

# Primatics Stress Testing Webinar

Dodd Frank Act Stress Test Template  
Completion Simulation for Midsize Banks  
(\$10B - \$50B)

**John Lankenau**

Vice President, Product Management



# Agenda

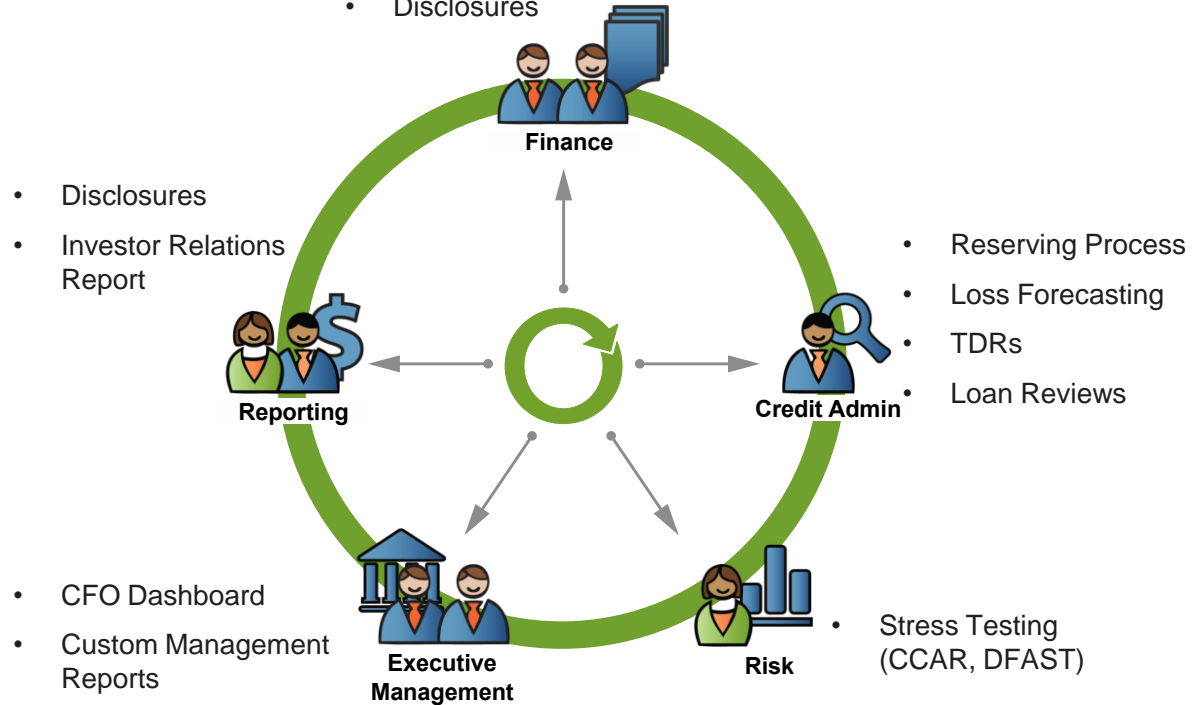
- Primatics Overview
- Quantitative Execution of DFA Stress Test
- Q&A

# Primatics Overview

**Primatics' mission is to help banks and financial institutions evolve. We provide an enterprise-grade SaaS solution for accounting, valuation and compliance of loan portfolios**

- We focus on loan portfolios – the core business of banks
- Our solution, Evolv, empowers banks' users to comply with regulations, manage complexity and make better decisions
- We provide a SaaS (Software-as-a-Service ) Solution with best-in-class security, flexibility and business scalability
- We currently have 50+ customers across all asset sizes, including over 15 Tier 1 (\$10B+) financial institutions

- Performing and Non-performing GAAP Accounting
- Acquired Books
- Accounting Forecasting (CCAR, DFAST)
- Disclosures



# Stress Testing Webinar Series

June 2013

Challenges & Best Practices  
for DFAST 10 –50

- Respond to the challenges of the Dodd Frank Act Stress Test for Midsize Banks and adapt the best practices

August 2013

How to Execute DFAST

- Consider practical aspects while executing Dodd Frank Act Stress Test for Midsize Banks

Today

DFAST Template Simulation  
Exercise

- Show an actual DFAST template completion process for a bank

The webinar video recording and presentation materials will be available at:  
[www.primaticsfincanial.com/knowledgecenter](http://www.primaticsfincanial.com/knowledgecenter)



# **Dodd Frank Act Stress Test Template Completion Simulation for Midsize Banks (\$10B - \$50B)**

John Lankenau  
Vice President, Product Management

## Bank of Darwin: Overview

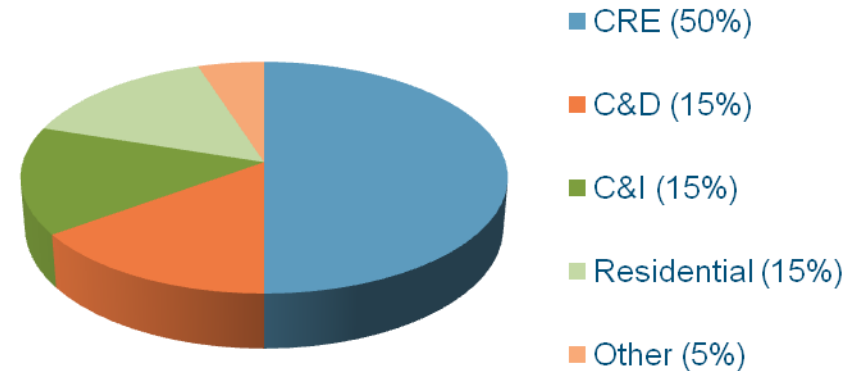


**Location:** McLean, VA

(Suburb of Washington, DC)

