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Securitization Market in India & Analysis of Structured Products

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Executive Summary

This Working Paper is divided into primarily three parts –

- Overview of securitization market in India
- Pricing of MBS using Monte Carlo Simulation on MATLAB
- How does the market value equity tranche of a CDO

The pricing of MBS pass through certificate was done using G2++ model and the implementation was done using MATLAB.The Hull/White 2-factor model is equivalent to the G2++ model by Brigo and Mercurio .We have tested our model on securities issued by The Federal Home Loan Mortgage Corporation, commonly known as Freddie Mac, and The Federal National Mortgage Association, commonly known as Fannie Mae, and observed encouraging resultson comparing model predicted prices and market traded prices.

We have tried to analyse of market values a toxic asset like CDO equity tranche. Theoretically, CDO equity tranche should be similar to a bank stock as both have residual claims on a portfolio of loans. In this paper we have tried to test this hypothesis and based on the results come to a conclusion that indeed there is a high correlation between the two.

Contents

1. Objective

There are primarily three objectives of this working paper-

- Develop a model on for pricing of MBS pass through certificate using Monte Carlo simulation on MATLAB. The approach used for modeling term structure is the G2++ model.
- Analyse how market values toxic assets such as CDO equity tranche. The proxy for returns on CDO equity tranche is taken as return on CDX high yield index maintained by *Markit.* We compare returns on CDX index with return on bank index to draw parallel between the two
- Analyse the present state of securitization market in India and how it can help in meeting credit needs of the economy and resolving NPA problems of the banking sector

2. Introduction

What is Securitisation?

The term securitization may be referred to as creation of security in any financial transaction. In this respect, security means a financial claim which is generally exhibited in the form of a document and whose essential feature is marketability. Therefore, securitization, or in other words, asset/receivable securitizationmeans creation of marketable/tradable securities based on cash flows of an entity's assets or receivables. **It is a device of structured financing** (i.e. the financing that is tailored as per the risk-return and maturity needs of the investors) by way of which the originator pools together its interest in perceptible cash flows on assets receivables over time, sell such interest to an entity known as Special Purpose Vehicle **(SPV)**, or Special Purpose Entity **(SPE)** and thereby achieve the purpose of financing. The major players in the asset securitization market in India are expected to be commercial Financial Institutions (FIs), Public Sector Units (PSUs), Corporates, Government bodies, Mutual Funds, Pension Funds, etc. Securitisation in India has been in existence since early 1990s. The first securitization deal took place in 1991 when Citibank raised Rs.16 crore from GIC Mutual Fund by securitizing some of its auto loans. Since then, a variety of deals have been undertaken. In 2002, The Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act were enacted. The objective behind its enactment was the sale or securitization of Non-Performing Loans (NPLs) by banks and financial institutions in favor of Assets Reconstruction Companies (ARCs) registered with the Reserve Bank of India (RBI) under SARFAESI. These guidelines are expected to have a far reaching impact on several issues and facilitate the development of a vibrant and robust securitization market in India.

Funds of a firm get blocked in various types of assets such as loans, advances, receivables etc. To meet its growing funds requirements, a firm has to raise additional funds from the market while the existing assets continue to remain on its books. This adversely affects the capital adequacy and debt equity ratio of the firm and may also raise its cost of capital. An alternate available is to use the existing illiquid assets for raising funds by converting them into negotiable instrument. E.g. a housing loan finance company which has a portfolio of loan advances having periodic cash flows may convert this portfolio to instant cash. Though the end result of securitization is financing, but it is not financing as such since the firm securitizing its assets is not borrowing money, but selling a stream of cash flows that are otherwise to accrue to it.

Financial Asset:

The loan / receivable portfolio is the underlying asset and their cash flow creates the new instrument. That is why the new instrument is **a derivative product**. Any asset having a cash flow profile over a period of time can be securitized. Some of the assets which may be securitized are housing loans, car loans, term loans, export credits, and future receivables like credit card payments, ticket sales, album sales, car rentals, electricity and telephone bill receivables etc. Thus, any present or future receivables in part or in whole can be securitized.

Process of Securitization:

