GREEN BANCORP

Third Quarter 2017
Financial Results Presentation

NASDAQ: GNBC
October 25, 2017

Today's Speakers

- Manny Mehos – Chairman and Chief Executive Officer
- Geoff Greenwade – President and Bank Chief Executive Officer
- Terry Earley – Executive Vice President and Chief Financial Officer
- Donald Perschbacher – Executive Vice President and Corporate Chief Credit Officer

Safe Harbor

The following information contains, or may be deemed to contain, "forward-looking statements" (as defined in the U.S. Private Securities Litigation Reform Act of 1995) giving Green Bancorp, Inc.'s ("Green Bancorp") expectations or predictions of future financial or business performance or conditions. Most forward-looking statements contain words that identify them as forward-looking, such as "plan", "seek", "expect", "intend", "estimate", "anticipate", "believe", "project", "opportunity", "target", "goal", "growing", "continue", "positions," "prospects" or "potential," by future conditional verbs such as "will," "would," "should," "could" or "may", or by variations of such words or by similar expressions that relate to future events, as opposed to past or current events, or negatives of such words. By their nature, forward-looking statements are not statements of historical facts and involve risks and uncertainties because they relate to events and depend on circumstances that may or may not occur in the future. These statements give Green Bancorp's current expectation of future events or its future performance and do not relate directly to historical or current events or Green Bancorp's historical or future performance. As such, Green Bancorp's future results may vary from any expectations or goals expressed in, or implied by, the forward-looking statements included in this presentation, possibly to a material degree.

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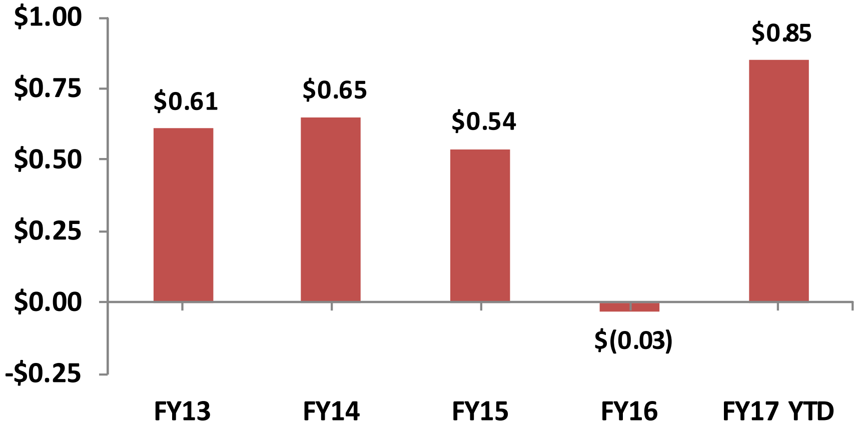
Annualized, pro forma, projected and estimated numbers are used for illustrative purpose only, are not forecasts and may not reflect actual results.

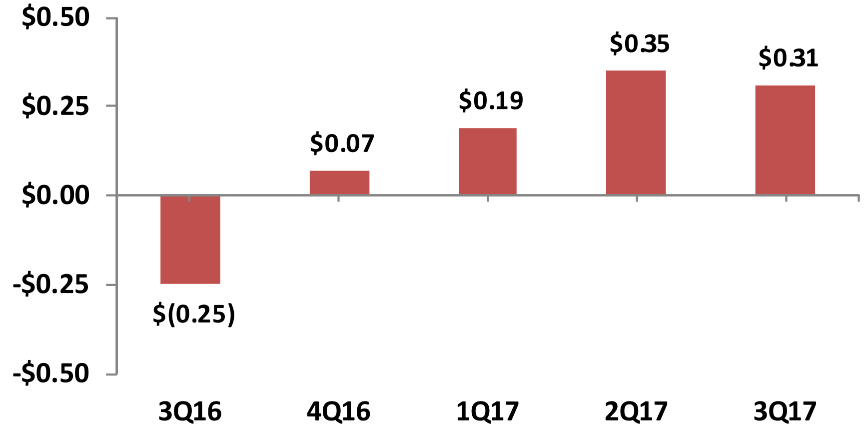
Third Quarter 2017 Highlights

- Net income totaled $11.4 million, or $0.31 per diluted common share
- Return (annualized) on average assets was 1.10% for 3Q17
- Efficiency ratio of 50.59% for 3Q17
- Net interest margin increased to 3.65% for 3Q17
- Pre-tax pre-provision return on average assets was 1.88% for 3Q17
- Return (annualized) on average tangible common equity was 12.74% for 3Q17
- Tangible book value per common share increased to $9.93

