

CONNECTED TO OUR COMMUNITY



2018 ANNUAL REPORT
JUNIATA VALLEY FINANCIAL CORP.

President's Letter

JVB is CONNECTED

Today more than any time in our history, we have the ability to be connected to each other virtually twenty-four/seven. But being connected means more than having access to communication through telephones, texting devices, email, web conferencing and a myriad of social media platforms. REAL connection happens when people share meaningful information and ideas. Connection happens when an understanding is reached, when a message sent is in fact, a message received, but it's actually much harder than it seems.

Meaningful connection with customers, shareholders, and employees is one of the hallmarks of great community banking, and one we embrace!

We are excited to be rolling out JAVA with JVB, a FACEBOOK live-streamed event held after banking hours once a month, to educate, connect and kibitz with customers and community members on varied topics of interest. We will address topics and field questions relating to home financing, retirement planning, budgeting, identity theft, electronic banking services and many others. We are meeting our customers face-to-face and through social media to address their individual questions and help solve problems. The forum will provide plenty of opportunity to explore issues of immediate concern or to broaden one's general financial knowledge base. Our first event was held in the community room of our Mountain View office in Mifflintown, PA, but throughout the year we'll be taking it "on the road" to coffee shops and meeting rooms throughout our markets.

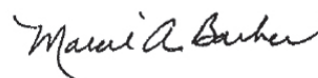
You'll find JVB employees at Chamber of Commerce events, fund-raisers, and local football, basketball, and soccer games. We're in church choirs and non-profit board rooms. We're connected.

Our connection to each other results in a collaborative process which strengthens our systems, our financial performance and our customer service. There is no substitute for face-to-face problem solving and brainstorming to develop the best product, process or resolution. More than ever, 2019 marks the year for clear communication of goals and expectations. Connection is key.

Connection with our shareholders is evidenced by our unwavering commitment to grow core earnings, improve credit quality, expand the franchise, and enhance shareholder value. In 2018, we finalized the acquisition of Liverpool Community Bank, extending deeper into Perry County, a natural geographic expansion of our primary market. This acquisition was immediately accretive to earnings in the first year; 2019 holds greater opportunity to extend trust and wealth management services in this new market. We continue to capitalize on opportunities in the Northern Tier region of Pennsylvania on both the asset and funding sides of the balance sheet.

JVB is well capitalized and can support future growth. Credit quality continues to improve, and our liquidity metrics are very strong. Just as importantly, we have streamlined operations and reorganized reporting lines to enhance efficiency and productivity. In short, our managed growth through thoughtful acquisition and detailed execution of integration strategies has served us well.

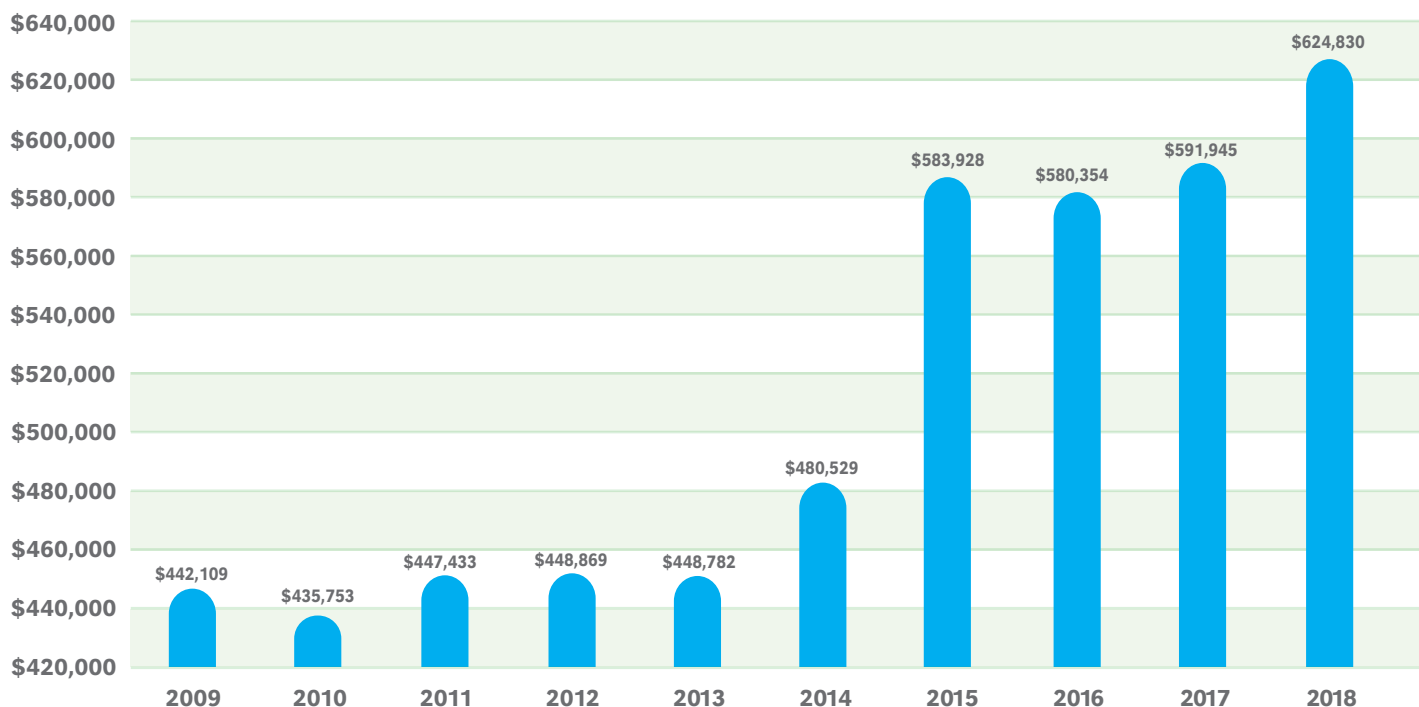
We remain focused on careful and profitable growth.



Marcie A. Barber | President and CEO

TOTAL ASSETS AT YEAR END

(In Thousands)



JUVF Juniata Valley Financial Corp.

2018 ANNUAL REPORT

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The Juniata Valley Bank, as an independent community bank, will endeavor to identify customers' financial needs and exceed their expectations in delivering quality products and services at a fair price to assure shareholders an above average return and employees competitive salaries and benefits. The business of the bank will be conducted with integrity and responsiveness to the communities served.

FIVE-YEAR FINANCIAL SUMMARY - SELECTED FINANCIAL DATA

(Dollars in thousands, except share and per share data)