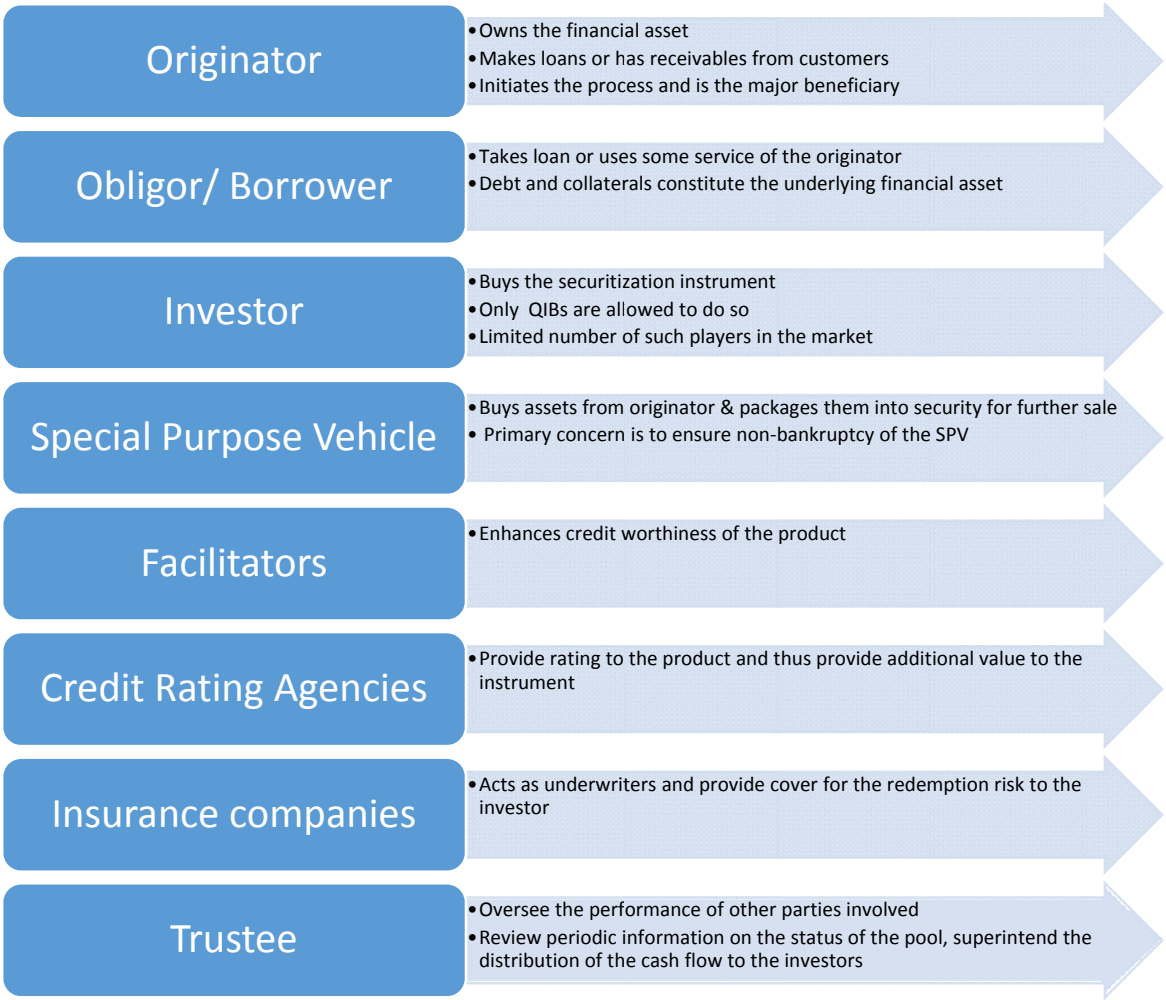
Securitization is a multi-stage process starting from selection of financial assets and ending with the final payment been made to investors. The originator having a pool of such assets selects a homogeneous set from this pool and sells / assigns them to SPV in return for cash. The SPV in turn converts these homogeneous assets into divisible securities to enable it to sell them to investors through private placement or stock market in return for cash. Prior to selling the securities through private placement / stock market, the SPV may take credit rating for the securitized assets. Investors receive income and return of capital from the assets over the life time of the securities. Normally, the originator acts as the receiving and paying agent for collection of the interest and the principal from obligors and passing on the same to investors. The difference between the rate of interest payable by obligor and the return promised to investors is servicing fee for the originator and SPV.

The originator by securitizing the financial assets transfers the risk associated with economic downturn on cash flows or credit deterioration in a loan / receivable portfolio. The investors buy this risk in exchange for high fixed income return. Investors buy this risk if they see the risk as a diversifying asset, the risk premium demanded by them for underwriting such a risk is lower than the internal funding costs of the originator who has a concentration of such a risk.

The Financial Structure:

The financial structure of the securitized product is a function of the type of the instrument to be issued i.e. Pass through Certificates (PTC) or Pay through Certificates (Bonds / Debentures). In both the cases, assets are sold to SPV for further sale to investors in the form of a new instrument. However, the similarity ends here. In case of PTC, investors get a direct undivided interest in the assets of SPV. The cash flows which include principal, interest and pre-payments received from the financial asset are passed on to investors on a pro rata basis after deducting the servicing fee etc. as and when occurred without any reconfiguration.

Different Players in the process:



Pricing of these instruments:

Before developing a pricing model, it is important to find answers to questions like:

- Dynamics of the risk transferred in securitization transaction
- The expected value of loss being transferred and the compensation for this expected loss
- Whether this will be a diversifying asset in the investor's portfolio and the fair risk premium to be paid for underwriting this exposure

If the answers of these questions is known, then the initial pricing is based on:

- Creditworthiness
- The presumed pre-payment rate, and
- The financials of the instrument.

