Chapter 5 A Simulated Case

We have discussed the most important aspects of credit card securitization. In this chapter, the researcher uses a simulated case to demonstrate how to construct a transaction and the cash flow pattern of it by starting from the credit card receivables of the issuer. Although the assumptions and terms of transaction will be based on real world averages and statistics in Taiwan, inevitably, some assumptions or parameters are a little bit unrealistic. We believe these assumptions will not distort the spirit. The main purpose of this chapter is to draw a portrait of cash flow arrangements and patterns of a real transaction and to analyze benefits and expenses of any mechanism embedded as well as potential risks which could be hidden under the surface.

Basically, credit card receivables backed securities can be structured to have any ratings predetermined by the issuers according to the demands of investors as long as there were proper credit enhancements. The simulated case here will be fit into the reality and the steps of product design should be identifying the demand of investors, determining the tranches and desired ratings of them, selecting the optimal receivables to form the underlying collateral, testing it using the stress levels designed by credit rating agencies to make sure it will survive under different scenarios. This will be the steps the researcher took in this chapter.

5.1 Assumptions and Transaction Terms Description

5.1.1 Originator and Its Credit Card Receivables

The issuer is Sim Bank which has NTD 16.7 billion revolving credit card receivables. Sim Bank wishes to securitize part of its total revolving credit card receivables for the consideration of future business expansion capital needs and risk management. The parameters of its credit card receivables are listed in exhibit 5-3. Since the focus is how to construct a pool and the cash flow pattern of it, we assume the credit card accounts of Sim bank grow steadily without large fluctuations is the base case. By analyzing macroeconomic conditions in Taiwan in recent years[1], we found most major variables affecting credit card performance are turning to positive trends (see Exhibit 5-1 and Exhibit 5-2). Based on that fact, we believe a stable growing credit card market is a reasonable assumption for base case we use here and

[1] Macroeconomic variables affecting credit card receivables performance are Consumer Loan, Credit Card Usage Amount, Credit Card Revolving Amount, Principal Delayed, Consumer Confidence Index(CCI), and Unemployment Rate.

also the most possible economic scenario in the near future in Taiwan.

Exhibit 5-1 Major Economic Variables Affecting Credit Card Performance in Taiwan (I)

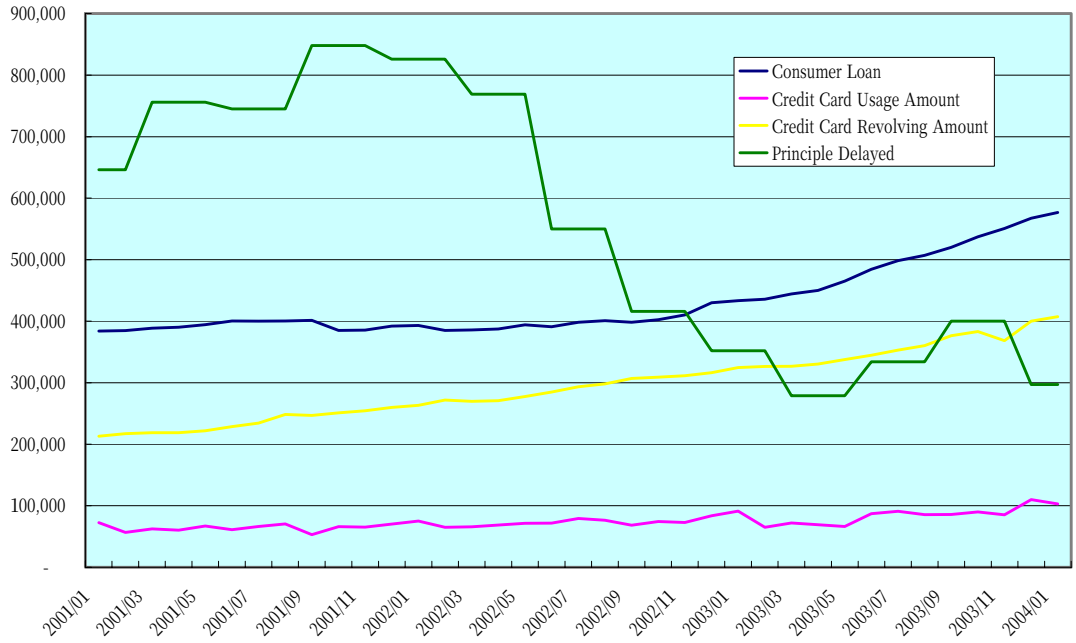
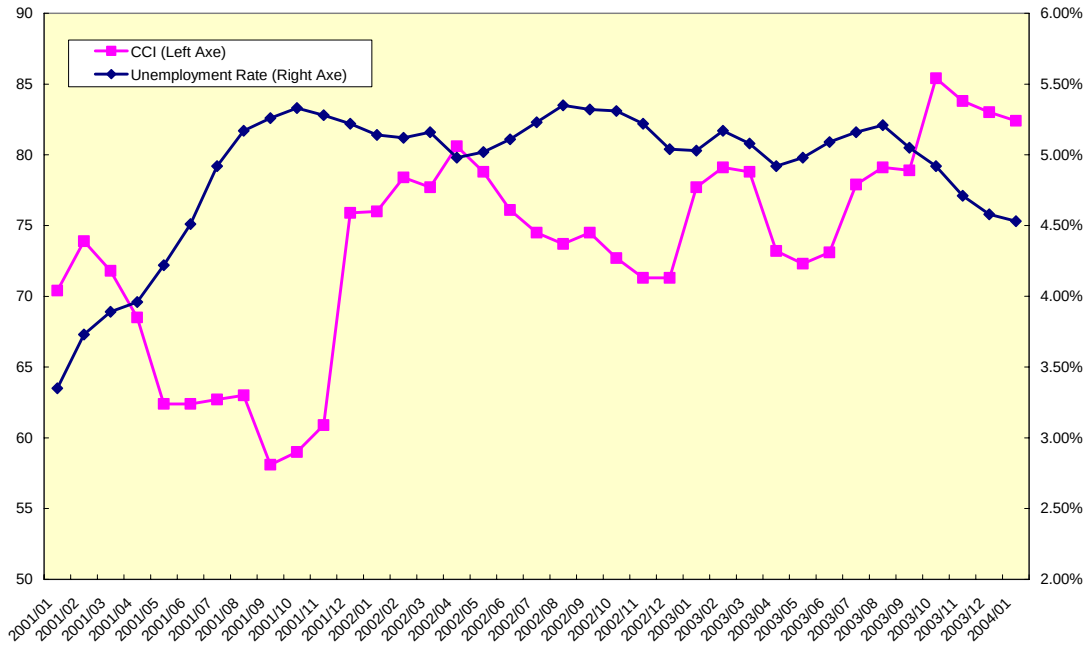


Exhibit 5-2 Major Economic Variables Affecting Credit Card Performance in Taiwan (II)



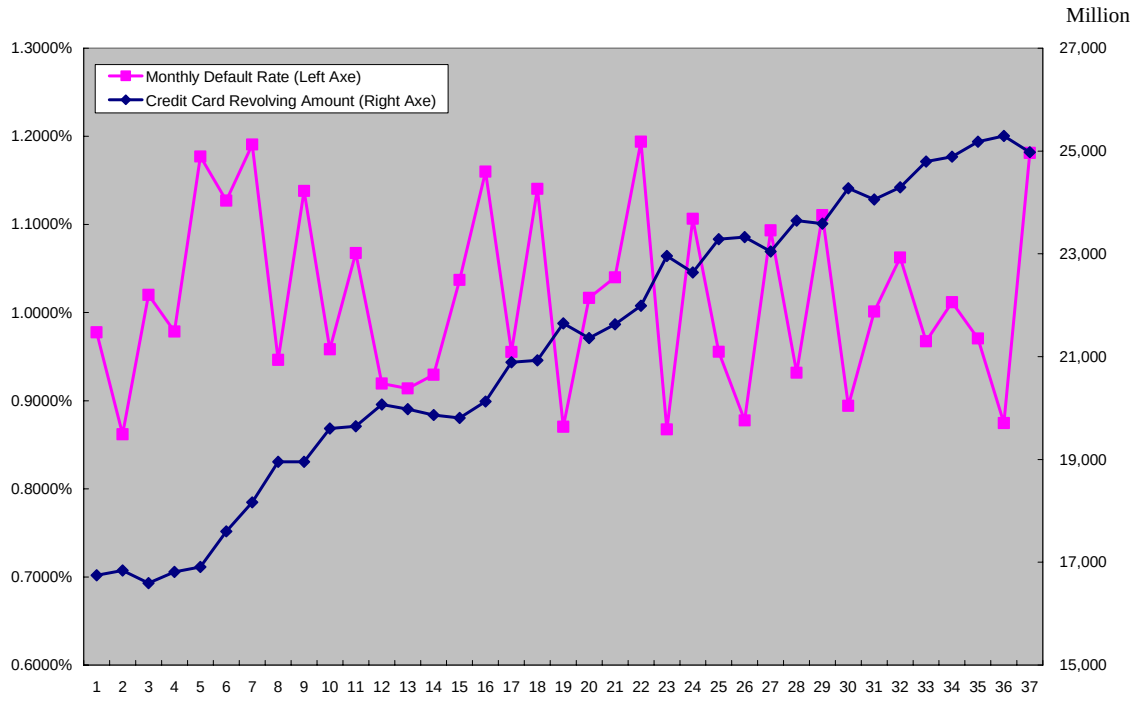
According to parameters we assumed, the researcher created daily cash flows of the credit card receivables for five years which is 1080 days (we used the 360/30 convention to calculate all results in this case). For reality concern, the researcher used random adjusters to simulate volatilities and randomization of daily data. The

original daily credit card accounts data is summarized on monthly basis and listed in appendix A.

Exhibit 5-3 Parameters of Credit Card Receivables of Sim Bank

Card Type	**Credit card without a cash advance function**
Underwriting Standards	**As market average**
Card Holder Credit Scores	**As market average**
Use of Teaser Rates	**None**
Competitive Position	**As market average**
Annual Fee	**Exempted**
Dilutions	**None**
Interest Rate Type	**Fixed and will not change until maturity**
Geographic	**Taiwan**
Total Cards	**2,900,000**
Active Cards Ratio	**55.00%**
Active Cards	**1,595,000**
Monthly Active Cards Growth Rate	**0.0189550**
Daily Active Cards Growth Rate	**0.0006261**
Average Payable Amount Per Active Card	**27,000**
Monthly Average Payable Amount Per Active Card Growth Rate	**(0.0077340)**
Daily Average Payable Amount Per Active Card Growth Rate	**(0.0002568)**
Total Payment Amounmt	**43,065,000,000**
Average Revolving Amount Per Active Card	**10,500**
Monthly Average Revolving Amount Growth Rate	**(0.0014640)**
Daily Average Revolving Amount Growth Rate	**(0.0000488)**
Revolving Principal	**16,747,500,000**
Annual Default rate	**0.1300000**
Daily Default Rate	**0.0003396**
Recovery Rate	**0.1500000**
Annual Interest Rate	**0.2000000**
Daily Interest Rate	**0.0005066**
Annual Other fees rate	**0.0010000**
Daily Other fees rate	**0.0000028**

Exhibit 5-4 Revolving and Default of Credit Card Receivables of Sim Bank



5.1.2 The Trust and Transaction Details

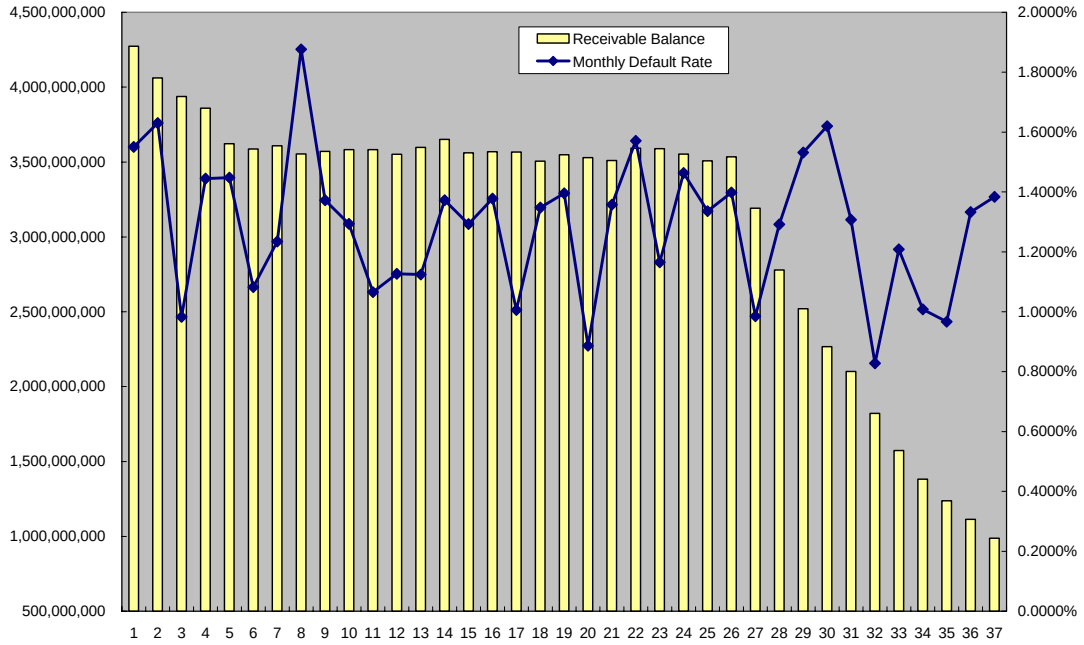
Based on the 16.7 billion revolving amount it has, Sim bank started up Sim Bank Credit Card Issuance Trust (SBCCIT) as the master trustee for its first securitization transaction. Sim bank transferred 4.27 billion revolving amounts to support this transaction. The excess amount of receivables is treated as seller's interest and is not belong to class A note nor class B note. Seller's interest is over collateralization which worked like a cushion to absorb cyclical volatilities to prevent triggering early amortizations (see exhibit 2-10). Just like the credit card receivables of Sim bank, we generated daily data of the trust and then summed them up to monthly data. Collateral performance variables are assumed based on normal and positive economic environment scenario.

This is a master trust that can issue several series without suffering the installation cost of a new trust. Just as we described before, most credit card transaction deals are constructed under master trust recently. In this case, Sim bank only issues one series with three notes within this master trust, of course, it can offer more series in the future as long as it maintained proper receivables balance into the trust.

Exhibit 5-5 Parameters of SBCCIT

Trust Type	Socialized Mater Trust
Card Type	Credit card without cash advance function
Underwriting Standards	As market average
Card Holder Credit Scores	As market average
Use of Teaser Rates	None
Competitive Position	As market average
Annual Fee	Exempted
Dilutions	None
Interest Rate Type	Fixed and will not change until maturity
Geographic	Taiwan
Minimum Seller's Interest Level	15%
Total Cards Transferred	740,000.00
Transfering Ratio	25.5172%
Active Cards Ratio	55.0000%
Active Cards	407,000.00
Total Payment Amount	10,989,000,000.00
Principal Repayment Rate	12.0000%
Monthly Management Fee	0.2500%
Revolving Principal	4,273,500,000.00
Annual Default rate	8.0000%
Monthly Default Rate	0.006666667
Recovery Rate of Charge-offs	15.0000%
Repurchase Expense Rate	0.1000%
Annual Interchange	1.0000%
Annual Interest Rate	20.0000%
Monthly Interest Rate	1.6667%
Annual Financial Charges rate	1.2000%
Monthly Financial Charges rate	0.1000%

Exhibit 5-6 Receivable Balance and Monthly Default Rate of SBCCIT



The quality of collaterals transferred is as important as maintaining enough balance in the trust. Filtering good receivables is not only the fundamental basics for a trust and all series to generate stable cash flow but also very important requirement for credit rating. There are many collateral quality requirements for different underlying assets. For credit card receivables, whether the payments of interest and repayments of principals will be complete on a timely manner all depend on the characteristics of obligor. Then the specifics of accounts come into consideration. By assuring both obligors and accounts are maintaining good condition, the possibility of unwanted results is minimized. The quality requirements of collaterals are listed in exhibit 5-5. Finance charges allocation and cash flow arrangements are graphed in exhibit 5-6.

5.1.3 Tranches

How many tranches to launch and in what order and priority in a transaction? It is a huge question and far beyond the scope of this paper. The researcher assumes the issuers had completed detail market research works and concluded the preference of major institutional investors. Investors on the market prefer investment grade securities and Sim Bank found that the preferable deals in market should be geared with three tranches which are rated as AAA and A (junior tranche is not rated).