| BALANCE SHEET INFORMATION | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|------------|------------|------------|------------|------------|
| at December 31 | | | | | |
| Assets | \$ 625,236 | \$ 591,945 | \$ 580,354 | \$ 583,928 | \$ 480,529 |
| Deposits | 521,722 | 477,668 | 455,822 | 457,126 | 380,884 |
| Loans, net of allowance for loan losses | 414,597 | 380,965 | 375,574 | 374,565 | 292,521 |
| Investments | 148,802 | 157,278 | 154,448 | 156,186 | 145,629 |
| Goodwill | 9,139 | 5,448 | 5,448 | 5,381 | 2,046 |
| Short-term borrowings | 11,600 | 12,000 | 32,196 | 35,057 | 20,544 |
| Long-term debt | 15,000 | 25,000 | 25,000 | 22,500 | 22,500 |
| Stockholders' equity | 67,378 | 59,387 | 59,090 | 59,962 | 49,856 |
| Number of shares outstanding | 5,092,048 | 4,767,656 | 4,755,630 | 4,798,086 | 4,187,441 |
| Average for the year | | | | | |
| Assets | 614,632 | 593,923 | 577,341 | 489,323 | 470,660 |
| Stockholders' equity | 62,689 | 59,938 | 61,209 | 51,131 | 50,704 |
| Weighted average shares outstanding | 4,987,186 | 4,765,165 | 4,801,245 | 4,240,319 | 4,192,761 |
| INCOME STATEMENT INFORMATION | | | | | |
| Years Ended December 31 | | | | | |
| Total interest income | \$ 23,651 | \$ 21,374 | \$ 20,469 | \$ 17,379 | \$ 16,932 |
| Total interest expense | 3,635 | 2,855 | 2,268 | 2,042 | 2,598 |
| Net interest income | 20,016 | 18,519 | 18,201 | 15,337 | 14,334 |
| Provision for loan losses | 337 | 439 | 466 | 502 | 357 |
| Other income | 5,027 | 5,292 | 5,418 | 4,505 | 4,334 |
| Other expenses | 19,461 | 17,775 | 17,178 | 16,199 | 13,570 |
| Income before income taxes | 5,245 | 5,597 | 5,975 | 3,141 | 4,741 |
| Federal income tax (benefit) expense | (659) | 1,060 | 819 | 83 | 525 |
| Net income | \$ 5,904 | \$ 4,537 | \$ 5,156 | \$ 3,058 | \$ 4,216 |
| PER SHARE DATA | | | | | |
| Earnings per share - basic | \$ 1.18 | \$ 0.95 | \$ 1.07 | \$ 0.72 | \$ 1.01 |
| Earnings per share - diluted | 1.18 | 0.95 | 1.07 | 0.72 | 1.01 |
| Cash dividends | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Book value | 13.23 | 12.46 | 12.43 | 12.50 | 11.91 |
| FINANCIAL RATIOS | | | | | |
| Return on average assets | 0.96% | 0.76% | 0.89% | 0.62% | 0.90% |
| Return on average equity | 9.42 | 7.57 | 8.42 | 5.98 | 8.31 |
| Dividend payout | 74.71 | 92.44 | 81.96 | 120.57 | 87.52 |
| Average equity to average assets | 10.20 | 10.09 | 10.60 | 10.45 | 10.77 |
| Loans to deposits (year-end) | 79.47 | 79.76 | 82.39 | 81.94 | 76.80 |

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

FORWARD-LOOKING STATEMENTS

The information contained in this Annual Report contains forward-looking statements (as such term is defined in the Securities Exchange Act of 1934 and the regulations thereunder) including statements which are not historical facts or that reflect trends or management's intentions, plans, beliefs, expectations or opinions. Such forward-looking statements are subject to risks and uncertainties and may be affected by various factors which may cause actual results to differ materially from those in the forward-looking statements including, without limitation:

- the impact of adverse changes in the economy and real estate markets, including protracted periods of low-growth and sluggish loan demand;
- the effect of market interest rates and uncertainties, and relative balances of rate-sensitive assets to rate-sensitive liabilities, on net interest margin and net interest income;
- the effect of competition on rates of deposit and loan growth and net interest margin;
- increases in non-performing assets, which may result in increases in the allowance for credit losses, loan charge-offs and elevated collection and carrying costs related to such non-performing assets;
- other income growth, including the impact of regulatory changes which have reduced debit card interchange revenue;
- investment securities gains and losses, including other than temporary declines in the value of securities which may result in charges to earnings;
- the effects of changes in the applicable federal income tax rate;
- the level of other expenses, including salaries and employee benefit expenses;
- the impact of increased regulatory scrutiny of the banking industry;
- the impact of governmental monetary and fiscal policies, as well as legislative and regulatory changes;
- the results of regulatory examination and supervision processes;
- the failure of assumptions underlying the establishment of reserves for loan and lease losses, and estimations of collateral values and various financial assets and liabilities;
- the increasing time and expense associated with regulatory compliance and risk management;
- the ability to implement business strategies, including business acquisition activities and organic branch, product, and service expansion strategies;
- capital and liquidity strategies, including the impact of the capital and liquidity requirements modified by the Basel III standards;
- the effects of changes in accounting policies, standards, and interpretations on the presentation in the Company's consolidated balance sheets and consolidated statements of income;
- the Company's failure to identify and to address cyber-security risks;
- the Company's ability to keep pace with technological changes;

- the Company's ability to attract and retain talented personnel;
- the Company's reliance on its subsidiary for substantially all of its revenues and its ability to pay dividends;
- the effects of changes in relevant accounting principles and guidelines on the presentation in the Company's financial condition;
- acts of war or terrorism; disruptions due to flooding, severe weather, or other natural disasters
- failure of third party service providers to perform their contractual obligations; and
- the impact on earnings of the Company's strategy to terminate its defined benefit retirement plan.

Certain of these risks, uncertainties and other factors are discussed in this Annual Report or in the Company's Annual Report on Form 10-K for the year ended December 31, 2018, a copy of which may be obtained from the Company upon request and without charge (except for the exhibits thereto).

OVERVIEW

This discussion concerns Juniata Valley Financial Corp. ("Company" or "Juniata") and its wholly owned subsidiary, The Juniata Valley Bank ("Bank"). Juniata is a bank holding company that delivers financial services within its market, primarily central Pennsylvania. The Bank provides retail and commercial banking, trust, estate, and wealth management services through 16 offices in Juniata, Mifflin, Perry, Huntingdon, McKean, Potter and Centre counties. On April 30, 2018, Juniata, which previously owned 39.16%, or 1,214 of the 3,100 outstanding common shares of Liverpool Community Bank ("Liverpool" or "LCB"), completed the acquisition of the remainder of Liverpool's outstanding common stock. Under the terms of a merger agreement between the parties, LCB merged with and into the Bank.

The overview is intended to provide a context for the following Management's Discussion and Analysis of Financial Condition and Results of Operations. Management's Discussion and Analysis of Financial Condition and Results of Operations should be read in conjunction with our consolidated financial statements, including the notes thereto, included in this annual report. We have attempted to identify the most important matters on which our management focuses in evaluating our financial condition and operating performance and the short-term and long-term opportunities, challenges and risks (including material trends and uncertainties) which we face. We also discuss the actions we are taking to address these opportunities, challenges and risks. The Overview is not intended as a summary of, or a substitute for review of, Management's Discussion and Analysis of Financial Condition and Results of Operations.

ECONOMIC AND INDUSTRY-WIDE FACTORS RELEVANT TO JUNIATA

As a financial services organization, Juniata's core business is most influenced by the level of, and movement of, interest rates. Lending and investing is done daily, using funding from deposits and borrowings, resulting in net interest income, the most significant portion of operating results. Through the use of asset/liability management tools, the Company continually evaluates the effects that possible changes in interest rates could have on operating results and balance sheet growth. Using this information, along with analysis of competitive factors, management designs and prices its products and services.

General economic conditions are relevant to Juniata's business. In addition, economic factors impact customers' needs for financing, thus affecting loan growth. Additionally, changes in the economy can directly impact the credit strength of existing and potential borrowers.

FOCUS OF MANAGEMENT

The management of Juniata believes that it is important to know who and what we are in order to be successful. We must be aligned in our efforts to achieve goals. We've identified the four characteristics that define the Company and the personnel that support it. We are **Committed, Capable, Caring** and **Connected**. Management seeks to be the preeminent financial institution in its market area and measures its success by the five key elements described below.

SHAREHOLDER SATISFACTION

Above all else, management is **committed** to maximizing the value of our shareholders' investment, through both stock value appreciation and dividend returns. Remaining **connected** to our communities will allow us to identify the financial needs of our market and to deliver those products and services **capably**. In doing so, we will seek to profitably grow the balance sheet and enhance earnings, while maintaining capital and liquidity levels well exceeding all regulatory guidelines.

