"Best Practices" Budgeting Boot Camp

Session 1: Forecasting Growth

Session 2: Pricing Models

Session 3: Prepayments, Decay Rates

Session 4: Final Tips and Client Checklist

Agenda:

- **Prepayment Modeling**
- **Decay and Alternate Discount Rates**
- **Forecasting Taxes**
- **Forecasting Dividends**

Prepayment Modeling

What are Prepayments?

- **Payments received in advance of the contractual date**
- **Typically occur to the bank's disadvantage**

What are Prepayments?

- **Longer Term fixed Rate Instruments: Securities (Calls), Residential Mortgages, Commercial RE, FHLB Advances**
- **Regulatory expectations: understand and utilize bank-specific prepayment rates**

What effect do prepayment assumptions have on results?

- **Average Life and Duration of an account**
- **Profitability – especially as rates change**
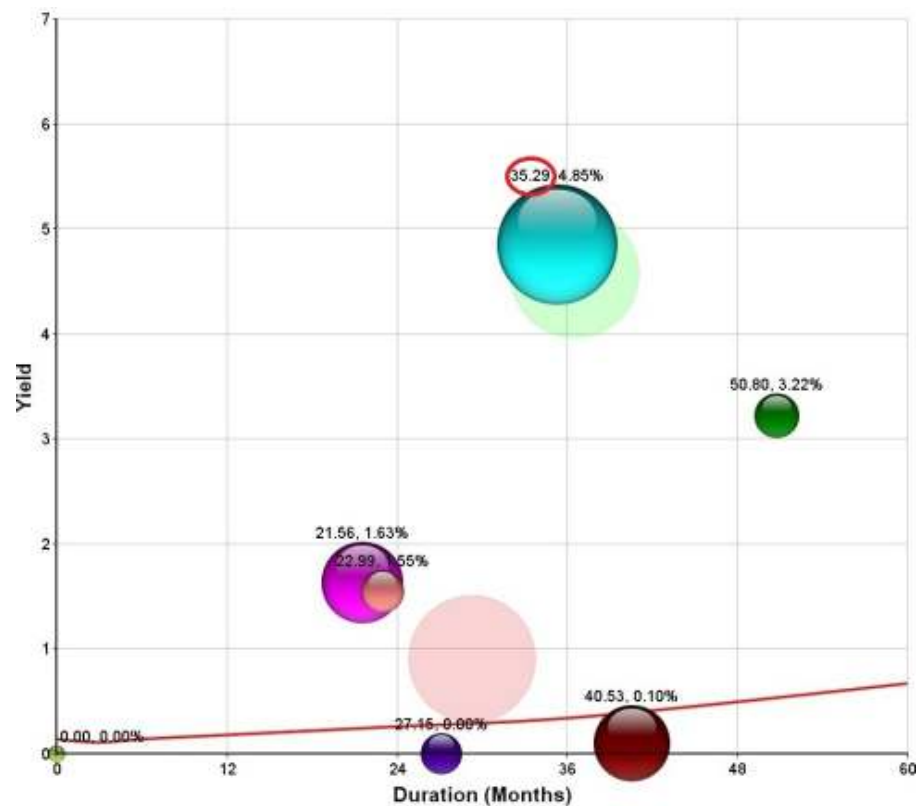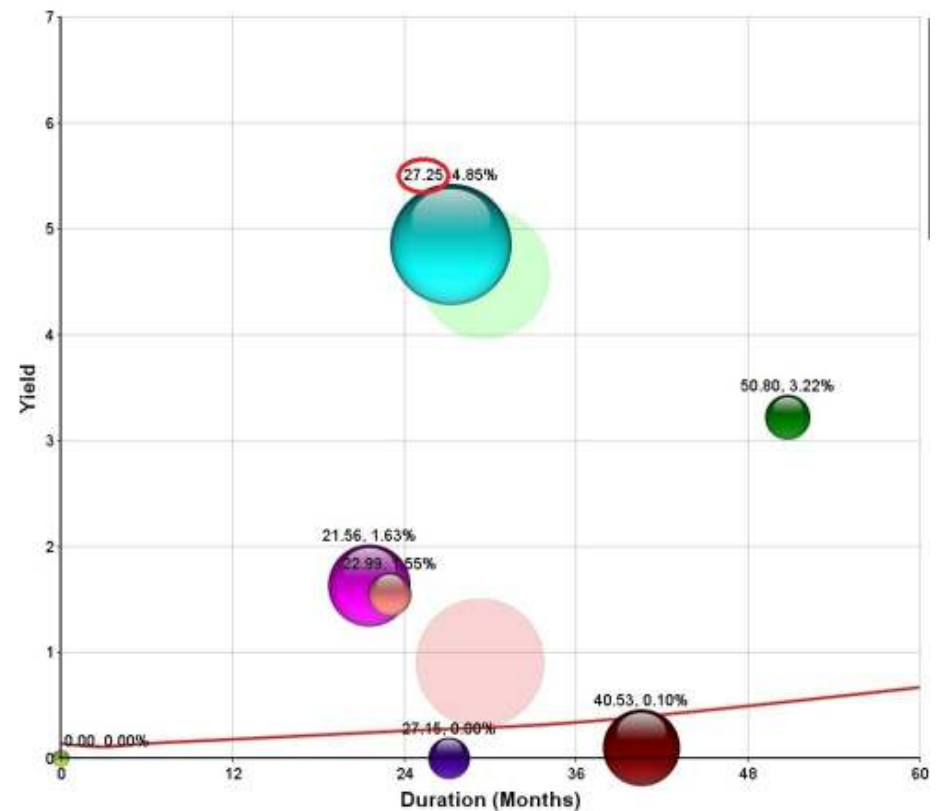- **Rate Shock – Net Interest Income & Market Value of Equity**