Exhibit 5-7 Quality Requirements of Collaterals

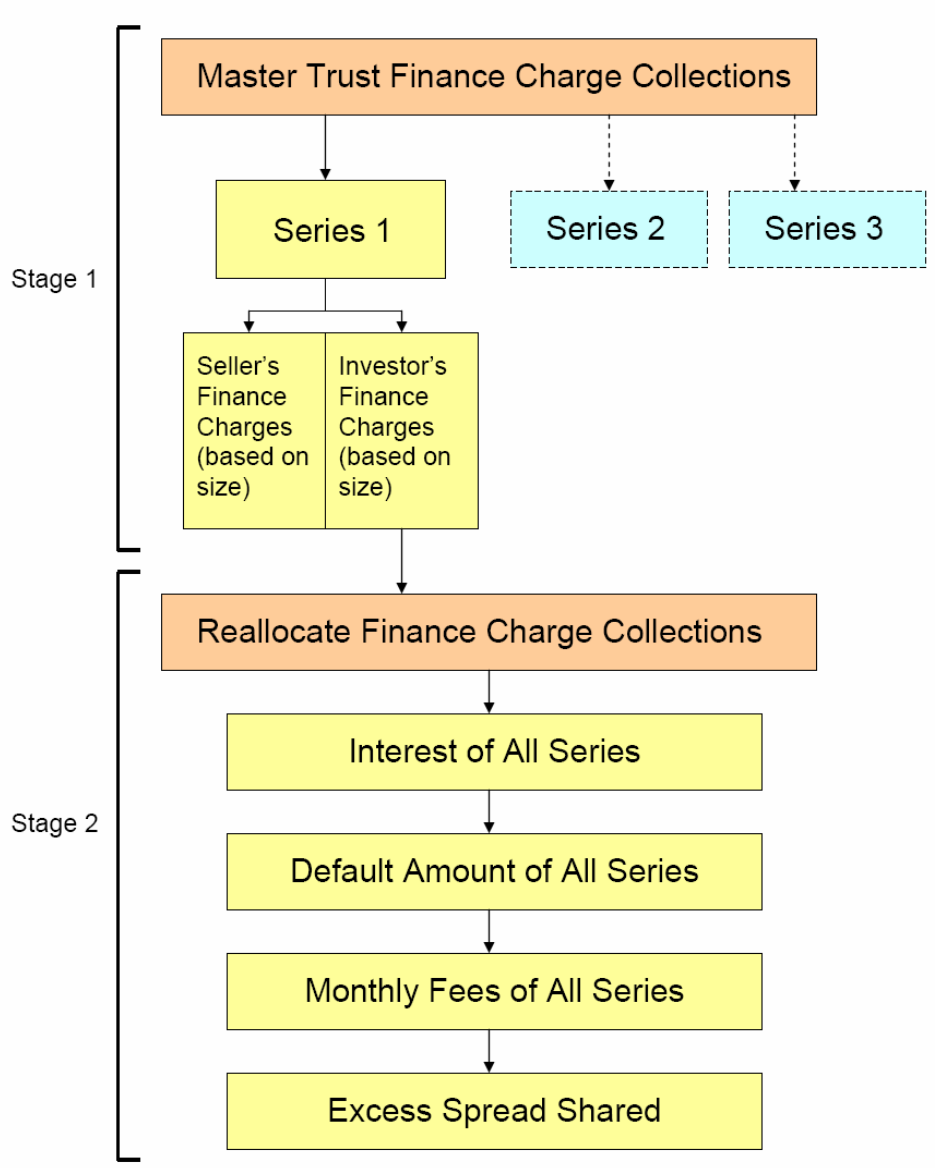
- The account must have been seasoned for at least 24 months.
- The obligor must be a permanent resident of Taiwan and be domiciled in Taiwan.
- The obligor may not be less than 20 years old and may not be more than 50 years old as of the cut-off date.
- The obligor may not be a student, self employed, or employed by Sim bank.
- The obligor must have a minimum monthly income of NT$10,000 as of the cut-off date.
- The facility limit and outstanding balance may not exceed NT$500,000.
- All amounts owed under the account must have been current as of the cut-off date.
- The account may not have been past due by 30 days in the 24 months preceding the cut-off date, and may not have been past due by 10 days more than two times in the 24 months preceding the cut-off date.
- The account may not have been subject to any prior restructuring, or have been re-aged.
- The account must have a minimum yield of 15%.
- The account must have a minimum payment rate of 3%.
- A maximum 8% exposure to accounts with credit limits of NT$400,000-NT$500,000.
- A maximum 20% exposure to accounts which are fully utilized on their credit limits.
- A maximum 10% exposure to accounts whose obligors are between the age of 20-25 years.
- A minimum 70% exposure to accounts whose obligors are domiciled in large metropolis cities in Taiwan.
- A maximum 25% exposure to accounts with average monthly payment rates of less than 6%.

Source: Standard and Poor's (2003)

Sim bank decided to issue three tranches which are superior tranche, senior tranche, and junior tranche. Superior tranche and senior tranche are rated as AAA and A. Junior tranche is not rated and it will be bought back by the issuer. According to investors' needs, the superior note will be structured to 3 billion dollars. Since the consecutive tranches are structured mainly for credit enhancement purpose, how large they will be should be decided by precise calculation. Referenced to structures of most cases issued before and the recommendation given by rating agencies, the proper

percentage of class B is 5% of the whole transaction and 7% for class C, and that is also what we use in this case. Details of each tranche are listed in exhibit 5-2.

Exhibit 5-8 Finance Charge Allocations in SBCCIT



Structuring tranches has one main purpose, fulfill cash flow needs and risk preferences of investors. We should keep in mind, structuring tranches is not free. Constructing tranches and managing them are costly. Our effort on arranging optimal amount of three tranches should attain the goal of the lowest credit enhancement cost. Besides, different tranches have different ratings and different cash flow strength requirements. For superior tranche, it has to pass the stress test by the support of the senior tranche, and they both have to pass the stress test under the help of the junior

tranche. How much will each credit enhancement cost and the cash flow stress test are presented next.

This transaction has to perform well to prevent touching termination triggers and as long as it can keep generating enough cash flows, no interest payments will be delayed. When revolving period ends, amortization period where principals collected are not transforming into new eligible accounts but paying to investors starts. The principal repayments contributed to superior tranche first. Senior tranche and junior tranche are accrued and will not be repaid until the 36th month. Extra cash left is going to a cash account for the use of an ending payment also backing up superior tranche. By the end of this transaction, junior tranche is repaid by the cash left after senior tranchesat is fully repaid.

Note that, although the certificate is amortizing, the allocation percentage will increasing, not declining. That's because, at the end of the revolving period, the numerator used to allocate principal to the investor freezes. Since the total amount of collateral is reducing in amortization period, the allocation percentage to investor will increase, of course, it is not allowed to exceed 100%.

Exhibit 5-9 Principal Allocations in SBCCIT (Revolving Period)

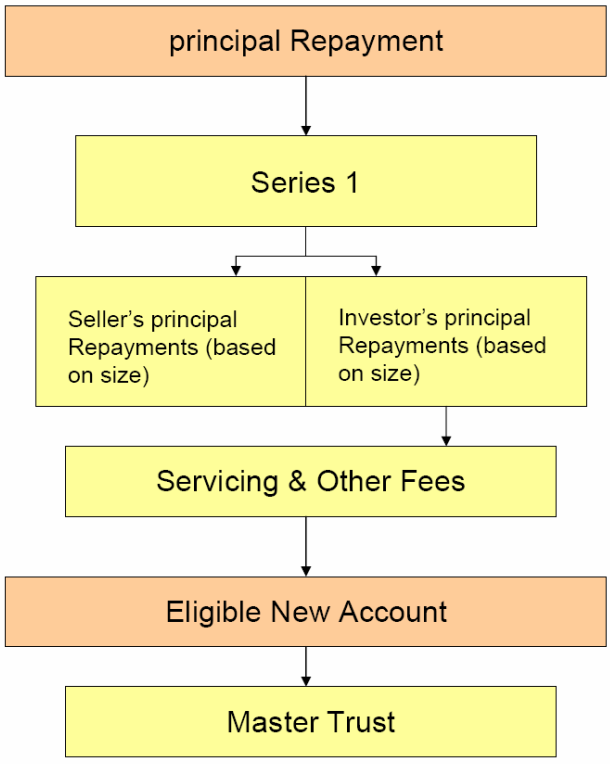


Exhibit 5-10 Principal Allocations in SBCCIT (Amortization Period)

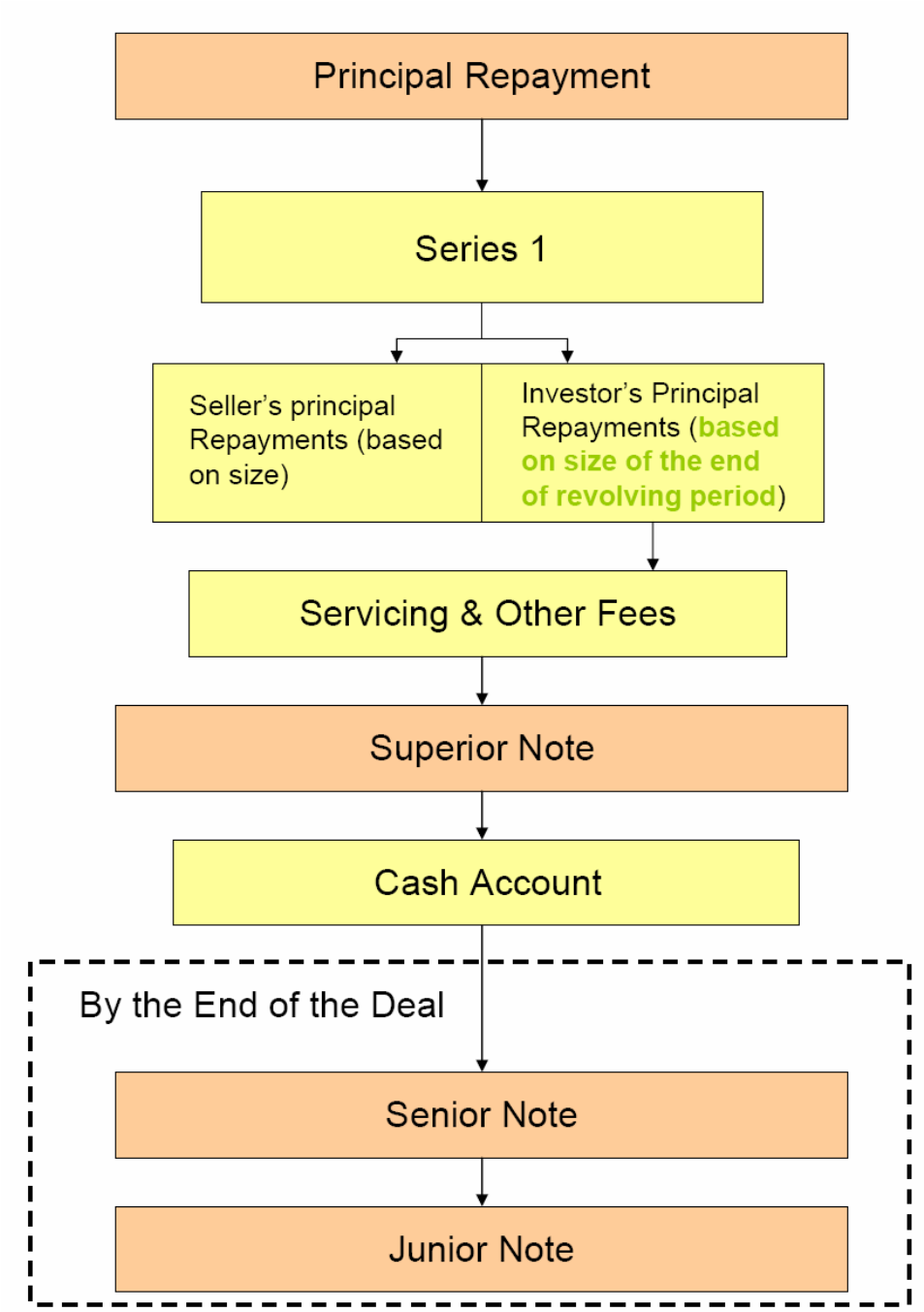
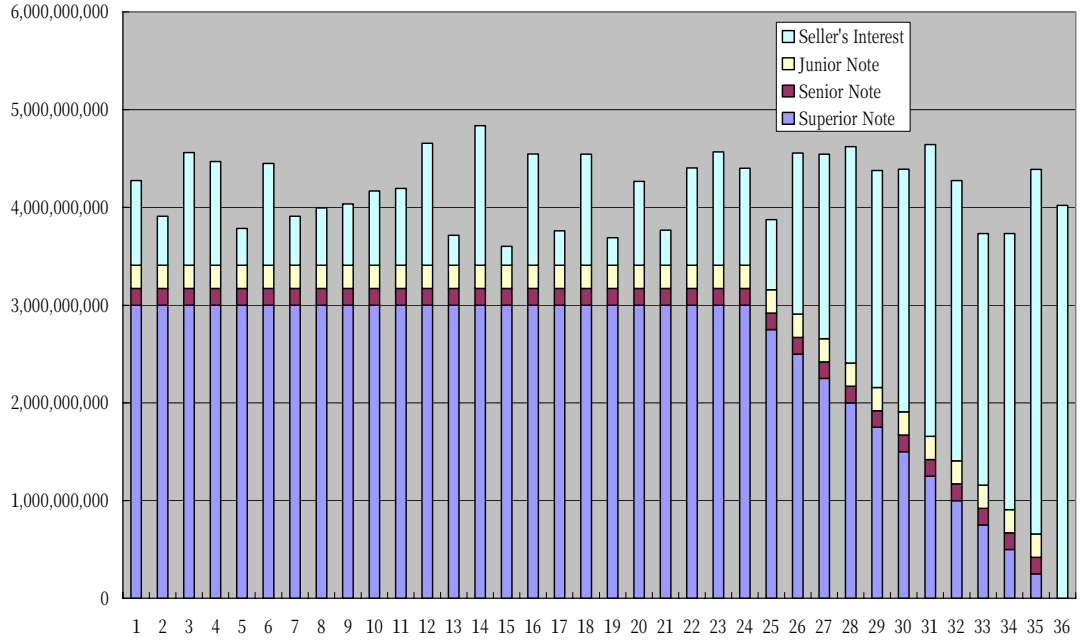


Exhibit 5-11 Details of Tranches

Tranches	Rating	Amount	Ratio	Interest Rate
Superior Note	AAA	3,000,000,000	88.04%	2.20%
Senior Note	A	170,000,000	4.99%	2.60%
Junior Note	N/R	237,500,000	6.97%	3.20%
	Total	3,407,500,000	100.00%	

Exhibit 5-12 Principal Balances of Tranches



5.1.4 Credit Enhancements

We have discussed various credit enhancements previously. Although there are internal and external credit enhancements, the researcher assume the issuer took internal one in this series. There are basically three methods applied. The first mechanism is credit tranching. There are three tranches in this series and the junior tranches are used as credit support of senior tranches, just as most cases in the market. The lowest priority note is purchased by the issuer. The major function of lower priority tranches is to absorb losses incurred during amortization period, not revolving period. Notice that early amortization protects this deal during the revolving period. Basically, when revolving period ends, principals collected are not used to buy new eligible account. Instead, they are distributed to certificate holders as repayments.

The second credit strengthening tool is reserves composed by cash reserve account and excess spread account constructed after the cut-off date and funded by excess spread generated by collaterals every month. The excess spread amount is accumulated into a special account and here in this case we assume no interest earned by any cash account. Cash reserve account is funded by issuer at the initialization of the deal. Total amount of cash reserve is 300 million dollars.

And the third is over collateralization. We can check it out in exhibit 5-6 that the total receivables in the trust is always higher than the sum of three tranches and

the excess part is call seller's interest which functioned as over collateralization. The liquidity need is provided by a third party with a cost according to the financing ability of the issuer.

Now we want to approximate the cost of credit enhancement because it is part of the total capital cost of the issuer in this transaction. We summarized the cost of common credit enhancement forms in exhibit 5-7. The researcher calculated the approximation cost of each credit enhancement channel by assuming charges of each channel. For credit tranching, the credit spread of the senior note compared with superior note multiplied by the amount of senior note is the cost of it.

Since the junior note is purchased by the issuer, the cost of junior note is the ROE of the issuer. The cost of excess spread is the actual loss incurred which varied every year. Expense of over collateralization of other kind of collaterals is the actual losses accrued until maturity but for credit card receivables we have here, ROA is more proper since most losses are covered by excess spread. We assume the cost of liquidity is 3% and the amount of liquidity provided is 1% of the superior amount by a third party. There is different cost of credit enhancement under different scenario in different years. Credit enhancement cost differences will not be a huge amount in this case so calculating the cost of the first year would be a good illustration. The result of calculation is listed in exhibit 5-7.

First year credit enhancement cost amounted to 318 million dollars that is 9.361% of total issuance amount. This is a pretty considerable expense compared with total service charges servicer received during the life of this deal (which equals to 388 million dollars). High loss rate is a feature of credit card receivables and investors don't have to worry about that as long as the servicer can cover it by interest revenues and still generate excess spread.

Exhibit 5-13 How Much Will the Credit Enhancement Cost

Credit Enhancements	Costs
Over Collateralization	Actual cost = Real losses
Spread Account	Actual cost = Real losses
Bank LOC	Benchmark + 50-70 bps
Pool Insurance	Benchmark + 40-45 bps
Sub Debt	40-200 bps

Exhibit 5-14 Cost of Credit Enhancement (1st Year)

Method	Reference Cost	Amount	Percentage
Senior Tranche	Spread	680,000	0.21%
Junior Tranche	ROE	11,162,500	3.50%
Over Collateralization	ROA	3,570,033	1.12%
Cash Reserve	WACC	10,425,000	3.27%
Excess Spread	Actual Loss	293,133,258	91.90%
	Total	318,970,791	

Exhibit 5-15 Cost of Capital Assumptions

ROE	4.700%
ROA	0.450%
Cost of Debt	3.000%
Tax Rate	25.000%
WACC	3.475%

5.2 Cash Flow Stress Test

The rating process contains three main parts: Issuer/servicer credit quality examination, Cash flow stress test, and Legal aspect and addresses full and timely payment of interest and ultimate repayment of principal by the transaction's legal final maturity date. Interest payments are made mostly during revolving period while principal payments are distributed by the beginning of amortization period. Collateral performance and credit enhancement efforts are primary ways to guarantee those cash flow needs are fulfilled completely and on time.

By the fact that there is an early amortization mechanism (see exhibit 5-13) build in this transaction to protect investors from being harmed by adverse situations, we can simplify the goal of cash flow stress test to be maintaining proper excess spread during revolving period. For amortization period, principal repaid following the amortization schedule is the highest priority concern.

5.2.1 General Guidelines for Cash Flow Stress Test

Credit rating agencies use real data and models to forecast future cash flows and credit strength of collaterals. In this section, we depend on a simulated rating process with several assumptions. What we use here is not real models or testing

criteria adopted by rating agencies such as Chinese Ratings or Moody's, since we have no way to get those. Instead, the researcher created rating criteria and testing models based on research papers released by Standard and Poor's and Fitch. Again, we are not expecting neither those assumptions or models are 100% accurate and precise nor they have superior determinant power. What the researcher would like to address here is the steps of stress test and the logic of them together with possible stresses issuer could encounter during a transaction.