CUSTOMER RELATIONSHIPS

We are **committed** to maximizing customer satisfaction. We are sensitive to the expanding array of financial services and financial service providers available to our customers, both locally and globally. We are **committed** to fostering a complete customer relationship by helping clients identify their current and future financial needs and offering practical and affordable solutions to both. As our customers' lifestyles change, the channels through which we deliver our services must change as well. One element of the Company's strategic plan is to provide **connection** through every means available, wherever we are needed, whether through a stand-alone branch, in-store boutique, ATM or via online and mobile banking anywhere internet or cell phone signals can be received. In 2018, we continued to make advances in technological resources, placing data and information in the hands of our customers and employees, because we are **committed** to optimizing the customer experience.

BALANCE SHEET GROWTH

We are **capable** of profitable balance sheet growth. Rapid growth should not be a substitute for careful fiscal and strategic management. It is our goal to continue quality growth despite intense competition by paying **careful** attention to the needs of our customers. We will continue to maintain high credit standards, knowing that lending under the right circumstances is the proper way to maintain soundness and profitability. We believe we consistently pay fair market rates on all deposits, and have invested wisely and conservatively in compliance with self-imposed standards, minimizing risk of asset impairment. We aspire to increase our market share within the current communities that we serve, and to expand in contiguous areas through acquisition and investment. As part of our strategic plan for growth, we continue to actively seek opportunities for acquisitions of branches or stakes in other financial institutions, similar to those that have occurred in prior years, and most recently in April 2018 with the acquisition of LCB.

OPERATING RESULTS

We are **capable** of producing profitability ratios that exceed those of many of our peers. Recognizing that net interest margins have narrowed for banks in general and that they may not return to the ranges experienced in the past, we also focus on the importance of providing fee-generating services in which customers find value. Offering a broad array of services prevents us from becoming too reliant on one form of revenue. It has also been our philosophy to spend conservatively and to implement operating efficiencies where possible to keep non-interest expense from escalating in areas that can be controlled.

CONNECTION TO THE COMMUNITY

We are active corporate citizens of the communities we serve. Although the world of banking has transitioned to global availability through electronics, we believe that our community banking philosophy is not only still valid, but essential. Despite technological advances, banking is still a personal business, particularly in the rural areas we serve. We believe that our customers shop for services and value a relationship with an institution involved in the same community, with the same interests in its prosperity. We have a foundation and a history in each of the communities we serve. Management takes an active role in local business and industry development organizations to help attract and retain commerce in our market area. We provide businesses, large and small, with financial tools and financing needed to grow and prosper. We have always been **committed** to responsible lending practices. We invest locally by including local municipal bonds in our investment portfolio and participating in funding for such projects as low income and elderly housing. We support charitable programs that benefit the local communities, not only with monetary contributions, but also through the personal involvement of our **caring** employees.

JUNIATA'S OPPORTUNITIES

SOUNDNESS AND STABILITY

Our financial condition is strong. We enjoy strong capital and liquidity ratios that significantly exceed regulatory guidelines. Our business model includes a plan for growth without sacrificing profitability or integrity. We believe an opportunity exists for banks such as ours to offer the trusted, personal service of a locally managed institution that has roots in the community reaching back 150 years.

EXPANSION OF CUSTOMER BASE

Our strategic focus is based on leveraging our collective knowledge of the Company's primary and contiguous markets to identify lending or fee-based opportunities consistent with our risk parameters and profitability targets. We continue to develop our sales team through mentoring and by making employee education paramount. We continually seek and implement back-room efficiencies. We recognize change is taking place in a world where convenience and mobility are priorities for consumers and businesses when choosing a financial institution with whom to do business. We offer full-featured secure mobile banking that includes remote check deposit for use on home computers and all mobile devices for consumers. For businesses, we provide options for cash management and remote deposit. We offer identity protection to the families of our customers, which we believe to be a true value-added service, with features that go far beyond traditional banking services, and sets us apart from other financial institutions in our market area. With the acquisition of First National Bank of Port Allegheny ("FNBPA") in 2015, we expanded our market into the northern tier region of Pennsylvania and integrated the JVB brand there and have since expanded our footprint in Perry County, Pennsylvania, following the consummation of the acquisition of LCB in April 2018.

DELIVERY SYSTEM ENHANCEMENTS

We seek to continually enhance our customer delivery system, both through technology and physical facilities. We actively seek opportunities to expand our branch network through acquisitions. We believe that it is imperative that our customers have convenient and easy access to personal financial services that complement their particular lifestyle, whether it is through electronic or personal delivery. We achieved an early entry into the mobile banking arena in 2011 and have since expanded online delivery each year following, including consumer remote deposit and Touch ID. Our suite of online services includes the convenience of online loan applications for residential mortgages, home equity, vehicle and other personal loans. Online and mobile banking features include full bill-pay and monetary transfers between internal and external accounts. Our ATM network is equipped with all highly functional state-of-the art machines. Our Customer Care Center became operational in 2016, providing

dedicated service to address all customer inquiries and provide outreach through our new social media sites. The rollout of a fully redesigned JVOnline.com website was completed in 2016 as well. In 2017, the construction was completed on a new branch facility featuring a highly interactive and complete customer experience. In 2019, Juniata plans to offer online deposit account opening capability.

JUNIATA'S CHALLENGES

NET INTEREST MARGIN COMPRESSION

While market interest rates are slowly rising, the low interest rate environment that has persisted in recent years has pressured the net interest margin for most banks, including Juniata. Loans have been originated, acquired or repriced at lower rates, reducing the average rate earned on those assets. While the average rate paid on interest-bearing liabilities, such as deposits and borrowings, has also declined, the decline has not always occurred at the same pace as the decline in the average rate earned on interest-earning assets, which can result in a narrowing of the net interest margin. We believe that increasing the net interest margin will continue to be a challenge until general market rates rise more significantly.

COMPETITION

Each year, competition becomes more intense and global in nature. To meet this challenge, we attempt to stay in close contact with our customers, monitoring their satisfaction with our services through surveys, personal visits and networking in the communities we serve. We strive to meet or exceed our customers' expectations and deliver consistent high-quality service. We believe that our customers have become acutely aware of the value of local service, and we strive to maintain their confidence.

RATE ENVIRONMENT

We intend to continue making what we believe to be rational pricing decisions for loans, deposits and non-deposit products. This strategy can be difficult to maintain, as many of our peers appear to continue pricing for growth, rather than long-term profitability and stability. We believe that a strategy of "growth for the sake of growth" results in lower profitability, and such actions by large groups of banks have had an adverse impact on the entire financial services industry. We intend to maintain our core pricing principles, which we believe protect and preserve our future as a sound community financial services provider, proven by results.

REGULATIONS

The Company is subject to banking regulation, as well as regulation by the Securities and Exchange Commission ("SEC") and, as such, must comply with many laws, including the USA Patriot Act, the Sarbanes-Oxley Act of 2002 ("Sarbanes-Oxley") and the Dodd-Frank Wall Street Reform and Consumer Protection Act. Management has established a Disclosure Committee for Financial Reporting, an internal group at Juniata that seeks to ensure that current and potential investors in the Company receive full and complete information concerning our financial condition. Juniata has incurred direct and indirect costs associated with compliance with the SEC's filing and reporting requirements imposed on public companies by the Sarbanes-Oxley Act, as well as adherence to new and existing banking regulations and stronger corporate governance requirements. Regulatory burdens continue to increase as evidenced by the provisions in the Dodd-Frank Act that impact the Company in the areas of corporate governance, capital requirements and restrictions on fees that may be charged to consumers.

APPLICATION OF CRITICAL ACCOUNTING POLICIES

The Company's consolidated financial statements are prepared based upon the application of accounting principles generally accepted in the United States of America ("GAAP"), the most significant of which are described in Note 2 to our consolidated financial statements – Summary of Significant Accounting Policies. Certain of these policies, particularly with respect to allowance for loan losses and the investment portfolio, require numerous estimates and economic assumptions, based upon information available as of the date of the consolidated financial statements. As such, over time, they may prove inaccurate or vary and may significantly affect the Company's reported results and financial position in future periods.