The creditworthiness is used to arrive at the required discount factor and the presumed prepayment rate is factored to determine the reduced average life vis-à-vis the stated tenure of the instrument.

The discount factor is a function of:

- Interest rate scenario
- Investor risk profile
- Creditworthiness of the instrument

Using these parameters, the price of the securitized instrument is calculated like a plain bond by applying the discounted net present value method. However, a securitized instrument has an embedded option of pre-payment and the value of this option is reduced from the plain bond price to arrive at the expected price of it.

The legal structure and constraints:

The intermediaries involved in creating a securitized product have to comply with multiple legal provisions to give shape to the product. The financial asset is transferred from the originator to the SPV and thereby attracts the relevant provisions of Stamp Act, The Transfer of Property Act, 1882, The Negotiable Instruments Act and Registration Act. These provisions throw up the issues related with

i. Stamp duty
ii. Registration charges in case of mortgage back securities
iii. Negotiability / transferability of new security
iv. Assignment of mortgage backed receivables

v. Assignment of future receivables
vi. Issue of part assignment.

These issues, on the one hand, make securitized product economically unviable due to high stamp duty and registration charges. On the other hand, lack of clear supporting legal provisions for the features which are integral part of the process of securitization hinders wider acceptability of the product.

The Act has addressed above mentioned issues by providing appropriate definition of 'financial assets' and 'securitization' and recognizing 'security receipt' as a security under the Securities Contract (Regulation) Act, 1956. However, the problem arising due to stamp duty and registration have not been addressed to the satisfaction of the participants and would therefore make it economically unviable.

The securitization chain attracts the incidence of stamp duty at three stages. One, at the time of acquisition of financial assets by SPV from the originator. The Act provides two modes for acquisition of assets: (i) by issuing a debenture which will attract stamp duty on the instrument of transfer and on the issue of debentures, and (ii) by entering into an agreement which being a conveyance and would attract stamp duty. The second incidence of stamp duty arises when the 'Security Receipt 'is created. Finally, transfer of security receipt from one investor to another in the secondary market would attract stamp duty unless issued in demat form.

The incidence of stamp duty is one of the major concerns which make securitization transactions financially unviable. Stamp duty is a state subject and in most of the states the duty ranges from 4% to 12%. Four states viz. Maharashtra, Tamil Nadu, Gujarat and West Bengal have recognized the commercial benefits of securitization and have reduced stamp duty on such transactions. The Act has not addressed the issue of stamp duty and the same is left to respective state governments to decide.

Other area of concern is the registration requirements on transfer of mortgage backed receivables from immovable property which again adds to the cost of securitization transaction and needs to be addressed. Another impediment is the taxation of income of various entities of securitization transaction since the existing provisions are likely to result into double taxation.

Reasons for subdued securitization market in India:

The appetite for Securitisation in India has been on the lower side; it is used largely to meet priority sector lending targets by banks as investors, NBFCs being the originators. This low appetite can be ascribed to several factors, including legal, taxation and stamp duty issues. In India, securitisation deals are largely driven by banks' need to meet priority sector lending targets. Banks with gaps in priority lending are allowed to invest in pass through certificates wherein underlying loans are priority sector-compliant. Banks can also purchase priority sector

loan receivable pools from other lenders directly to meet the gap which is known as direct assignment.

Banks' shortfall in meeting PSL targets and the availability of such assets with the NBFCs continue to plague the securitization market. The following points are important to gauge the market in the future:

Change in regulatory norms pertaining to PSL classification:A high percentage of securitisation volumes in India comprises of PSL transactions (investors buy the underlying assets to meet PSL shortfall). The same trend is expected to continue in future. Therefore, any regulatory changes in terms of any material change in overall PSL requirement/ classification of limits under various sub-components of PSL would have a significant impact on the size of the market.

Ability of banks to meet PSL targets through alternative channels: On account of unattractive yields on offer in the securitisation market, several private and foreign banks are exploring alternative avenues to generate PSL assets. These measures direct originations through a sourcing/ servicing arrangement with NBFCs/ MFIs (loans are sourced by NBFCs/ MFIs but housed on the books of the bank in lieu of some sourcing fee.

Interest from Public Sector Banks: The overall transaction volumes in recent years (and especially under the D.A. route) have been buoyed by the interest shown by the public sector banks. These banks invested in non-PSL transactions also to achieve balance sheet growth. Whether these banks continue to remain active in the future or not would be a key driver for the market size.

Taxation related issues:Mutual funds, as an investor class are a miniscule in the securitisation space in India, primarily owing to the lack of clarity on incidence of taxation on securitisation transactions. This trend is likely to continue in the future as well, unless some clarity comes on the tax related issues from the regulator/ new government. Again, the heavy stamp duty and thereby low margins has already been cited as a reason for the subdued market.

How can Securitization help in reducing NPAs in banks?