**Total Assets:** \$14 billion

**Loan Breakout:**



**M&A History:** In 2011, acquired \$1.7 billion in loans (Private deal, non-FDIC)

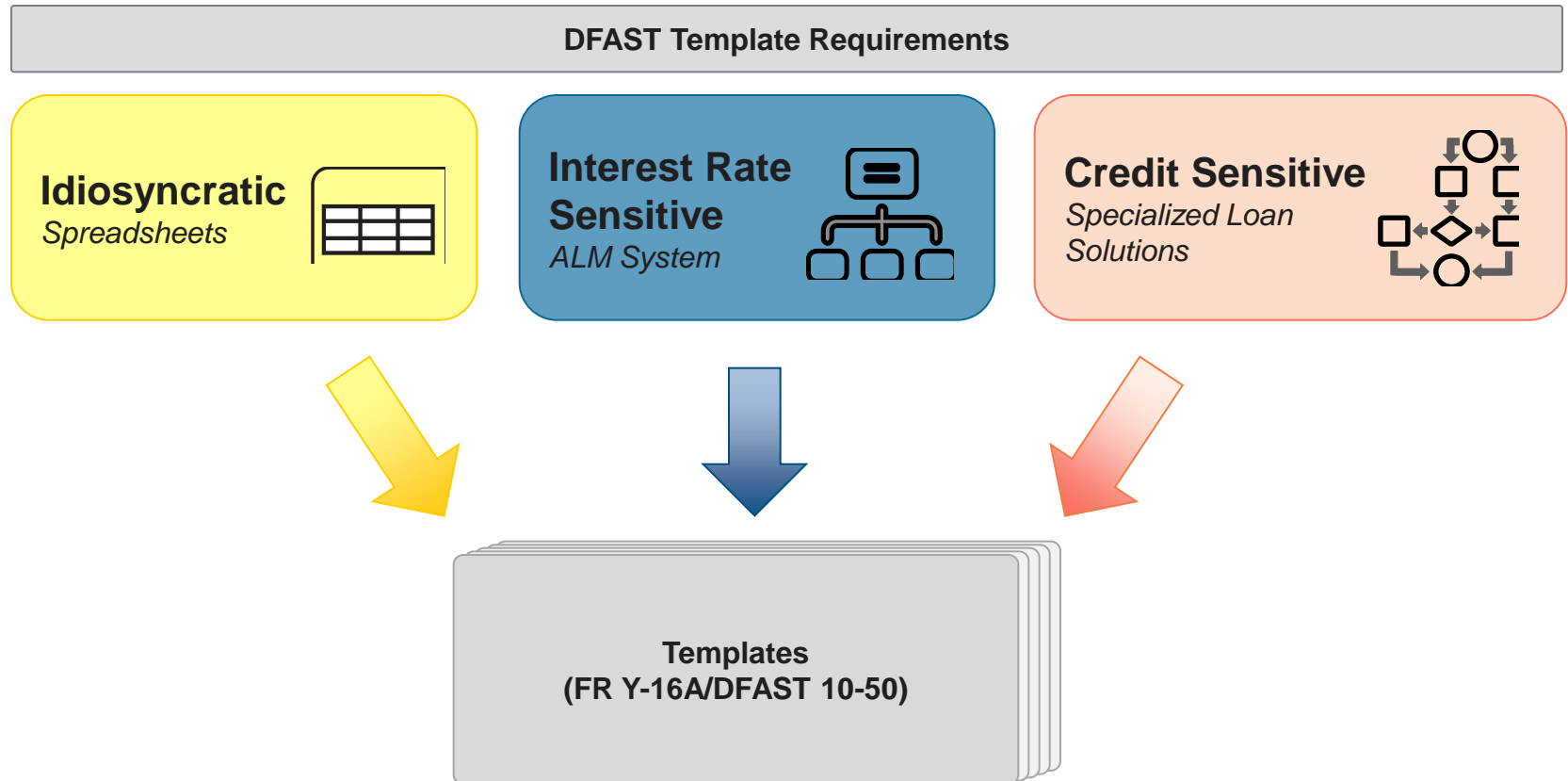
**Growth Strategy:** Organic

# Establishing Scope

## Components of a DFA Stress Test



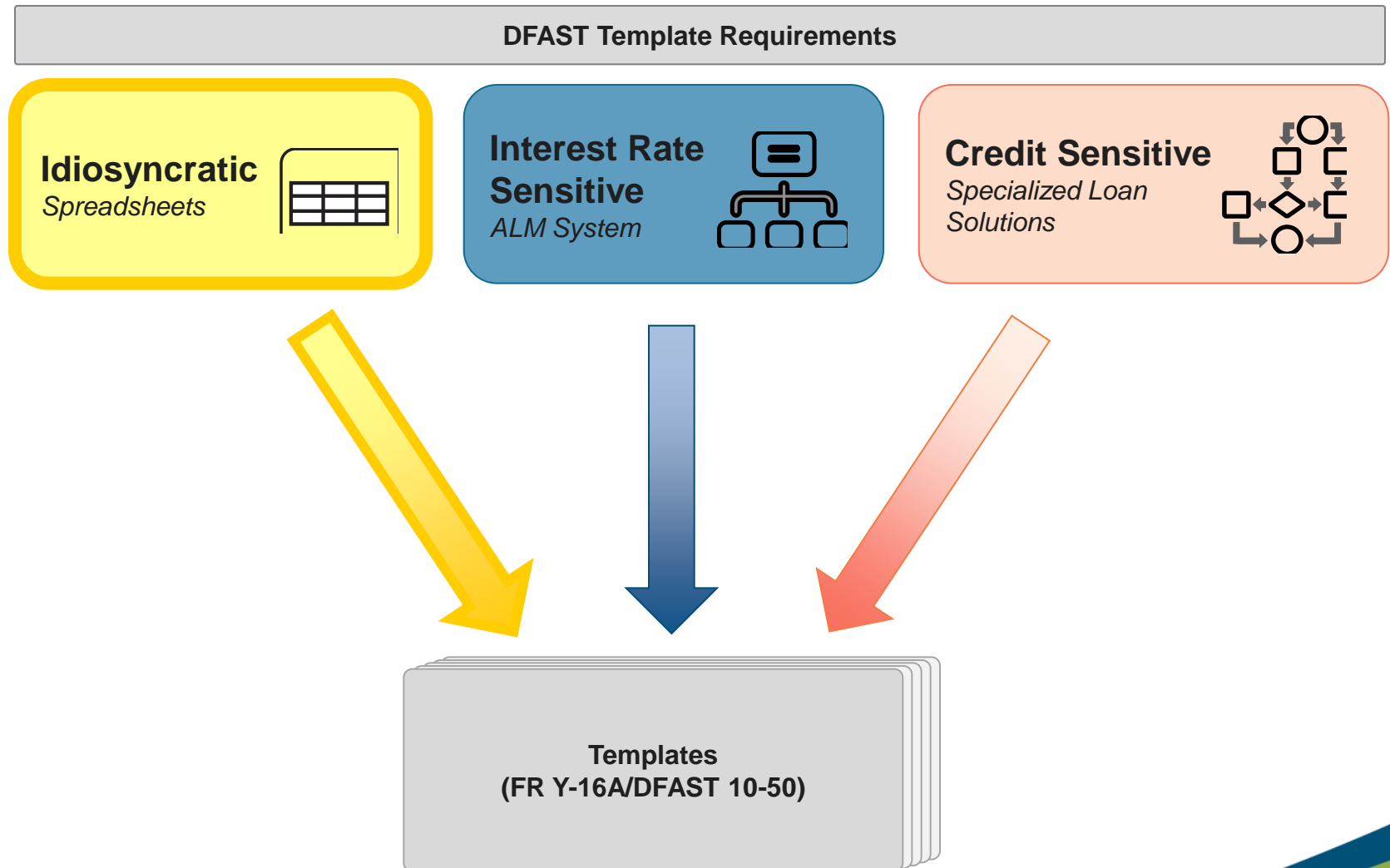
# Main Components of DFAST



**Take-Away:** *Efficient and accurate estimation for each of these components of the portfolio is reliant on using the correct tool so remember, there is no “one system does all” for your portfolio.*



# Main Components of DFAST



# Idiosyncratic: Income Statement

Income Statement Impacts		Actual As of 9/30	Projected As of 9/30	Year-end net charge offs (sum of items 1 to 13)	Projected (in the quarter) Q3
<b>Net Charge-Offs</b>					
First lien Mortgages					
Closed-end Junior Liens					
HELOCs	16				
C&I Loans	17				
1-4 family construction loans					
Other construction loans	27				
Multifamily loans	28				
Non-farm, non-residential owner occupied	29				
Non-farm, non-residential other loans	30				
Credit cards					
Automobile Loans					
Other consumer					
All other loans and leases (see instructions to 13)	1				
<b>Total loan and lease net charge offs</b>	23				
Net interest income					
Non-interest income					
Non-interest expense					
<b>Pre-provision net revenue (= item 15 + item 16 - item 17)</b>	18				0
Provision for loan and lease losses	19				
Realized gains (losses) on HTM securities	20				
Realized gains (losses) on AFS securities	21				
All other gains (losses); (see instructions)	22				
Taxes	23				
<b>Net income (item 18 - item 19 + item 20 + item 21 + item 22 - item 23)</b>					0
Net interest income					
Non-interest income					
Non-interest expense					
<b>Pre-provision net revenue (= item 15 + item 16 - item 17)</b>					0
Provision for loan and lease losses					
Realized gains (losses) on HTM securities					
Realized gains (losses) on AFS securities					
All other gains (losses); (see instructions)					
Taxes					
<b>Net income (item 18 - item 19 + item 20 + item 21 + item 22 - item 23)</b>		0	0	0	0

# Idiosyncratic: Balance Sheet & Capital Statement

Total securities (AFS) (sum of items 22-25)		0	0	0	0	0	0	0	0	0	0	0	0	0
Trading assets														
Total intangible assets														
Other real estate owned														
All other assets (see instructions)														
<b>Total assets</b> (sum of items 15, 21, 26, 27-30, less item 16)												0	0	0
<b>Memoranda</b>														
Loans and leases guaranteed by guarantors (i.e., non-FDIC loss instructions)	28													
Troubled Debt Restructurings	29													
Loans secured by	30													
Retail funding (core)	40													
Wholesale funding	41													
Trading liabilities	31													
All other liabilities (see instructions)														
<b>Total liabilities</b> (sum of items 31-38)	3													
Perpetual preferred stock and	37													
Common stock (par value)														
Surplus														
Retained earnings														
Other equity capital components														
<b>Total equity capital</b> (sum of items 40 to 44)												0	0	0

# How to Estimate Idiosyncratic Items

Categorize each item/sub-component

- 1. Recurring and Partially or Directly Related to Another Item**
- 2. Recurring but not a Function of Another Item**
- 3. Non-recurring (i.e., truly idiosyncratic)**

## Assumptions for Idiosyncratic Items

Category	Sub-Category	Type of Assumption Used
Income Statement: Non-interest income	Service charges on deposit accounts	Function of total deposits. Use last four quarter average percent of deposits for all scenarios.
	Other Non-Interest income	Idiosyncratic. Use last four quarter average dollars for all scenarios.
Income Statement: Non-interest expense	Salaries and benefits	Function of total assets. Use last four quarter average percent of total assets for all scenarios.
	Premises and fixed assets	Function of total assets. Use last four quarter average percent of total assets for all scenarios.
	Amortization for other intangible assets	Declining quarterly off Q3 2013 base at average rate of decline of past four quarters for all scenarios.
	Other non-interest expense	Idiosyncratic. Use last four quarter average dollars for all scenarios, excluding identified portion of Q4 2012 amount.
Income Statement: Taxes		Function of net income. Use last four quarter average percent of net income for all scenarios, if positive.
Income Statement: Other Gains/Losses		Idiosyncratic. None in last four quarters, so assume 0 in all scenarios.
Balance Sheet	Intangible Assets	Function of prior period balance and amortization.
Balance Sheet	Other Assets	Idiosyncratic. Use last four quarter average dollars for all scenarios.
Balance Sheet	Other Liabilities	Idiosyncratic. Use last four quarter average dollars for all scenarios.