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Rate Risk Bubbles – Detail

Model WITHOUT Prepayment Models

Model WITH Prepayment Models

Callable Bonds

US Agencies - Projections

	Bond ID	Book Value (thousands)	Coupon Rate	Yield to Maturity	Call Date	Call Freq. (months)	Spread	Final Maturity Date	First Repricing Date
1	3133792E8	1,000	1.70	1.50	04/07/12	0	0.00	10/07/15	
2	31331K5G1	2,000	2.50	2.20	06/09/14	3	0.00	12/09/15	
3	31331KS92	1,000	2.50	2.25	05/05/14	3	0.00	05/05/16	
4	313376SR7	2,000	1.75	1.50	07/03/14	12	0.00	07/03/15	
5	3133783W9	1,000	1.05	1.05	01/06/14	1	0.00	10/06/15	
6	3133786N6	1,000	1.20	1.10	12/08/11	1	0.00	12/08/15	
7	3133793L1	1,000	1.30	1.19	03/01/14	1	0.00	03/01/16	
8	3133EACF3	1,000	1.55	1.50	02/04/14	1	0.00	12/04/16	
9	3133EACH9	1,000	1.75	1.40	02/01/15	6	0.00	12/01/16	
10	3133EAES3	1,000	1.50	1.31	04/08/14	1	0.00	01/08/17	
11	3133EAKY3	1,000	1.85	1.50	05/01/14	1	0.00	08/01/17	
12		0	0.00	0.00		0	0.00		

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Callable Bonds

Call determined by comparing Coupon to Offering Rate

Bond ID	Book Value (thousands)	Coupon Rate	Yield to Maturity	Call Date	Call Freq. (months)	Spread	Final Maturity Date	First Repricing Date
1 3133792E8	1,000	1.70	1.50	04/07/12	0	0.00	10/07/15	

US Agencies - Projections

Projections	Budget	Maturity	Variance	Callable

2012	EOM Balance Manual	New Balance [User Edit]	Offering Rate Quick	Total Maturities	Total Maturities Xrate
Dec	16,000				
2012 Jan	13,000				EOM Yield:
Feb	14,000				1.51
Mar	14,000	0	1.65	0	0.00
Apr	14,000	1,000	1.65	1,000	1.50