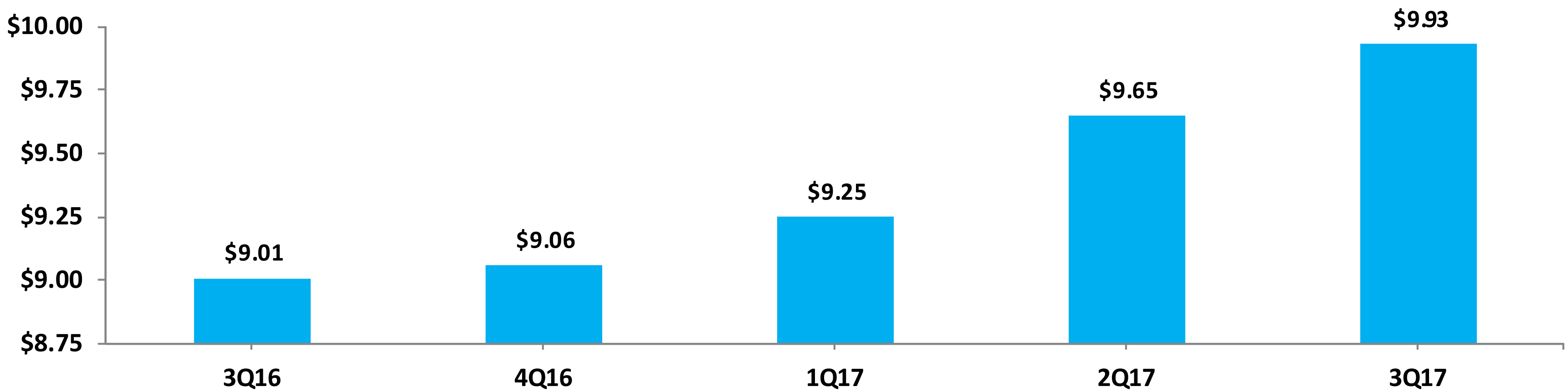
Fully Diluted EPS and TBVPS

Earnings Per Share





Tangible Book Value Per Share

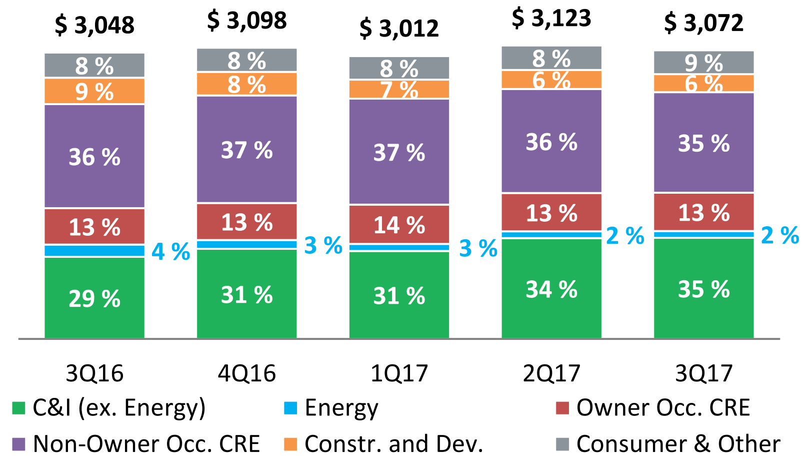


Loan Portfolio Overview

Highlights

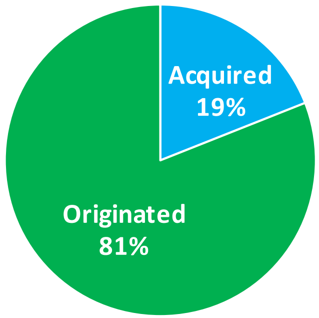
- Commercial-focused loan portfolio with over 97% of the loan portfolio focused on non-energy loans
- In-footprint focus with portfolio primarily distributed across Houston 55% and Dallas 21%
- Diversified loan portfolio with no concentration to any single industry in excess of 10% of total loans
- Only 4.2% of the loan portfolio is classified
- Large number of lending relationships with no significant borrower concentration

Loan Portfolio Composition

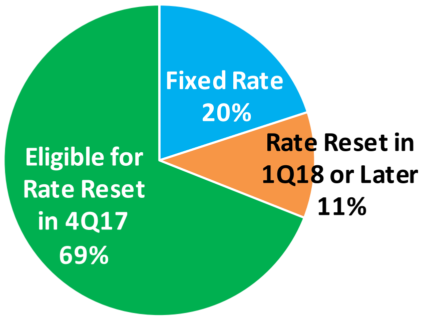


Loan Portfolio Detail as of September 30, 2017

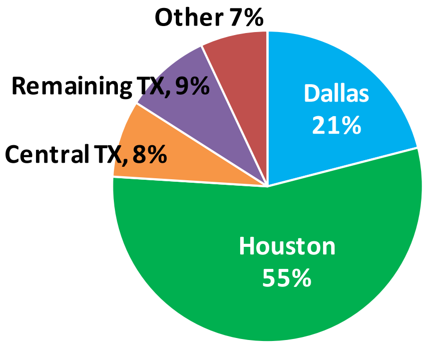
By Class



Loan Repricing



By Regional Distribution*



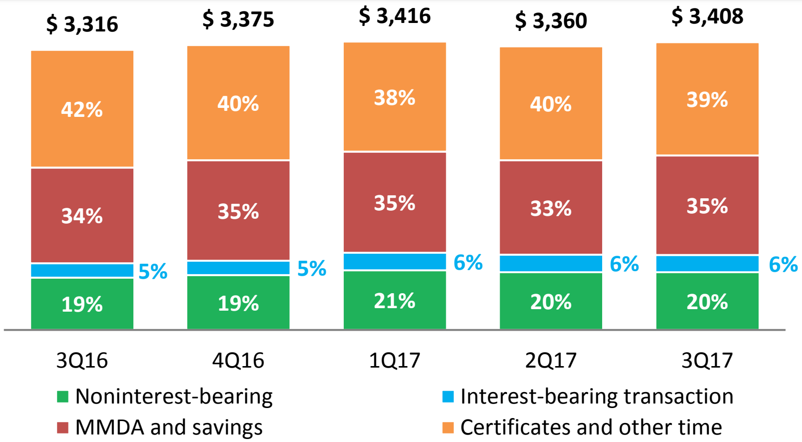
$ in millions, loan balance and corresponding percentages exclude HFS loans, (*) Central TX denotes Austin, San Antonio and San Marcos

Deposits & Liquidity

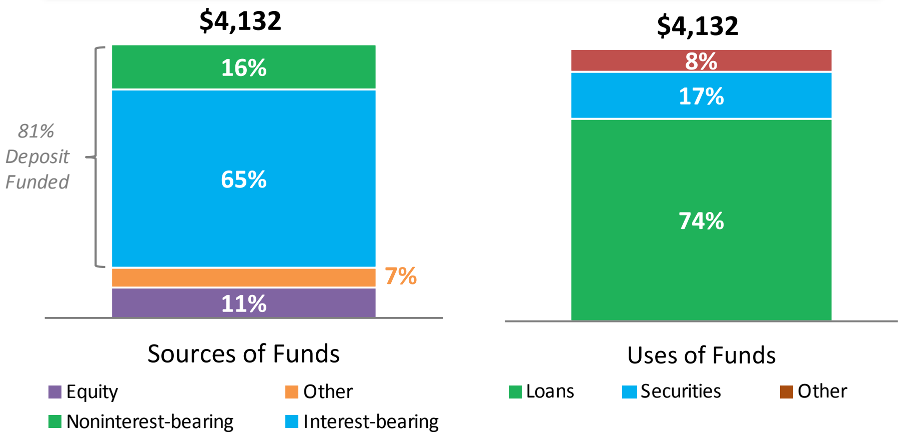
Highlights

- Deposits comprised ~81% of overall funding at September 30, 2017
  - Total deposits increased by $48 million or 1.4% during 3Q17, to $3.4 billion
  - Cost of deposits was 0.77% in 3Q17 compared to 0.72% in 2Q17
- Loan to deposit ratio was 90.1% at September 30, 2017 and is below our targeted level
- Noninterest-bearing deposits increased slightly and comprised 20% of deposits as of September 30, 2017