# Idiosyncratic Income Statement Items

			2013Q3	2013Q4
3				
4		Non-Interest Income		
5		Service charge on deposits	\$ 6,678	\$ 6,612
6		Other non-interest income	\$ 11,613	\$ 11,613
7				
8		<b>Total non-interest income</b>	\$ 18,291	\$ 18,225
9				
10		Non-interest expense		
11		Salaries and benefits	\$ 61,305	\$ 61,991
12		Premises and fixed assets	\$ 13,312	\$ 13,461
13		Amortization of Intangible Assets	\$ 5,200	\$ 4,940
14				
15				
16		<b>Total non-interest expense</b>	\$ 93,601	\$ 94,176



**Take-Away:** The templates are not just a final output of the exercise, but rather an organic “working” part of the process.

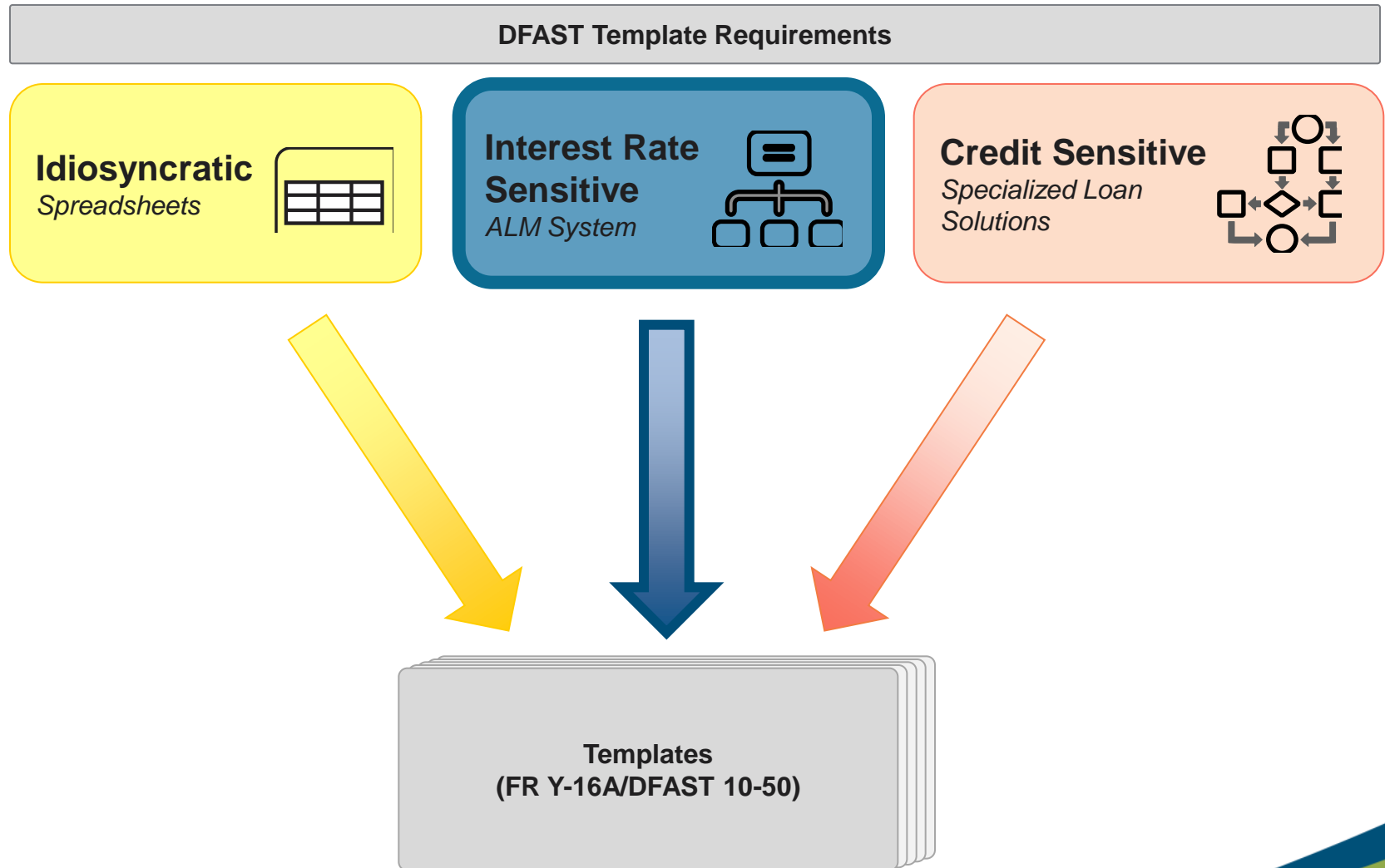
# Connecting “Working” Tabs to the Official Template

	2013Q3	2013Q4	2014Q1	2014Q2	2014Q3	2014Q4	2015Q1	2015Q2	2015Q3	2015Q4
<b>Non-Interest Income</b>										
Service charge on deposits	\$ 6,928	\$ 6,859	\$ 6,832	\$ 6,784	\$ 6,852	\$ 6,906	\$ 6,955	\$ 7,017	\$ 7,102	\$ 7,208
Other non-interest income	\$ 11,613	\$ 11,613	\$ 11,613	\$ 11,613	\$ 11,613	\$ 11,613	\$ 11,613	\$ 11,613	\$ 11,613	\$ 11,613
<b>Total non-interest income</b>	<b>\$ 18,541</b>	<b>\$ 18,472</b>	<b>\$ 18,445</b>	<b>\$ 18,397</b>	<b>\$ 18,465</b>	<b>\$ 18,519</b>	<b>\$ 18,568</b>	<b>\$ 18,630</b>	<b>\$ 18,715</b>	<b>\$ 18,821</b>
<b>Non-interest expense</b>										
Salaries and benefits	\$ 9,936	\$ 9,929	\$ 9,920	\$ 9,921	\$ 9,938	\$ 9,969	\$ 9,988	\$ 9,996	\$ 9,999	\$ 10,002
Premises and fixed assets	\$ 2,157	\$ 2,156	\$ 2,154	\$ 2,154	\$ 2,158	\$ 2,165	\$ 2,169	\$ 2,171	\$ 2,171	\$ 2,172
Amortization of Intangible Assets	\$ 5,200	\$ 4,940	\$ 4,693	\$ 4,458	\$ 4,235	\$ 4,024	\$ 3,822	\$ 3,631	\$ 3,450	\$ 3,277
Other non-interest expense	\$ 13,784	\$ 13,784	\$ 13,784	\$ 13,784	\$ 13,784	\$ 13,784	\$ 13,784	\$ 13,784	\$ 13,784	\$ 13,784
<b>Total non-interest expense</b>	<b>\$ 31,077</b>	<b>\$ 30,809</b>	<b>\$ 30,551</b>	<b>\$ 30,317</b>	<b>\$ 30,115</b>	<b>\$ 29,941</b>	<b>\$ 29,764</b>	<b>\$ 29,582</b>	<b>\$ 29,404</b>	<b>\$ 29,235</b>
<b>Constants</b>										
Service charge % deposits	0.06%									
Wages % of total assets	0.44%									
Premises % of total assets	0.10%									
Amortization % last quarter	95%									
Tax %	33%									

(in the quarter)  
Q7 Q8

<b>Credit cards</b>										
Automobile Loans										
Other consumer										
All other loans and leases (see instructions)										
<b>Total loan and lease net charge offs (sum of items 1 to 3)</b>	0	0	0	0	0	0	0	0	0	0
<b>Net interest income</b>										
<b>Non-interest income</b>										
<b>Non-interest expense</b>										
<b>Pre-provision net revenue (= item 15 + item 16 - item 17)</b>	0	0	0	0	0	0	0	0	0	0
Provision for loan and lease losses										
Realized gains (losses) on HTM securities										
Realized gains (losses) on AFS securities										
<b>All other gains (losses): (see instructions)</b>										
<b>Taxes</b>										
<b>Net income (item 18 - item 19 + item 20 + item 21 - item 22 - item 23)</b>	0	0	0	0	0	0	0	0	0	0