2012	Scheduled Maturities [User Edit]	Scheduled Maturities Xrate [User Edit]	Adj. Scheduled Maturities	Adj. Scheduled Mats Xrate No Model	Scheduled PrePmts	Scheduled PrePmts Xrate
Dec						
2012 Jan						
Feb						
Mar	0	0.00	0	0.00	0	0.00
Apr	0	0.00	0	0.00	1,000	1.50

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Do not model prepayments if using Call Tab

Calls can occur for Liabilities - data may require manual entry

Call will default to rising rate trigger

FHLB Advances - Projections

| | | | Projections | Budget | Maturity | Variance | Callable | Fed Funds | Notes |

	Bond ID	Book Value (thousands)	Coupon Rate	Yield to Maturity	Call Date	Call Freq. (months)	Spread	Final Maturity Date	First Repricing Date
1	9235633412	5,000	2.50	2.50	05/25/12	0	0.00	09/25/14	
2		0	0.00	0.00		0	0.00		

Model Types:

- **Quick Model**

- **Detailed Model**

- **Automated Quick Model**

Converting PSAs and CPRs

Type	Book Value	When rates decline				When rates rise		
		PSA	PSA	PSA	PSA	PSA	PSA	PSA
		-300	-200	-100	0	100	200	300
		Speed	Speed	Speed	Speed	Speed	Speed	Speed
================	==============	=======	=======	=======	=======	=======	=======	=======
FIXED MBS	819919.88	1310	1179	865	453	192	138	112
FIXED MBS	1903613.32	1318	1182	870	452	193	135	112
FIXED MBS	1952544.71	0	0	0	0	0	0	0
WEIGHTED AVG PSA		348.02	314.19	243.33	144.19	74.99	54.17	44.18
CPR		20.88	18.85	14.60	8.65	4.50	3.25	2.65
MONTHLY PREPAYMENT PERCENT		1.74	1.57	1.22	0.72	0.37	0.27	0.22

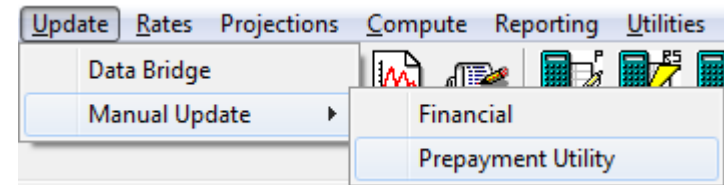| Financial Compass Model										
-10	-4	-3	-2	-1	0	1	2	3	4	10
0.22	0.22	0.22	0.27	0.37	0.72	1.22	1.57	1.74	1.74	1.74

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Loan and CD Prepayment Assumptions

- **In-house review**
- **3rd Party review**
- **Compass Prepayment Utility**

Financial Compass Prepayment Utility

- **Instrument Level**
- **Bank Specific**
- **Export Detail**
- **Loans and CDs**

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Considerations:
- **Sample size**
- **True prepayment?**
- **Review periodically**
- **Materiality**

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Prepayment History

SBUs:

- **Data Loaded into each unit and totaled**

- **Can Export at Total Bank (SBU) Level**

- **Model Assumptions set and maintained at unit level**

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Review Assumptions at least Annually

Decay Rates

Why Use Decay Rates?

- **Portion Out Balances for Gap Beta**
- **Assign 'Maturity' Structure for Present Value**

Gap

Account Wizard - NOW Accounts: NOW Accounts

Enter the Decay Rate. System estimate is 78 months.