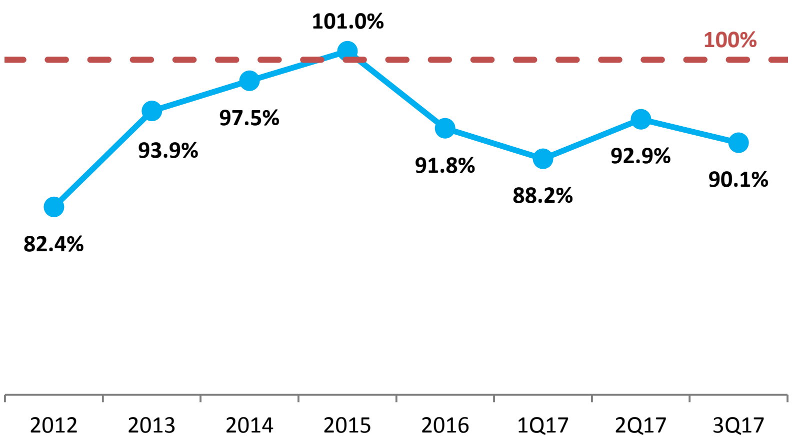
Deposit Composition



Funding Profile *



Loans / Deposits Ratio

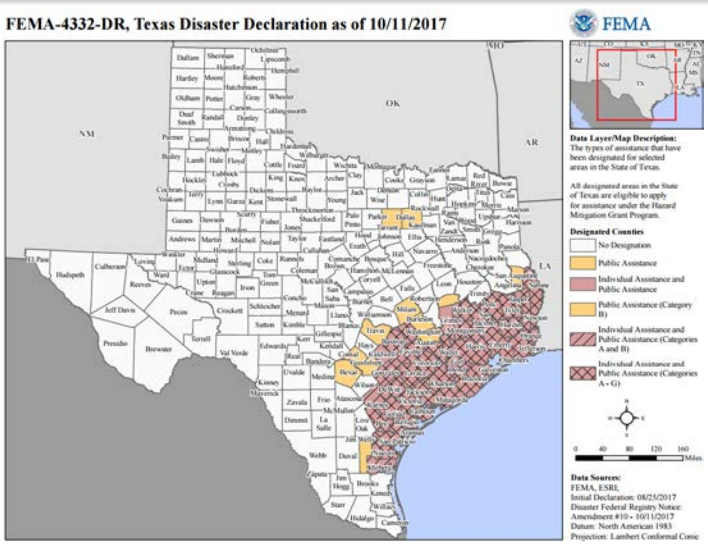


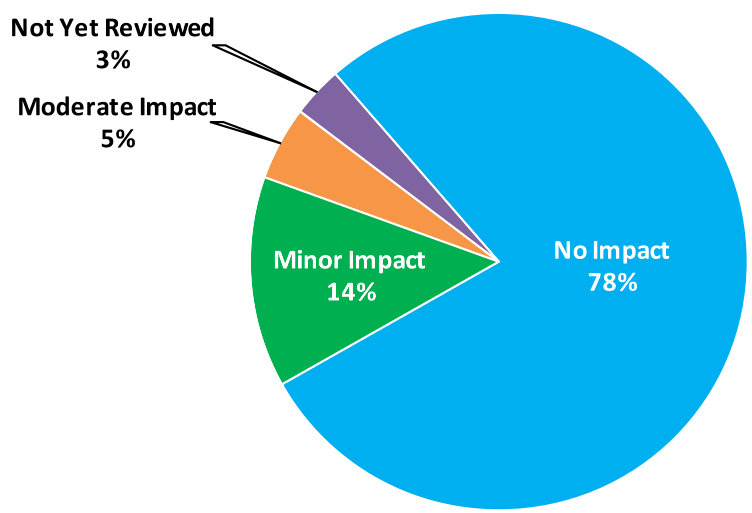
$ in millions, (*) represents the 3Q17 mix of funding sources and the average assets in which those funds are invested as a percentage of average total assets

Impact From Hurricane Harvey

- Identified $1.9 billion of loans located in Texas counties within the FEMA Disaster Declaration area for Hurricane Harvey
- Portfolio bankers completed detailed loan-by-loan impact assessments after the storm
- Impact assessments have been completed for approximately 97% of loans in the affected counties, in addition to all loans with balances greater than $1 million
- No specific losses have been identified to date
- Following the initial assessments of potential credit impact, Green Bank accrued $1 million of incremental provision for credit losses related to Hurricane Harvey

Initial Impact Assessment for $1.9 Billion of GNBC Loans Within FEMA Disaster Declaration Area

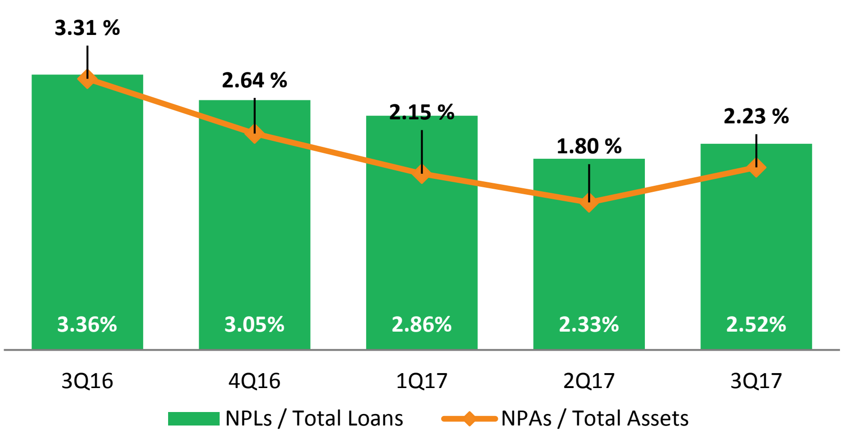




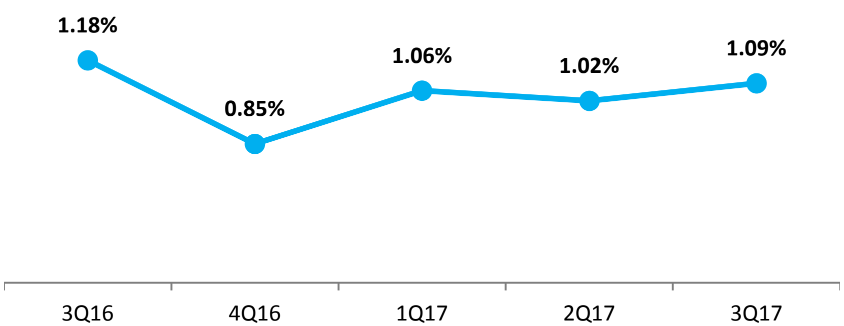
Asset Quality

- Nonperforming assets (NPAs) totaled $92.6 million or 2.23% of period end total assets at September 30, 2017 compared to $75.5 million or 1.80% of period end total assets at June 30, 2017
- Allowance for loan losses was 1.09% of total loans at September 30, 2017, and the allowance for loan losses plus the acquired loan net discount to total loans adjusted for the acquired loan net discount was 1.25%
- Provision expense for the third quarter of 2017 was $2.3 million, $1.0 million of which was related to the potential impact from Hurricane Harvey