We will put efforts on how cash is generated and disseminated. We use different scenarios to test each tranche in the simulated case and this transaction should be able to go through those conditions until maturity. Principals of each tranche should be paid in full without delays with the help of credit enhancements. Cash flow stress testing scenarios we use in this paper are Loss Spike Scenario, Cut Throat Competition Scenario, and Combined Scenario each has various levels of key modeling variables. General guidelines for superior note and senior note are listed in exhibit 5-8. In the following sections we tested the simulated case to see whether this

Exhibit 5-16 General Guidelines for Cash Flow Stress Test of Superior Note

Key Modeling Variables	Combined Stress Scenario	Cut Throat Competition Scenario	Loss Spike Scenario
Interest Rate	Decrease to 80% of base case	Decrease to 70% of base case	Expected steady state
Financial Charges Rate	Decrease to 80% of base case	Decrease to 70% of base case	Expected steady state
Annual Interchange	Decrease to 70% of base case	Expected steady state	Expected steady state
Default Rate	Increase to 140% of base rate	Increase to 140% of base rate	Increase to 200% of base rate
Recovery Rate of Charge-offs	Decrease to 70% of base case	Expected steady state	Decrease to 50% of base case
Principal Repayment Rate	Decrease to 60% of base case	Expected steady state	Expected steady state
Purchase Rate	Decrease to 90% of base case	Decrease to 90% of base case	Decrease to 90% of base case
Repurchase Expense Rate	Increase to 140% of base rate	Increase to 160% of base rate	Increase to 140% of base rate

transaction will prevent early amortization triggers from being inactivated and principal of all tranches will be paid on time under different levels of modeling variables.

Exhibit 5-17 General Guidelines for Cash Flow Stress Test of Senior Note

Key Modeling Variables	Combined Stress Scenario	Cut Throat Competition Scenario	Loss Spike Scenario
Interest Rate	Decrease to 90% of base case	Decrease to 85% of base case	Expected steady state
Financial Charges Rate	Decrease to 90% of base case	Decrease to 85% of base case	Expected steady state
Annual Interchange	Decrease to 85% of base case	Expected steady state	Expected steady state
Default Rate	Increase to 120% of base rate	Increase to 120% of base rate	Increase to 170% of base rate
Recovery Rate of Charge-offs	Decrease to 85% of base case	Expected steady state	Decrease to 65% of base case
Principal Repayment Rate	Decrease to 75% of base case	Expected steady state	Expected steady state
Purchase Rate	Decrease to 95% of base case	Decrease to 95% of base case	Decrease to 95% of base case
Repurchase Expense Rate	Increase to 110% of base rate	Increase to 125% of base rate	Increase to 110% of base rate

Exhibit 5-18 Early Amortization Triggers of SBCCIT

- Failure to make required deposits or payments of any tranche
- Failure to transfer receivables to the trust when necessary
- Events of default, bankruptcy or insolvency of the seller or servicer
- Three-month average excess spread falls below zero
- Failure to pay principal in full on the expected payment date
- Seller interest falls below the minimum level of 15% in consecutive 3 months period
- Collateral portfolio balance falls below the invested amount

5.2.2 Base Case Cash Flow

As we mentioned before, rating addresses full and timely payment of interest and ultimate repayment of principal by the transaction's legal final maturity date. After applied those different scenarios, each note should have sufficient cash flow to fulfill its obligations and no certificates should be harmed.

During the whole life span of this transaction, we focus on variables related to the overall health of the trust to make sure it will keep going until the designated maturity date to serve its obligations. We first look at the performance of the trust. In the base case assumptions, it produced pretty good results which combined high and stable yield, low loss rate and abundant excess spread. Three-month average excess spread never falls below zero. The cash flow of investor and seller are also sufficient here. There is one thing to notice, since the amortization process starts from the 25th month, the investor's cash revenue and cash expense are declining in the last year but that not the case for seller among all simulations here.

Seller's interest is another crucial factor of this deal. It is important for most real cases also because higher seller's interest makes sure that servicer will do its job well to protect investors and prevents moral hazard problem. The minimum seller's interest threshold is 5% which is also be satisfied. Collateral portfolio balance stayed at pretty high level around 4 billion during the whole revolving period. All three transhes are fully repaid on time without using the excess spread since the monthly repayment rate is good for meeting principal repayment needs in this scenario.

Exhibit 5-19 Key Modeling Variables of Base Case

Key Modeling Variables	Base Case
Principal Repayment Rate	12.0000%
Monthly Management Fee	0.2500%
Annual Default rate	8.0000%
Monthly Default Rate	0.6667%
Recovery Rate of Charge-offs	15.0000%
Purchase Rate	100.0000%
Repurchase Expense Rate	0.1000%
Annual Interchange	1.0000%
Annual Interest Rate	20.0000%
Annual Financial Charges rate	1.2000%

Exhibit 5-20 Collateral Performance

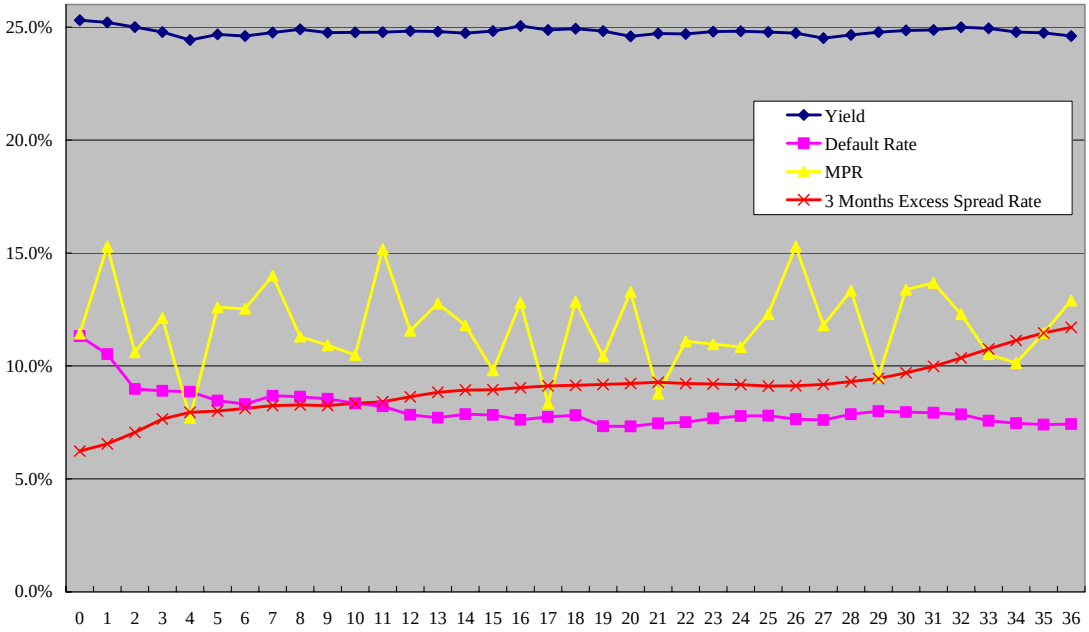


Exhibit 5-21 Investor's Cash Flow Path

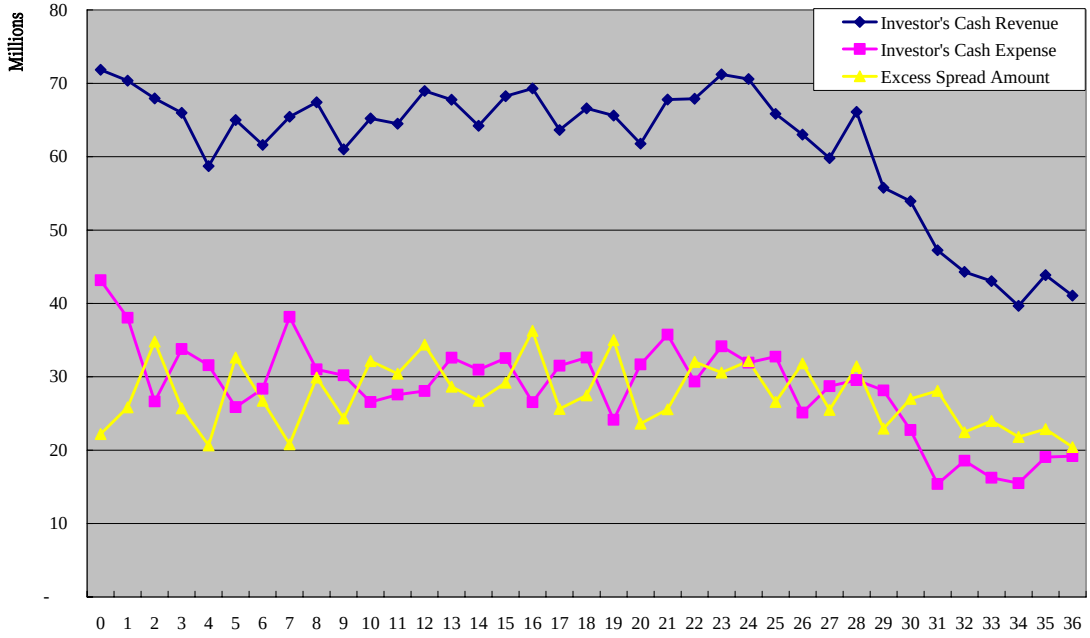


Exhibit 5-22 Seller's Cash Flow Path

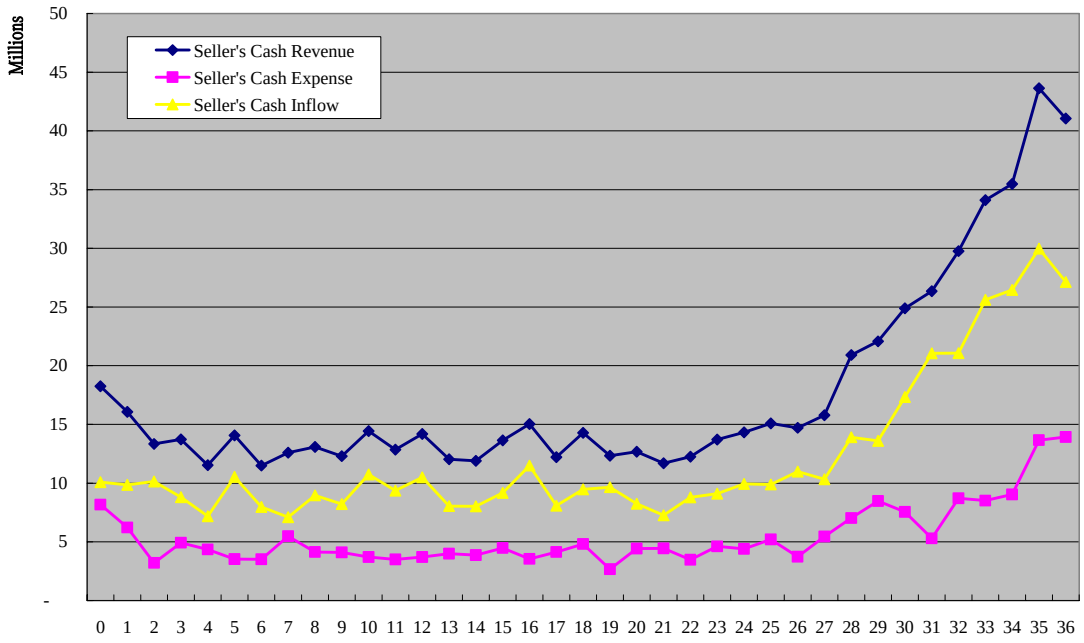


Exhibit 5-23 Seller's & Investor's Interest Share

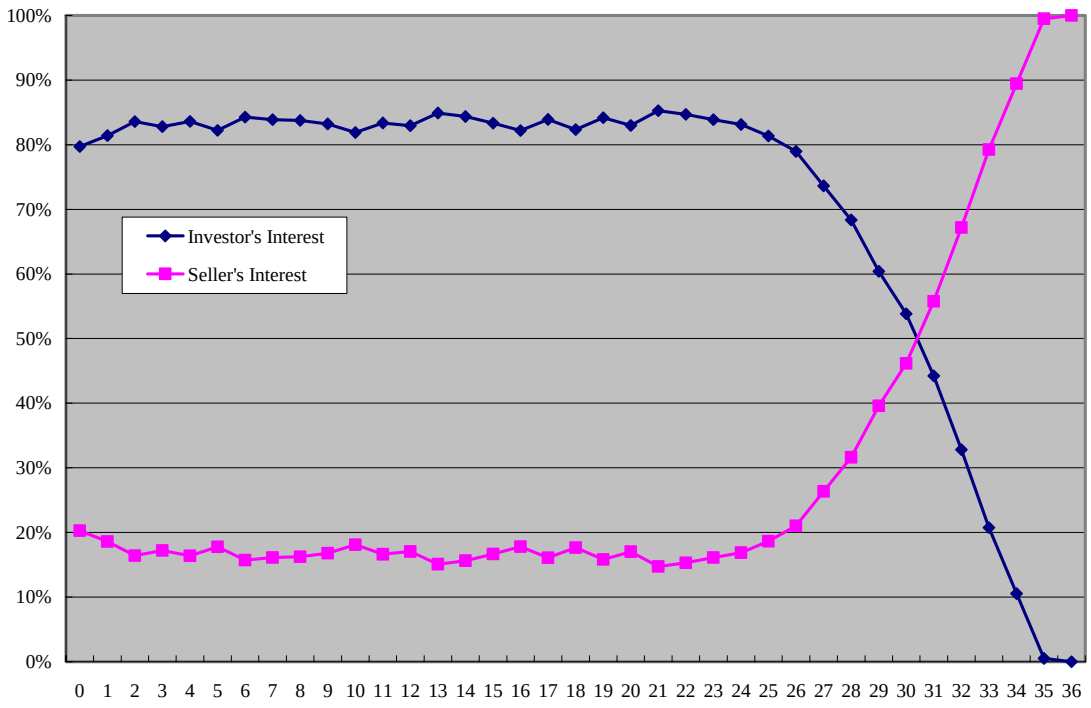


Exhibit 5-24 Collateral Portfolio Balance

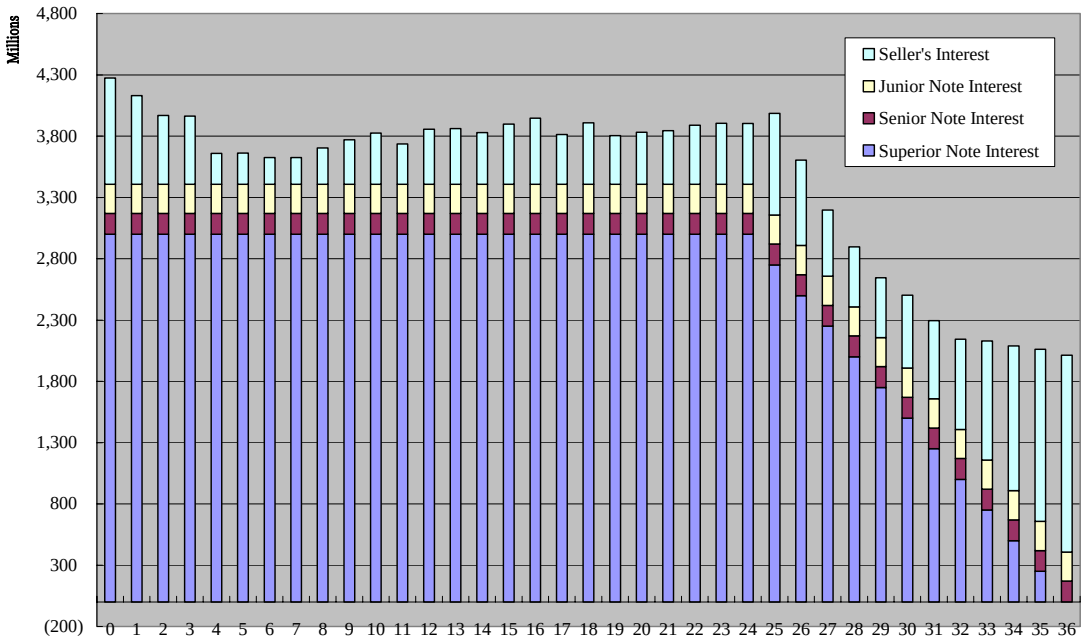
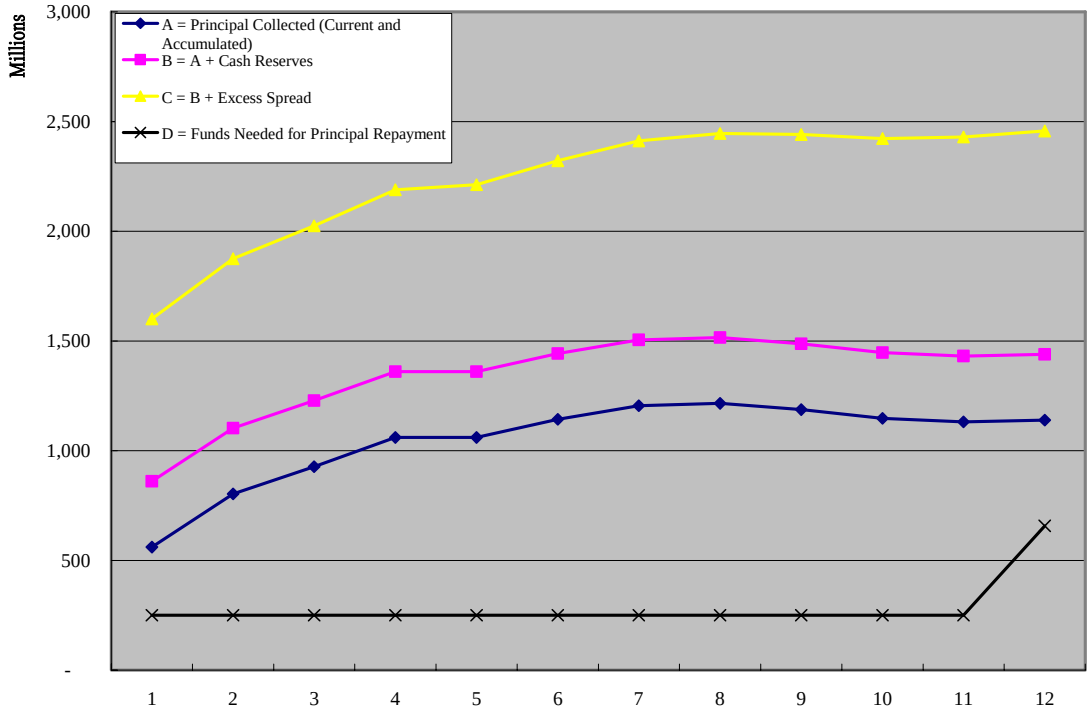


Exhibit 5-25 Principal Repayment Test



5.2.3 Simulated Results of Superior Note

Key modeling variables are listed in exhibit 5-14. This scenario contains several severe assumptions to test the cash flow of this transaction during bad time. The result is fine. All requirements are met and principal repayment of superior tranche is not harmed although this is not true for the other two tranches. At the end of the deal, there is not sufficient fund to repay senior tranche and junior tranche which means they defaulted and investors of them incurred loss. Fortunately, interest of investors of superior tranche is not damaged that gives this tranche triple A rating as expected.