# Main Components of DFAST





# ALM: Balance Sheet and Capital Statement

		(Dollar Amounts in Thousands)											
		Actual	Projected	Year 1: 2014 — Projected (in the quarter)				Year 2: 2015 — Projected (in the quarter)					
		As of 9/30	As of 12/31	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8		
<b>Balance Sheet Statement Impacts</b>													
<b>Loans (excluding FDIC Loss Sharing Agreements)</b>													
1	First lien Mortgages												
2	Crossed-end Junior Liens												
3	HELOCs												
4	CEI Loans												
5	1-4 family construction loans		18										
6	Other construction loans												
7	Multifamily loans	28	18										
8	Non-farm, non-residential owner occupied												
9	Non-farm, non-residential other												
10	Credit cards												
11	Automobile loans	29	19										
12	Other consumer												
13	All other loans and leases (see instructions)												
14	Loans covered by FDIC loss sharing	30	20										
15	Loans not covered by FDIC loss sharing												
16	<b>Total loans and leases (sum of items 1-15)</b>	<b>31</b>	<b>21</b>										
17	Allowance for loan and lease losses												
18	<b>Securities</b>	<b>31</b>	<b>21</b>										
19	U.S. Government Obligation and Obligations of GSE	32	22										
20	Securities issued by states and political subdivisions of U.S.	33	23										
21	Non-agency MBS and ABS securities	34	24										
22	All other HTM securities	35	25										
23	<b>Total securities (HTM) (sum of items 19-22)</b>	<b>36</b>	<b>26</b>										
24	U.S. Government Obligation and Obligations of GSE	36	26										
25	Securities issued by states and political subdivisions of U.S.	37	27										
26	Non-agency MBS and ABS securities	38	28										
27	All other AFS securities	43	35										
28	<b>Total securities (AFS) (sum of items 24-27)</b>	<b>48</b>	<b>35</b>										
29	Trading assets												
30	Non-trading assets												
31	Other real estate owned												
32	All other assets (see instructions)												
33	<b>Total assets (sum of items 15, 21, 25, 27-30, less item 16)</b>	<b>79</b>	<b>56</b>										
34	<b>Memoranda</b>												
35	Loans and leases guaranteed by other U.S. government or GSE guarantors (i.e., non-FDIC loss sharing agreements) (see instructions)												
36	Troubled Debt Restructurings												
37	Loans secured by 1-4 family on foreclosure												
38	<b>Retail funding (core deposits)</b>												
39	<b>Wholesale funding</b>												
40	<b>Trading liabilities</b>												
41	All other liabilities (see instructions)												
42	<b>Total liabilities (sum of items 38 to 41)</b>	<b>79</b>	<b>56</b>										
43	Periodical preferred stock and related surplus												

# ALM: Income Statement

Income Statement Impacts	Actual As of 9/30	Projected As of 12/31	Year 1: 2014 – Projected (in the quarter)				Year 2: 2015 – Projected (in the quarter)				
			Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	
<b>Net Charge-Offs</b>											
First lien Mortgages											
Closed-end Junior Liens											
HELOCs											
C&I Loans											
1-4 family construction loans											
Other construction loans											
Multifamily loans											
Non-farm, non-residential owner occupied loans											
Non-farm, non-residential other loans											
Credit cards											
Automobile Loans											
Other consumer											
All other loans and leases											
<b>Total loan and lease</b>	<b>27</b>										
Net interest income	15										
Non-interest income	16										
Non-interest expense	17										
<b>Pre-provision net revenue (= item 15 + item 16 - item 17)</b>	<b>18</b>							0		0	0
Provision for loan and lease losses	19										
Realized gains (losses) on HTM securities	20										
Realized gains (losses) on AFS securities	21										
All other gains (losses); (see instructions)	22										
Taxes	23										
<b>Net income (item 18 - item 19 + item 20 + item 21 + item 22 - item 23)</b>	<b>1</b>							0		0	
<b>Memoranda</b>											
Net gains (losses) on sales of other real estate owned											
Total other-than-temporary impairment (OTTI) losses											
Itemize and describe amounts greater than 15% of non-interest income											
Itemize and describe amounts greater than 15% of non-interest expense											
Itemize and describe amounts greater than 15% of all other gains											

# Securities Working Spreadsheet

Securities										
HTM	2013Q3	2013Q4	2014Q1	2014Q2	2014Q3	2014Q4	2015Q1	2015Q2	2015Q3	2015Q4
U.S. Government Obligation and Obligations of GSE										
Balance	\$ 299,505	\$ 299,505	\$ 299,505	\$ 299,505	\$ 299,505	\$ 299,505	\$ 299,505	\$ 299,505	\$ 299,505	\$ 299,505
Wtd Avg Yield	2.20%	2.30%	2.41%	2.51%	2.60%	2.67%	2.73%	2.79%	2.84%	2.88%
Securities issued by states and political subdivisions of U.S.										
Balance	\$ 15,763	\$ 15,763	\$ 15,763	\$ 15,763	\$ 15,763	\$ 15,763	\$ 15,763	\$ 15,763	\$ 15,763	\$ 15,763
Wtd Avg Yield	3.33%	3.34%	3.37%	3.41%	3.44%	3.48%	3.50%	3.52%	3.54%	3.55%
Total securities (HTM)										
Balance	\$ 315,269	\$ 315,269	\$ 315,269	\$ 315,269	\$ 315,269	\$ 315,269	\$ 315,269	\$ 315,269	\$ 315,269	\$ 315,269
Wtd Avg Yield	2.26%	2.35%	2.46%	2.55%	2.64%	2.71%	2.77%	2.83%	2.87%	2.91%
AFS										
U.S. Government Obligation and Obligations of GSE										
Balance	\$ 1,697,196	\$ 1,697,196	\$ 1,697,196	\$ 1,697,196	\$ 1,697,196	\$ 1,697,196	\$ 1,697,196	\$ 1,697,196	\$ 1,697,196	\$ 1,697,196
Wtd Avg Yield	2.20%	2.30%	2.41%	2.51%	2.60%	2.67%	2.73%	2.79%	2.84%	2.88%
Securities issued by states and political subdivisions of U.S.										
Balance	\$ 89,326	\$ 89,326	\$ 89,326	\$ 89,326	\$ 89,326	\$ 89,326	\$ 89,326	\$ 89,326	\$ 89,326	\$ 89,326
Wtd Avg Yield	3.33%	3.34%	3.37%	3.41%	3.44%	3.48%	3.50%	3.52%	3.54%	3.55%
Total securities (AFS)										
Balance	\$ 1,786,522	\$ 1,786,522	\$ 1,786,522	\$ 1,786,522	\$ 1,786,522	\$ 1,786,522	\$ 1,786,522	\$ 1,786,522	\$ 1,786,522	\$ 1,786,522
Wtd Avg Yield	2.26%	2.35%	2.46%	2.55%	2.64%	2.71%	2.77%	2.83%	2.87%	2.91%
<b>Total Balance</b>										
	\$ 2,101,791	\$ 2,101,791	\$ 2,101,791	\$ 2,101,791	\$ 2,101,791	\$ 2,101,791	\$ 2,101,791	\$ 2,101,791	\$ 2,101,791	\$ 2,101,791
<b>Wtd Avg Yield</b>										
	2.26%	2.35%	2.46%	2.55%	2.64%	2.71%	2.77%	2.83%	2.87%	2.91%
<b>Securities interest income</b>										
	\$ 11,857	\$ 12,367	\$ 12,913	\$ 13,418	\$ 13,883	\$ 14,258	\$ 14,572	\$ 14,862	\$ 15,096	\$ 15,313
<b>Realized gain/loss for AFS securities</b>										
	-300	-557	-827	-827	-827	-836	-836	-836	-836	-836
<b>Net change in fair value of AFS securities (unrealized gain/loss)</b>										
	-7,892	-6,172	-5,678	0	0	0	0	0	0	0