Asset Quality



Allowance for Loan Losses Ratio *

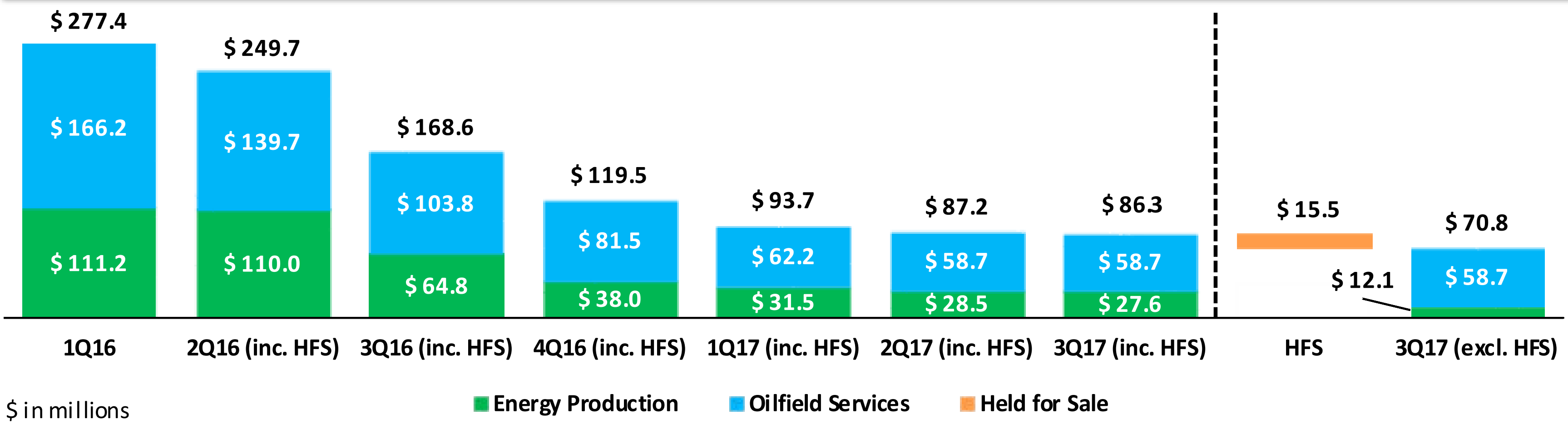


(*) Based on percentage of total gross loans held for investment

Overview of Energy Portfolio Progress

- On April 28, 2016 the Company announced its intent to exit energy lending with $277.4 million of energy loans, the primary objective was to de-risk the loan portfolio, reduce balance sheet volatility and position the company for normalized earnings and growth
- The company's total energy exposure stood at $70.8 million or 2.3% of total loans as of September 30, 2017 (excluding $15.5 million of energy production loans held for sale), comprised of $12.1 million in energy production and $58.7 million in oilfield services loans
  - The $70.8 million of energy loans held for investment are being carried at 77.3% of outstanding customer principal balance
  - The $15.5 million of energy loans held for sale are being carried at 85.4% of outstanding customer principal balance