The accounting policy for establishing the allowance for loan losses relies to a greater extent on the use of estimates than other areas and, as such, has a greater possibility of producing results that could be different from those currently reported. Changes in underlying factors, assumptions or estimates in the allowance for loan losses could have a material impact on the Company's future financial condition and results of operations. The allowance for loan losses is maintained at a level believed adequate by management to absorb probable losses in the loan portfolio. Management's determination of the adequacy of the allowance for loan losses is based upon an evaluation of individual credits in the loan portfolio, historical loan loss experience, current economic conditions and other relevant factors. This determination is inherently subjective, as it requires material estimates, including the amounts and timing of future cash flows expected to be received on impaired loans that may be susceptible to significant change.

Considerations used by management to determine other-than-temporary impairment status of individual holdings within the investment securities portfolio are based partially upon estimations of fair value and potential for recovery. As market conditions and perception can unpredictably affect the value of individual investments in the future, these determinations could have a material impact on the Company's future financial condition and results of operations.

Goodwill recorded in connection with acquisitions is tested annually for impairment. If certain events occur which indicate goodwill might be impaired between annual tests, goodwill must be tested when such events occur. In making this assessment, Juniata considers a number of factors including operation results, business plans, economic projections, anticipated future cash flows, current market data, stock price, etc. There are inherent uncertainties related to these factors and Juniata's judgement in applying them to the analysis of goodwill impairment. Changes in economic and operating conditions could result in goodwill impairment in future periods.

Valuations of assets acquired and liabilities assumed in business combinations are measured at fair value as of the acquisition date. In many case, determining the fair value of the assets acquired and liabilities assumed requires Juniata to estimate the timing and amount of cash flows expected to result from these assets and liabilities and to discount these cash flows at appropriate rates of interest, which require the utilization of significant estimates and judgment in accounting for the acquisition.

RESULTS OF OPERATIONS

2018 FINANCIAL PERFORMANCE OVERVIEW

The comparability of the results of operations for the years ended December 31, 2018 and December 31, 2017 was impacted by the following events discussed in more detail below: (i) the acquisition of LCB, (ii) the “de-risking” of the Company’s defined benefit plan in 2018 and 2017, and (iii) the reduction in the corporate tax rate due to the enactment of the Tax Cuts and Jobs Act (“TCJA”) on December 22, 2017. Juniata’s management believes it is meaningful to present a performance comparison that segregates the financial impact of the aforementioned items, to allow a view of comparative results to 2017. The following discussion includes both GAAP, as well as non-GAAP financial measures that are reconciled to GAAP financial measures in the supplemental tables presented below. The non-GAAP measures are referred to as “adjusted” results.

Prior to Juniata’s acquisition of Liverpool on April 30, 2018, Juniata owned 39.16% of the outstanding common stock of Liverpool and recorded its share of Liverpool’s earnings as “income from unconsolidated subsidiary” using the equity method of accounting. In conjunction with the acquisition, Juniata incurred \$884,000 and \$13,000 in merger-related expenses during the years ended December 31, 2018 and 2017, respectively. Since Juniata accounted for its investment in Liverpool using the equity method, 39.16% of Liverpool’s merger-related expenses incurred in the year ended December 31, 2017 reduced Juniata’s non-interest income by \$33,000. Additionally, an adjustment to the carrying value of Juniata’s previous 39.16% ownership of Liverpool at April 30, 2018 resulted in a recorded pre-tax net gain of \$215,000 during the year ended December 31, 2018. Also, the removal of a \$406,000 deferred tax liability related to the previous investment in Liverpool, resulted in a corresponding reduction in income tax expense in 2018.

In 2017, Juniata initiated a strategy to reduce the liability associated with its defined benefit pension plan. The first step of the initiative consisted of the purchase of a single premium group annuity for a group of Juniata’s retirees, transferring the associated pension liability to the issuer of the annuity. This step reduced Juniata’s overall pension liability by approximately 12%, which resulted in a pre-tax charge to earnings of \$377,000 in 2017. In 2018, Juniata completed the second step of the strategy to reduce the liability associated with its defined benefit pension plan by making a lump sum payment offer to a small group of terminated vested participants in Juniata’s defined benefit plan. This step further reduced Juniata’s remaining pension liability by approximately 9%, which resulted in a pre-tax charge to earnings of \$210,000 in the twelve months ended December 31, 2018. The pre-tax charges represent a further acceleration of pension expenses that would otherwise have impacted Juniata’s future earnings. In 2019, Juniata plans to finalize the termination of its defined benefit plan.

The enactment of the TCJA at the end of 2017, while expected to provide tax savings to Juniata in future periods, resulted in write-downs of Juniata’s and Liverpool’s net deferred tax assets in 2017, which were previously valued based upon the projection of a 34% future tax benefit. As a result, a non-cash charge of \$416,000 was included in the provision for income taxes at Juniata as was a similar non-cash charge at Liverpool, resulting in a \$32,000 decline in Juniata’s non-interest income in the in the three and twelve months ended December 31, 2017 due to Juniata’s previous 39.16% ownership in Liverpool. In 2018, the value of the Juniata’s deferred tax asset was adjusted again, due primarily to a defined benefit contribution applied to the prior tax year. The adjustment resulted in a decrease in tax expense of \$168,000.

Net income for Juniata in 2018 was \$5,904,000, representing a 30.1% increase compared to net income for 2017. Earnings per share on a fully diluted basis increased from \$0.95 in 2017 to \$1.18 in 2018. When adjusted for the impact of the tax-effected events mentioned above, adjusted net income was \$6,024,000 for the year ended December 31, 2018, an increase of 14.7% over adjusted net income for the year ended December 31, 2017. Adjusted earnings per share increased by 10.0% from \$1.10 in 2017 to \$1.21 in 2018. For 2018, return on

average assets ("ROA") and return on average equity ("ROE") were 0.96% and 9.42%, respectively. On an adjusted basis, return on average assets was 0.98% in 2018 as compared to 0.88% in 2017, and return on average equity was 9.61% and 8.77% in 2018 and 2017, respectively.

The net interest margin, on a fully tax-equivalent basis, increased from 3.52% in 2017 to 3.60% in 2018. The yield on earning assets increased 26 basis points to 4.18%, while the cost of funds increased 17 basis points, to 0.85%, compared to 2017.

Five-year historical ratios are presented below.

(Dollars in thousands)

| | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|-------|-------|-------|-------|-------|
| Return on average assets | 0.96% | 0.76% | 0.89% | 0.62% | 0.90% |
| Return on average equity | 9.42 | 7.57 | 8.42 | 5.98 | 8.31 |
| Yield on earning assets | 4.18 | 3.92 | 3.87 | 3.88 | 3.94 |
| Cost to fund earning assets | 0.85 | 0.68 | 0.43 | 0.59 | 0.60 |
| Non-interest income (excluding gains on sales or calls of securities and securities impairment charges) to average assets | 0.82 | 0.89 | 0.90 | 0.92 | 0.92 |
| Non-interest expense to average assets | 3.17 | 2.99 | 2.98 | 3.31 | 2.88 |
| Net non-interest expense to average assets | 2.35 | 2.10 | 2.08 | 2.39 | 1.96 |

Below, and on the following page, are the comparative disclosures illustrating the reconciliation of the non-GAAP financial measures discussed on the previous page to GAAP financial measures for the most recent three years.