# Mapping Securities to the Template

Securities		Securities		Securities		Income Statement	
<b>HTM</b>							
U.S. Government Obligation and Obligations of GSE		17	U.S. Government Obligation and Obligations of GSE				
Balance		18	Securities issued by states and political subdivisions of U.S.				
Wtd Avg Yield		19	Non-agency MBS and ABS securities				
		20	All other HTM securities				
Securities issued by states and political subdivisions of U.S.		21	<b>Total securities (HTM)</b> (sum of items 17-20)				
Balance		22	U.S. Government Obligation and Obligations of GSE				
Wtd Avg Yield		23	Securities issued by states and political subdivisions of U.S.				
Total securities (HTM)		24	Non-agency MBS and ABS securities				
Balance		25	All other AFS securities				
Wtd Avg Yield		26	<b>Total securities (AFS)</b> (sum of items 22-25)				
		27	<b>Memoranda</b>				
<b>AFS</b>		28	Retail funding (core deposits)				
U.S. Government Obligation and Obligations of GSE		29	Wholesale funding				
Balance		30	Trading liabilities				
Wtd Avg Yield		31					
Securities issued by states and political subdivisions of U.S.		32					
Balance		33					
Wtd Avg Yield		34					
Total securities (AFS)		35					
Balance		36					
Wtd Avg Yield		37					
		38					
		39					
		40					
		41					
<b>Total Balance</b>		42					
<b>Wtd Avg Yield</b>		43					
<b>Securities interest income</b>		44					
<b>Realized gain/loss for AFS securities</b>		45					
<b>Net change in fair value of AFS securities (unrealized gain/loss)</b>		46					
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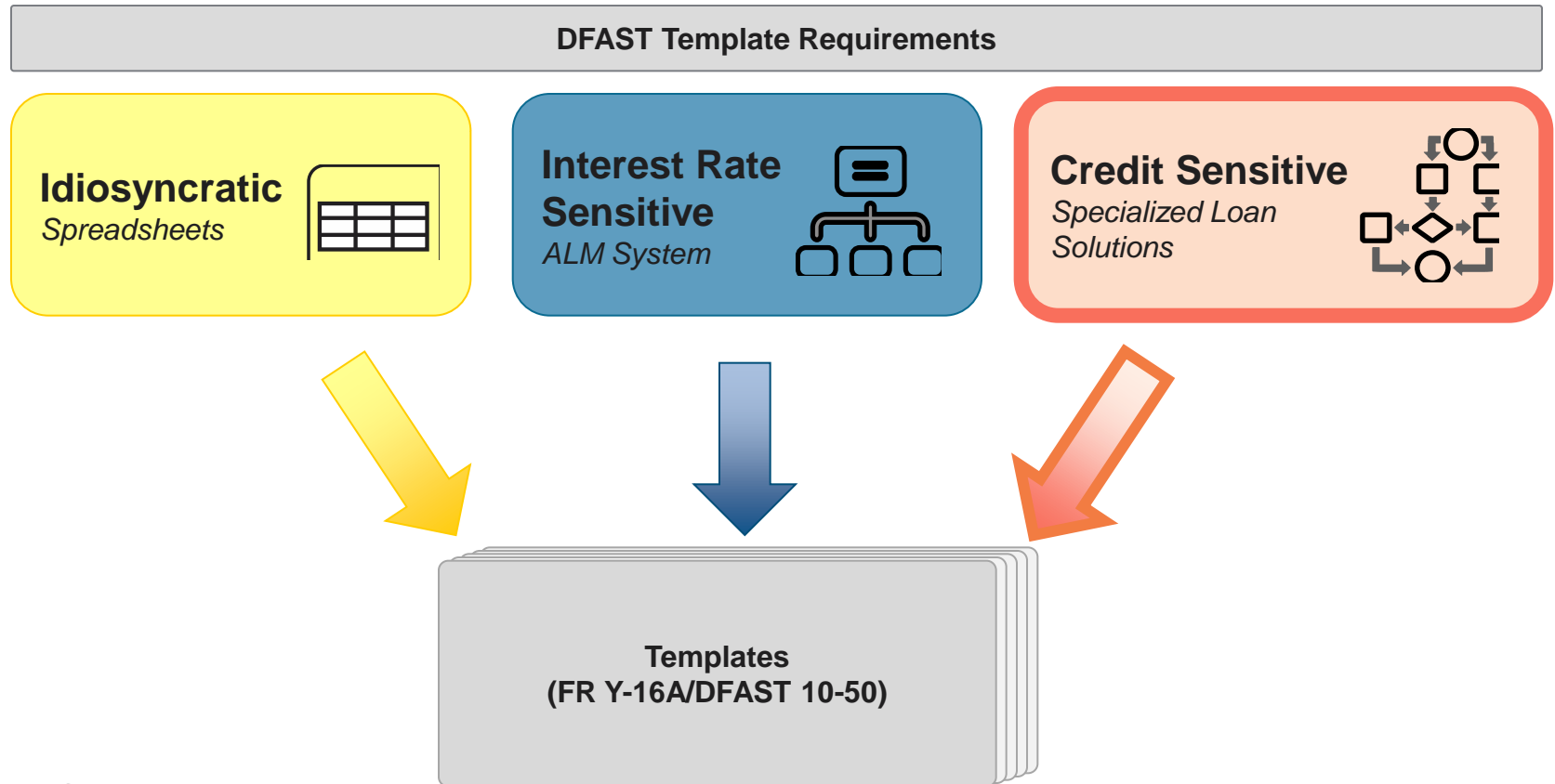
# Deposits and Borrowing

	2013Q3	2013	2012	2011
<b>Deposits</b>				
<i>Non-interest bearing</i>				
Balance	\$2,530,948			
<i>Interest bearing</i>				
Balance	\$8,154,349	\$8,618,349		
Wtd Ave Yield	0.50%	0.51%		
<b>Total Deposits</b>	<b>\$10,685,297</b>	<b>\$10,578,444</b>	<b>\$10,536,131</b>	
<b>Other borrowing</b>				
Balance	\$398,176	\$394,194	\$392,617	
Wtd Ave Yield	2.24%	2.25%	2.25%	
<b>Total interest expense</b>	<b>\$12,443</b>			

Assets	2013Q3	2013	2012	2011
<b>Securities</b>				
U.S. Government Obligation and Obligations of GSE				
Securities issued by states and political subdivisions of U.S.				
Non-agency MBS and ABS securities				
All other HTM securities				
<b>Total securities (HTM)</b> (sum of items 17-20)				
U.S. Government Obligation and Obligations of GSE				
Securities issued by states and political subdivisions of U.S.				
Non-agency MBS and ABS securities				
All other AFS securities				
<b>Total securities (AFS)</b> (sum of items 22-25)				
<b>Memoranda</b>				
Retail funding (core deposits)				
Wholesale funding				
Trading liabilities				
<b>Loans and leases (see instructions)</b>				
<b>Total loan and lease net charge offs</b> (sum of items 1 to 13)				
<b>Net interest income</b>				
Non-interest income		18,291	18,225	18,225
Non-interest expense		93,601	94,176	95,176
<b>Pre-provision net revenue</b> (= item 15 + item 16 - item 17)				
Provision for loan and lease losses				
Realized gains (losses) on HTM securities				
Realized gains (losses) on AFS securities				
Realized gains (losses); (see instructions)		0		

# Main Components of DFAST



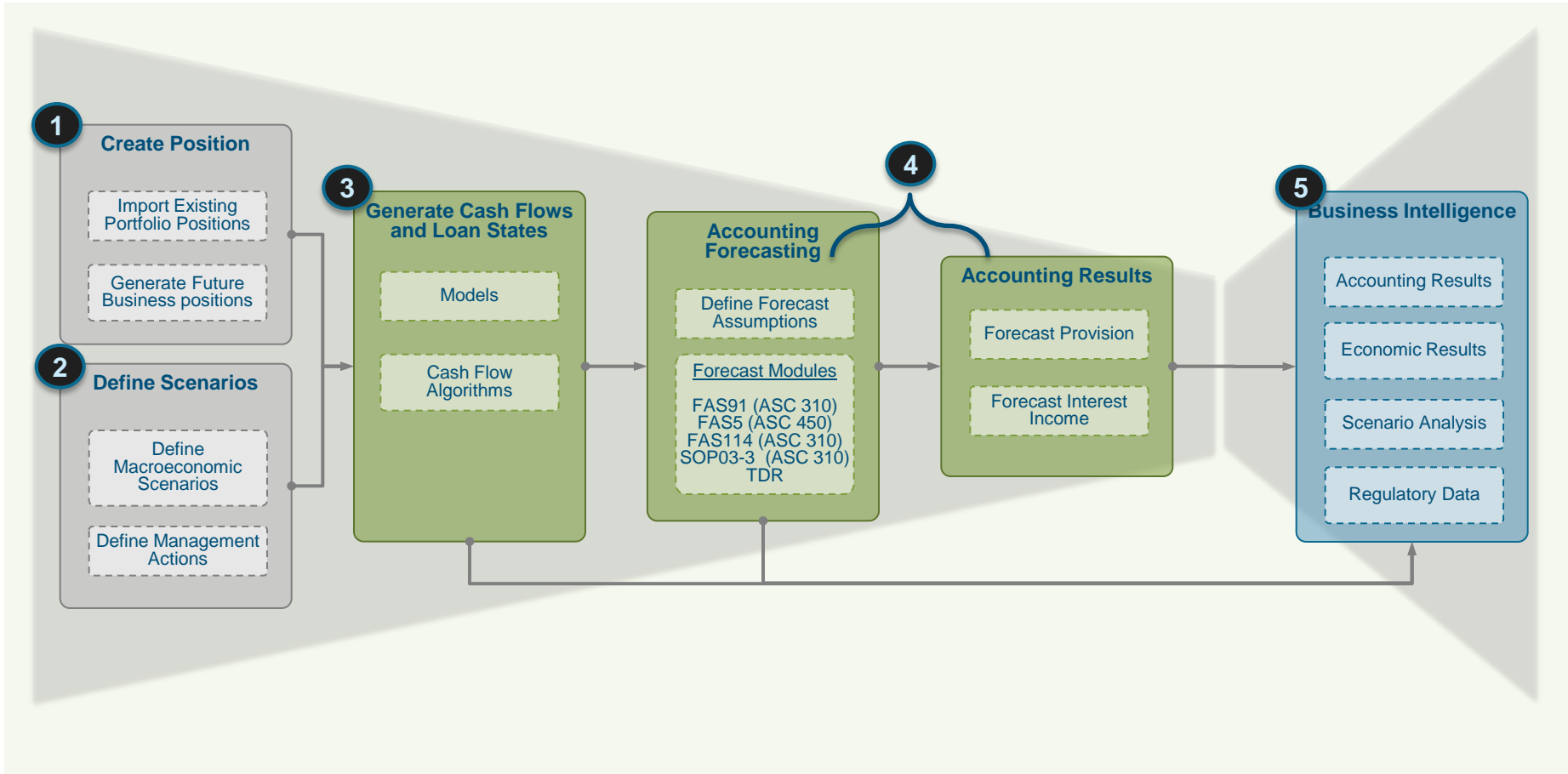
**Take-Away:** *The credit sensitive portion accounts for nearly two thirds of the DFAST entries. Given it is the majority of the template, the most material risk, loans require more information to forecast, specific attention and necessary tools should be assigned here.*