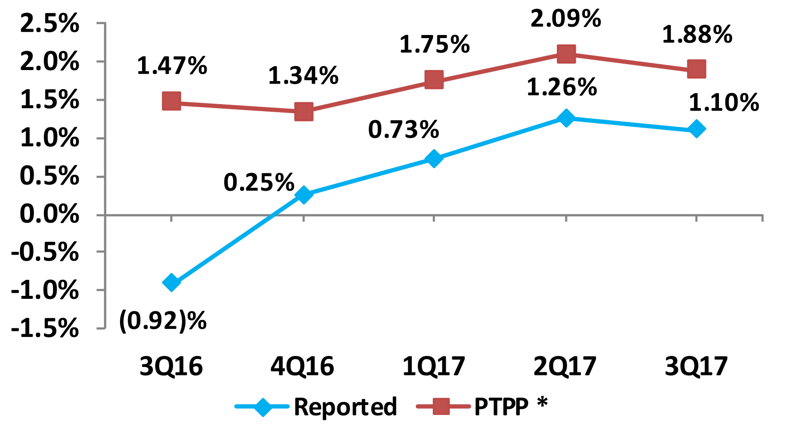
Energy Portfolio Resolution History



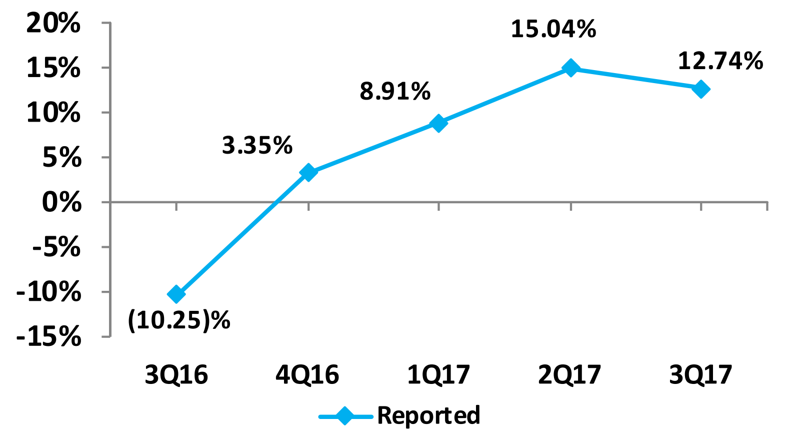
$ in millions

Performance Metrics

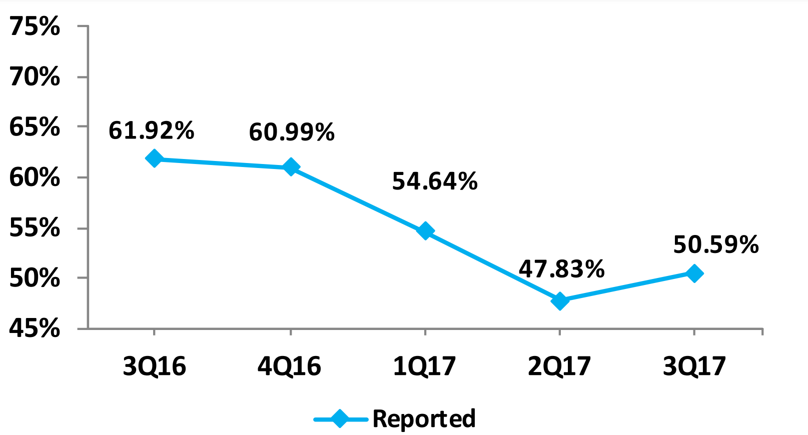
ROAA



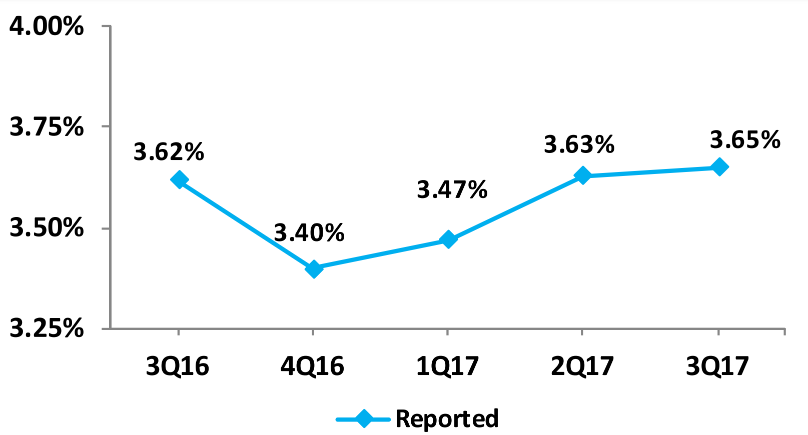
ROATCE



Efficiency Ratio

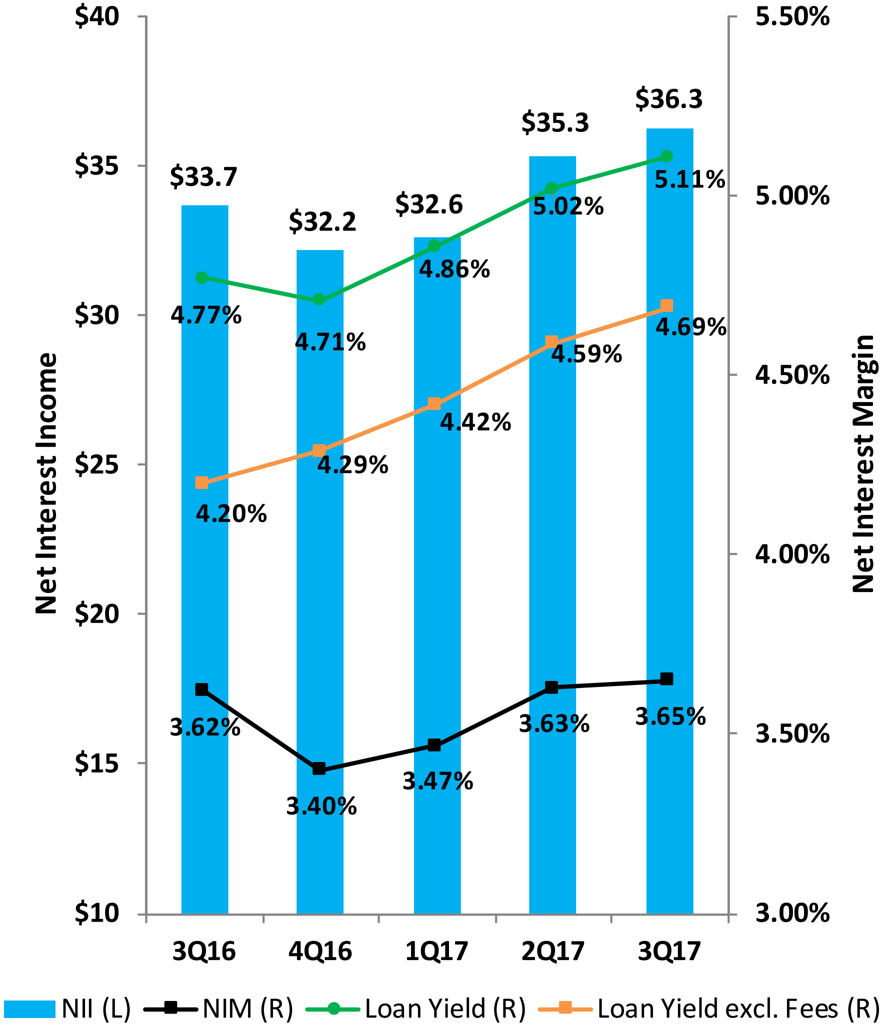


Net Interest Margin



(*) Represents pre-tax pre-provision return on average assets, a non-GAAP measure used by management to evaluate the Company's financial performance

