



Crisil Young Thought Leader Series 2007

"Subprime Meltdown: Lessons"

Dissertation Entry

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EXECUTIVE SUMMARY

The sub-prime mortgage financial crisis wiped out billions of dollars from the wealth of individuals and corporate. It struck US in 2006, causing casualties of investors including hedge funds and investment banks. However with all the contagion, the Indian real economy has not been affected as adversely as the South-East Asian economies were affected in the aftermath of the contagion following the Asian crisis a decade ago. Perhaps, this is because the crisis was primarily centered in the more mature markets of the world, the US, Europe and Japan. For India, subprime or near-prime market is currently witnessing a boom. Therefore the advantage of falling behind the curve in terms of financial market development is that, hopefully, India can get to learn from others' mistakes. It is important, however, that we learn the right lessons and not allow events around lead us into an obscurantist financial policy regime. This paper intends to give an explanation of the subprime crisis which has impacted the leading world economies in a big way, especially US, followed by the abiding lessons which we can take away from this crisis.

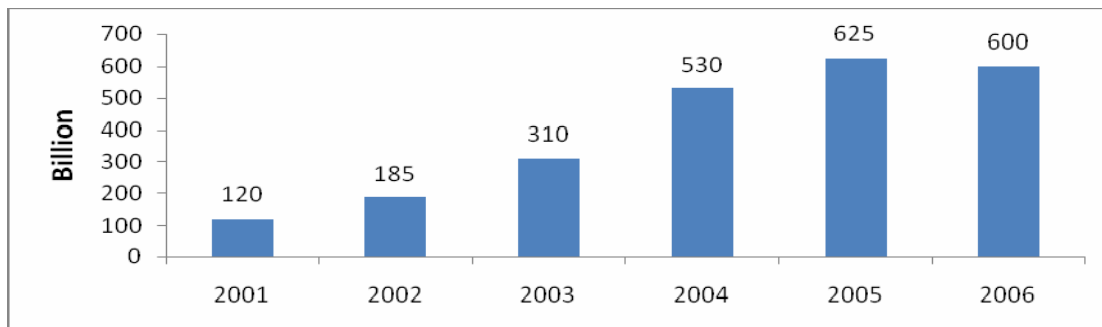
SUBPRIME LENDING

INTRODUCTION

Subprime lending, also called "B-Paper", "near-prime" or "second chance" lending, is a general term that refers to the practice of making loans to borrowers who do not qualify for market interest rates because of problems with their credit history. Generally, subprime mortgages are for borrowers with credit scores of fewer than 620. Subprime loans have higher rates than equivalent prime loans. How much higher depends on factors such as credit score, size of down payment, and delinquencies history of the borrower in the recent past. Subprime lending encompasses a variety of credit instruments, including subprime mortgages, subprime car loans, and subprime credit cards, among others.

SUBPRIME LENDING TERMS

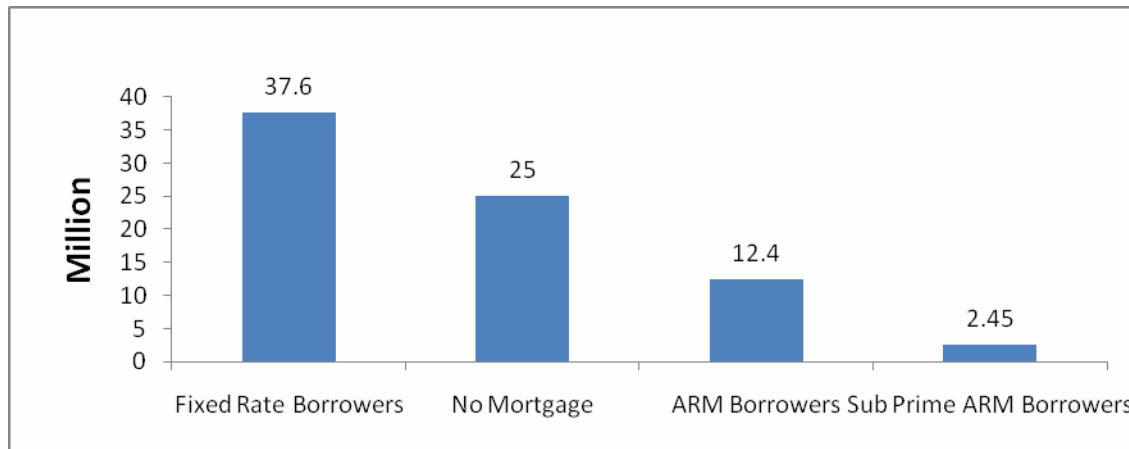
Subprime mortgages witnessed a huge rise in US from early 2000 (**Refer Exhibit 1**). The lending job was made easier with exotic mortgages such as so-called-no-doc loans, which enable borrowers to borrow without having to supply evidence of income or savings. There are various different types of subprime mortgages including “interest only mortgages” which allow borrowers to only pay interest for a period of time, “pick a payment” which gives the borrower the option on how to repay the loan and “initial fixed rate mortgages” which convert to variable rate loans.