Securitization is considered an effective tool for improvement of capital adequacy. It is also seen as a tool for transferring the reinvestment risk, apart from credit risk helping the banks to maintain proper match between assets and liabilities. Securitization can also help in reducing the risk arising out of credit exposure norms and the imbalances of credit exposure, which can help in the maintenance of healthy assets. The SARFAESI Act intends to promote Securitization,

pool together NPAs of banks to realize them and make enforcement of Security Interest Transfer.

The SARFAESI Act-2002 is seen as a booster, initially, for banks in tackling the menace of NPAs without having to approach the courts. With certain loopholes still remaining in the act, the experiences of banks are that the Act in its present form would not serve the envisaged objective of optimum recovery of NPAs, particularly with the hard-core NPA borrowers dragging the banks into endless litigation to delay the recovery process. The Supreme Court decision in regard to certain provisions of the SARFAESI Act also vindicated this view. This section deals with the features of Securitization and its resourcefulness in tackling NPAS and about the SARFAESI Act, its resourcefulness and limitations in tackling the NPA borrowers and the implication of the recent Supreme Court judgment.

With the steady sophistication of the Indian Financial Services Sector, the structured finance market is also growing significantly, of which Securitization occupies a prominent place. With Basel II norms imminently being implemented by 2008 and Basel III coming up, banks are required to pool up huge capital to offset the credit risk and operational risk components. Securitization, therefore, is seen to be an effective and vibrant tool for capital formation for banks in future.

How can Securitization help in meeting the credit needs of infrastructure and housing etc.?

Till now, the Indian Market has been dominated by three asset classes, namely auto loan asset backed securities (ABS), and residential mortgage backed securities (RMBS) and micro loan ABS. The commercial mortgage backed securities market is also emerging.

The new government has identified housing, infrastructure and other urbanization initiatives as the key for pushing up the sagging economic growth. Securitisation can provide funds for real estate developers, project sponsors and retail loan providers, alleviating pressure on public finances and the banking system.

Issues around regulation and taxation fronts directly impact the motivation levels of the originators and investors. Emergence of a broader set of investors is important for the development of the securitisation market in the country, which will in turn fund the economy.

3. MBS Pricing Methodology

In fixed income valuation modeling, there are two methodologies used to value securities with embedded options- Monte Carlo simulation and Lattice model. Monte Carlo simulation model involves simulating a large number of interest rate paths, along each path the security is valued

and then an average of all these values is taken to arrive at the value of security. This model is more flexible of the two methods and is apt when the valuation of the interest rate sensitive security depends on the history of interest rate. Mortgage Backed Securities (MBS) is one such class of securities. The cash flows to an investor of MBS can be broken down into three parts-

- Scheduled Principal
- Interest
- Unscheduled Prepayments

MBS, which allows prepayment, has periodic cash flows which interest rate path-dependent. This means that the cash flows in one period are not only dependent on the present interest rate levels but also the path that interest rate took to reach that level. This is because a period's prepayment rate depends on whether there were prior opportunities to refinance since the underlying loans were originated. Considering this, here are the basic steps we took to develop a Monte Carlo simulation based pricing model of MBS

1. Simulate short-term interest rate and refinancing rate paths.
2. Project the cash flow on each interest rate path.

   Cash Flow = Scheduled Principal + Interest + Unscheduled Prepayments

   Scheduled Principal and Interest payments are pre-decided. The only variable is unscheduled prepayments which will be simulated using prepayments models such as CPR or PSA.

3. Determine the present value of the cash flows on each interest rate path using simulated rates generated in step 1.
4. Compute the theoretical value of the MBS. An average of value along each path.

The two-factor Gaussian model: G2++

The well know Hull-White model is a short rate model and has 2 versions: one-factor and two-factor. The two-factor model adds a stochastic component to the long term mean reversion level to achieve a better description of the movements in the interest rate term structure. Compared to one-factor model, the additional stochastic factor helps to explain the variability in interest rates more precisely, given that model is able to generate interest rates with non-perfect correlation.

According to Brigo & Mercurio (2006) the two-factor Hull-White model is equivalent with the two-additive-factor Gaussian model (G2++) (see pp. 159-162).

The G2++ Interest Rate Model is:

$$r(t) = x(t) + y(t) + \varphi(t)$$

$$dx(t) = -ax(t)dt + \sigma dW_1(t)$$

$$dy(t) = -by(t)dt + \eta dW_2(t)$$

Where $dW_1(t)dW_2(t)$ is a two-dimensional Brownian motion with correlation ρ

$$dW_1(t)dW_2(t) = \rho dt$$

$$\varphi(T) = f^M(0,T) + \frac{\sigma^2}{2a^2}(1-e^{-aT})^2 + \frac{\eta^2}{2b^2}(1-e^{-bT})^2 + \rho\frac{\sigma\eta}{ab}(1-e^{-aT})(1-e^{-bT})$$