# Characteristics of a Specialized Loan System

A specialized loan system has,

- Functionality to:
  - Handle all asset classes
  - Handle a wide variety of models
  - Perform estimates independently without relying on other systems
  - Forecast behavior of new originations
- Business intelligence capabilities to:
  - Generate accounting forecasts
  - Plug into other applications
  - Support qualitative analysis, including showing many different breakdowns of same information

# Stress Testing a Loan Portfolio



1 Data Capture

2 Scenario Definition

3 Loan Modeling

4 Accounting Forecasting

5 Reporting / Analysis



# Loans: Balance Sheet

Balance Sheet Statement Impacts		As of 9/30	As of 12/31	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
<b>Loans (excluding FDIC Loss Sharing Agreements)</b>											
First lien Mortgages											
Closed-end Junior Liens											
HELOCs	9	1									
C&I Loans	10	2									
1-4 family construction loans	11	3									
Other construction loans											
Multifamily loans											
Non-farm, non-residential owner occupied loans	12	4									
Non-farm, non-residential other loans	13	5									
Credit cards											
Automobile loans	14	6									
Other consumer	15	7									
All other loans and leases (see instructions)	16	8									
Loans covered by FDIC loss sharing agreements	17	9									
<b>Total loans and leases (sum of items 1 to 14)</b>	18	10									
Allowance for loan and lease losses	19	11									
<b>Securities</b>											
U.S. Government Obligation and Obligations of GSE	20	12									
Securities issued by states and political subdivisions of U.S.	21	13									
Non-agency MBS and ABS securities	22	14									
All other HTM securities	23	15									
<b>Total securities (HTM) (sum of items 17-20)</b>											
U.S. Government Obligation and Obligations of GSE											
Securities issued by states and political subdivisions of U.S.											
Non-agency MBS and ABS securities											
All other AFS securities											
<b>Total securities (AFS) (sum of items 22-25)</b>											
<b>Trading assets</b>											
Total intangible assets											
Other real estate owned											
All other assets (see instructions)											
<b>Total assets (sum of items 15, 21, 26, 27-30, less item 16)</b>											

# Loans: Income Statement

Income Statement Impacts	Actual As of 9/30	Projected	Year 1: 2014 -- Projected (in the quarter)				Year 2: 2015 -- Projected (in the quarter)					
			Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8		
<b>Net Charge-Offs</b>			<b>Net Charge-Offs</b>									
First lien Mortgages	9	1										
Closed-end Junior Liens	10	2										
HELOCs	11	3										
C&I Loans	12	4										
1-4 family construction loans	13	5										
Other construction loans	14	6										
Multifamily loans	15	7										
Non-farm, non-residential owner occupied loans	16	8										
Non-farm, non-residential other loans	17	9										
Credit cards	18	10										
Automobile Loans	19	11										
Other consumer	20	12										
All other loans and leases (see instructions)	21	13										
<b>Total loan and lease net charge offs (sum of items 1 to 13)</b>	<b>21</b>	<b>13</b>										
Net interest income	22	14										
Non-interest income	22	14										
Non-interest expense	27	18										
<b>Pre-provision net revenue (= item 15 + item 16 - item 17)</b>	<b>27</b>	<b>18</b>										
Provision for loan and lease losses	28	19										
Realized gains (losses) on HTM securities												
Realized gains (losses) on AFS securities												
All other gains (losses); (see instructions)												
Taxes			0	0	0	0	0	0	0	0	0	0
<b>Net income (item 18 - item 19 + item 20 + item 21 + item 22 - item 23)</b>			0	0	0	0	0	0	0	0	0	0

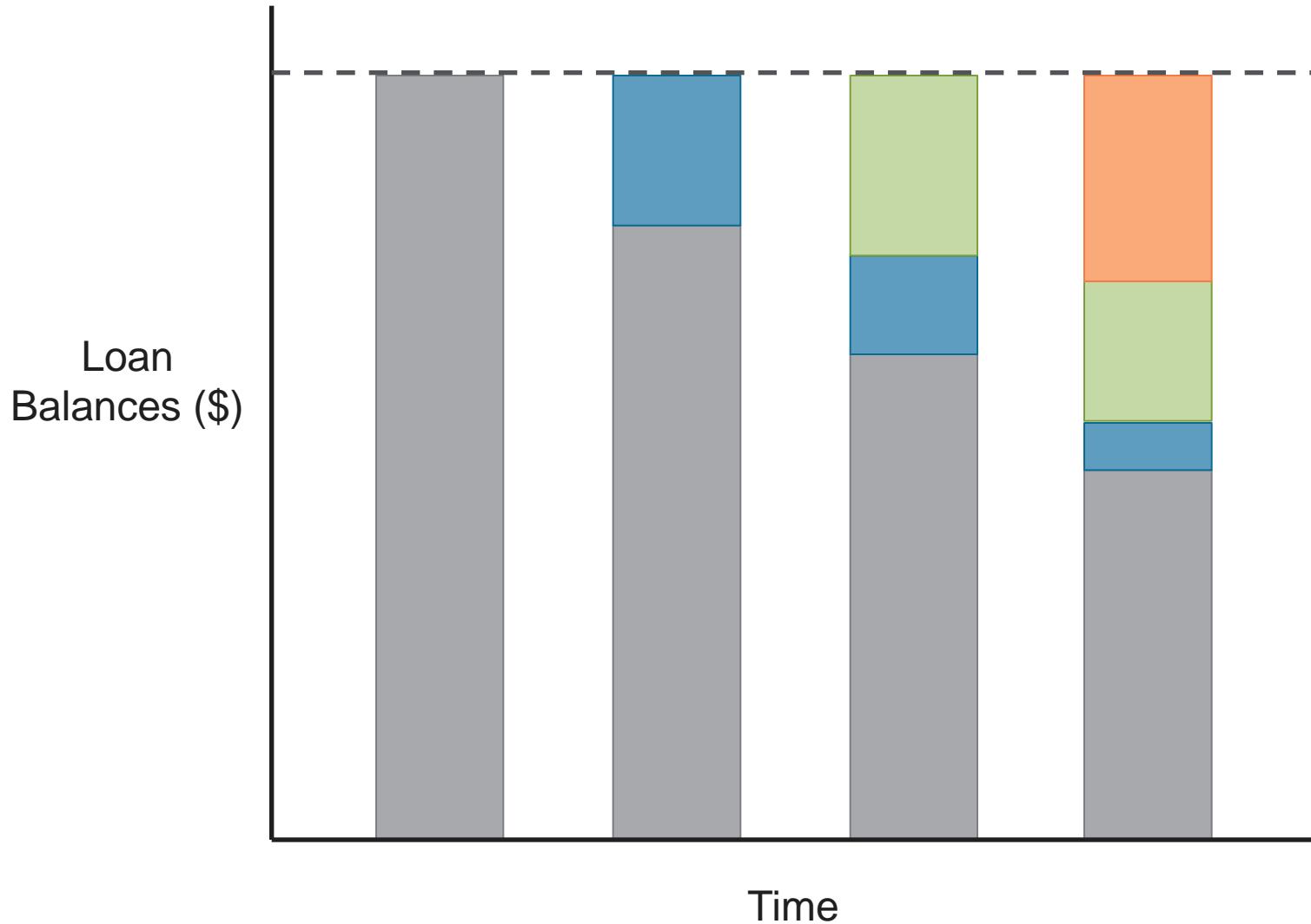
## Loan Balances

$$\text{Forecast Loan Balance} = \text{Loan Balance (prior month)} + \text{Activity} + \text{Originations}$$

Common activities include:

- Contractual principal payments
- Full or partial prepayments
- Amortization or accretion of fees or unearned income
- Default-related balance changes (e.g., chargeoffs or transition to other asset categories)
- Draws or disbursements

# Loan Balances: Over Time



## Loans: New Originations

New originations need credit characteristics, not just amounts. These are needed because:

- Future balances depend on prepays, contractual amounts, defaults
- Charge-offs depend on credit characteristics
- Interest income depends on note rate

Our book evolves over time

- First two quarters of new originations have same credit characteristics as most recent quarters
- Next three quarters we increase concentration of higher credit quality
- Last three quarters we keep this constant

## Loans: Modeling Approaches Used

Line of Business	Regulator Category	Model Approach
Mortgage	First lien mortgages Closed-end junior liens HELOCs	Econometric suite of prepay, default, loss given default
Commercial	C&I 1-4 family construction loans Other construction loans Non-farm, non-residential owner occ Non-farm, non-residential other loans	PD by risk rating. LGD by category/industry. Change in PDs for stress scenario from econometric models.
Consumer	Automobile loans Other consumer Credit Cards	PD by risk characteristics. LGD by category. Change in PDs for stress scenario from econometric models.