Source: Loanperformance.com

EXHIBIT 1: SUBPRIME MORTGAGE ORIGINATION, US

A very common mortgage in sub-prime mortgage is 2/28 ARM (**Refer Exhibit 2**). This is an **adjustable rate mortgage (ARM)** on which the rate is fixed for 2 years, and then reset to equal the value of a rate index at that time (i.e. after 2yrs) plus a margin for the balance 28yrs. Rate Indices commonly used is the 1-year CMT, but other choices include, 6-month LIBOR or 6-month Treasury Bill. Some borrowers with poor credit scores plan to refinance at a better rate after initial 2 years. The major threat to such a plan is a prepayment penalty. It is common for subprime loan contracts to include a prepayment penalty for the first 5 years of the loan, with an average rate of 5% of the principal.

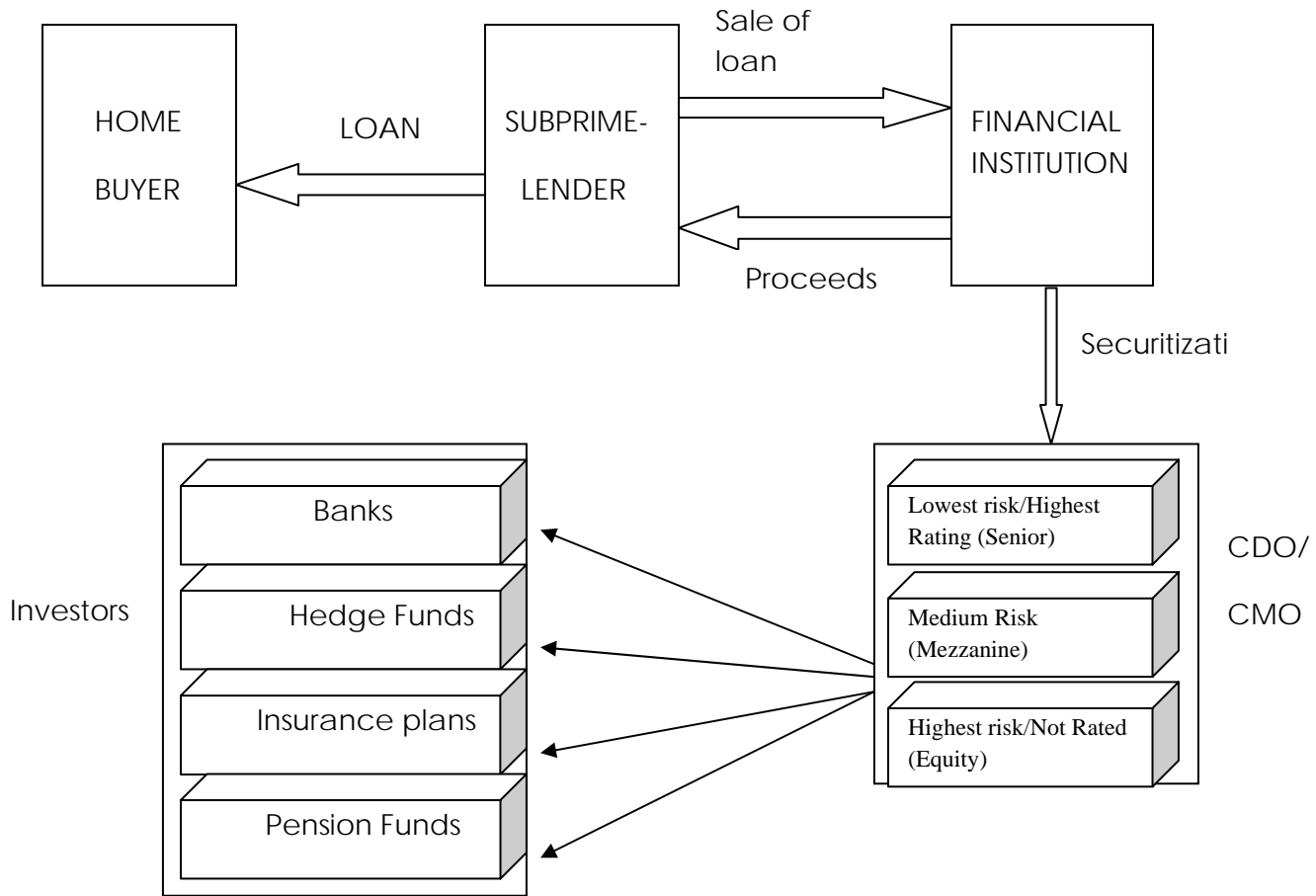