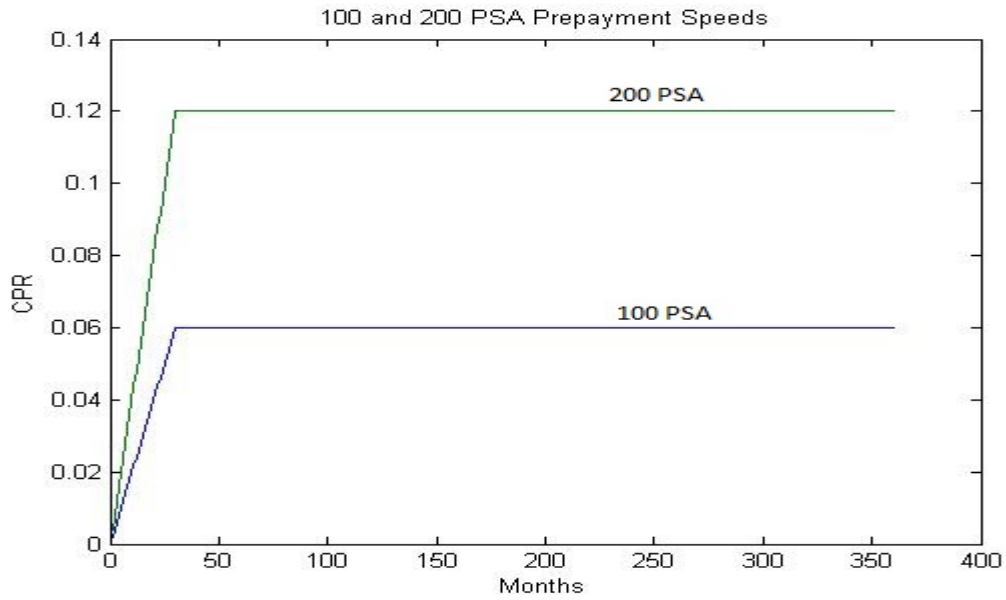
and $r(t)$ is the short rate, a and b are mean reversion constants and σ and η are volatility constants, and $f^M(0,T)$ is the market forward rate, or the forward rate observed on the Settle date.

One drawback of G2++ model which is similar to the one factor Hull-White model is that it allows for negative interest rates as a result of normal distribution assumption of short-rate.

MATLAB model

Prepayment Rate

Prepayment modeling is crucial to pricing an MBS. The most commonly used prepayment model is the Public Securities Association (PSA) model, which assumes a ramp up phase and then a constant conditional prepayment rate (CPR). This model assumes a predefined prepayment pattern irrespective of current interest rates.



In this paper we use an approach proposed by Richard and Roll to model prepayment in MATLAB.

The Richard and Roll prepayment model involves the following factors:

- Refinancing incentive
- Seasonality (month of the year)
- Seasoning or age of the mortgage
- Burnout

Richard and Roll proposed a multiplicative model based on the above factors –

$$CPR = RefiIncentive * SeasoningMultiplier * SeasonalityMultiplier * BurnoutMultiplier$$

We have dropped the Burnout multiplier, which describes the tendency of prepayment to slowdowns once enough homeowners have refinanced.

Refinance Incentive - The refinancing incentive is a function of the ratio of the coupon-rate of the mortgage to the available mortgage rate at that particular point in time. The Office of Thrift Supervision (OTS) periodically comes out with a relationship of following form:

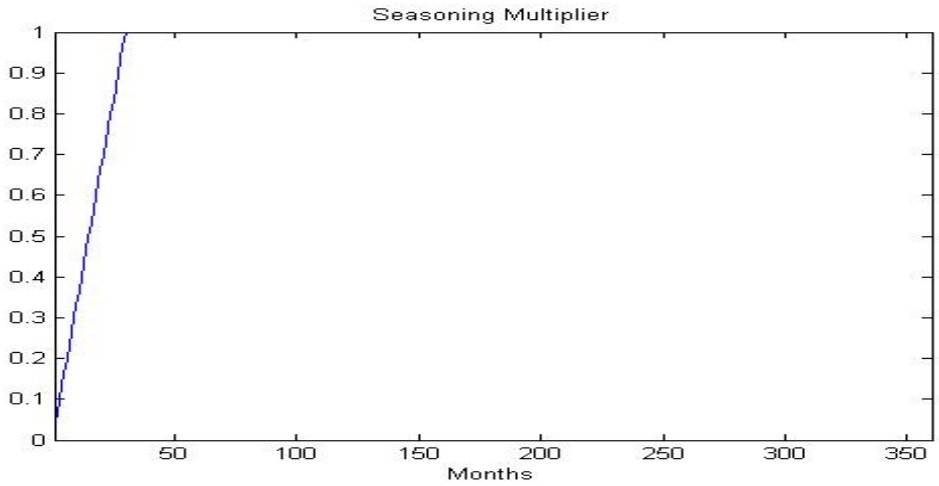
$$Refi = .2406 - .1389 * arctan(5.952 * (1.089 - \frac{CouponRate}{MortgageRate}))$$