Net Interest Income & Net Interest Margin

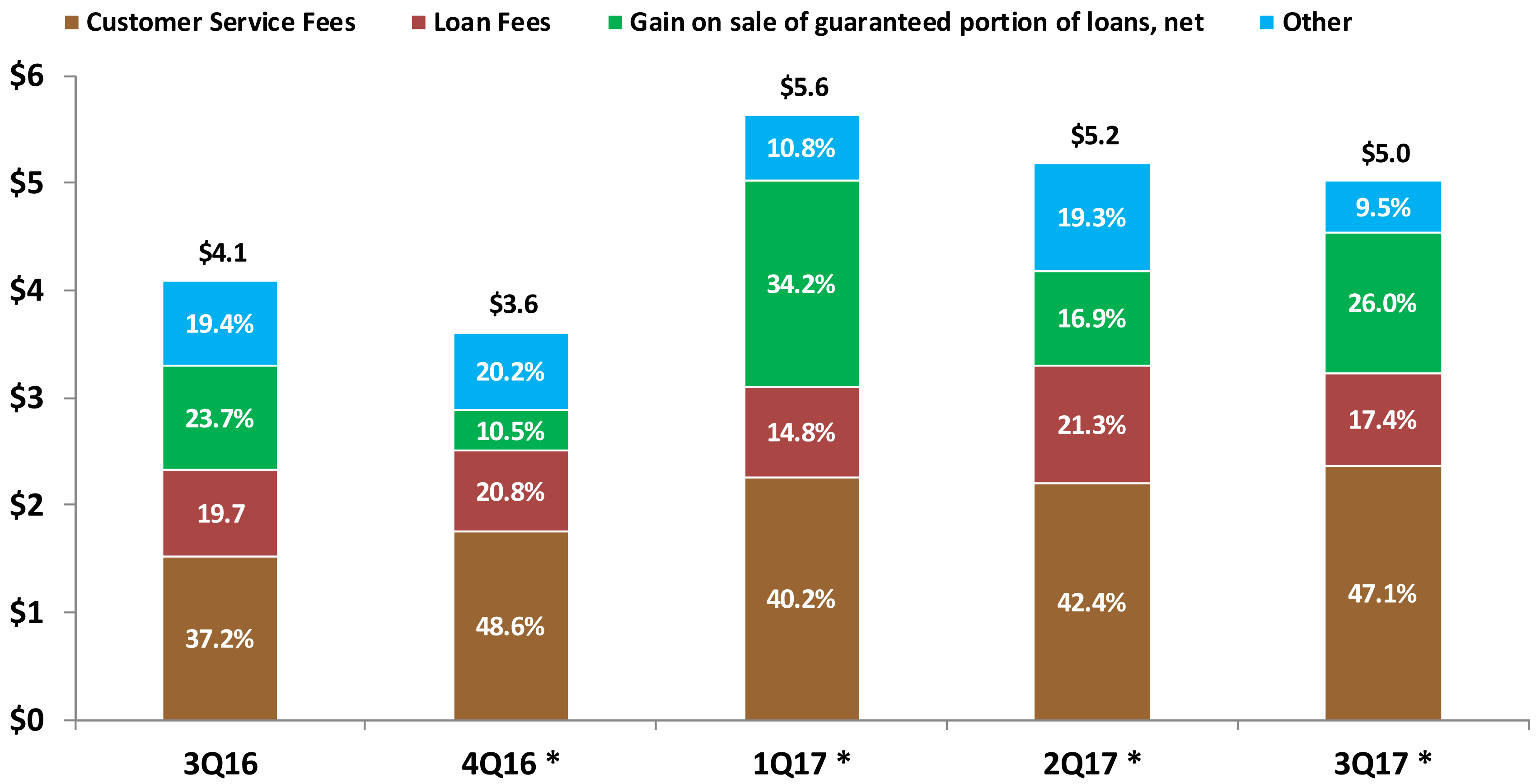


$ in millions

Highlights

- NIM increased 2 basis points to 3.65% in 3Q17
- Loan yields increased by 9 basis points in 3Q17 driven by the Fed's rate increase in June, which was partially offset by:
  - The impact of higher non-accruals and related accrual interest reversals
  - An unfavorable mix shift in earning assets as the growth in earning assets was all in categories other than loans
  - Higher cost of funds reflecting a deposit cost beta of ~20%
- Cost of deposits including noninterest-bearing was 0.77%, up 5 basis points compared to the prior quarter

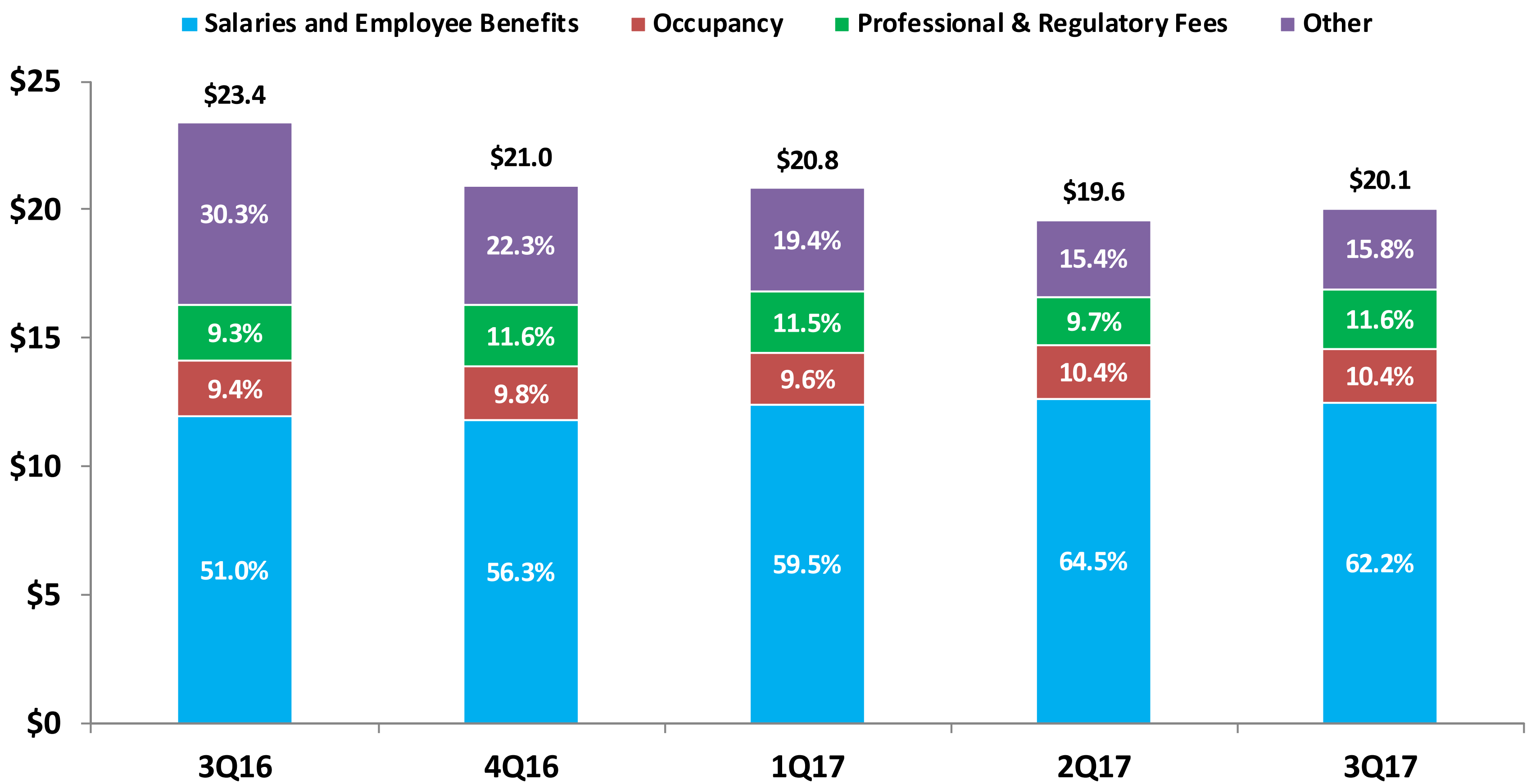
Noninterest Income



(*) Excluding net loss on the sale of held-for-sale loans of $1.4 million in 4Q16 and $0.1 million in 1Q17, net gain on held-for-sale loans of $0.2 million and net gain on the sale of available-for-sale securities of $0.3 million in 2Q17, in addition to net loss on held-for-sale loans of $1.3 million and net loss on the sale of available-for-sale securities of $0.3 million in 3Q17