**Take-Away:** *Having models on a specialized loan system gives banks direct access to the numbers within the template and the power / ability to defend those results to regulators.*

# Loans: Balance Report mapped to Template

EVOLV<sup>®</sup> Welcome, C

Accounting Valuation Insight Admin

Aggregate Interest Income Forecast

Home Tools Data Grid Format

Balance Report

Product Type	Q4/2013	Q1/2014	Q2/2014	Q3/2014	Q4/2014	Q1/2014
First lien Mortgages	1,064,219	1,080,487	1,089,965	1,087,252	1,081,783	
Closed-end Junior Liens	44,570	49,529	47,971	45,331	42,908	
HELOCs	636,369	645,510	647,892	640,609	628,236	
C&I Loans	1,973,272	2,007,415	2,044,871	2,050,807	2,058,199	
1-4 family construction loans	3,592	4,256	4,314	4,772	4,998	
Other construction loans	1,951,217	2,026,012	2,098,687	2,109,837	2,119,858	
Multifamily loans	427,326	452,304	476,638	500,312	525,227	
Non-farm, non-residential owner occupied	3,410,668	3,473,393	3,532,306	3,563,143	3,592,237	
Non-farm, non-residential other loans	2,447,339	2,461,842	2,479,338	2,487,408	2,497,031	
Credit cards	74,349	85,901	87,978	88,962	88,857	
Automobile Loans	26,417	30,744	32,003	33,261	34,260	
Other consumer	26,308	31,185	33,098	35,023	36,710	
All other loans and leases	3,375	3,671	3,570	3,510	3,447	
Grand Total	12,085,646	12,348,579	12,575,262	12,646,718	12,710,304	

Balance Sheet Statement Impacts	As of 9/30	As of 12/31
<b>Loans (excluding FDIC Loss Sharing Agreements)</b>		
First lien Mortgages		
Closed-end Junior Liens		
HELOCs		
C&I Loans		
1-4 family construction loans		
Other construction loans		
Multifamily loans		
Non-farm, non-residential owner occupied loans		
Non-farm, non-residential other loans		
Credit cards		
Automobile loans		
Other consumer		
All other loans and leases (see instructions)		
Loans covered by FDIC loss sharing agreements		
<b>Total loans and leases (sum of items 1 to 14)</b>		
Allowance for loan and lease losses		
<b>Securities</b>		
U.S. Government Obligation and Obligations of GSE		
Securities issued by states and political subdivisions of U.S.		
Non-agency MBS and ABS securities		
All other HTM securities		
<b>Total securities (HTM) (sum of items 17-20)</b>		
U.S. Government Obligation and Obligations of GSE		
Securities issued by states and political subdivisions of U.S.		
Non-agency MBS and ABS securities		
All other AFS securities		
<b>Total securities (AFS) (sum of items 22-25)</b>		
<b>Trading assets</b>		
Total intangible assets		
Other real estate owned		
All other assets (see instructions)		
<b>Total assets (sum of items 15, 21, 26, 27-30, less item 16)</b>		

# Loans: Interest Income Report mapped to Template

Run	Forecast Quarter	Q4/2013	Q1/2014	Q2/2014
Darwin_SEP13_S4_v1	Contractual Interest Accrual	127,243	125,594	
	Deferred Interest Income Level Yield Amortization	(490)	(72)	
	Deferred Interest Income Straight Line Amortization	(506)	(423)	
	PCI Accretion	12,888	12,752	
	<b>Total Interest Income</b>	<b>139,136</b>	<b>137,850</b>	

Income Statement Impacts	Actual As of 9/30	Project As of 12
<b>Net Charge-Offs</b>		
First lien Mortgages		
Closed-end Junior Liens		
HELOCs		
C&I Loans		
1-4 family construction loans		
Other construction loans		
Multifamily loans		
Non-farm, non-residential owner occupied loans		
Non-farm, non-residential other loans		
Credit cards		
Automobile Loans		
Other consumer		
All other loans and leases (see instructions)		
<b>Total loan and lease net charge offs</b> (sum of items 1 to 13)		
<b>Net interest income</b>		
Non-interest income		
Non-interest expense		
<b>Pre-provision net revenue</b> (= Item 15 + item 16 - item 17)		
Provision for loan and lease losses		
Realized gains (losses) on HTM securities		
Realized gains (losses) on AFS securities		
All other gains (losses); (see instructions)		
Taxes	0	
<b>Net income</b> (Item 18 - item 19 + item 20 + item 21 + item 22 - item 23)	0	



# Loans: Charge-Off Report mapped to Template

**EVOLV<sup>®</sup>**

Accounting Valuation Insight Admin

Aggregate Interest Income Forecast

Home Tools Data Grid Format

Chargeoff Principal Forecast

Run	Obligor Name	Cash Flow Quarter	Q4/2013	Q1/2014	Q2/2014
Darwin_SEP13_S4_v1	First lien Mortgages		2,646	3,731	6,608
	Closed-end Junior Liens		1,292	1,673	2,625
	HELOCs		5,737	8,082	14,244
	C&I Loans		917	1,219	1,308
	1-4 family construction loans		0	0	0
	Other construction loans		868	1,066	1,395
	Multifamily loans		5	8	16
	Non-farm, non-residential owner occupied		437	479	582
	Non-farm, non-residential other loans		890	908	997
	Credit Cards		935	1,218	2,102
	Automobile loans		74	75	72
	Other consumer		64	71	76
	All other loans and leases		191	162	139
	<b>Total</b>		<b>14,054</b>	<b>18,692</b>	<b>30,163</b>

Income Statement Impacts	Actual As of 9/30	Project As of 12
<b>Net Charge-Offs</b>		
First lien Mortgages		
Closed-end Junior Liens		
HELOCs		
C&I Loans		
1-4 family construction loans		
Other construction loans		
Multifamily loans		
Non-farm, non-residential owner occupied loans		
Non-farm, non-residential other loans		
Credit cards		
Automobile Loans		
Other consumer		
All other loans and leases (see instructions)		
<b>Total loan and lease net charge offs (sum of items 1 to 13)</b>		
<b>Net interest income</b>		
<b>Non-interest income</b>		
<b>Non-interest expense</b>		
<b>Pre-provision net revenue (= item 15 + item 16 - item 17)</b>		
Provision for loan and lease losses		
Realized gains (losses) on HTM securities		
Realized gains (losses) on AFS securities		
<b>All other gains (losses); (see instructions)</b>		
<b>Taxes</b>	0	0
<b>Net income (item 18 - item 19 + item 20 + item 21 + item 22 - item 23)</b>		

# Loans: Provision and Allowance Report mapped to Template

**EVOLV**  
Accounting Valuation Insight Admin  
Aggregate Interest Income Forecast

Home Tools Data Grid Format

**Reserve Forecast**

Run	Forecast Quarter	Q4/2013	Q1/2014	Q2/2014
Darwin_SEP13_S4_v1	Beginning Reserve	166,938	189,202	193,991
	Charge-offs	(14,054)	(18,692)	(30,114)
	Charge-off Adjustment	(28)	(36)	
	Recoveries	0	0	
	Provision Expense/(Income)	36,346	23,517	38,346
	<b>Ending Reserve</b>	<b>189,202</b>	<b>193,991</b>	<b>202,114</b>

Net interest income			
Non-interest income			
Non-interest expense			
<b>Pre-provision net revenue (= item 15 + item 16 - item 17)</b>			
<b>Provision for loan and lease losses</b>			
Realized gains (losses) on HTM securities			
Realized gains (losses) on AFS securities			
All other gains (losses); (see instructions)			
Taxes		0	0
<b>Net income (item 18 - item 19 + item 20 + item 21 + item 22 - item 23)</b>		0	0

All other loans and leases (see instructions)			
Loans covered by FDIC loss sharing agreements			
<b>Total loans and leases (sum of items 1 to 14)</b>		0	0
<b>Allowance for loan and lease losses</b>			
<b>Securities</b>			
U.S. Government Obligation and Obligations of GSE			
Securities issued by states and political subdivisions of U.S.			
Non-agency MBS and ABS securities			
All other HTM securities			
<b>Total securities (HTM)</b>			

# It's complete!

**OCC DFST 10-50 - Baseline Scenario  
Balance Sheet Statement for XYZ  
OCC Charter ID #####  
(Dollar Amounts in Thousands)**