As we see above, to predict refinance incentive value we need Mortgage Rate, and to find Mortgage Rate we need to predict the term structure. We are using the following formula to calculate mortgage rate

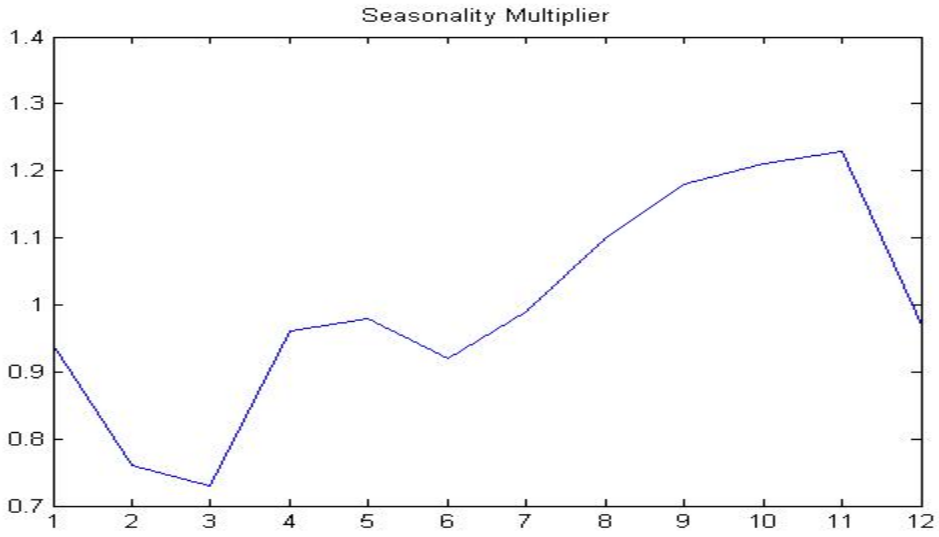
MortgageRate = 0.024 + 0.2*TwoYearRate + 0.6*TenYearRate

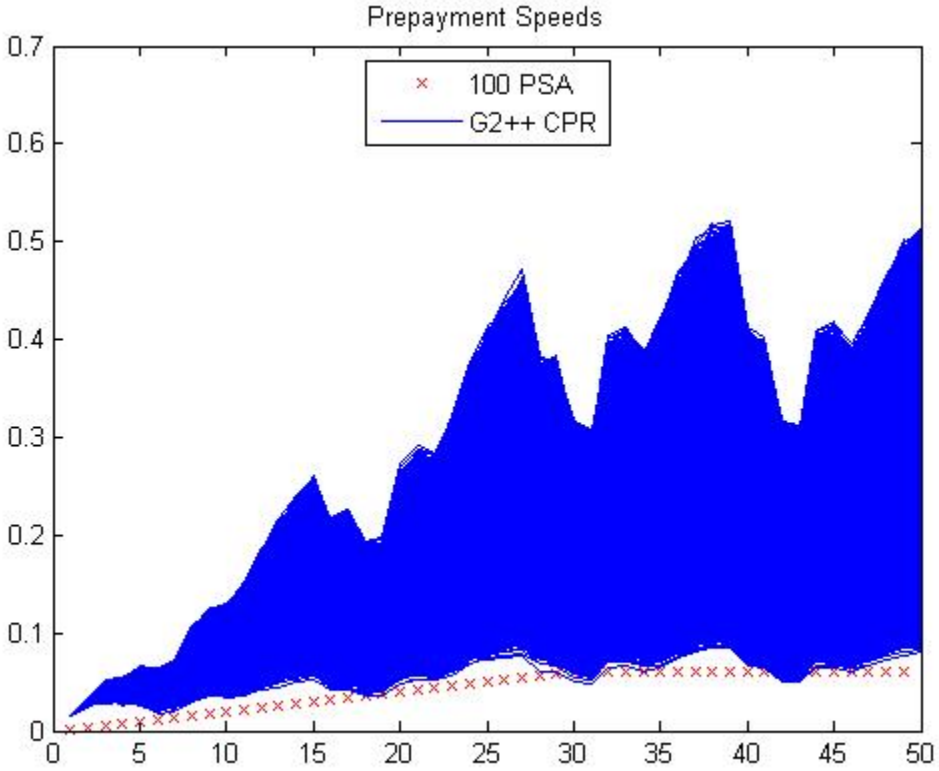
Office of Thrift Supervision, "Net Portfolio Value Model Manual", March 2000

Seasoning Multiplier - Seasoning captures the tendency of prepayment to ramp up at the beginning of a mortgage before leveling off. The seasoning multiplier as given by Office of Thrift Supervision is as follows-



Seasonality Multiplier–It simply models the seasonal behavior of prepayments i.e. throughout the year the prepayment is not the same and varies with months. We have hard coded these numbers in our model. The numbers are based on Ginnie Mae 30year single family MBS.