(Dollars in thousands)

| Non-GAAP presentation of comparative net income | 2018 | 2017 | 2016 |
|---|----------|----------|----------|
| Net Income | \$ 5,904 | \$ 4,537 | \$ 5,156 |
| Adjustments to reported net income to reconcile to non-GAAP measure | | | |
| Defined benefit plan settlement cost included in employee benefits | 210 | 377 | - |
| Tax benefit of defined benefit plan settlement cost | (44) | (128) | - |
| Merger-related expense for JUVF | 884 | 13 | 347 |
| Merger-related expense included in income from unconsolidated subsidiary | - | 33 | - |
| Tax benefit of all merger-related expense | (186) | (16) | (118) |
| Merger-related net gain on carrying value of 39.16% in LCB | (215) | - | (113) |
| Tax expense of merger-related gains | 45 | - | 38 |
| Merger-related gains on sale of loans | - | - | (113) |
| Tax expense of merger-related gains on sale of loans | - | - | 38 |
| Gains from life insurance proceeds | - | - | (364) |
| Tax expense of gains from life insurance proceeds (N/A) | - | - | - |
| Reduction in valuation of deferred tax assets included in income from unconsolidated subsidiary | - | 32 | - |
| Tax benefit for reduction in valuation of deferred tax assets included in income from unconsolidated subsidiary | - | (11) | - |
| (Increase) reduction in valuation of deferred tax assets due to TCJA | (168) | 416 | - |
| Reduction in deferred tax liability related to previous investment in unconsolidated subsidiary | (406) | - | - |
| Total adjustments to reported net income to reconcile to non-GAAP measure | 120 | 716 | (210) |
| Adjusted net income (non-GAAP) | \$ 6,024 | \$ 5,253 | \$ 4,946 |

(Dollars in thousands, except share and per share data)

Non-GAAP presentation of performance ratios

| | 2018 | 2017 | 2016 |
|--|-----------|-----------|-----------|
| Adjusted Earnings Per Share (Diluted) | | | |
| Earnings per share (diluted) | \$ 1.18 | \$ 0.95 | \$ 1.07 |
| Adjustments to reported diluted earnings per share to reconcile to non-GAAP measure (tax effected) | | | |
| Defined benefit settlement cost (tax effected) | 0.03 | 0.05 | - |
| Merger-related expenses (tax effected) | 0.14 | 0.01 | 0.05 |
| Merger-related gains (tax effected) | (0.03) | - | (0.02) |
| Gains from life insurance proceeds | - | - | (0.08) |
| Reduction in valuation of deferred tax assets | (0.03) | 0.09 | - |
| Reduction in valuation of deferred tax liability | (0.08) | - | - |
| Total adjustments to reported diluted earnings per share to reconcile to non-GAAP measure | 0.03 | 0.15 | (0.05) |
| Adjusted earnings per share (diluted) (non-GAAP) | \$ 1.21 | \$ 1.10 | \$ 1.02 |
| | | | |
| Net Income | \$ 5,904 | \$ 4,537 | \$ 5,156 |
| Average Assets | 614,632 | 593,923 | 577,341 |
| Average Equity | 62,689 | 59,938 | 61,209 |
| Weighted average diluted shares outstanding | 5,009,484 | 4,775,505 | 4,802,175 |
| | | | |
| Adjusted Return on Average Assets | | | |
| Return on average assets | 0.96% | 0.76% | 0.89% |
| Total adjustments to reported net income to reconcile to non-GAAP measure | 0.02 | 0.12 | (0.04) |
| Adjusted return on average assets | 0.98% | 0.88% | 0.86% |
| | | | |
| Adjusted Return on Average Equity | | | |
| Return on average equity | 9.42% | 7.57% | 8.42% |
| Total adjustments to reported net income to reconcile to non-GAAP measure | 0.19 | 1.20 | (0.34) |
| Adjusted return on average equity | 9.61% | 8.77% | 8.08% |

Juniata strives to attain consistently satisfactory earnings levels each year by protecting the core (repeatable) earnings base through conservative growth strategies that minimize stockholder and balance-sheet risk, while serving its rural Pennsylvania customer base. This approach has helped achieve solid performances year after year. The Company considers the return on assets ratio to be a key indicator of its success and constantly scrutinizes the broad categories of the income statement that impact this profitability indicator.

Summarized below are the components of net income and the contribution of each to ROA for 2018 and 2017.

| <i>(Dollars in thousands)</i> | 2018 | | 2017 | |
|---|-----------------------|---------------------|-----------------------|---------------------|
| | Net Income Components | % of Average Assets | Net Income Components | % of Average Assets |
| Net interest income | \$ 20,016 | 3.26% | \$ 18,519 | 3.12% |
| Provision for loan losses | (337) | (0.05) | (439) | (0.07) |
| Customer service fees | 1,779 | 0.29 | 1,747 | 0.29 |
| Debit card fee income | 1,280 | 0.21 | 1,120 | 0.19 |
| BOLI | 352 | 0.06 | 352 | 0.06 |
| Trust fees | 430 | 0.07 | 446 | 0.08 |
| Commissions from sales of non-deposit products | 259 | 0.04 | 173 | 0.03 |
| Income from unconsolidated subsidiary | 296 | 0.05 | 167 | 0.03 |
| Security gains | (188) | (0.03) | 512 | 0.09 |
| Mortgage banking income | 70 | 0.01 | 214 | 0.04 |
| Other noninterest income | 749 | 0.12 | 561 | 0.09 |
| Total noninterest income | 5,027 | 0.82 | 5,292 | 0.89 |
| Employee expense | (10,280) | (1.67) | (9,996) | (1.68) |
| Occupancy and equipment | (2,035) | (0.33) | (1,884) | (0.32) |
| Data processing expense | (1,924) | (0.31) | (1,751) | (0.29) |
| Director compensation | (215) | (0.03) | (241) | (0.04) |
| Professional fees | (640) | (0.10) | (571) | (0.10) |
| Taxes, other than income | (498) | (0.08) | (463) | (0.08) |
| FDIC insurance premiums | (274) | (0.04) | (334) | (0.06) |
| Gain (loss) on sales of other real estate owned | 60 | 0.01 | 8 | 0.00 |
| Intangible amortization | (79) | (0.01) | (67) | (0.01) |
| Amortization of investment in partnership | (800) | (0.13) | (612) | (0.10) |
| Merger and acquisition expense | (884) | (0.14) | (13) | (0.00) |
| Other noninterest expense | (1,892) | (0.31) | (1,851) | (0.31) |
| Total noninterest expense | (19,461) | (3.17) | (17,775) | (2.99) |
| Income tax benefit (expense) | 659 | 0.11 | (1,060) | (0.18) |
| Net income | \$ 5,904 | 0.96% | \$ 4,537 | 0.76% |
| Average assets | \$ 614,632 | | \$ 593,923 | |

NET INTEREST INCOME

Net interest income is the amount by which interest income on earning assets exceeds interest expense on interest bearing liabilities. Net interest income is the most significant component of revenue, comprising approximately 82% of total revenues (the total of net interest income and non-interest income, exclusive of security losses) for 2018. Interest spread measures the absolute difference between average rates earned and average rates paid. Because some interest earning assets are tax-exempt, an adjustment is made for analytical purposes to present all assets on a fully tax-equivalent basis. Net interest margin is the percentage of net return on average earning assets on a fully tax-equivalent basis and provides a measure of comparability of a financial institution's performance.

Both net interest income and net interest margin are impacted by interest rate changes, changes in the relationships between various rates and changes in the composition of the average balance sheet. Additionally, product pricing, product mix and customer preferences dictate the composition of the balance sheet and the resulting net interest income. Table 1 shows average asset and liability balances, average interest rates and interest income and expense for the years 2018, 2017 and 2016. Table 2 further shows changes attributable to the volume and rate components of net interest income.