Another thing to notice is the much lower three month average excess spread, due to inverse economic conditions. During the whole revolving period, the excess spread rate is walking around 1% and never exceeded 2%. The collateral generated mildly larger cash flow than needed to pay expenses and interests in most periods. Excess spread amount is negative in couple periods while the collateral is revolving but the situation is not devastating. This happened not only to investor's cash flow but seller's. Seller's interest maintained at permissible level and so does the collateral balance. The collateral balance in the cut throat competition scenario and loss spike scenario are just passed the requirement in some periods which means this transaction could be early amortized if there is any bigger volatility of the repurchase contribution under an economic situation like those.

Exhibit 5-26 Variables of Cash Flow Stress Test for AAA Rated Note

Key Modeling Variables	Base Case	**Combined Stress Scenario**	**Cut Throat Competition Scenario**	**Loss Spike Scenario**
Principal Repayment Rate	12.0000%	7.2000%	12.0000%	12.0000%
Monthly Management Fee	0.2500%	0.3500%	0.2500%	0.2500%
Annual Default rate	8.0000%	11.2000%	11.2000%	16.0000%
Monthly Default Rate	0.6667%	0.9333%	0.9333%	1.3333%
Recovery Rate of Charge-offs	15.0000%	10.5000%	15.0000%	7.5000%
Purchase Rate	100.0000%	95.0000%	95.0000%	95.0000%
Repurchase Expense Rate	0.1000%	0.1400%	0.1600%	0.1400%
Annual Interchange	1.0000%	0.7000%	1.0000%	1.0000%
Annual Interest Rate	20.0000%	16.0000%	14.0000%	20.0000%
Annual Financial Charges rate	1.2000%	0.9600%	0.8400%	1.2000%

Combined Stress

Exhibit 5-27 Collateral Performance

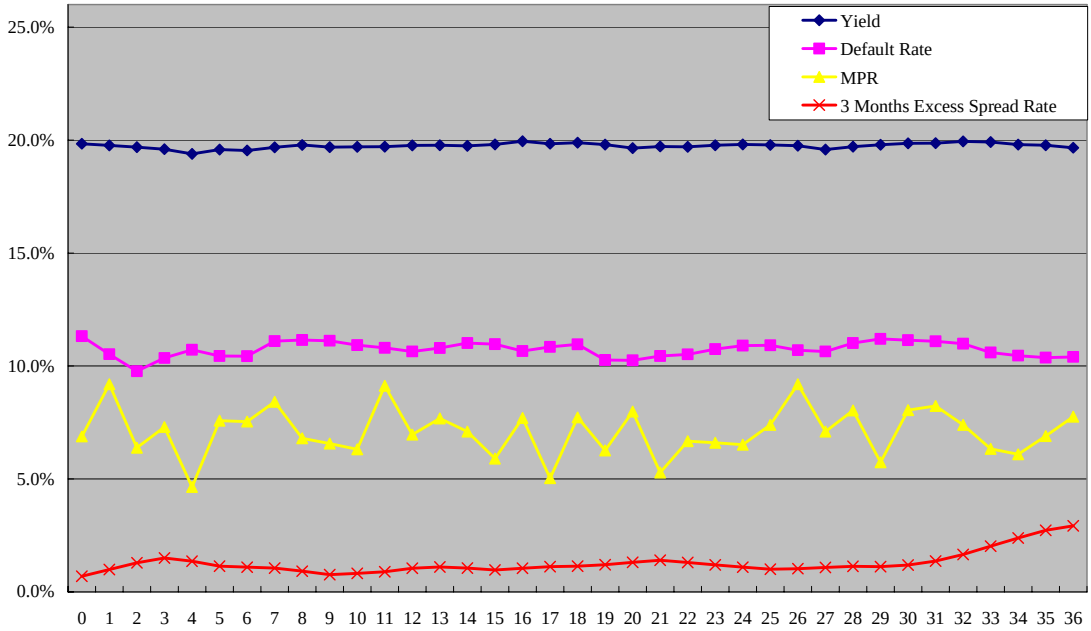


Exhibit 5-28 Investor's Cash Flow Path

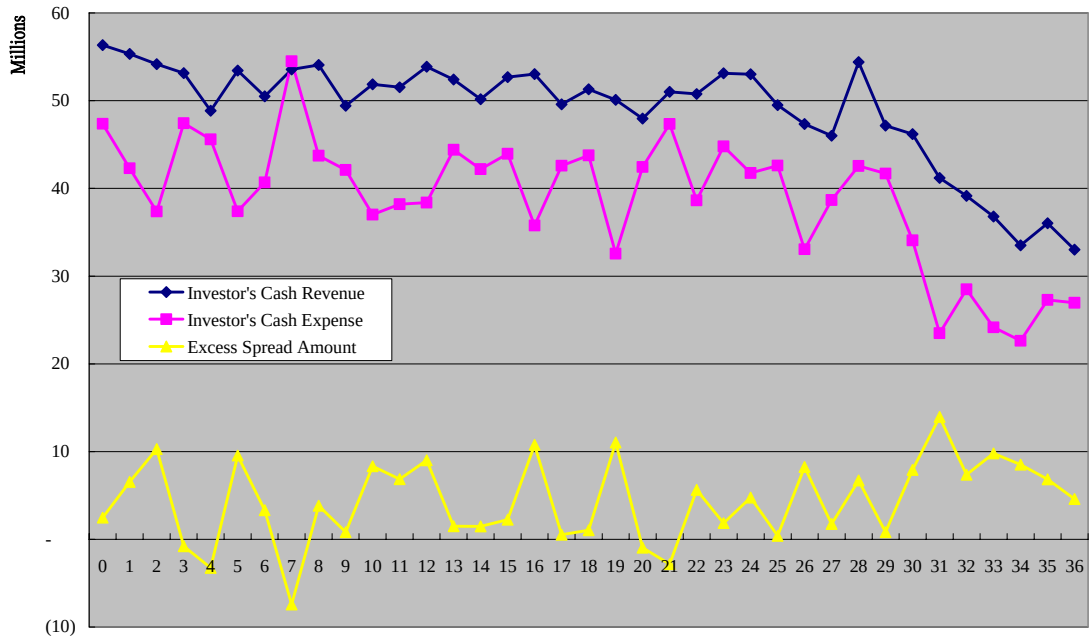


Exhibit 5-29 Seller's Cash Flow Path

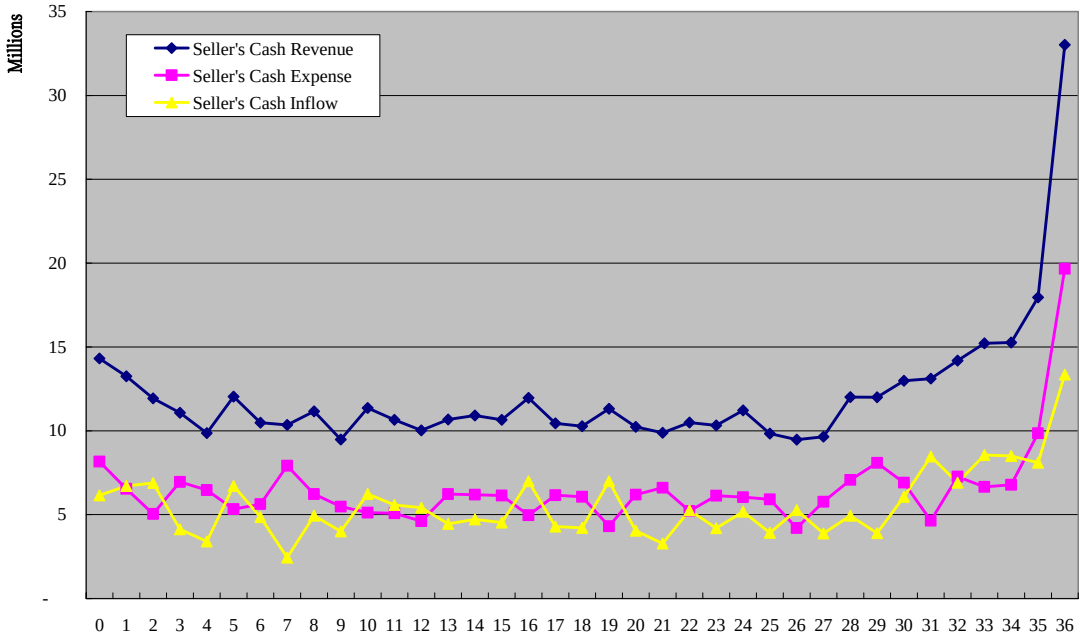


Exhibit 5-30 Seller's & Investor's Interest Share

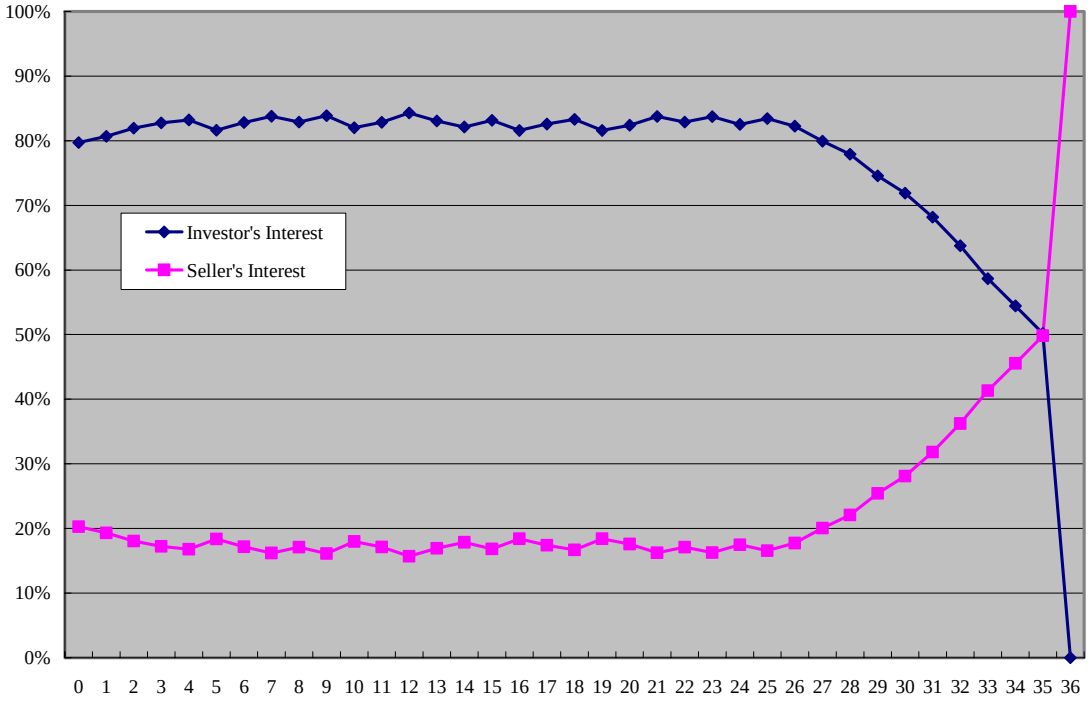


Exhibit 5-31 Collateral Portfolio Balance

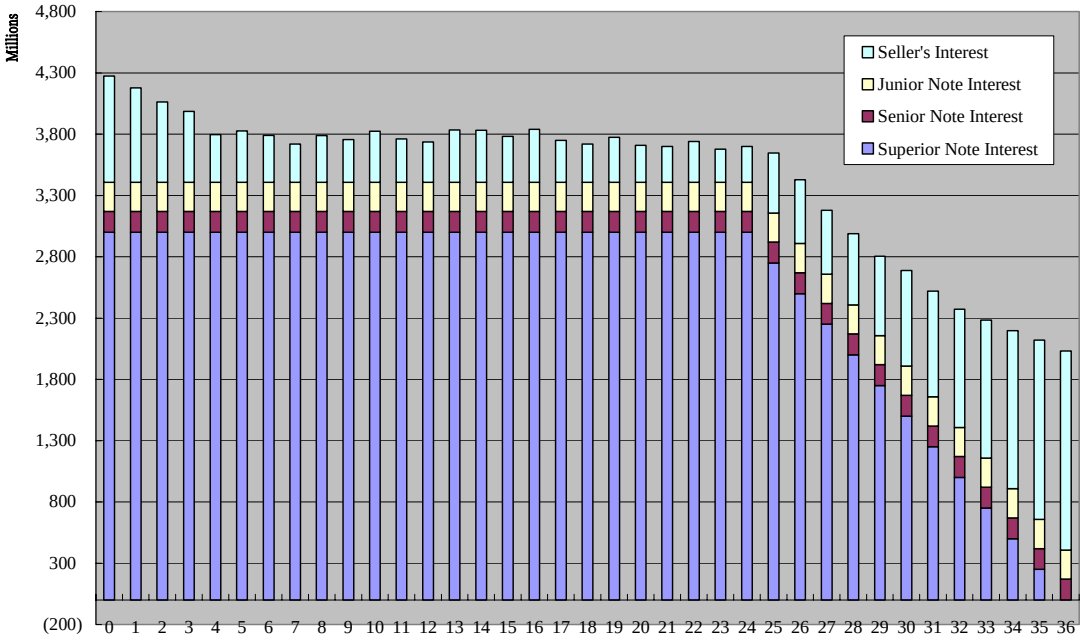
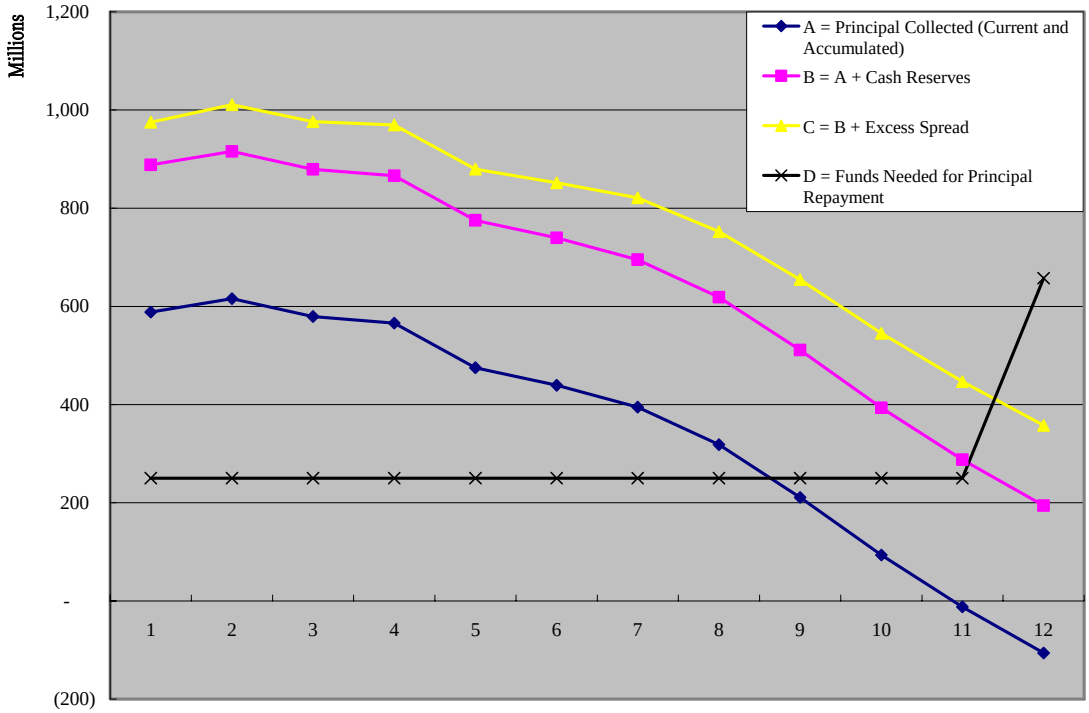