Balance Sheet Statement Impacts	Actual As of 9/30	Projected As of 12/31	Year 1: 2014 -- Projected (in the quarter)				Year 2: 2015 -- Projected (in the quarter)			
			Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
<b>Loans (excluding FDIC Loan Sharing Agreements)</b>										
First lien Mortgages	5,048,256	5,064,209	1,009,437	1,009,945						
Class 2 and Junior Liens	44,481	44,570	49,529	47,971						
HELOCs	631,916	634,249	648,510	647,382						
CB Loans	1,943,404	1,972,272	2,097,495	2,044,871						
1-4 Family construction loans	3,574	3,542	4,254	4,516						
Other construction loans	1,931,705	1,951,217	2,024,912	2,049,647						
Multifamily loans	423,063	427,225	492,204	476,638						
Non-farm, non-residential owner occupied loans	3,279,572	3,419,643	3,473,293	3,523,266						
Non-farm, non-residential other loans	2,420,418	2,447,239	2,461,142	2,479,238						
Credit cards	73,754	74,349	85,991	87,979						
Automobile loans	132	24,417	30,744	32,060						
Other consumer	132	24,384	31,185	33,094						
All other loans and leases (see instructions)	17	3,375	3,671	3,870						
Loans covered by FDIC loan sharing agreements	0	0	0	0						
<b>Total loans and leases (sum of items 1-14)</b>	11,928,910	12,019,021	12,382,289	12,976,933						
Allowance for loan and lease losses	179,293	189,292	192,999	202,169						
<b>Securities</b>										
U.S. Government Obligations and Obligations of GSE	299,505	299,505	299,505	299,505						
Securities issued by state and political subdivisions of U.S.	15,763	15,763	15,763	15,763						
Nonagency MBS and ABS Securities	0	0	0	0						
All other HTM securities	0	0	0	0						
<b>Total securities (HTM) (sum of items 17-20)</b>	315,268	315,268	315,268	315,268						
U.S. Government Obligations and Obligations of GSE	1,697,194	1,697,194	1,697,194	1,697,194						
Securities issued by state and political subdivisions of U.S.	89,326	89,326	89,326	89,326						
Nonagency MBS and ABS Securities	0	0	0	0						
All other AFS securities	0	0	0	0						
<b>Total securities (AFS) (sum of items 21-24)</b>	1,786,520	1,786,520	1,786,520	1,786,520						
Trading assets	0	0	0	0						
Total intangible assets	42,097	42,097	42,097	42,097						
Other real estate owned	15,632	16,239	16,104	16,281						
All other assets (see instructions)	107,429	107,429	107,429	107,429						
<b>Total assets (sum of items 15, 21, 24, 27-29, loans item 14)</b>	14,012,569	14,164,366	14,405,610	14,644,294						
<b>Liabilities</b>										
Loans and leases guaranteed by other U.S. government or GSE										

**OCC DFST 10-50 - Baseline Scenario  
Income Statement for XYZ  
OCC Charter ID #####  
(Dollar Amounts in Thousands)**

Income Statement Impacts	Actual As of 9/30	Projected As of 12/31	Year 1: 2014 -- Projected (in the quarter)				Year 2: 2015 -- Projected (in the quarter)			
			Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
<b>Net Charge-Offs</b>										
First lien Mortgages	1,980	2,646	3,731	6,808	10,940	12,978	13,757	15,927	15,309	14,396
Closed-end Junior Liens	1,067	1,292	1,673	2,625	3,635	3,372	2,891	3,056	3,071	3,176
HELOCs	4,891	5,737	8,082	14,244	23,597	28,666	32,011	39,226	39,586	38,122
C&I Loans	900	917	1,219	1,308	1,500	1,472	1,768	2,719	4,728	5,602
1-4 family construction loans	0	0	0	0	1	1	2	3	5	8
Other construction loans	560	868	1,066	1,395	2,019	2,425	3,343	5,750	11,360	14,161
Multifamily loans	5	5	8	16	25	35	51	98	152	222
Non-farm, non-residential owner occupied loans	403	437	479	582	725	794	1,086	1,768	3,128	4,036
Non-farm, non-residential other loans	863	890	908	997	1,174	1,242	1,628	2,580	4,519	5,679
Credit cards	719	935	1,218	2,102	3,400	3,988	4,191	4,735	4,327	3,779
Automobile Loans	67	74	75	72	71	71	82	115	154	199
Other consumer	59	64	71	76	83	89	105	151	209	275
All other loans and leases (see instructions)	180	191	162	139	120	104	100	120	142	163
<b>Total loan and lease net charge offs (sum of items 1 to 13)</b>	11,694	14,054	18,692	30,163	47,291	55,238	61,013	76,246	86,691	89,819
<b>Net interest income</b>	123,849	127,152	125,849	124,009	122,701	119,237	116,472	113,982	111,334	109,013
Non-interest income	18,291	18,225	18,196	18,152	18,217	18,270	18,317	18,377	18,458	18,561
Non-interest expense	93,601	94,176	95,294	96,223	96,329	96,420	96,568	96,611	96,755	96,956
<b>Pre-provision net revenue (+ item 15 - item 16 - item 17)</b>	48,540	51,200	48,754	45,938	44,589	41,087	38,221	35,748	33,037	30,618
Provision for loan and lease losses	1,745	36,346	23,517	38,339	61,047	69,038	81,635	103,284	114,381	124,744
Realized gains (losses) on HTM securities	0	0	0	0	0	0	0	0	0	0
Realized gains (losses) on AFS securities	-300	-557	-827	-827	-827	-836	-836	-836	-836	-836
All other gains (losses); (see instructions)	0	0	0	0	0	0	0	0	0	0
<b>Taxes</b>	-15,343	-4,718	-8,055	-2,235	0	0	0	0	0	0
<b>Net income (item 18 - item 19 + item 20 + item 21 - item 22 - item 23)</b>	31,152	9,579	16,355	4,537	-17,284	-28,796	-44,250	-68,371	-82,180	-94,961

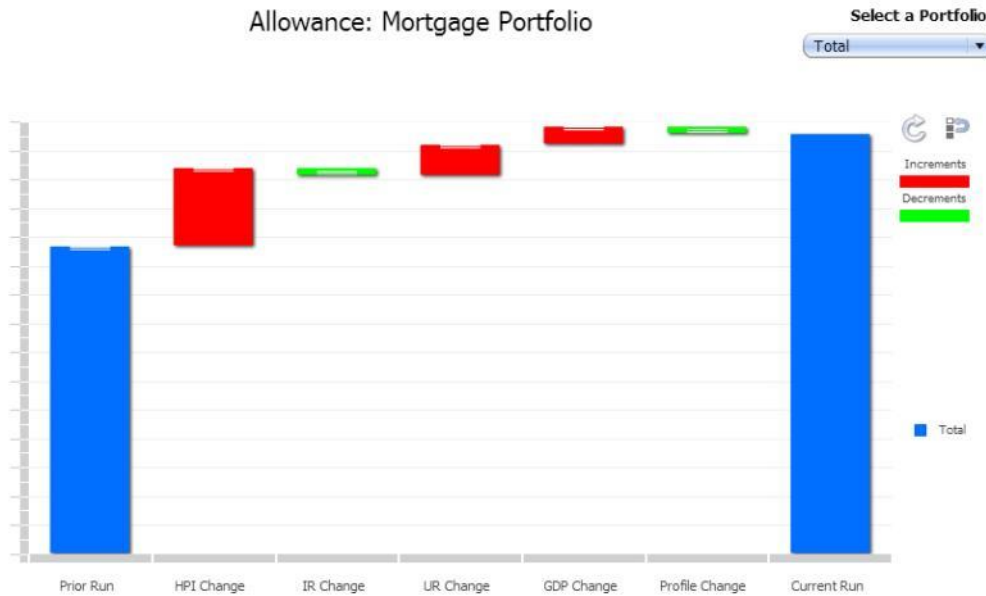
## Now What?

- Combine forecast results with the capital plan to complete the templates
- Convert your “working” spreadsheet to the official DFAST template version, but keep your working spreadsheet version for future use
- Conduct Analysis
  - Check to see if your results actually make sense in telling the story of what could happen to your bank in this proposed scenario. Look at the evolution of key ratios over time, then compare them to a crisis period.
  - Perform qualitative analysis.

# Loans: Qualitative Reports



**Take-Away:**  
*Strong business intelligence in a specialized loan system makes qualitative analysis easy.*



## Key Take-Aways



Three types of items feed your financial statements and capital. DFAST and other stress testing activities are most efficiently and best performed when each item is addressed by the tool that is best-suited for estimating it.

- Idiosyncratic items should use spreadsheets
- Interest sensitive items should use ALM
- Credit sensitive items – loans – should use a specialized system



Think of the templates not just as what you submit but working organic parts of the process where references can be added.



The business intelligence tool inside a specialized loan system can be plugged into Excel so that changes to any loan assumptions can be quickly run all the way through the forecast income statement, balance sheet and capital.



The business intelligence tool inside a specialized loan system is key to understanding the qualitative drivers of change in a stress scenario.

## Q&A

- Send questions through chat to Tracy Swensson or through Q&A window

# Contact

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