Source: Loanperformance.com

EXHIBIT 2: Home Owner Distribution, By Mortgage Type, 2007

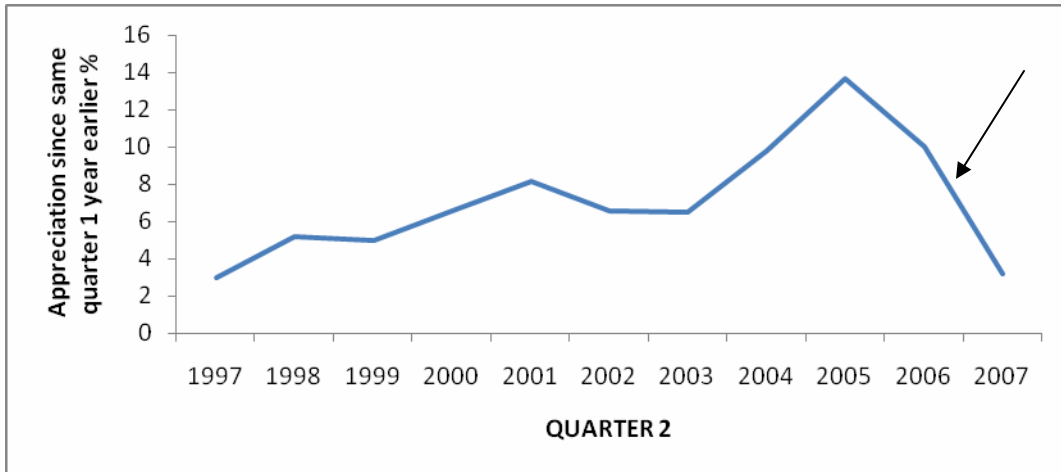
SUBPRIME MONEY TRAIL: THE CRISIS

It all starts with an American with a poor credit rating wanting to buy a house. But, because of his poor credit rating no bank is willing to give him a loan. Borrowers approach mortgage brokers who match them with prospective lenders who further lure borrowers with exotic mortgages such as “no doc” mortgages, which do not require any evidence of income or savings. However the loans are given at higher rate of interest. This higher rate is referred to as the sub prime rate and this home loan market is referred to as the sub-prime home loan market. Big banks and wholesale lenders such as HSBC Holdings buy the debt, repackage them and sell them