Exhibit 5-32 Principal Repayment Test



Cut Throat Competition

Exhibit 5-33 Collateral Performance

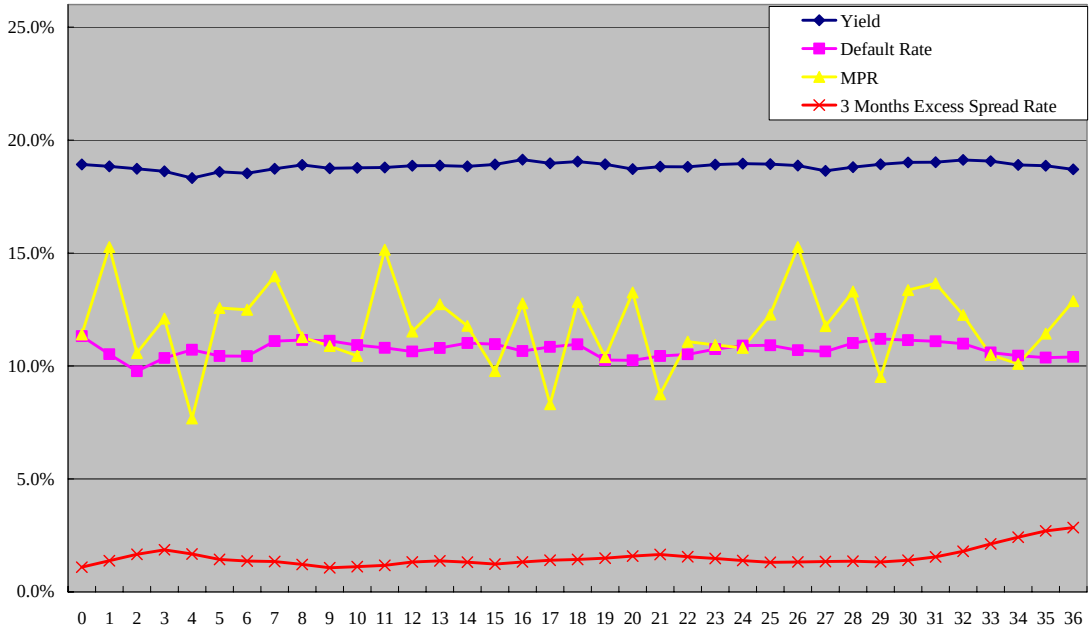


Exhibit 5-34 Investor's Cash Flow Path

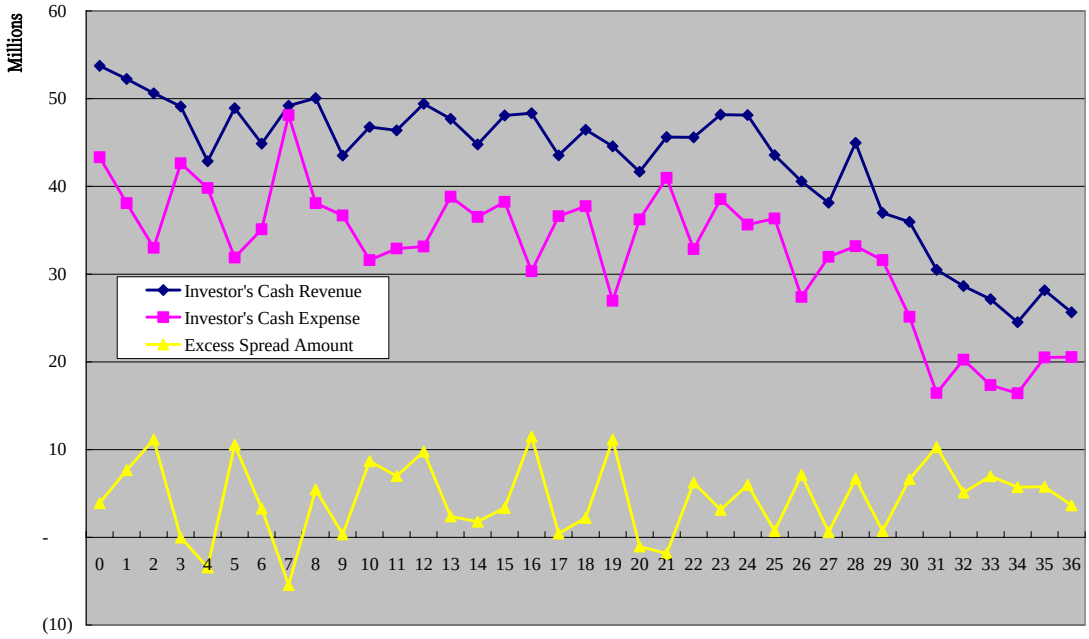


Exhibit 5-35 Seller's Cash Flow Path

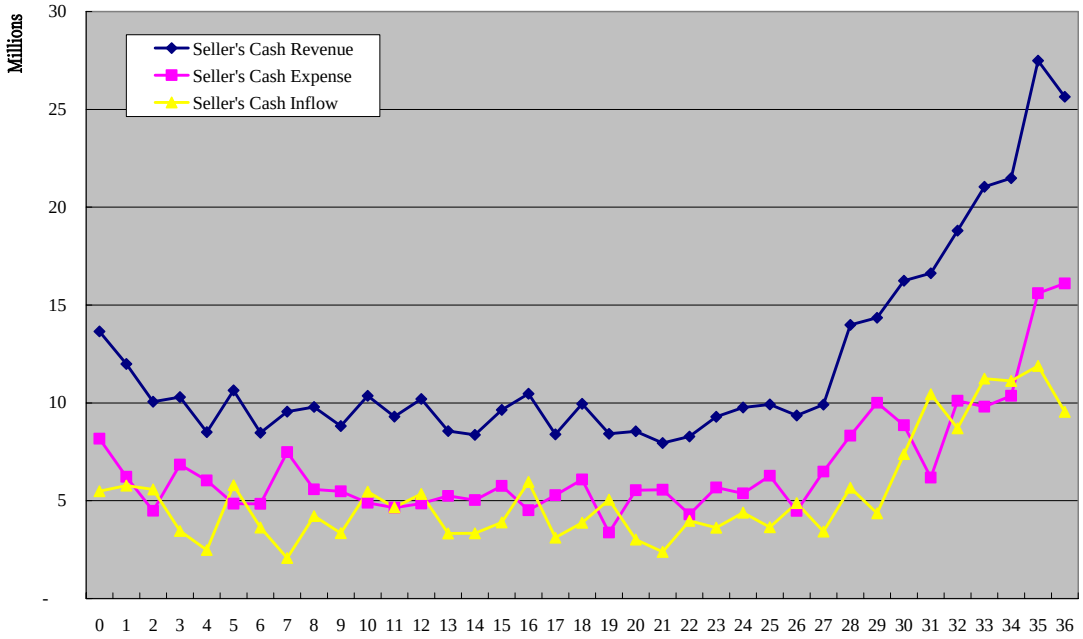


Exhibit 5-36 Seller's & Investor's Interest Share

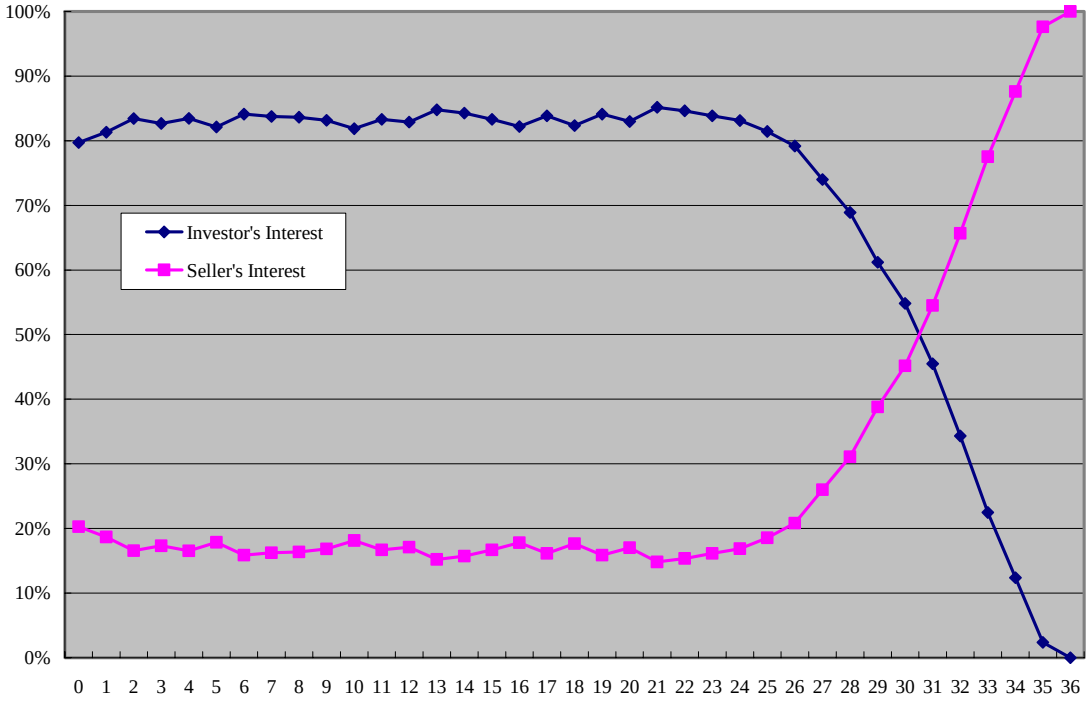


Exhibit 5-37 Collateral Portfolio Balance

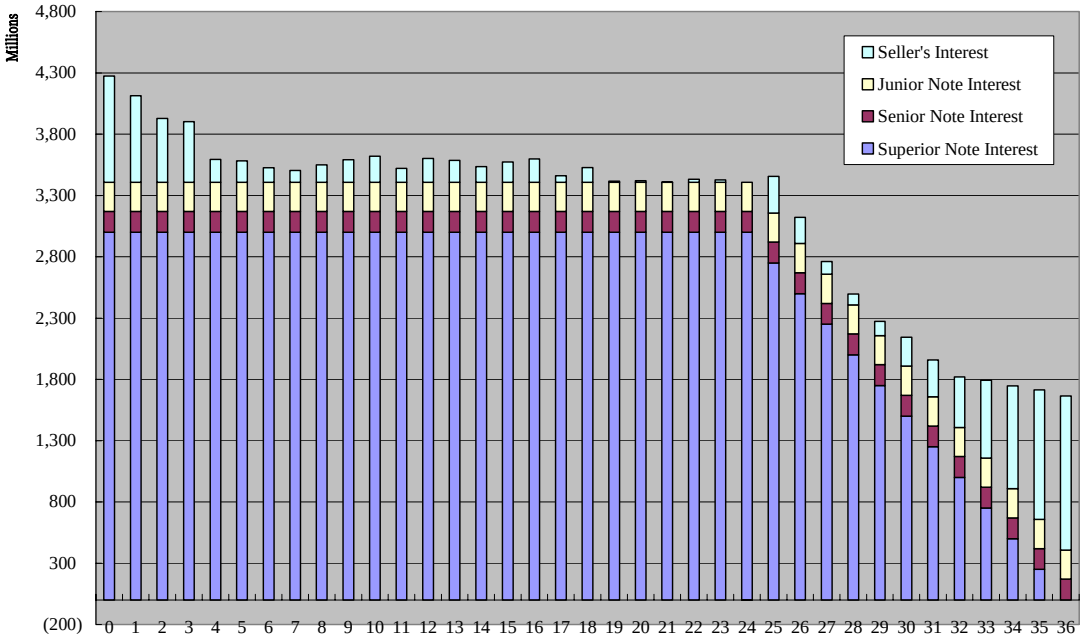
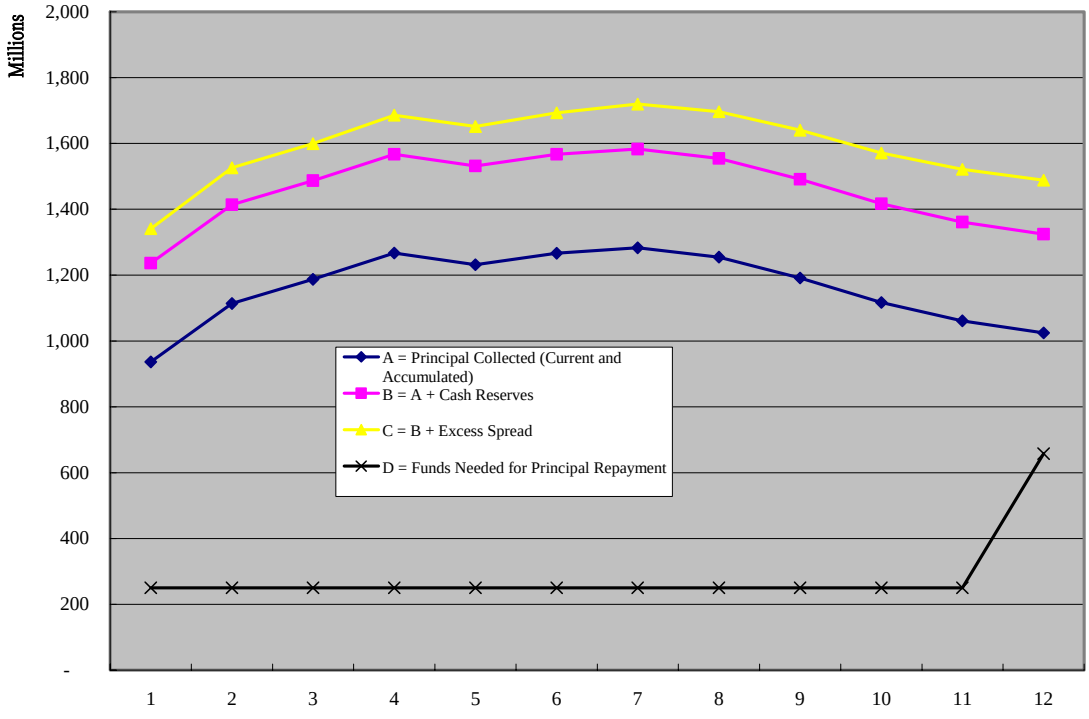