Decay Rate: 78 (months)

More Info

Cancel   < Back   Next >

	Immediate	0-1 months	1-3 months	3-6 months	6-12 months	12-24 months	24-36 months	36-48 months	48-49 months	> 49 months	Totals
NOW Accounts											
NOW Accounts	0	700	1,400	2,100	4,201	8,401	8,401	8,401	700	20,303	54,608

Present Value

Sample Bank Plan
Account Market Value Duration
NOW Accounts
As of the end of February, 2012

Period	Total Maturity	Interest Payment	Total Cashflow	Discount Rate	Discount Period	Discount Factor	Discounted Cashflow	Cashflow x Period
3 Mar 12	700	7	707	0.90	1	0.99925	706	706
4 Apr 12	700	7	707	0.90	2	0.99850	706	1,411
5 May 12	700	7	707	0.90	3	0.99775	705	2,116
6 Jun 12	700	6	707	0.90	4	0.99701	704	2,818
7 Jul 12	700	7	707	0.90	5	0.99626	704	3,520
8 Aug 12	700	6	707	0.90	6	0.99551	703	4,220
9 Sep 12	700	6	706	0.90	7	0.99477	703	4,918
10 Oct 12	700	6	706	0.90	8	0.99402	702	5,617

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Alternate Discount Rates

- **Offer Rate NOT Used for Present Value**
- **Alternate Rate Term = ½ Decay (Average Life)**
- **New Driver Rate**

$$78 / 2 = 39$$

Account Wizard - NOW Accounts: NOW Accounts

If you want to Override the account Discount Rate, choose an alternative here.

Alt Disc Rate: 3 yr CMT

More Info

Cancel   < Back   Next >

SBUs:

- **Decay needed at Total Bank (SBU)for Gap**

- **Present Values recalculated at total**

- **Model Assumptions at unit level**

- **EVE results = sum of branches**

Present Value Without Decay Rates

	-200	-150	-50	-25	0	100	200	300	400
NOW Accounts									
NOW Accounts	54,608	54,608	54,608	54,608	54,608	54,608	54,608	54,608	54,608

Present Value With Decay Rates

	-200	-150	-50	-25	0	100	200	300	400
NOW Accounts									
NOW Accounts	54,608	54,608	54,608	54,106	53,873	51,947	50,197	48,546	46,979

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How Do I Calculate Decay Rates?

- **In-house review**
- **3rd Party review**
- **Financial Compass Calculation**

Decay Rates in Financial Compass

Rising Beta	NA	0.00	0.00
Falling Beta	NA	0.01	0.30

Rising and Falling Average = 15

	Immediate	0-1 months	1-3 months	3-6 months	6-12 months	12-24 months	24-36 months	36-48 months	48-49 months	> 49 months	Totals
NOW Accounts											
NOW Accounts	0	700	1,400	2,100	4,201	8,401	8,401	8,401	700	20,303	54,608

54,608 / 78 = 700   700 X 12 = 8,400   8,400/54,608 = .15

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- **Demand Deposit Decay = Weighted Average of All NOW Accounts**
- **Calculated Decay Rate Upper Limit = 100 Months**

Review Assumptions at least Annually

Assumption Reports
- Alt Discount & Decay Rates
- Balance Sheet Growth
- Callable Assumptions
- Driver Assumptions
- Income Expense
- Plan Notes
- Prepayment Assumptions
- Pricing Assumptions
- Repricing Assumptions

Sample Bank Plan
Alternate Discount & Decay Rates

Account Name	Decay Rate	Alternate Discount Rate
Assets		
Liabilities		
Demand Deposits		
Demand Deposits	78	3 yr CMT
Other Demand Deposits	100	3 yr CMT
Interest Bearing Deposits		
NOW Accounts		
NOW Accounts	78	3 yr CMT
Money Market Accounts		
Money Market Accounts	26	1 yr CMT
Savings		
Savings Accounts	89	3 yr CMT

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Taxes

Annual Calculation

Tax Information

		2012	2013	2014	2015	2016
State taxes	Rate	6.00	6.00	6.00	6.00	6.00
Federal taxes	Rate	34.00	34.00	34.00	34.00	34.00
Federal tax credits		0.00	0.00	0.00	0.00	0.00
Federal tax loss carry forward		0.00	0.00	0.00	0.00	0.00
Other adjustments: State		0.00	0.00	0.00	0.00	0.00
Other adjustments: Federal		0.00	0.00	0.00	0.00	0.00