Seasonality Multiplier
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
1
2
3
4
5
6
7
8
9
10
11
12


Prepayment Speeds
100 PSA
G2++ CPR
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
5
10
15
20
25
30
35
40
45
50

Market Calibration

The parameters a, b, sigma, eta, rho need to be calibrated to market data. We have used interest rate cap data for this calibration. We have currently taken these values from Bloomberg and used it in our model. The value of caps available from Bloomberg are calculated using Black model. Calibration is done by minimizing the sum of squared errors between market value of these caps and the values predicted by G2++ model.

G2++ model implementation and simulation

The G2++ model is implemented by using the inbuilt MATLAB function LinearGaussian2F.
The various interest paths are simulated using simTermStructs method.

How MATLAB runs Monte Carlo simulation

simTermStructs method is used to simulate future zero curve paths using the specified 2 factor, in this case the G2++ model.

Consider a separable, vector-valued HWV model of the form

$$dX(t) = S(t,X(t))[L(t,X(t)) - X(t)]dt + V(t,X(t))dW(t),$$

Where X(t) is an nVars-by-1 state vector of process variables, S(t,X(t)) is an nVars-by-nVars matrix of mean reversion speeds (the rate of mean reversion), L(t,X(t)) is an nVars-by-1 vector of mean
reversion levels (long-run mean or level), V(t,X(t)) is an nVars-by- nBrowns instantaneous volatility rate matrix, and dW(t) is an nBrowns-by-1 Brownian motion vector.

simTermStructs simulates the state vector X(t) by an approximation of the closed-form solution of diagonal drift HWV models. Each element of the state vector X(t) is expressed as the sum of nBrowns correlated Gaussian random draws added to a deterministic time-varying drift. When evaluating the expressions, all model parameters (S(t,X(t)), L(t,X(t)), V(t,X(t))) are assumed piecewise constant over each simulation period. In general, this is not the exact solution to the HWV model above; theprobability distributions of the simulated and true state vectors are identical only for piecewise constant parameters. In the event S(t,X(t)), L(t,X(t)), and V(t,X(t)) are piecewise constant over eachobservation period, the state vector X(t) is normally distributed and the simulated process is exact for the observation times at which X(t) is sampled.

Cash flow modeling and calculating discount factors

Based on G2++ model predicted values and the Refinance model we discussed earlier cash flows are predicted and discount rates calculated for each interest rate path. The cash flows are then multiplied with respective discount rates to calculate the present value. Mean of all such present values are taken to arrive at the MBS price.

Results

Appendix 1 contains the results of our model when applied on Freddie Mac and Fannie Mae issued securities. Here's a summary of those results. It shows the average difference between our model predicted price and market prices of these MBS.

Tenor	Average Price Difference
<=5 years	2.62%
between 5 and 10 years	3.83%
More than 10 years	15.27%

4. Comparing CDO equity returns to returns of bank stocks

The CDO equity tranche is a toxic asset. Despite being typically viewed as a fixed income security the designation of this tranche as equity is actually a very apt description in the usual stock-market sense. The intuition behind it lies in how the CDOs are issued. Many CDOs are created by banks and other financial institutions spinning off their assets into structured portfolios with capital structures closely paralleling those of the original institutions. The investors of CDO equity tranche have residual claim on any cash flow from the underlying.

From this perspective, it would not be surprising for market participants to view CDO equity as being analogous to bank equity.

For bank stock returns we have taken Nasdaq Bank Index as proxy and for returns on CDO equity we have taken CDX High Yield Index (CDX HY) maintained by Markit. CDX HY index has exposure to high yielding corporate loans. The index is reconstituted every 6 months (March and September), thus we have run regressions for daily returns for 6 month periods.

The regression results are as follows-

March'15- September '15

CDXRet =-.0003 + 0.148 . BankStockReturn

(-1.36) **(7.27)***

R^2 = 0.299, F= 52.918, N = 126,* ***t-statistic in parentheses***

*Significance at 1% level

September '14- March '15

CDXRet =-.000019 + 0.179 . BankStockReturn

(-0.071) **(7.56)***

R^2 = 0.317, F= 57.18, N = 125,* ***t-statistic in parentheses***

*Significance at 1% level

March '14- September '14

CDXRet =-.000041 + 0.184 . BankStockReturn

(-0.2301) **(8.79)***

R^2 = 0.38, F= 77.30, N = 128,* ***t-statistic in parentheses***

*Significance at 1% level

September '13- March '14

CDXRet = -.00012 + 0.216 . BankStockReturn
(-0.54) **(9.10)***

R^2 = 0.404, F= 82.91, N = 124,* ***t-statistic in parentheses***

*Significance at 1% level

March '13- September '13

CDXRet =.000011 + 0.272 . BankStockReturn
(0.034) **(7.722)***

R^2 = 0.322, F= 59.63, N = 127,* ***t-statistic in parentheses***

*Significance at 1% level

September '12- March '13

CDXRet =-.000045 + 0.378 . BankStockReturn
(-0.148) **(10.29)***

R^2 = 0.468, F= 105.89, N = 122,* ***t-statistic in parentheses***

*Significance at 1% level

March '12- September '12

CDXRet = 0.00013 + 0.346 . BankStockReturn
(0.303) **(10.92)***

R^2 = 0.486, F= 119.32, N = 128,* ***t-statistic in parentheses***

*Significance at 1% level

All the above regressions suggest that returns on CDX HY are indeed correlated with return on bank Index. The result is as expected.