Exhibit 5-38 Principal Repayment Test



Loss Spike

Exhibit 5-39 Collateral Performance

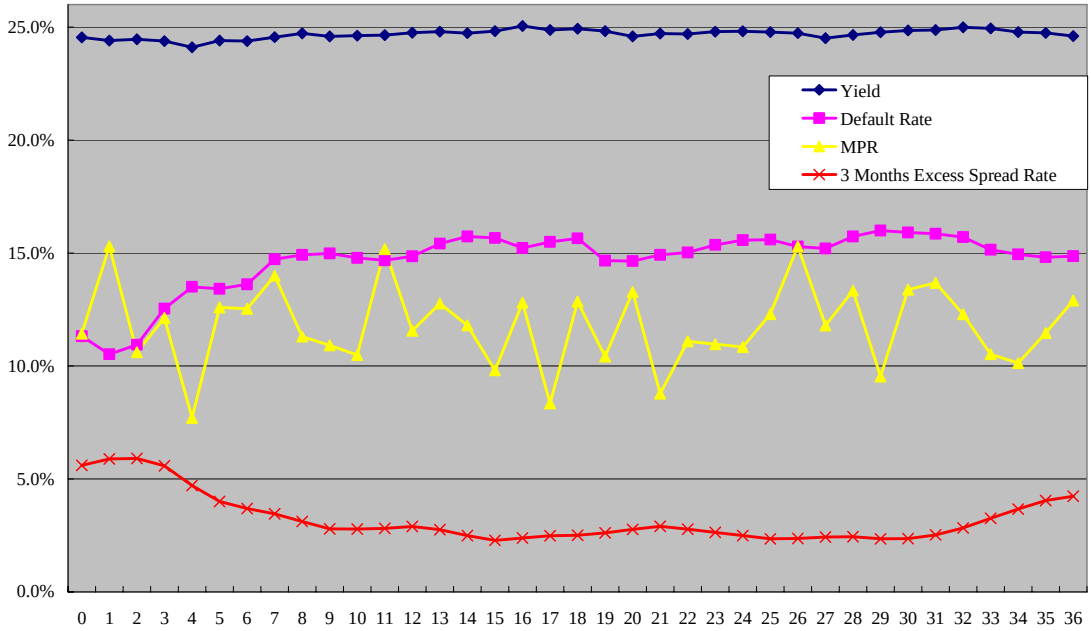


Exhibit 5-40 Investor's Cash Flow Path

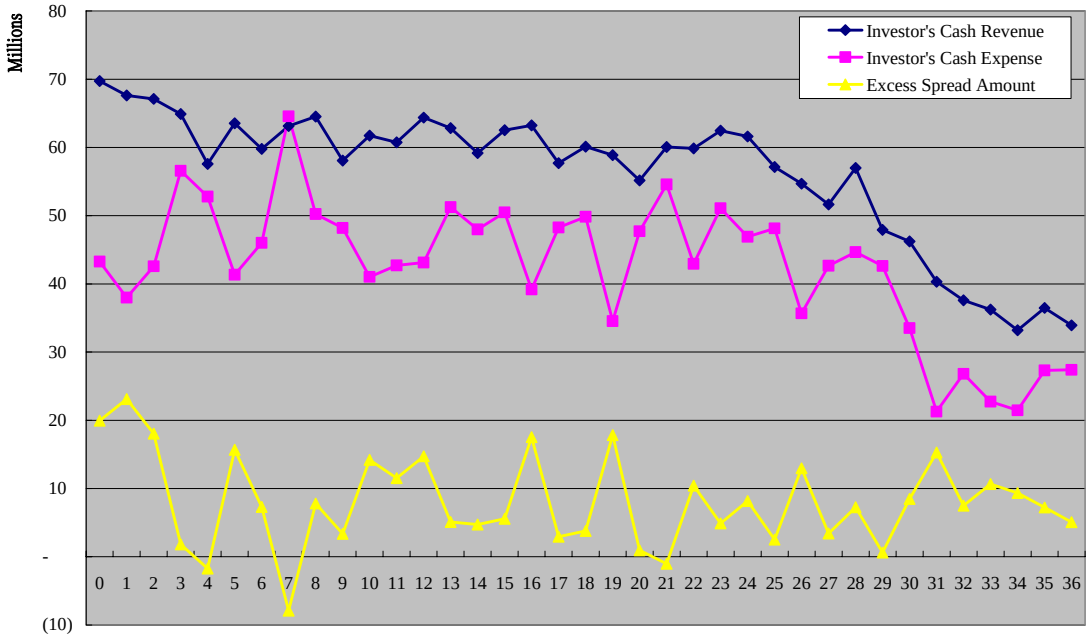


Exhibit 5-41 Seller's Cash Flow Path

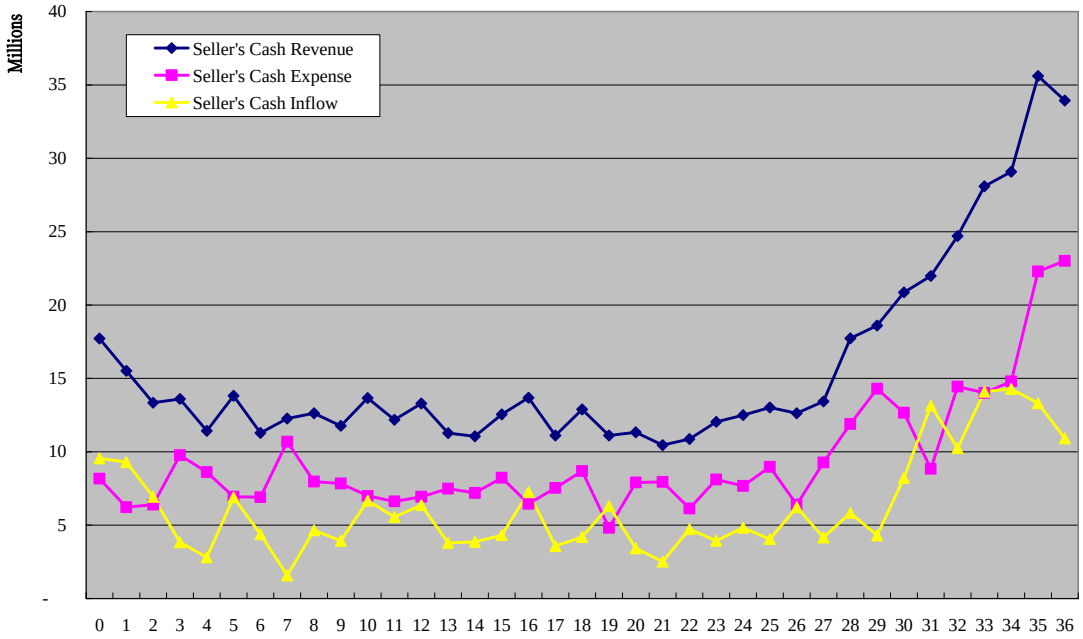


Exhibit 5-42 Seller's & Investor's Interest Share

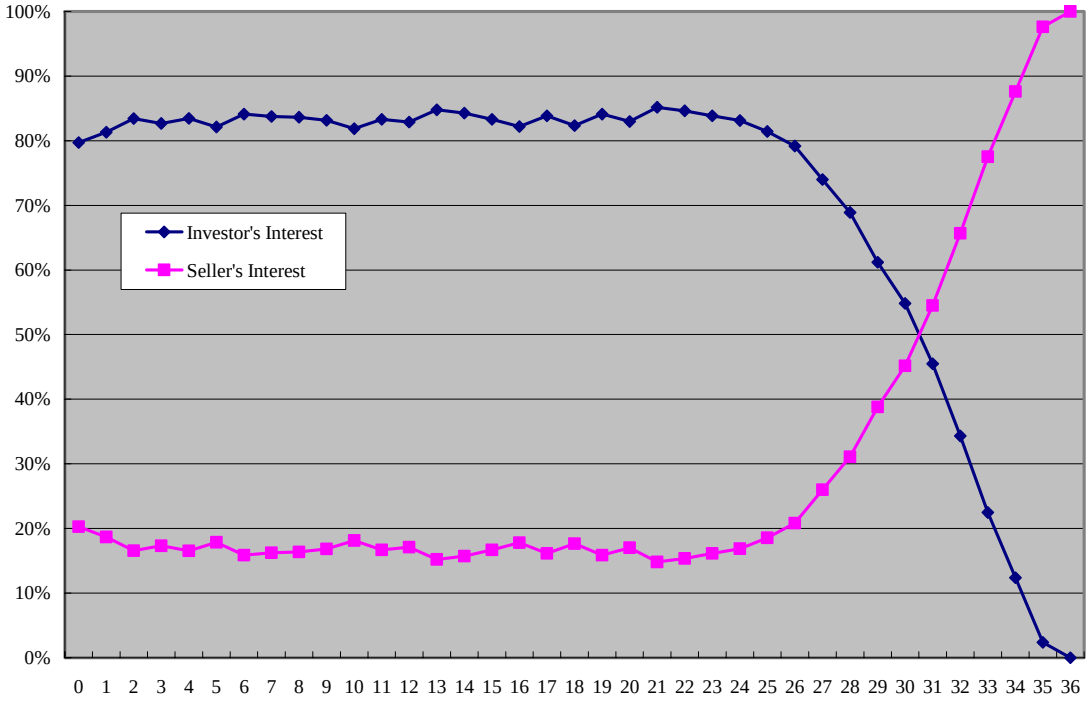


Exhibit 5-43 Collateral Portfolio Balance

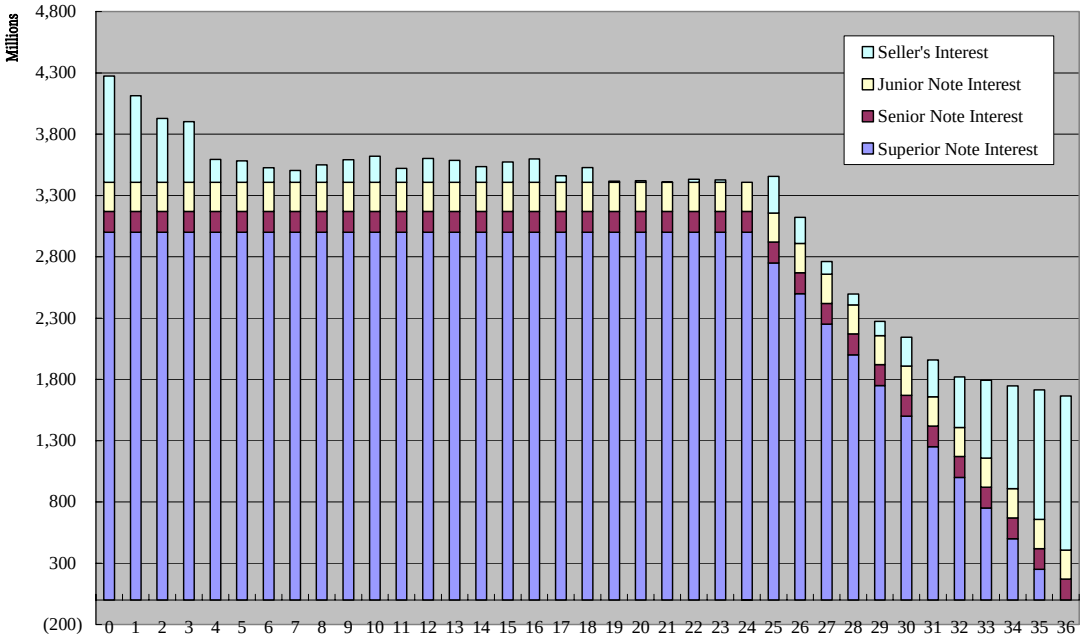
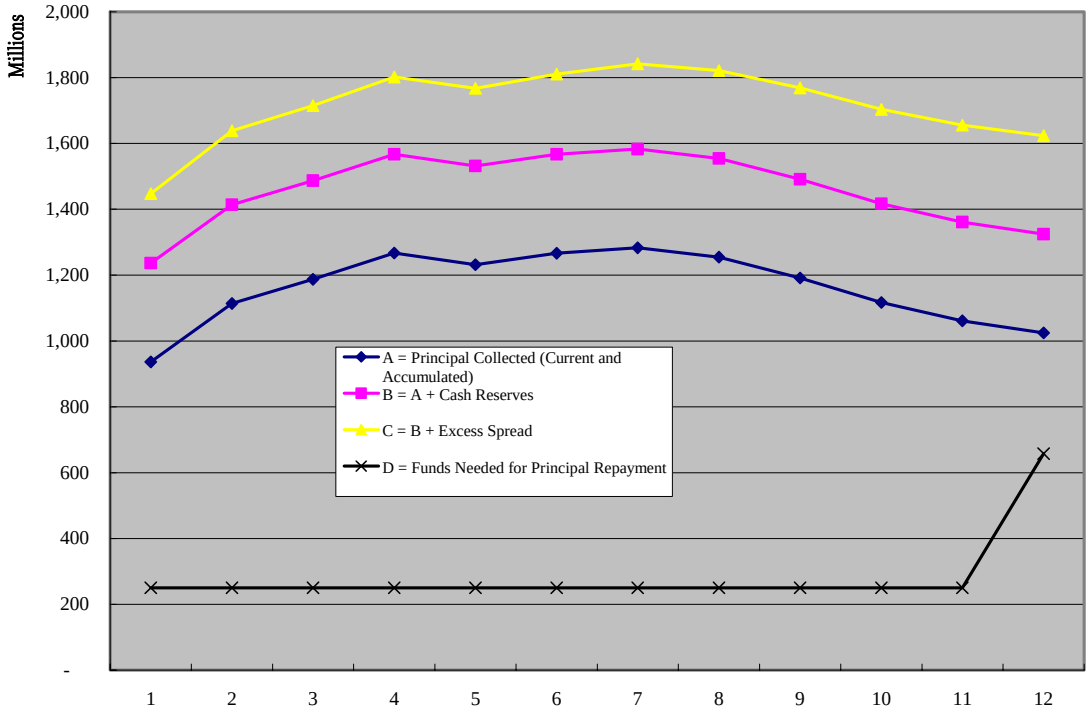


Exhibit 5-44 Principal Repayment Test



5.2.4 Simulated Results of Senior Note

Senior trahche is single A rated by that its cash flow test variables are less extreme than superior note. The pattern differences between three scenarios of superior and senior tranche are similar only the degree of impact is different. In the combined stress scenario senior note made more excess spread amount and higher excess spread rate than superior certificate. Seller's interest percentage and collateral balance are as good as everything for a healthy case. Principals of three tranches are basically fully repaid under the assistance of credit enhancement. Scenarios of fierce competition and serious loss rate are not accompanied by unexpected termination or delayed repayment which is welcomed by issuer and investors.

Exhibit 5-45 Variables of Cash Flow Stress Test for A Rated Note

Key Modeling Variables	Base Case	**Combined Stress Scenario**	**Cut Throat Competition Scenario**	**Loss Spike Scenario**
Principal Repayment Rate	12.0000%	9.0000%	12.0000%	12.0000%
Monthly Management Fee	0.2500%	0.3000%	0.2500%	0.2500%
Annual Default rate	8.0000%	9.6000%	9.6000%	13.6000%
Monthly Default Rate	0.6667%	0.8000%	0.8000%	1.1333%
Recovery Rate of Charge-offs	15.0000%	12.7500%	15.0000%	9.7500%
Purchase Rate	100.0000%	95.0000%	95.0000%	95.0000%
Repurchase Expense Rate	0.1000%	0.1100%	0.1250%	0.1100%
Annual Interchange	1.0000%	0.8500%	1.0000%	1.0000%
Annual Interest Rate	20.0000%	18.0000%	17.0000%	20.0000%
Annual Financial Charges rate	1.2000%	1.0800%	1.0200%	1.2000%