TABLE 1
AVERAGE BALANCE SHEETS AND NET INTEREST INCOME ANALYSIS

| <i>(Dollars in thousands)</i> | Years Ended December 31 | | | | | | | | |
|---|-------------------------|------------------|----------------|-----------------------|------------------|----------------|-----------------------|------------------|----------------|
| | 2018 | | | 2017 | | | 2016 | | |
| | Average Balance(1) | Interest | Yield/ Rate | Average Balance(1) | Interest | Yield/ Rate | Average Balance(1) | Interest | Yield/ Rate |
| ASSETS | | | | | | | | | |
| Interest earning assets: | | | | | | | | | |
| Loans: | | | | | | | | | |
| Taxable (5) | \$ 379,696 | \$ 19,092 | 5.03% | \$ 355,033 | \$ 17,090 | 4.81% | \$ 348,914 | \$ 16,653 | 4.77% |
| Tax-exempt | 29,666 | 968 | 3.26 | 30,378 | 915 | 3.01 | 30,263 | 906 | 2.99 |
| Total loans (8) | 409,362 | 20,060 | 4.90 | 385,411 | 18,005 | 4.67 | 379,177 | 17,559 | 4.63 |
| Investment securities: | | | | | | | | | |
| Taxable | 131,420 | 3,040 | 2.31 | 134,607 | 2,888 | 2.15 | 124,611 | 2,475 | 1.99 |
| Tax-exempt | 19,988 | 393 | 1.97 | 24,797 | 451 | 1.82 | 23,807 | 418 | 1.76 |
| Total investment securities | 151,408 | 3,433 | 2.27 | 159,404 | 3,339 | 2.09 | 148,418 | 2,893 | 1.95 |
| Interest bearing deposits | 3,246 | 132 | 4.07 | 580 | 30 | 5.17 | 770 | 13 | 1.69 |
| Federal funds sold | 1,267 | 26 | 2.05 | - | - | 0.00 | 675 | 4 | 0.52 |
| Total interest earning assets | 565,283 | 23,651 | 4.18 | 545,395 | 21,374 | 3.92 | 529,040 | 20,469 | 3.87 |
| Non-interest earning assets: | | | | | | | | | |
| Cash and due from banks | 12,685 | | | 10,513 | | | 9,553 | | |
| Allowance for loan losses | (3,016) | | | (2,809) | | | (2,572) | | |
| Premises and equipment | 8,757 | | | 6,823 | | | 7,017 | | |
| Other assets (7) | 30,923 | | | 34,001 | | | 34,303 | | |
| Total assets | <u>\$ 614,632</u> | | | <u>\$ 593,923</u> | | | <u>\$ 577,341</u> | | |
| LIABILITIES AND STOCKHOLDERS' EQUITY | | | | | | | | | |
| Interest bearing liabilities: | | | | | | | | | |
| Demand deposits (2) | \$ 141,483 | 978 | 0.69 | \$ 123,520 | 404 | 0.33 | \$ 121,479 | 253 | 0.21 |
| Savings deposits | 102,086 | 102 | 0.10 | 99,385 | 99 | 0.10 | 96,869 | 102 | 0.11 |
| Time deposits | 148,671 | 1,988 | 1.34 | 139,652 | 1,626 | 1.16 | 139,387 | 1,456 | 1.04 |
| Other, including short and long-term borrowings, and other interest bearing liabilities | 33,136 | 567 | 1.71 | 56,846 | 726 | 1.28 | 46,310 | 457 | 0.99 |
| Total interest bearing liabilities | 425,376 | 3,635 | 0.85 | 419,403 | 2,855 | 0.68 | 404,045 | 2,268 | 0.56 |
| Non-interest bearing liabilities: | | | | | | | | | |
| Demand deposits | 120,521 | | | 108,141 | | | 105,536 | | |
| Other | 6,046 | | | 6,441 | | | 6,551 | | |
| Stockholders' equity | 62,689 | | | 59,938 | | | 61,209 | | |
| Total liabilities and stockholders' equity | <u>\$ 614,632</u> | | | <u>\$ 593,923</u> | | | <u>\$ 577,341</u> | | |
| Net interest income | | <u>\$ 20,016</u> | | | <u>\$ 18,519</u> | | | <u>\$ 18,201</u> | |
| Net margin on interest earning assets (3) | | | <u>3.54%</u> | | | <u>3.40%</u> | | | <u>3.44%</u> |
| Net interest income and margin Tax equivalent basis (4) | | <u>\$ 20,378</u> | <u>3.60%</u> | | <u>\$ 19,223</u> | <u>3.52%</u> | | <u>\$ 18,884</u> | <u>3.57%</u> |

Notes:

- (1) Average balances were calculated using a daily average.
- (2) Includes interest-bearing demand and money market accounts.
- (3) Net margin on interest earning assets is net interest income divided by average interest earning assets.
- (4) Interest on obligations of states and municipalities is not subject to federal income tax. In order to make the net yield comparable on a fully taxable basis, a tax equivalent adjustment is applied against the tax-exempt income utilizing a federal tax rate of 21% in 2018 and 34% in both 2017 and 2016.

TABLE 2
RATE/VOLUME ANALYSIS OF NET INTEREST INCOME

(Dollars in thousands)

| | 2018 compared to 2017 Increase (Decrease) Due To (6) | | | 2017 compared to 2016 Increase (Decrease) Due To (6) | | |
|--|---|--------|----------|---|---------|--------|
| | Volume | Rate | Total | Volume | Rate | Total |
| ASSETS | | | | | | |
| Interest earning assets: | | | | | | |
| Loans: | | | | | | |
| Taxable (5) | \$ 1,219 | \$ 783 | \$ 2,002 | \$ 294 | \$ 143 | \$ 437 |
| Tax-exempt | (22) | 75 | 53 | 3 | 6 | 9 |
| Total loans (8) | 1,197 | 858 | 2,055 | 297 | 149 | 446 |
| Investment securities: | | | | | | |
| Taxable | (70) | 222 | 152 | 207 | 206 | 413 |
| Tax-exempt | (92) | 34 | (58) | 18 | 15 | 33 |
| Total investment securities | (162) | 256 | 94 | 225 | 221 | 446 |
| Interest bearing deposits | 110 | (8) | 102 | (4) | 21 | 17 |
| Federal funds sold | 26 | - | 26 | (4) | - | (4) |
| Total interest earning assets | 1,171 | 1,106 | 2,277 | 514 | 391 | 905 |
| LIABILITIES AND STOCKHOLDERS' EQUITY | | | | | | |
| Interest bearing liabilities: | | | | | | |
| Demand deposits (2) | \$ 66 | \$ 508 | \$ 574 | \$ 4 | \$ 147 | \$ 151 |
| Savings deposits | 3 | - | 3 | 3 | (6) | (3) |
| Time deposits | 110 | 252 | 362 | 3 | 167 | 170 |
| Other, including short and long-term borrowings, and other interest bearing liabilities | (360) | 201 | (159) | 117 | 152 | 269 |
| Total interest bearing liabilities | (181) | 961 | 780 | 127 | 460 | 587 |
| Net interest income | \$ 1,352 | \$ 145 | \$ 1,497 | \$ 387 | \$ (69) | \$ 318 |

Notes:

- (5) Non-accruing loans are included in the above table until they are charged off.
- (6) The change in interest due to rate and volume has been allocated to volume and rate changes in proportion to the relationship of the absolute dollar amounts of the change in each.
- (7) Includes net unrealized losses on securities available for sale: \$4,687 in 2018, \$1,065 in 2017, \$1,302 in 2016.
- (8) Interest income includes loan fees of \$95, \$89 and \$78, in 2018, 2017 and 2016, respectively.

On average, total loans outstanding in 2018 increased from 2017 by 6.2%, to \$409,362,000, primarily due to the addition of Liverpool's loan portfolio, as well as organic growth. Average yields on loans increased by 23 basis points in 2018 when compared to 2017. As shown in the preceding Rate – Volume Analysis of Net Interest Income Table 2, the increase in yield raised interest income on loans by approximately \$858,000, while the increase in volume increased interest income by \$1,197,000, resulting in an aggregate increase in interest recorded on loans of \$2,055,000 in 2018 compared to 2017. The prime rate increased by 25 basis points in March 2018, June 2018, September 2018, and mid-December 2018 to end the year at 5.50%. The increased yield on prime-related loans in 2018 assisted in the increase in the average yield on loans in 2018 compared to 2017.