SUBPRIME MONEY TRAIL

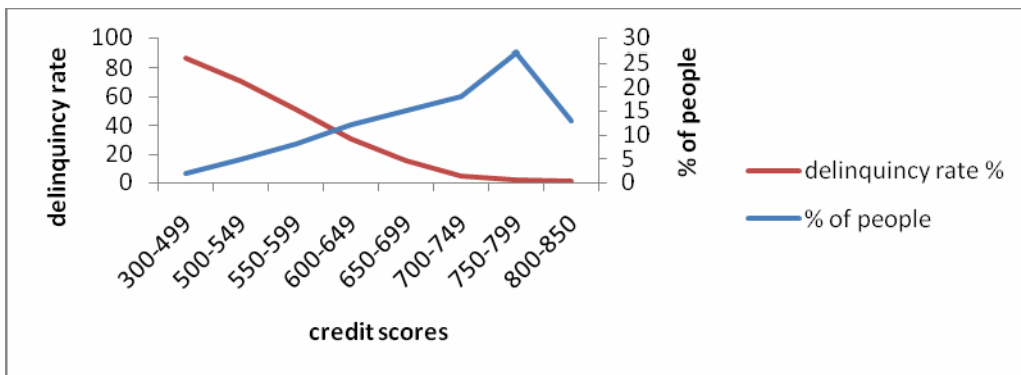
to Wall Street firms. Wall Street banks and investment houses further repackage these loans in mortgage backed securities (MBS) and collateralized debt obligations (CDO). These structured products very often yield high rates of return and are sold to pension funds, hedge funds and institutions. The sub-prime home loans were given out as floating rate home loans. As interest rates go up, the interest rate on floating rate home loans also go up. The higher EMIs hit the sub-prime borrowers hard. A lot of them, given their poor credit rating, defaulted. Once, more and more sub-prime borrowers started defaulting, payments to the institutional investors who had bought the financial securities stopped, leading to huge losses. The house price drop in US (Refer Exhibit 3) has reduced the equity value of home mortgages. This has created an increase in mortgage defaults which has further reduced the prices.



Source: Census Bureau

EXHIBIT 3: HOUSE PRICE APPRECIATION, USA

There was a rush of subprime mortgage foreclosures in US in late 2007 (**Refer Exhibit 4**). This has caused several major subprime mortgage lenders such as New Century Financial Corporation, to shut down or file for bankruptcy, leading to collapse of stock prices for many in the subprime mortgage industry. After the foreclosure process properties are usually auctioned off by the investors. Bidders quote price much lower than market price, leading to losses to the funds as these do not cover the underlying loan obligations.



Credit Scores range from 300-850

Prime >720 Alt-A 620-720 Sub-Prime <620

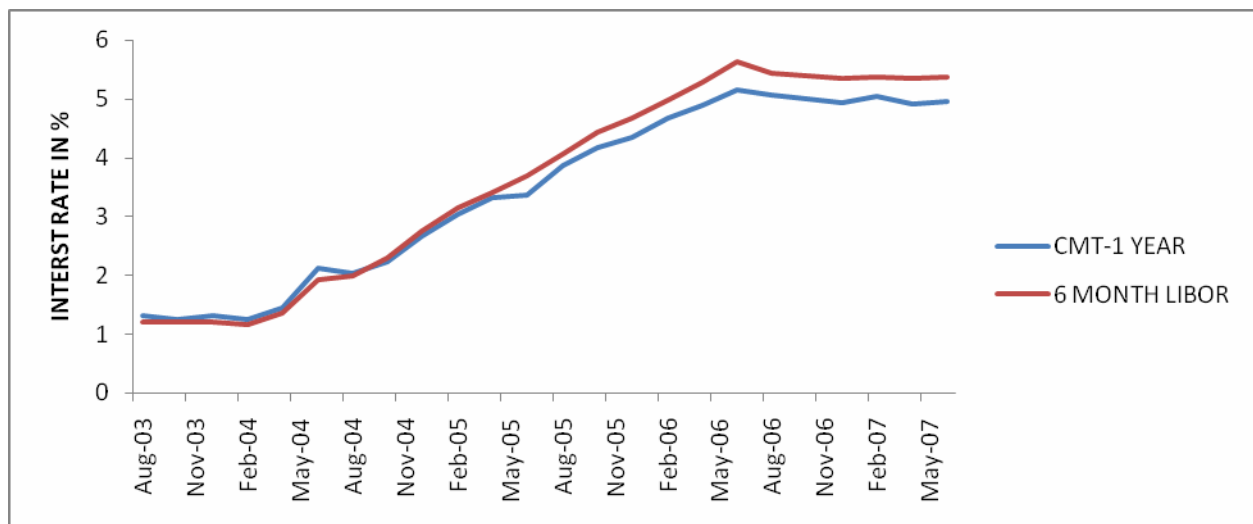
Source: Bank of America, LLC estimates

EXHIBIT 4: Delinquency rates and % of people corresponding to credit scores

The exploding ARM reset problem-

It is estimated that ARMs taken from 2004-2005 had an increase in interest cost of at least 35%.