$ in millions

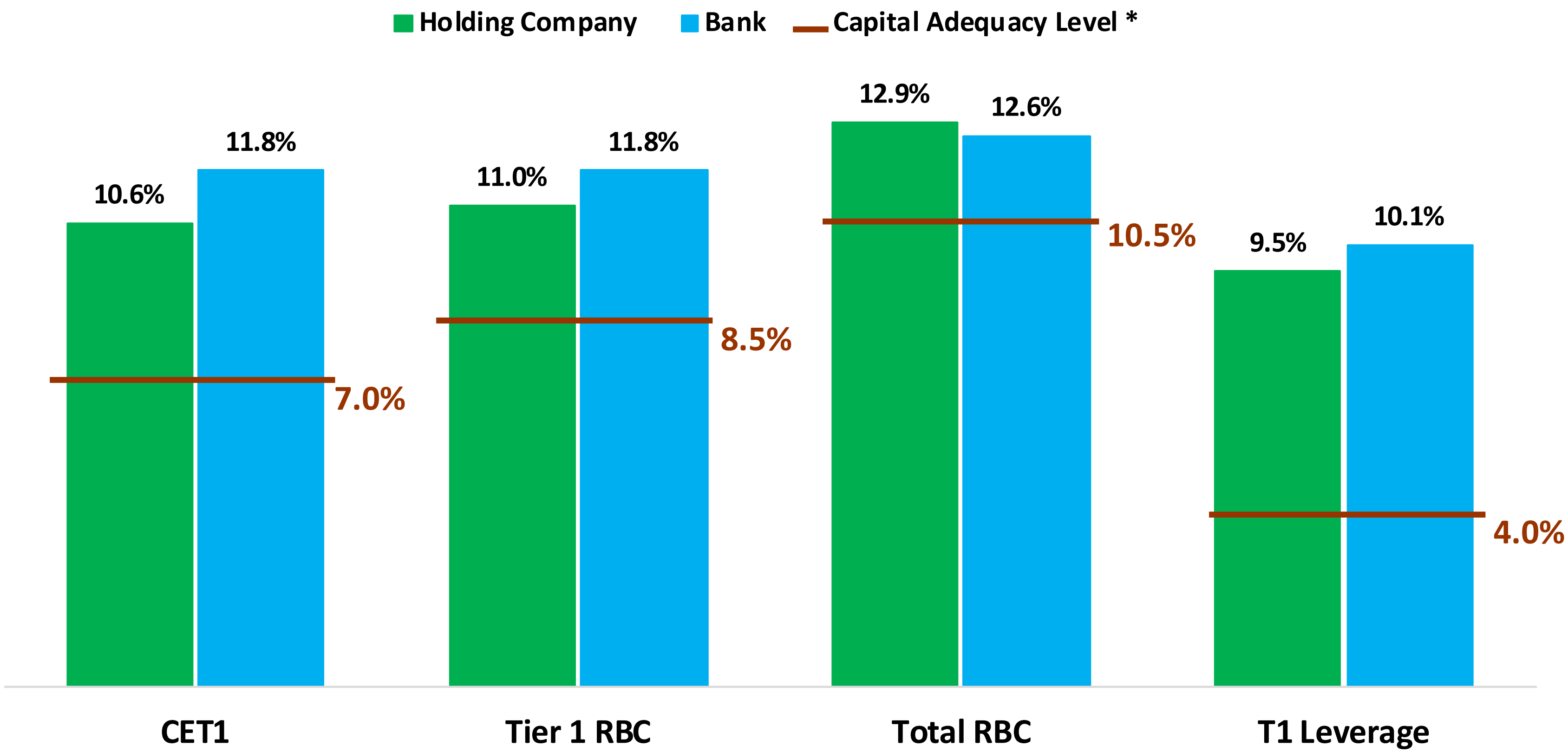
Noninterest Expense



Efficiency Ratio	61.9%	61.0%	54.6%	47.8%	50.6%

$ in millions

Capital Position



Capital	$371.1	$407.8	$384.3	$407.8	$451.6	$435.3	$384.3	$407.8

(*) denotes fully phased-in capital adequacy to take effect on January 1, 2019, the Basel III Capital Rules will require GNBC to maintain an additional capital conservation buffer of 2.5% CET1, effectively resulting in minimum ratios of 7.0% CET1, 8.5% Tier 1, 10.5% Total RBC and 4.0% minimum leverage ratio

$ in millions

Financial Guidance - Updated

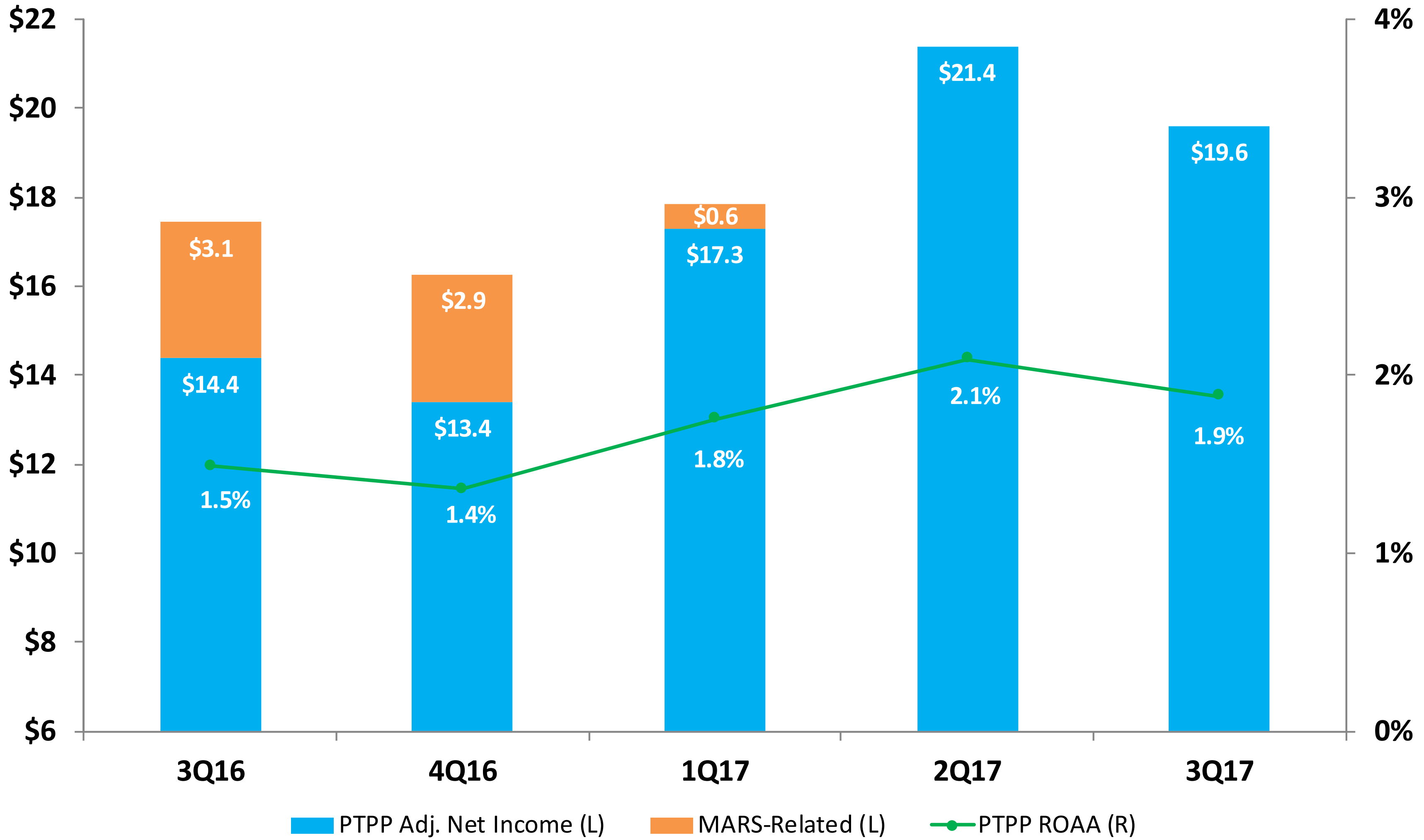
- 4Q 2017 Net Interest Margin in the range of 3.65 – 3.70% *
- FY 2017 Net Interest Income in the range of $139 – 143 million
- FY 2017 Provision Expense in the range of $12 – 15 million
- FY 2017 Noninterest Income in the range of $21 – 23 million **
- FY 2017 Noninterest Expense in the range of $80 – 82 million
- 2017 EPS target in the range of $1.15 – $1.20 *
- 2018 EPS target in the range of $1.50 – $1.60 ***