During 2018, cash flows from maturities, sales and repayments of investment securities were primarily used to fund a portion of the loan growth and pay off maturing long-term debt and pay down short-term borrowings. Additional funds from deposit growth were likewise invested into the loan portfolio and used to pay down debt. As a result, average balances of investment securities decreased by \$7,996,000, and this volume decline accounted for a \$162,000 decrease in interest income compared to 2017. The improvement in the overall yield of the investment portfolio by 18 basis points between 2017 and 2018 increased net interest income by \$256,000, resulting in an aggregate increase in interest recorded on investment securities of \$94,000 in 2018 compared to 2017.

In total, yield on earning assets in 2018 was 4.18% compared to 3.92% in 2017, an increase of 26 basis points. On a fully tax equivalent basis, the yield on earning assets also increased 20 basis points from 4.05% in 2017 to 4.25% in 2018.

Average interest bearing liabilities increased by \$5,973,000 in 2018, compared to 2017. Within the categories of interest bearing liabilities, deposits increased on average by \$29,683,000, and borrowings declined by \$23,710,000 on average. The addition of Liverpool's deposits was the primary reason for the increase in average interest bearing deposits as Liverpool's deposits allowed for a reduction in overnight borrowings, which declined by an average of approximately \$16,217,000 in 2018 compared to 2017. In addition, the deposits were also used towards the repayment of two FHLB long-term debt advances, further contributing to a decline in average borrowings of \$7,507,000. Changes in the volume of total interest-bearing liabilities decreased interest expense by \$181,000 in 2018 compared to 2017, while changes in interest rates increased interest expense by \$961,000. The percentage of average interest earning assets funded by average non-interest bearing demand deposits was approximately 23.1% in 2018 versus 19.8% in 2017. The total cost to fund earning assets (computed by dividing the total interest expense by the total average earning assets) in 2018 was 0.64%, compared to 0.52% in 2017. This increase was primarily caused by the 1.00% increase in the Prime rate during 2018, which led to increased deposit rate competition and higher overnight borrowing rates.

Net interest income was \$20,016,000 for 2018, an increase of \$1,497,000 when compared to 2017. Increases in both volume and rates contributed \$1,352,000 and \$145,000, respectively, toward the improved net interest income in 2018 compared to 2017.

PROVISION FOR LOAN LOSSES

Juniata's provision for loan losses is determined as a result of an analysis of the adequacy level of the allowance for loan losses. In order to closely reflect the potential losses within the current loan portfolio based upon current information known, the Company carries no unallocated allowance. Using the process of analysis described in "Application of Critical Accounting Policies" earlier in this discussion, the Company determined that a provision of

\$337,000 was appropriate for 2018, a decrease of \$102,000 when compared to 2017 when the total loan loss provision was \$439,000. The lower provision in 2018 primarily resulted from continued strong asset quality with a reduction in the recorded investment in impaired loans. The discussion included in the Loans and Allowance for Loan Losses in the section below titled "Financial Condition" explains the information and analysis used to arrive at the provision for 2018.

NON-INTEREST INCOME

The Company remains committed to providing comprehensive services and products to meet the current and future financial needs of its customers. Juniata believes its responsiveness to customers' needs surpasses that of its competitors, and measures its success by the customer acceptance of fee-based services. The Company continually explores avenues to enhance product offerings in areas beneficial to its customers, such as adding new features and services for its electronic banking clientele. Fraud protection services are made available to all consumer depositors. We offer a variety of options for financing to home-buyers that includes a mortgage referral program, providing significant fee income. Juniata also provides alternative investment opportunities through an arrangement with a broker dealer that integrates the delivery of non-traditional products with its Trust and Wealth Management Division. This arrangement enables Juniata to meet the investment needs of a varied customer base and to better identify its clients' needs for traditional trust services.

Fee-generated non-interest revenues consist of customer service fees derived from deposit accounts, trust relationships and sales of non-deposit products. In 2018, revenues from these services totaled \$2,468,000, representing an increase of \$102,000, or 4.3%, from 2017 revenues, primarily due to an increase in wealth management commissions. Total fees from customer deposits increased by \$32,000, or 1.8%. Fees from both estate settlements and non-estate fees declined by \$4,000 and \$12,000, respectively, in 2018 compared to 2017. Variance in fees from estate settlements occurs because estate settlements occur sporadically and are not necessarily consistent year to year. Non-estate fees are repeatable revenues that generally increase and decrease in relation to movements in interest rates as market values of trust assets under management increase or decrease and as new relationships are established. Commissions from sales of non-deposit products increased in 2018, in comparison to 2017, by \$86,000, or 49.7%, as sales increased.

Fees generated by debit card activity increased by \$160,000, or 14.3%, in 2018 compared to the prior year due to general increased debit card usage, as well as the addition of Liverpool's debit card customers.

Fees and income derived from the origination, sale and servicing of residential mortgage loans (mortgage banking income) was \$70,000 in 2018, a decline of \$144,000, or 67.3%, compared to 2017. No loans were sold to the secondary market in 2018 as the focus of the Bank's was shifted to a loan referral program. Other non-interest-related fees derived from loan activity increased by \$149,000 when comparing 2018 to 2017, primarily due to revenues generated from title insurance fees and the loan referral program.

The Company previously owned 39.16% of the stock of LCB and accounted for its ownership through the equity method. As such, 39.16% of the income of LCB was recorded by Juniata as non-interest income. Upon the acquisition of Liverpool on April 30, 2018, an adjustment to the carrying value of Juniata's previous 39.16% ownership resulted in a net gain of \$215,000 (derived from Juniata's share of \$239,000 in LCB's second quarter earnings net loss, \$39,000 in dividend income received from LCB's special merger-related dividend, as well as a \$415,000 equity gain recorded from the acquisition) at April 30, 2018, which was offset by the discontinuance of income in this category after April 30, 2018. Due to the recording of the net gain in 2018, income/gain from unconsolidated subsidiary increased by \$129,000 compared to the same 2017 period.

Losses realized from the sales and calls of investment securities during 2018 were \$188,000 compared to a gain of \$512,000 in 2017. A strategy was undertaken at the end of 2018 to replace lower yielding investments with higher yielding ones in order to position the portfolio for higher future returns. This strategy resulted in a loss in 2018, while Juniata benefited from the price appreciation of securities sold in 2017 for a gain.

As a percentage of average assets, non-interest income (excluding securities gains/losses on sales or calls of securities) was 0.85% and 0.89% in 2018 and 2017, respectively.

NON-INTEREST EXPENSE

Management strives to control non-interest expense where possible in order to achieve maximum operating results.

In 2018, total non-interest expense increased by \$1,686,000, or 9.5%, when compared to 2017. Merger and acquisition expense increased \$871,000 in 2018 compared to 2017 due to the acquisition of Liverpool. Employee compensation expense increased \$663,000, or 9.3%, in 2018 compared to 2017, predominantly due to the addition of the Liverpool staff and higher levels of accruals for the employee incentive bonus. However, a reduction in medical expenses of \$165,000 and defined benefit expense of \$242,000 contributed to a decline of \$379,000, or 13.4%, in employee benefits expense in 2018 compared to 2017. Some of the decline was attributable to a reduction in settlement costs of \$167,000, with the remainder attributable to a pre-tax charge to earnings of \$377,000 recorded in 2017 from step one of the “de-risking” of the defined benefit plan compared to \$210,000 recorded in 2018 for the completion of step two.