Exhibit 5 illustrates the rise in indices used to reset the rates. These are the most common indices used to fix ARMs rate after 2 years (6-month LIBOR, 1-year CMT). For example, a mortgage borrower in April 2005 may enter into an ARM where he will pay 6% for the first 2 years and 6-month LIBOR + 3% for the remaining 28 years (assuming at April 2005, 6-month LIBOR was at 3.40%). On April 2007, the 6-month LIBOR is at 5.35%, so the borrower's new ARM interest rate will be 8.35% (i.e. 5.35% + 3.00%). This is a **39% increase** (from 6% to 8.35%)



Source: Moneycafe.com

EXHIBIT 5

LEARNINGS

India is witnessing a booming market in subprime segment. There is an estimated \$ 10-11 billion market for unsecured credit, which is growing at 25-30%. Looking at the opportunity to expand this untapped market, several players like, Citi Financial and GE money have entered the market and many more like, Barclays and AIG are planning to make their foray. However there are few differences between US and Indian subprime markets. Firstly, in US subprime borrowers use rising value of their assets to raise second mortgage, however in India second mortgages are not

allowed. Secondly, in US, subprime borrowers are people who have defaulted on their mortgages; many people in Indian subprime are first-time borrowers. In spite of all these differences there is much that Indian markets can learn from the current global financial crisis that has stemmed from large default in the American mortgage market. It is important, however, that we learn the right lessons. I think there is lesson for everybody including the regulators, government, investors, credit rating agencies and financial institutions.

LESSON 1: CREDIT RATING AGENCIES

WHAT HAPPENED??

Credit Rating Agencies like Moody's Investors Service, Fitch Ratings and Standard & Poor's have a major role in supporting the appetite for risky subprime loans. When a bank creates a CDO, it meets with credit raters to discuss the quality of the contents, including subprime debt. They divide the CDO in pieces in order to get the desired rating for each portion (or "tranches,"). Throughout last year, these agencies raised no red flags about securities backed by subprime mortgages, and they continued to give investment-grade ratings to these securities based on the tranches expected to perform the best. Bonds backed by subprime mortgages fell by more than 50 cents on the US dollar in June before companies started to cut their ratings. In July 2007, Moody's and Standard & Poor's cut ratings on billions of dollars of bonds backed by subprime mortgages, on expectations home-loan defaults will rise.

LEARNINGS

Though these agencies use very transparent methodologies and mechanisms to rate investments, the problem is their inability to predict unexpected large scale defaults and inculcate them in the ratings. Credit ratings seem to reflect the probability of default very well in normal circumstances. However, raters just don't seem to be able to raise the red flag early enough to prevent crisis. Firstly, as has been proved during the Asian crisis 10 years ago and now in the subprime mess. When the going is good, rating agencies tend to be lenient and liberal with their prime ratings. So there is an urgent need to regulate the credit rating agencies as well.

Personally, I think if the regulation does not interfere with the independence of agencies in respect of their rating process or rating judgment, there's nothing wrong with some regulation.

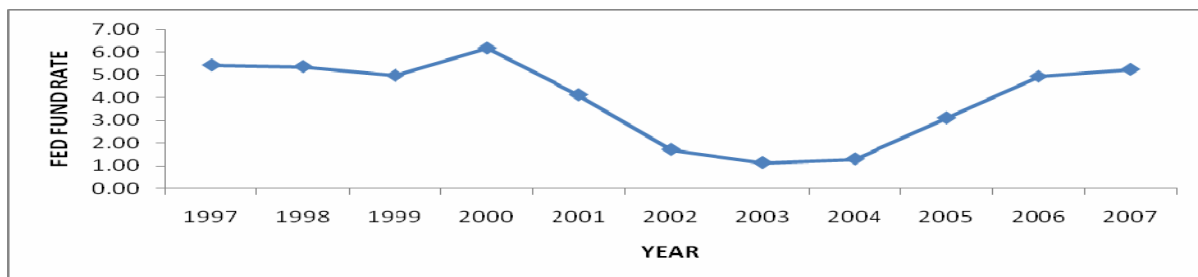
Ownership and management structure should be regulated. It should be ensured that due diligence standards are adhered to, and proper surveillance is done. This would help in reducing unethical and restrictive practices and ensure discipline. It is highly probable that a firm may not publish its rating if rated poorly by a credit rating agency. As a result, if a bad rating is given, public has no way of knowing it. To avoid such situation regulators could ask all agencies to submit details of each rating they have made, whether or not these have been accepted by their clients. And if the authorities feel it necessary, they can issue adequate warnings to the public.