Combined Stress

Exhibit 5-46 Collateral Performance

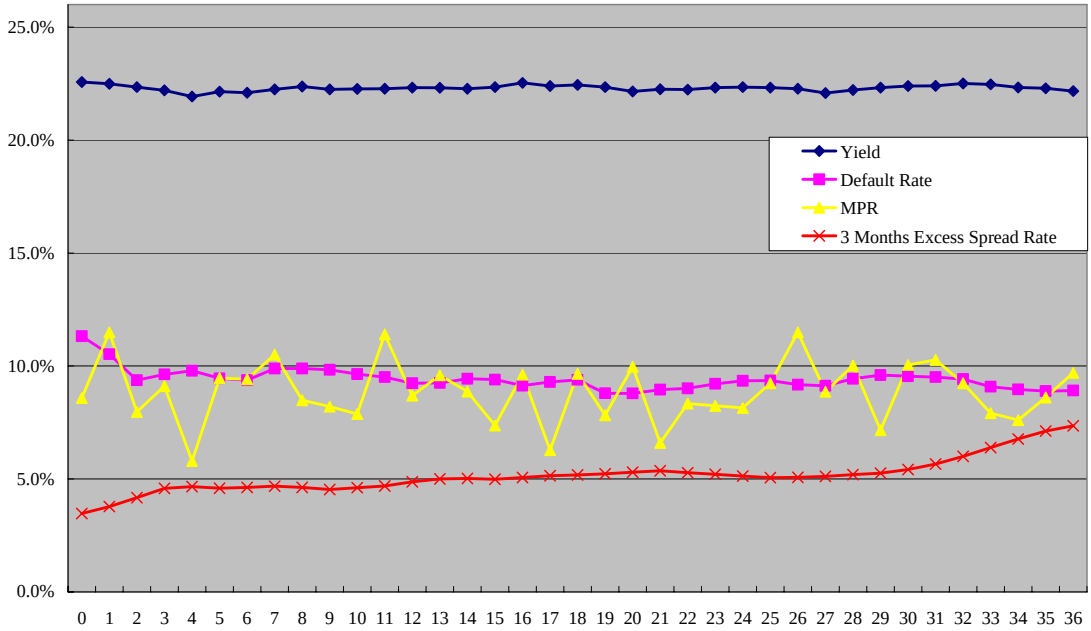


Exhibit 5-47 Investor's Cash Flow Path

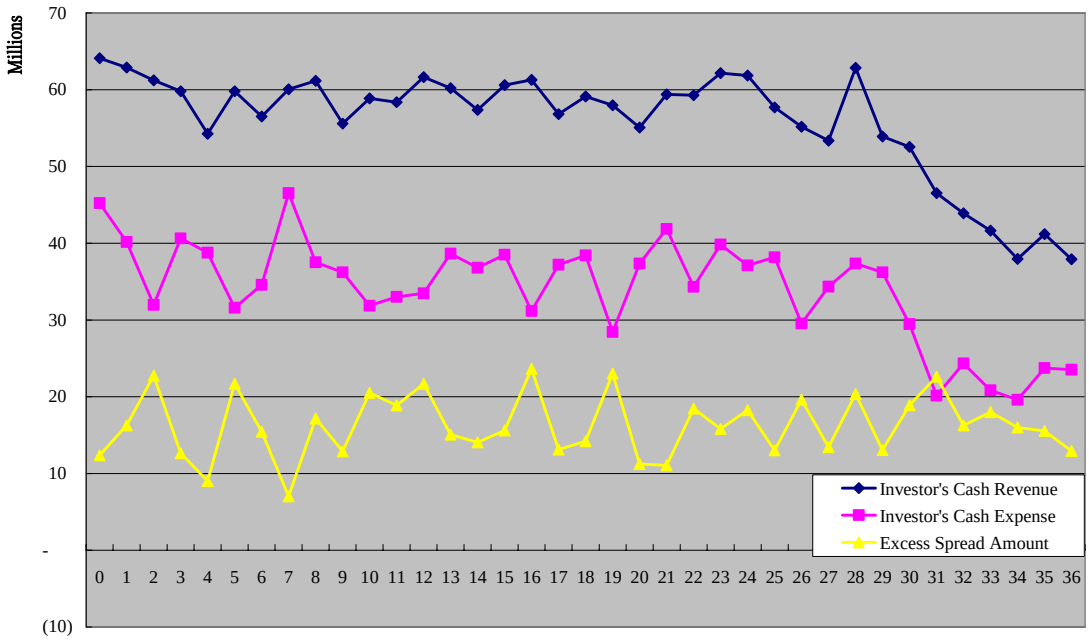


Exhibit 5-48 Seller's Cash Flow Path

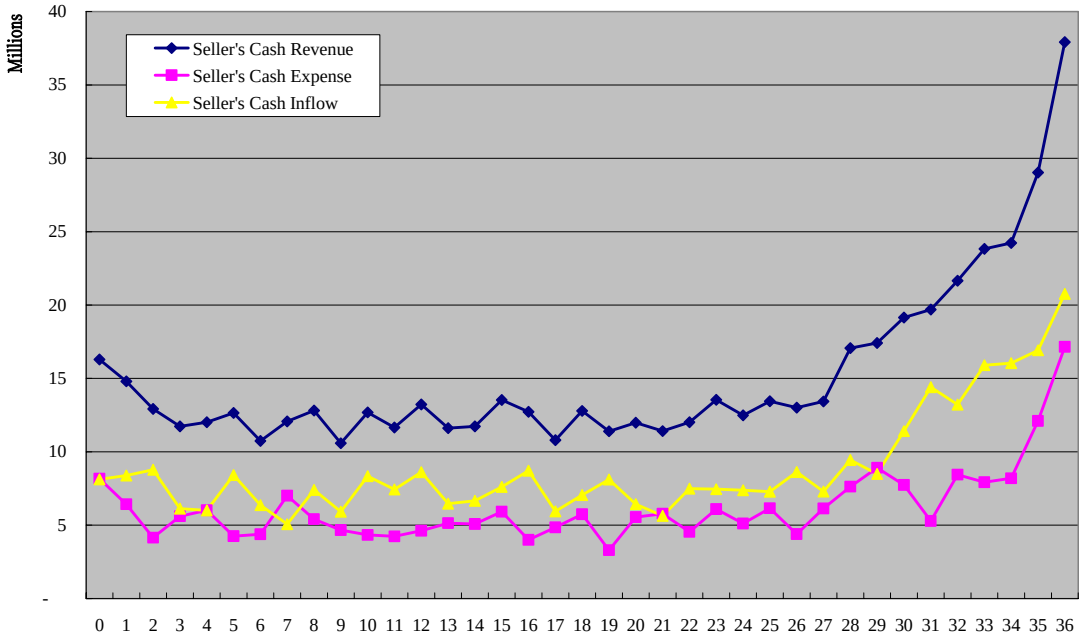


Exhibit 5-49 Seller's & Investor's Interest Share

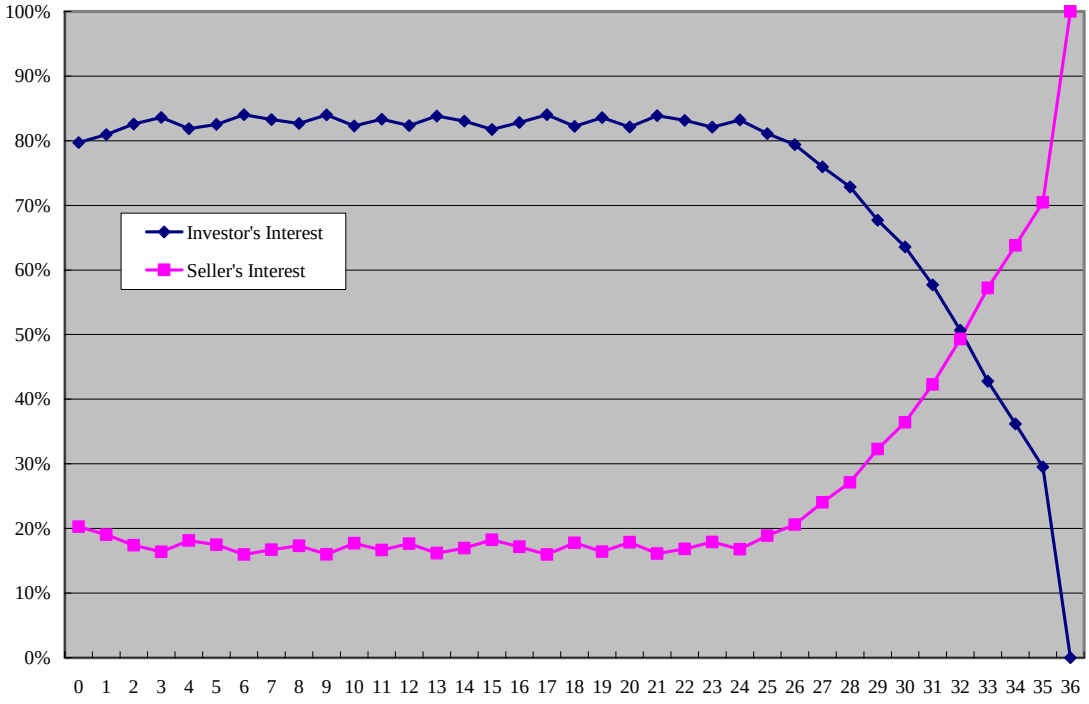


Exhibit 5-50 Collateral Portfolio Balance

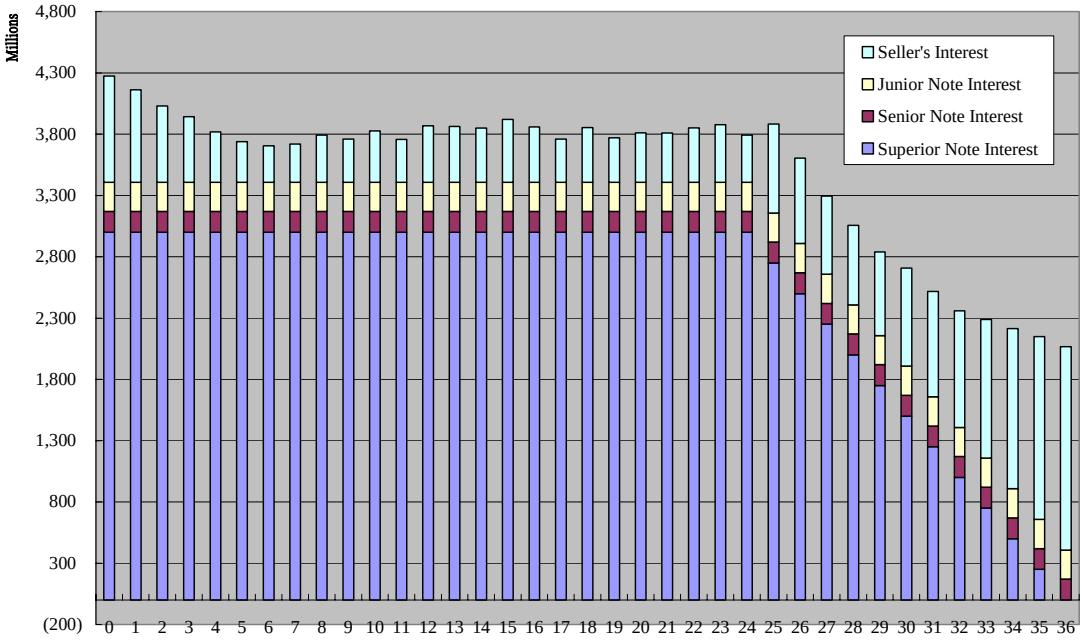
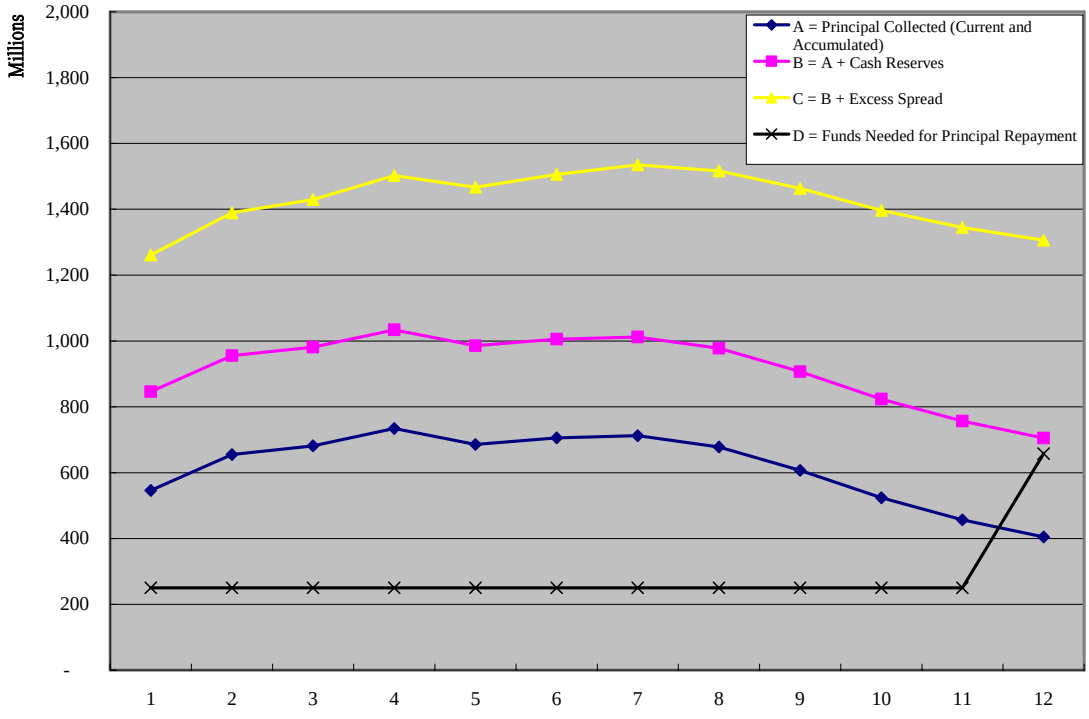


Exhibit 5-51 Principal Repayment Test



Cut Throat Competition

Exhibit 5-52 Collateral Performance

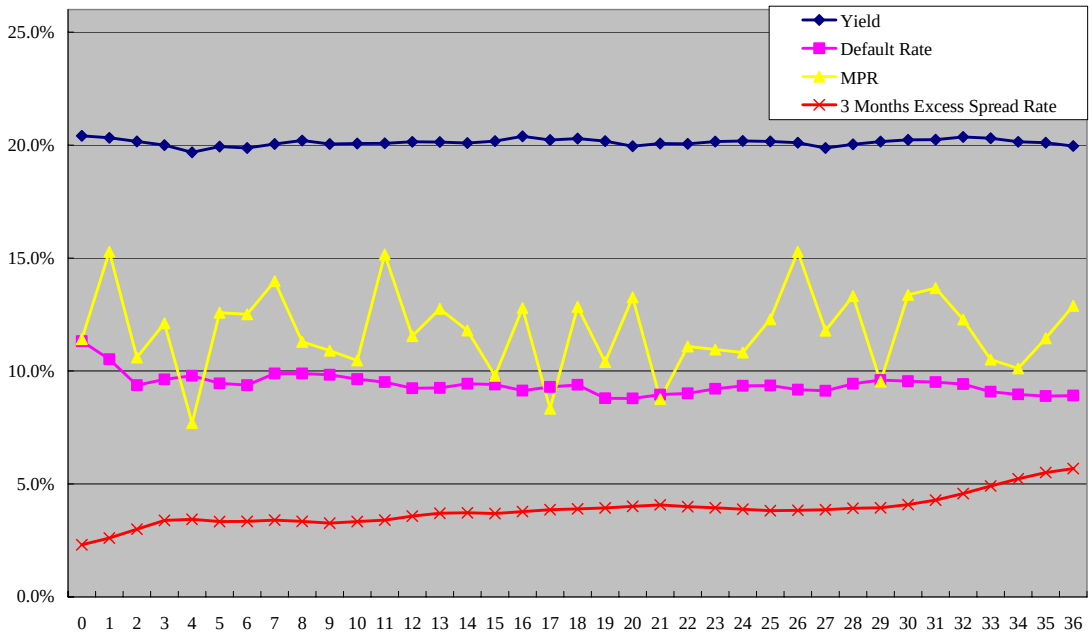


Exhibit 5-53 Investor's Cash Flow Path

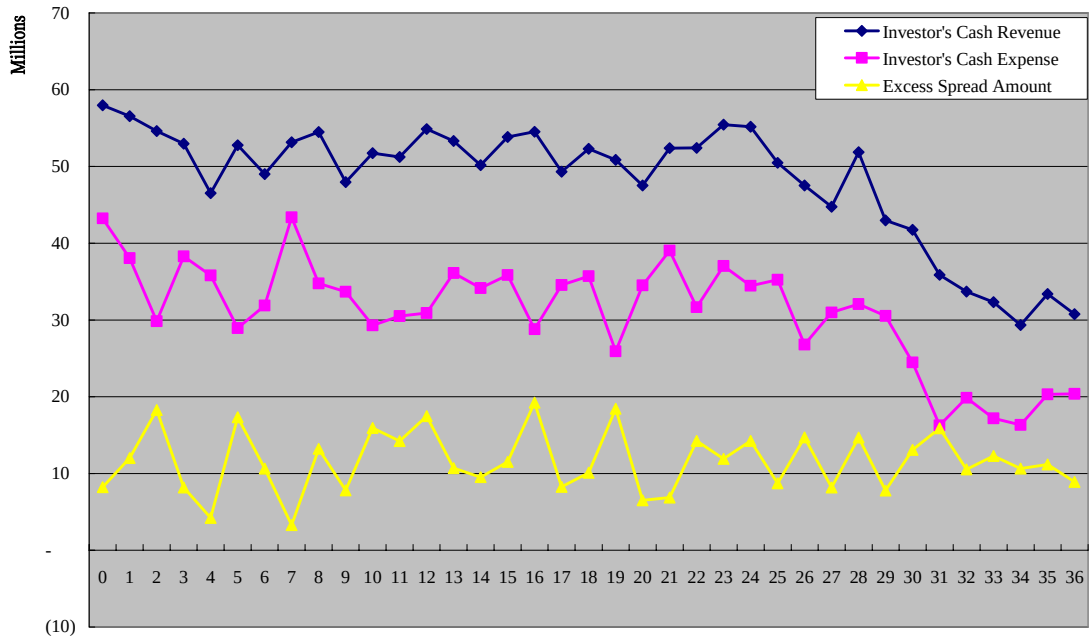


Exhibit 5-54 Seller's Cash Flow Path

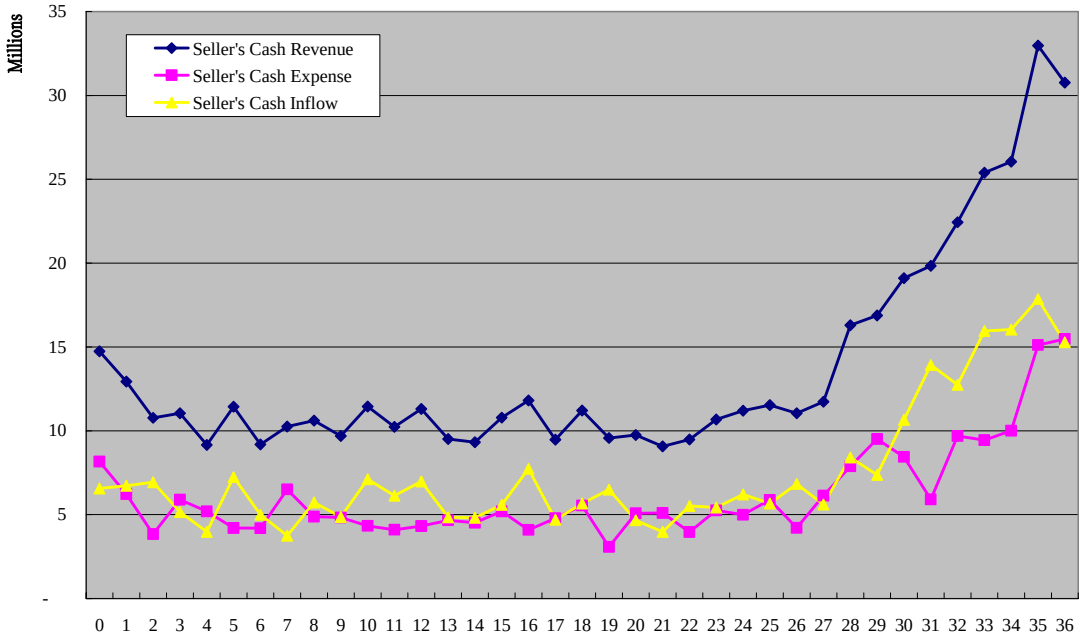


Exhibit 5-55 Seller's & Investor's Interest Share

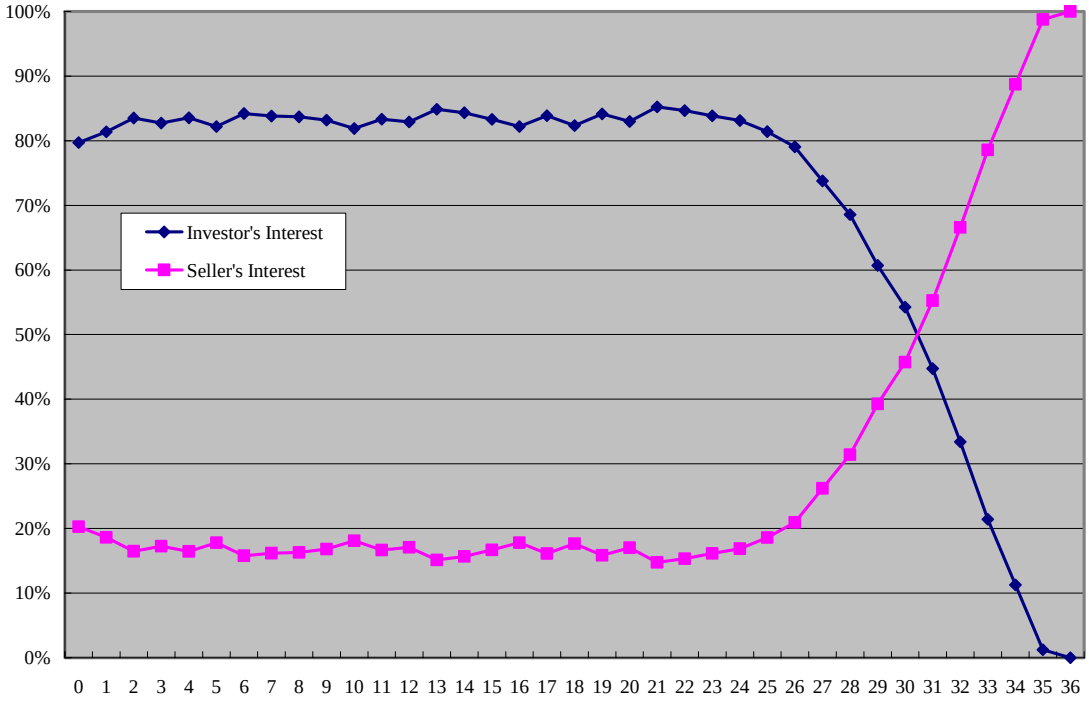


Exhibit 5-56 Collateral Portfolio Balance

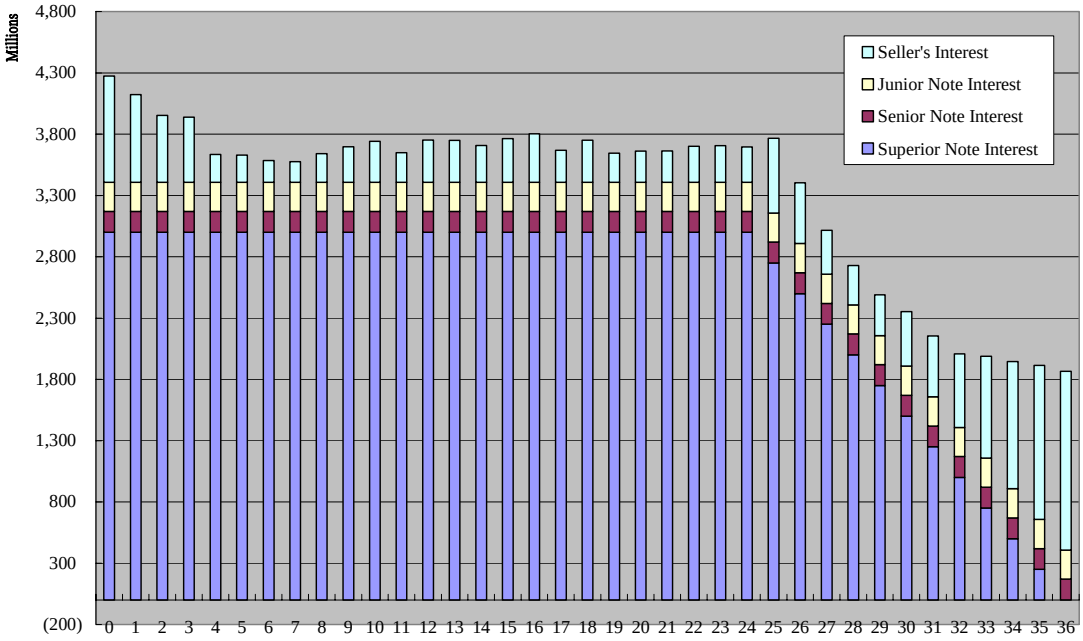
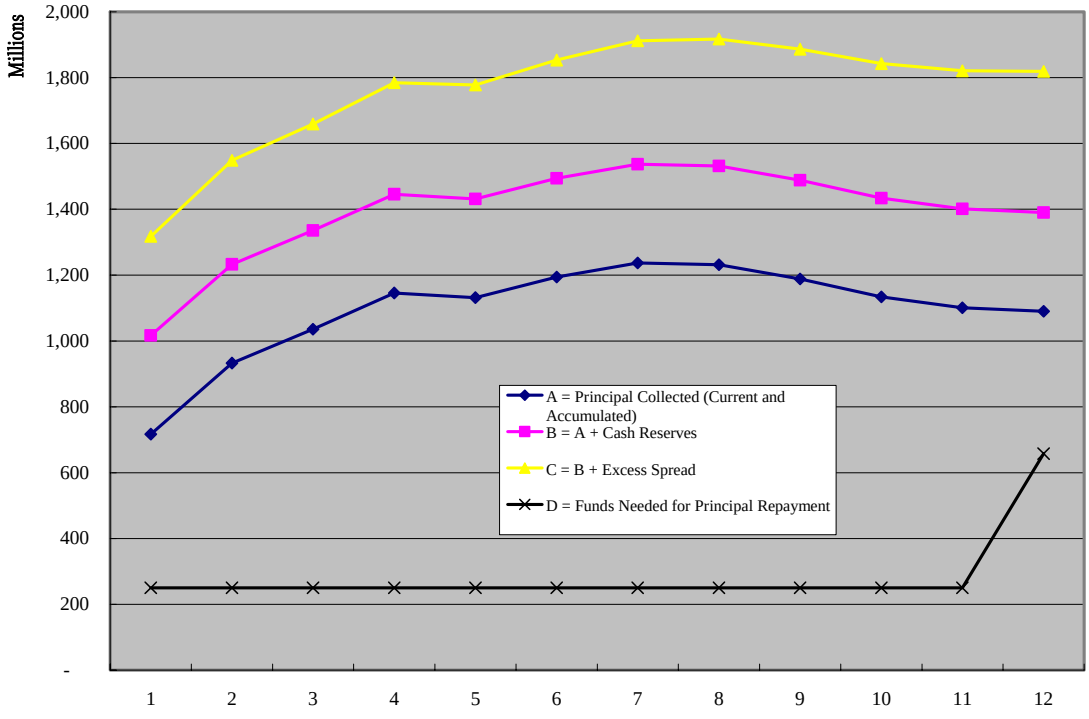


