than-you-think/>