LESSON 2: CENTRAL BANKS

WHAT HAPPENED??

There is another important issue pertaining to the policies of central bank of a country. Whether the monetary policy is driven entirely by the diktat of headline inflation and growth or does the quantum of borrowing in the economy and possible impact on borrower behavior become an important factor in determining interest rate decisions.

The rise in default rates in the sub-prime market is essentially due to two things. Firstly, most borrowers got into adjustable rate mortgages where the interest rates were reset periodically. Secondly, as the US Fed relentlessly hiked policy rates (17 times between 2004 and 2006) (**Refer Exhibit 6**), mortgage rates rose as much as 40 per cent. Sub-prime borrowers, characterized by low and often volatile incomes, found that they could not service their loans any longer. The result is the large default across the board. I would argue that the Fed has to shoulder at least part of the blame for the current mess



Source: Moneycafe.com

EXHIBIT 6: FED FUND RATE, US

LEARNINGS

Perhaps the US central bank could have been a little more prescient and figured out that the series of rate hikes had the potential to trigger a crisis of this kind. The existence of the large quantum of sub-prime assets and the impact of mortgage rate resets should have figured more actively in their monetary policy discussions much earlier.

These lessons are particularly important for the RBI. If India needs to stay on the current growth trajectory, there is bound to be much more expansion in credit to increasingly riskier segments. The central bank will have to facilitate this expansion and balance this with the more conventional role of inflation management. RBI has to ensure that these issues should be contemplated well in advance before formulating the monetary policy.

LESSON 3: SECURITIZATION***WHAT HAPPENED??***

The subprime meltdown has raised concerns against the securitization process. More than 60% of the sub-prime debt is securitized. This is a device that enables the lender to create securities out of its loan assets and sell it to willing investors. These assets get off the balance sheet, releasing that proportionate share of capital for fresh lending. The investor in the securitized assets gets hold of assets with good returns. The risk is transferred from the lender (say banks) to the investor (say hedge funds). Apart from these simple securitized loans there are other exotic instruments which may seem complex to a lay person.

LEARNINGS

Now, there would be a natural tendency to dismiss these instruments in the wake of the recent problems, perhaps even a clamor to come down with a heavy hand in regulating these instruments. I think that would be trifle naïve. If economic growth has to sustain, it is imperative that markets for higher risk credit be allowed to thrive. This is particularly true for India with its problems of low credit penetration and shallow bond markets. The securitization of loans in India is covered by a number of rigorous guidelines. The fact that the sub-prime bust originated in securitized loans should not induce further restrictions on this. It is a useful innovation and the RBI rules should take care not to scare it away totally. It is more important to ensure that the

originator of the loan practices the appropriate procedures of lending, adequate security and monitoring of repayments in time. Due to the complex nature of these instruments, institutions and end users should seek to understand the intricacies of these transactions. Market participants should also understand that these transactions can lead to other risk exposures, such as basis risk, legal risk and counterparty risk. Also firms should seek to identify areas of confusion and seek to improve practices in order to eliminate or reduce the confusion.

CONCLUSION

We have just seen that subprime crisis has played havoc in worlds leading economies like US. Like US, India too has a subprime market and is growing at 25-30 per cent. The success of early entrants like Citi Financial and GE money has encouraged several other players like HSBC (Pragati Finance), Standard Chartered (Prime Finance) to enter into this market. Therefore, it's imperative for India to take lessons from this debacle, to ensure smooth and hassle-free expansion of this market. It is important, however, that we learn the right lessons and not allow events around lead us draw wrong conclusions. If we stay on the current growth trajectory, there is bound to be much more expansion in credit to riskier segments. RBI needs to take action to ensure that lending practices are properly documented, supervised and not lost in competitive pressure; credit agencies need to be more proactive and securitization itself should be encouraged, but with carefully crafted guidelines.

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