Exhibit 5-57 Principal Repayment Test



Loss Spike

Exhibit 5-58 Collateral Performance

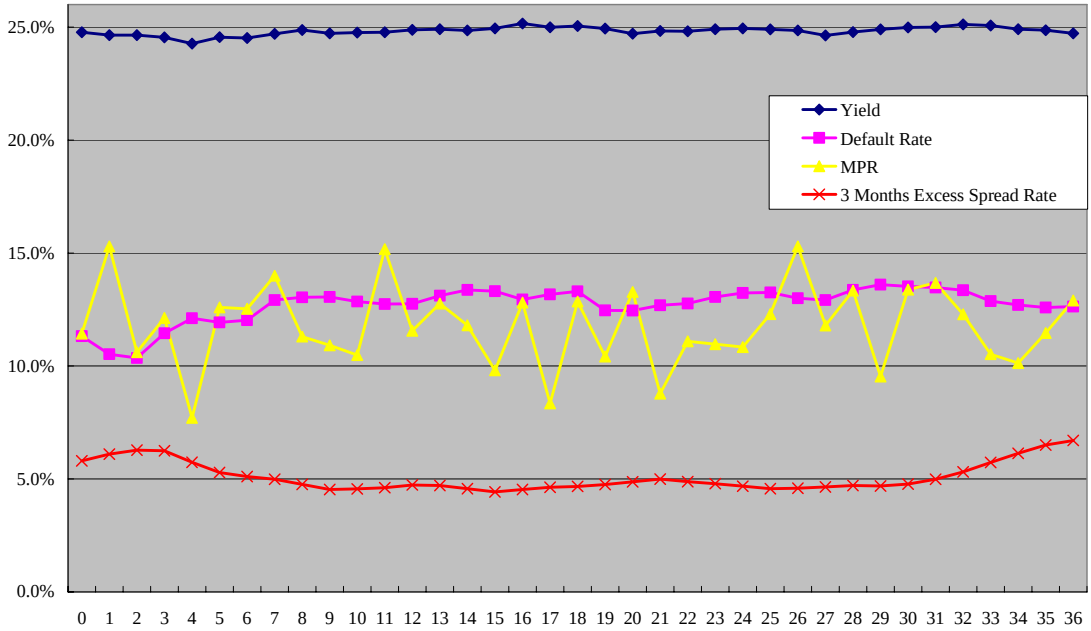


Exhibit 5-59 Investor's Cash Flow Path

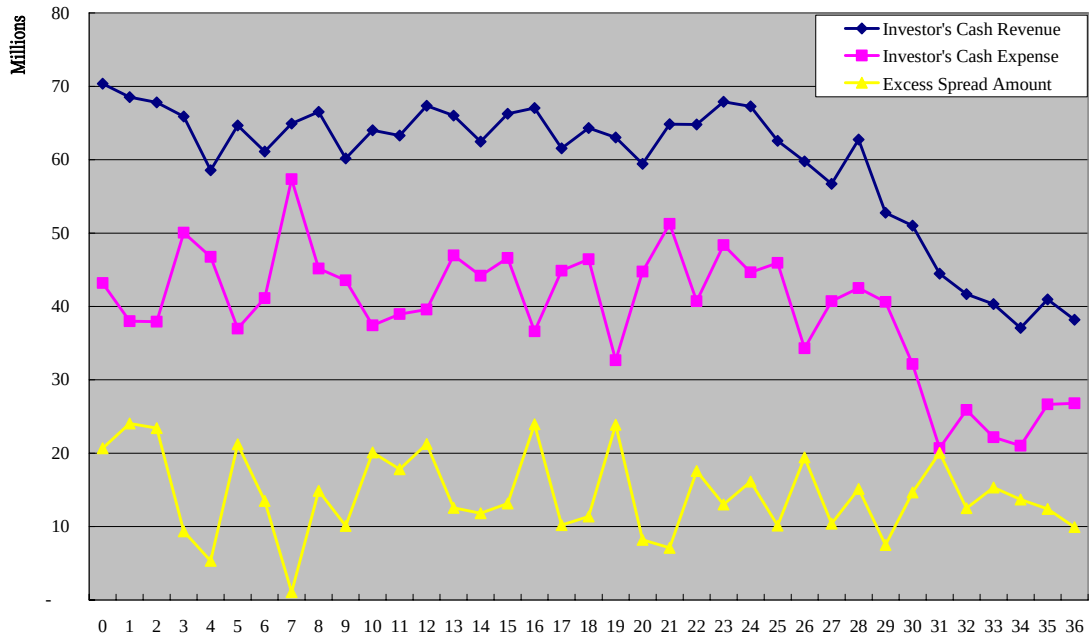


Exhibit 5-60 Seller's Cash Flow Path

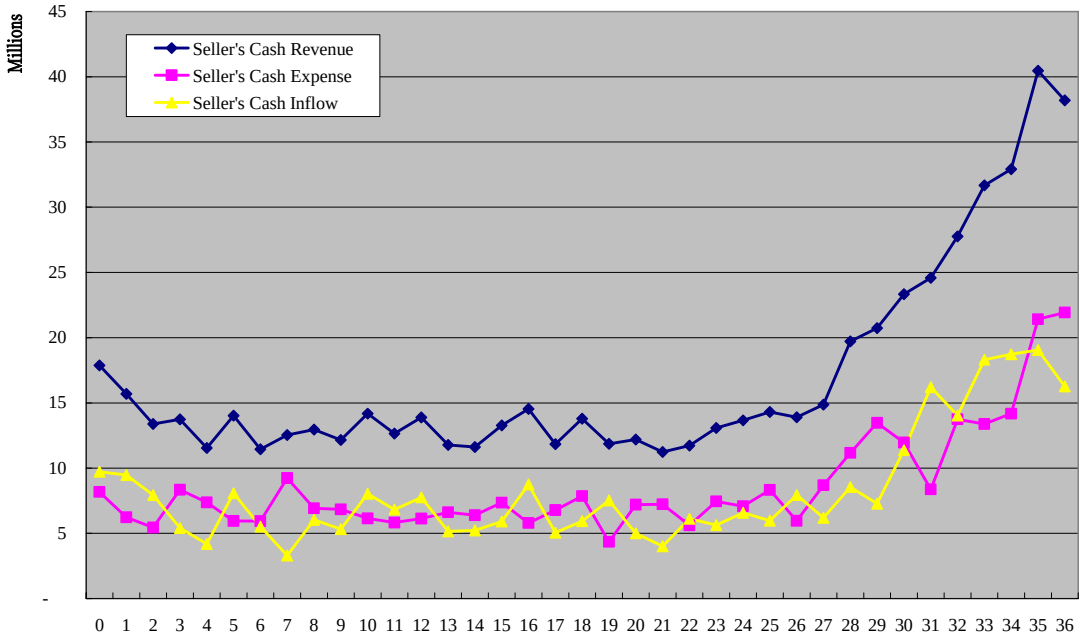


Exhibit 5-61 Seller's & Investor's Interest Share

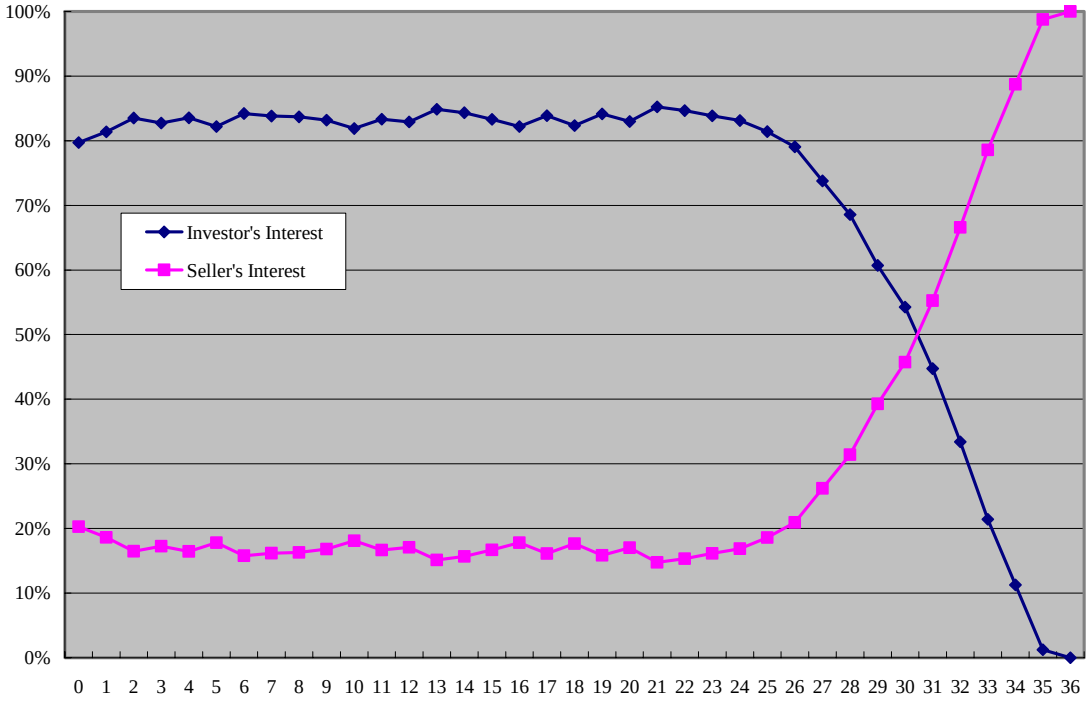


Exhibit 5-62 Collateral Portfolio Balance

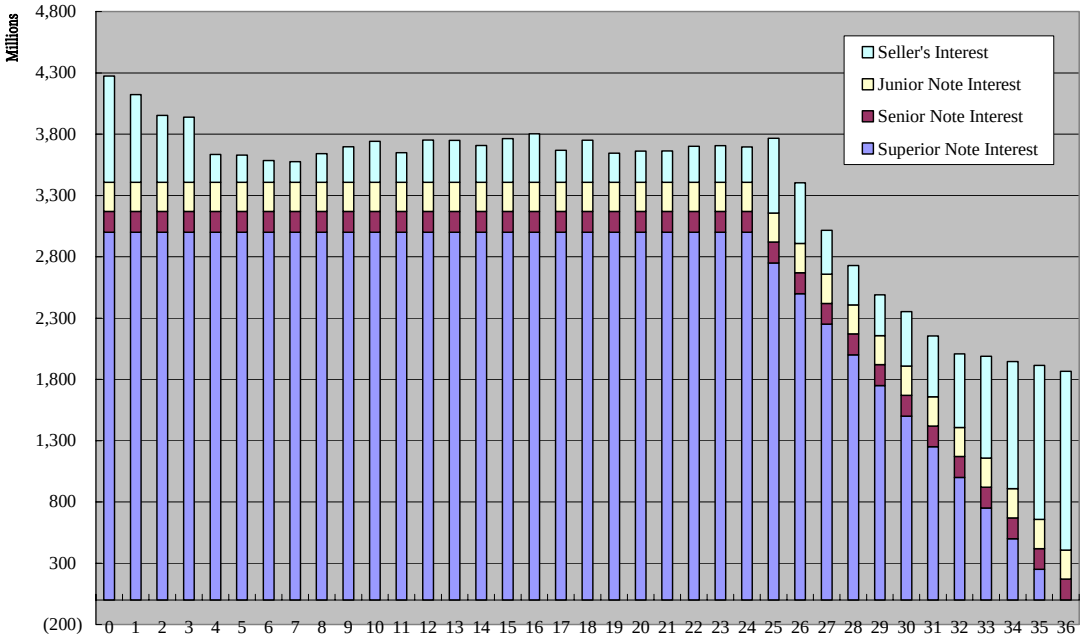
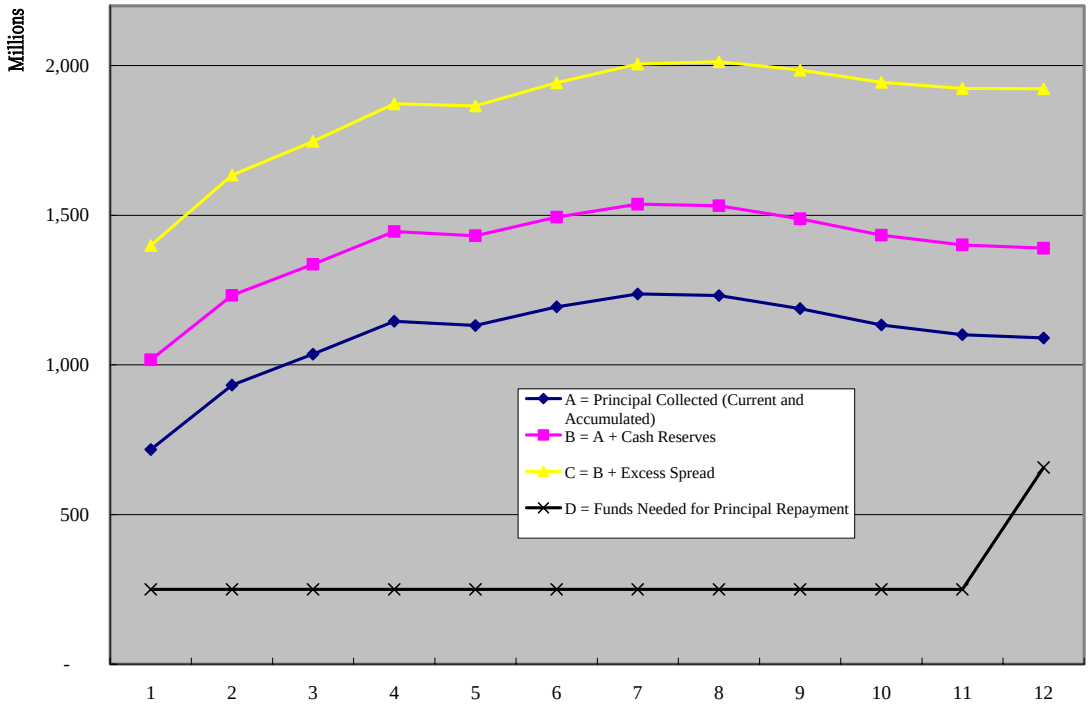


Exhibit 5-63 Principal Repayment Test



5.3 Conclusions

Securitization transferred credit card issuer's risk to investors therefore issuer gains less risky profits and improves its asset quality. Issuers can transfer their risks only via proper structured securitization products which are protected by credit enhancements. As we mentioned in previous sections, credit enhancement is a mechanism that costs. What is the most determinant factor that dominated the cost of protection? The researcher conducted a sensitivity analysis of various variables of credit enhancement cost. From the simulation the researcher did, the factor affects credit enhancement cost the most is the actual loss incurred which also is the largest piece of credit enhancement cost..

If we thinking about the cost of all credit enhancements, it may be concluded that issuers still bear some part of the risks of those transferred collaterals. After all, extra cash left while case closed is returning back to the issuer. How the collateral performed during both revolving and amortization period seems have influence to issuer's profits. The truth is, by dealing securitization transactions, issuers do transferred the most profitable part of risks out and prevented any inverse condition to harm the issuer.

The most profitable risks are those can be accepted by investors without charging the issuer extraordinary high premiums. We have pointed out this issue that because of diminishing marginal profit of transferring risks, issuers have to keep some risks to maintain marginal profit of this deal. Any loss happened is absorbed by cushions build in the deal and base on the reality that the collateral is truly sold to a SPV, any catastrophic events happened to the collateral is remote from the issuer. What the issuer really earned is upgraded asset quality with the servicing fee and other financial fees.

For a successful credit card securitization transaction, repurchase rate is critical. Repurchase rate is highly correlated to the ability of servicer and the quality of credit card receivable pool of the issuer. There will be some part of receivables repaid by debtors, and failure to refill the trust with eligible new accounts is vital. In the simulations we did here, if the repurchase rate is lower than 90%, there will be an eminent threat of early amortization even the over all collateral performance is pretty good. An issuer with poor marketing ability and limited credit card receivables is very unlikely to maintain a transaction during declining interest rate environment.

Loss rate or default rate of credit card is higher than secured loans. In Taiwan, the credit control and examination and the evaluation of repay ability conducted by issuers before any card send out are not so solid. From the marketing strategy and

promotions provided by definitely not only a small number of issuers, we can conclude that there are issuers do not perform necessary checks before they authorize the credit limit to debtor. From the simulation under base case assumptions, once the loss rate passed 18.5% (accompanied with 15% recovery rate), the deal is endangered. There is a draft of bankruptcy law under discussion which favored non-performing debtors to walk away without serving their obligation fully. We can rationally expect that issuers will face higher loss rate in the future.