(*) Based on assumption of one 25 basis point increase to the Fed Funds target rate in December 2017
(**) Excludes loss on held for sale loans and available for sale securities
(***) Based on assumption of one 25 basis point increase to the Fed Funds target rate in the first half of 2018

Question & Answer Session

Appendix

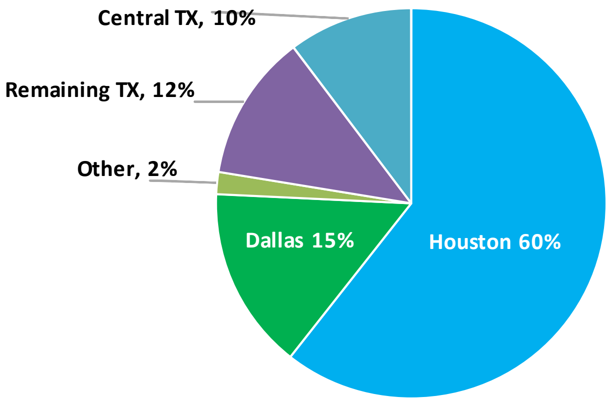
Pre-Tax Pre-Provision Adjusted Net Income



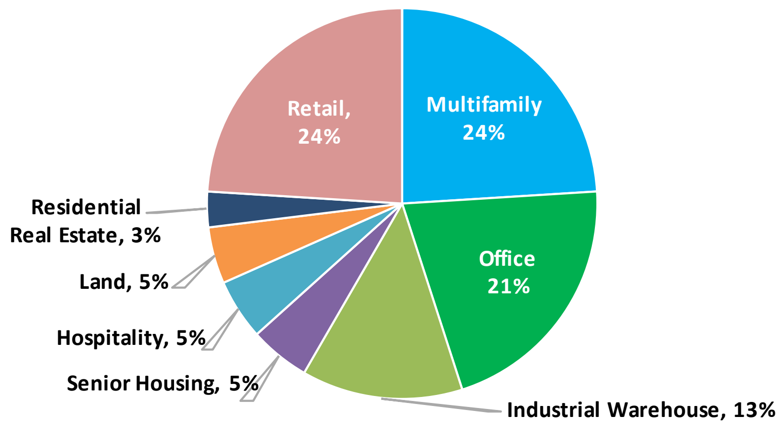
$ in millions

Commercial Real Estate (CRE) Portfolio Detail

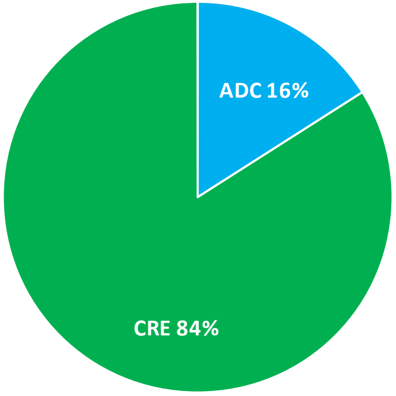
By Regional Distribution as of September 30, 2017*



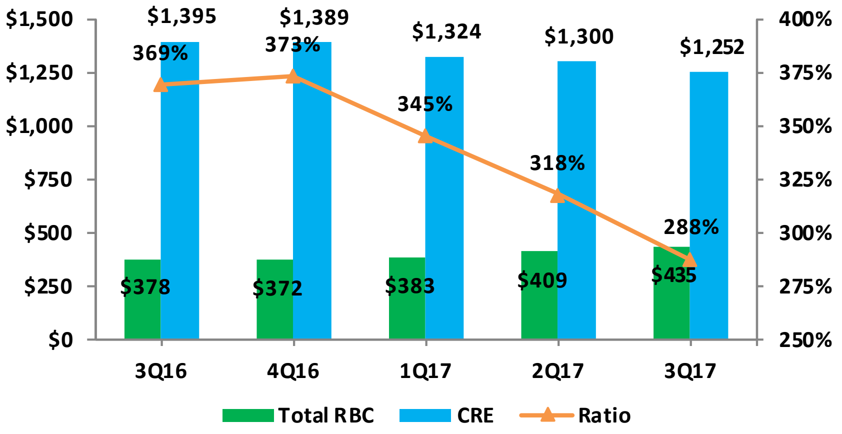
By Product as of September 30, 2017



CRE vs. ADC as of September 30, 2017



Regulatory CRE/Total Risk Based Capital



(*) Central TX denotes Austin, San Antonio and San Marcos
$ in millions, portfolio detail excludes Farmland per CRE guidance regulations, though it is included in financial reporting