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Appendix 1: Simulation Results

Issue Date	Coupon	CUSIP Number	Maturity	Market Price	Model Price	% difference	Tenure
13-Jun-08	4.875	3137EABP3	13-Jun-18	110.321	103.73	5.97%	10
25-Oct-00	6.75	3134A4AA2	15-Mar-31	145.868	110.58	24.19%	31
22-Nov-99	6.75	3134A3U46	15-Sep-29	144.218	110.11	23.65%	30
14-Dec-06	5	3134A4ZZ0	14-Dec-18	111.255	104.26	6.29%	12
20-Feb-02	6.25	3134A4KX1	15-Jul-32	138.768	109.57	21.04%	30
15-Feb-01	6.75	3134A4AA2	15-Mar-31	143.199	110.74	22.67%	30
13-Jan-12	2.375	3137EADB2	13-Jan-22	102.486	98.62	3.77%	10
4-Apr-13	1.375	3137EADR7	1-May-20	99.575	94.65	4.95%	7
2-Oct-12	1.25	3137EADM8	2-Oct-19	99.429	98.37	1.07%	7
30-Jul-12	1.25	3137EADK2	1-Aug-19	99.713	97.77	1.95%	7
16-Apr-12	1.75	3137EADG1	30-May-19	101.63	99.05	2.54%	7
27-Mar-09	3.75	3137EACA5	27-Mar-19	108.634	102.28	5.85%	10
13-Jun-08	4.875	3137EABP3	13-Jun-18	110.258	103.69	5.96%	10
17-Jan-13	0.875	3137EADP1	7-Mar-18	99.916	98.61	1.31%	5
27-Mar-09	3.75	3137EACA5	27-Mar-19	107.71	102.3	5.02%	10
28-Aug-92	7.69	312902DF3	15-Sep-22	134.359	111.09	17.32%	30
30-Jan-98	8.25	3134A1Z60	1-Jun-26	137.798	113.12	17.91%	28
30-Jan-04	5.4	3128X2RF4	1-May-28	126.218	107.06	15.18%	24
16-Jun-04	5.5	3128X3PA5	1-Aug-27	126.1	107.17	15.01%	23
20-Dec-07	13.25	3128X6WQ5	28-May-20	149.4	119.22	20.20%	13
22-Jun-07	10.0566	3128X6FG6	28-Mar-19	127.678	112.33	12.02%	12
16-Jun-04	6	3128X3PB3	1-Aug-26	129.794	108.23	16.61%	22
21-May-15	5.27	3134G6YE7	15-Feb-19	111.88	104.78	6.35%	4
19-Mar-15	1.38	3134G6JB0	30-Jan-19	99.789	98.37	1.42%	4
30-Oct-12	1.085	3134G3T83	30-Oct-18	99.067	98.24	0.83%	6
8-Sep-14	2.625	3135G0ZR7	6-Sep-24	101.83	97.5	4.25%	10
7-Nov-14	1.75	3135G0ZY2	26-Nov-19	100.585	98.37	2.20%	5
12-Jan-15	1.625	3135G0A78	21-Jan-20	99.843	98.03	1.82%	5
3-Nov-00	6.625	31359MGK3	15-Nov-30	143.859	110.38	23.27%	30
12-Sep-07	5.5	3136F8RM9	15-May-26	125.494	107.22	14.56%	19
27-Jan-97	7.27	31364CHD3	27-Jul-26	139.751	111.02	20.56%	29
13-Dec-99	5.375	31359MFE8	7-Jun-21	118.046	105.96	10.24%	22
15-Dec-08	4.25	3136F9Z63	15-Jun-22	112.96	103.65	8.24%	14
12-Sep-07	5.4	3136F8RP2	15-May-24	121.998	106.83	12.43%	17
12-Sep-07	5.4	3136F8RN7	15-May-25	123.009	106.87	13.12%	18
23-Feb-04	5	3136F5CQ2	1-Jun-21	115.582	105.11	9.06%	17
23-Feb-04	5	3136F5CT6	1-Jun-24	117.949	105.72	10.37%	20
23-Feb-04	5	3136F5CS8	1-Jun-23	118.103	105.6	10.59%	19
23-Feb-04	5	3136F5CR0	1-Jun-22	117.191	105.3	10.15%	18
12-Sep-07	5.4	3136F8RQ0	15-May-23	120.743	106.62	11.70%	16