Should state taxes be distributed according to net pre-tax income?   No

Should federal taxes be distributed according to net pre-tax income?   Yes

Allow for the calculation of negative state taxes?   No

Edit Budget Taxes   Ok   Cancel
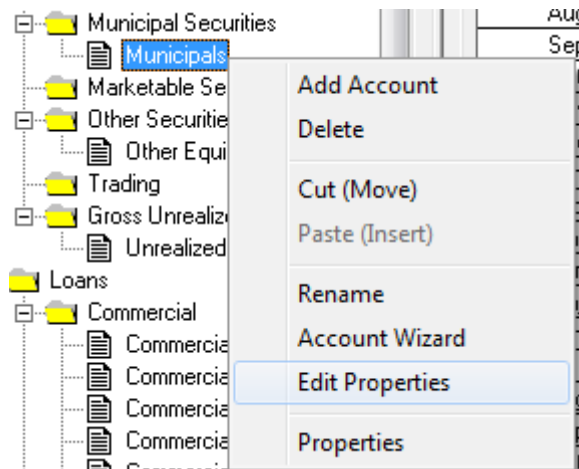
Operating Income	1,549,297
Federal Tax	497,964
State Tax	80,135
Net Income	971,198

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Right Click to view Tax Status

Should state taxes be distributed according to net pre-tax income?   No

Should federal taxes be distributed according to net pre-tax income?   Yes

Allow for the calculation of negative state taxes?   No

Distribution method will be reflected on income statement

State Income Tax Calculation

Pretax Income		1,549,297
Less:	US Treasuries	0
	US Agencies	213,711
State Taxable Income		1,335,587
Rate		6.00%
Unadjusted State Tax		80,135
State Tax Adjustments		0
State Tax		80,135

Federal Income Tax Calculation

Pretax Income		1,549,297
Less:	State Tax	80,135
	Tax Exempt Lns - Fix	2
	TEFRA Disallowance	4,559
	Fed Loss Carry Forward	0
Federal Taxable Income		1,464,601
Rate		34.00%
Tax Before Adjustments		497,964
Tax Adjustments		0
Tax Credits		0
Tax		497,964

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Distribution of Taxes

Annual Federal Tax Liability	$497,964
- YTD Accrual	($197,628)
Remaining Annual Liability	$300,336

Sample Bank Plan
Income Statement
FTE Adjusted

	*Jan 2012	*Feb 2012	Mar 2012	Apr 2012	May 2012	Jun 2012	Jul 2012	Aug 2012	Sep 2012	Oct 2012	Nov 2012	Dec 2012	Total
Tax Equivalent Adjustment	197	197	194	195	195	196	195	196	196	196	196	196	2,349
Operating Income	405,193	221,728	87,242	68,580	95,239	71,519	98,893	104,408	83,653	109,935	86,094	116,813	1,549,297
Federal Tax	137,965	59,663	28,419	22,390	31,004	23,340	32,184	33,966	27,260	35,751	28,049	37,973	497,964
State Tax	19,741	8,468	5,193	5,193	5,193	5,193	5,193	5,193	5,193	5,193	5,193	5,193	80,135
Net Income	247,487	153,597	53,630	40,998	59,042	42,986	61,516	65,249	51,200	68,991	52,853	73,647	971,198

Tax Adjustments:

- **Federal Tax Credits – Enter as Positive number, will reduce taxes**
- **Loss Carry Forward – Reduces tax liability if entered as positive number**
- **Other Adjustments – Will offset tax liability as entered. Positive added and negative subtracted.**

- **SBUs: Tax Settings only apply to Total Bank plan.**

- **Holding Company Consolidations: Tax settings applied to individual sub plans and taxes summed to total level.**

Dividends

Manual Setting

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Other Dividend Distribution Methods

Conclusion

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THANK YOU FOR ATTENDING

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