Also contributing to the year over year increase in non-interest expense was an increase of \$188,000, or 30.7%, in the amortization of two tax credit investments in low-income housing partnerships. Amortization for the phase II project did not begin until the in the second half of 2017, while amortization was recorded for the entire year of 2018. Amortization expense associated with the Bank’s investment in low-income housing partnerships, which first became applicable during the second quarter of 2013, was more than offset by the recording of the benefit of the tax credit from the partnerships in both 2018 and 2017. Amortization is scheduled to continue through 2023 for phase I and through 2027 for phase II.

Data processing expense increased by \$173,000, or 9.9%, in 2018 compared to 2017 with occupancy and equipment expense including, in aggregate, by \$151,000, or 8.0%, due to the increased expense of adding Liverpool’s data processing, branch office, and equipment in 2018.

Offsetting the increase in total non-interest expense was a decline in FDIC insurance premiums of \$60,000, or 18.0%, as well as an increase in the gain on sales of other real estate owned of \$52,000, or 650.0%.

As a percentage of average assets, non-interest expense was 3.17% in 2018 as compared to 2.99% in 2017.

INCOME TAXES

Income tax for 2018 amounted to a benefit of \$659,000 versus an expense of \$1,060,000 in 2017. The effect of the TCJA passed in 2017 required an immediate write-down of JVB’s deferred tax assets as of December 31, 2017 resulting in an additional tax expense of \$416,000, while the reduction in Juniata’s corporate tax rate from 34% in 2017 to 21% in 2018 resulted in an additional tax benefit of \$168,000. Further impacting the income tax provision in 2018 was the removal of a \$406,000 deferred tax liability related to the previous investment in unconsolidated subsidiary. Both periods included the effect of a tax credit amounting to \$901,000 in 2018 and \$722,000 in 2017. The tax credit was available to the Company as a result of an equity investment in two low-income housing projects. Juniata’s effective tax rate in 2018 was (12.6)% versus 18.9% in 2017. See Note 16 of Notes to Consolidated Financial Statements for further information on income taxes.

NET INCOME

For comparative purposes, the following table sets forth earnings and selected earnings ratios for the past three years.

(Dollars in thousands)

| As reported | 2018 | 2017 | 2016 |
|--------------------------|----------|----------|----------|
| Net income | \$ 5,904 | \$ 4,537 | \$ 5,156 |
| Return on average assets | 0.96% | 0.76% | 0.89% |
| Return on average equity | 9.42% | 7.57% | 8.42% |

2017 FINANCIAL PERFORMANCE OVERVIEW

The comparability of the results of operations for the years ended December 31, 2017 and December 31, 2016 was impacted by the following events discussed in more detail below: (i) the “de-risking” of a portion of the Company’s defined benefit plan in 2017, (ii) the pending merger between the Bank, and Juniata’s unconsolidated subsidiary, LCB, (iii) the reduction in the corporate tax rate due to the enactment of the TCJA on December 22, 2017, and (iv) the gains from life insurance proceeds recorded in 2016, with no such gains recorded in 2017. Juniata’s management believes it to be meaningful to present a performance comparison that segregates the financial impact of the afore-mentioned items, to allow a view of comparative results to 2016. The following discussion includes both GAAP, as well as non-GAAP financial measures that are reconciled to GAAP financial measures in the supplemental tables presented in the “2018 Financial Performance Overview”. The non-GAAP measures are referred to as “adjusted” results.

As noted above, Juniata initiated a strategy to reduce the liability associated with its defined benefit pension plan in the fourth quarter of 2017. The first step of the initiative consisted of the purchase of a single premium group annuity for a group of Juniata’s retirees, transferring the associated pension liability to the issuer of the annuity. This step reduced Juniata’s overall pension liability by approximately 12%, which resulted in a pre-tax charge to earnings of \$377,000. This pre-tax charge represents an acceleration of pension expenses that would otherwise have impacted Juniata’s earnings in the future. During 2018, management continued to implement its strategy to further reduce the pension liability.

Also occurring in the fourth quarter of 2017 was the execution of a definitive merger agreement between Juniata and LCB. Merger-related expenses were incurred at both institutions in 2017. Since Juniata accounts for its investment in Liverpool using the equity method, 39.16% of LCB’s merger-related expenses reduced Juniata’s non-interest income by \$33,000. Juniata’s own merger-related expenses increased non-interest expense by \$13,000.

On December 22, 2017, the TCJA was enacted, lowering Juniata’s and LCB’s future maximum corporate tax rate from 34% to 21%. The effects of tax law and rate changes must be reflected as a component of tax expense from continuing operations. Though the reduced rate will provide tax savings to Juniata and LCB in future periods, the reduction resulted in write-downs of Juniata’s and LCB’s net deferred tax assets, which were previously valued based upon the projection of a 34% future tax rate. As a result, a non-cash charge of \$416,000 was included in the 2017 income taxes expense. A similar non-cash charge at LCB, resulted in a \$32,000 decline in Juniata’s non-interest income in the fourth quarter of 2017.

Net income for Juniata in 2017 was \$4,537,000, representing a 12.0% decrease as compared to net income for 2016. Earnings per share on a fully diluted basis decreased from \$1.07 in 2016 to \$0.95 in 2017. When adjusted for the impact of the tax-effected events mentioned above, adjusted net income was \$5,253,000 for the year ended December 31, 2017, an increase of 6.2% over adjusted net income for the year ended December 31, 2016. Adjusted earnings per share increased by 6.8% from \$1.02 in 2016 to \$1.10 in 2017. For 2017, return on average assets ("ROA") and return on average equity ("ROE") were 0.76% and 7.57%, respectively. On an adjusted basis, return on average assets was 0.88% in 2017 as compared to 0.85% in 2016, and return on average equity was 8.76% and 8.08% in 2017 and 2016, respectively.

Summarized below are the components of net income and the contribution of each to ROA for 2017 and 2016.

(Dollars in thousands)

| | 2017 | | 2016 | |
|---|-----------------------|---------------------|-----------------------|---------------------|
| | Net Income Components | % of Average Assets | Net Income Components | % of Average Assets |
| Net interest income | \$ 18,519 | 3.12% | \$ 18,201 | 3.15% |
| Provision for loan losses | (439) | (0.07) | (466) | (0.08) |
| Customer service fees | 1,747 | 0.29 | 1,736 | 0.30 |
| Debit card fee income | 1,120 | 0.19 | 1,044 | 0.18 |
| BOLI | 352 | 0.06 | 371 | 0.06 |
| Trust fees | 446 | 0.08 | 454 | 0.08 |
| Commissions from sales of non-deposit products | 173 | 0.03 | 223 | 0.04 |
| Income from unconsolidated subsidiary | 167 | 0.03 | 222 | 0.04 |
| Insurance-related gains | - | 0.00 | 364 | 0.06 |
| Security gains | 512 | 0.09 | 218 | 0.04 |
| Mortgage banking income | 214 | 0.04 | 158 | 0.03 |
| Other noninterest income | 561 | 0.09 | 628 | 0.11 |
| Total noninterest income | 5,292 | 0.89 | 5,418 | 0.94 |
| Employee expense | (9,996) | (1.68) | (9,184) | (1.59) |
| Occupancy and equipment | (1,884) | (0.32) | (1,798) | (0.31) |
| Data processing expense | (1,751) | (0.29) | (1,807) | (0.31) |
| Director compensation | (241) | (0.04) | (238) | (0.04) |
| Professional fees | (571) | (0.10) | (539) | (0.09) |
| Taxes, other than income | (463) | (0.08) | (437) | (0.08) |
| FDIC insurance premiums | (334) | (0.06) | (375) | (0.06) |
| (Loss) gain on sales of other real estate owned | 8 | 0.00 | (150) | (0.03) |
| Intangible amortization | (67) | (0.01) | (105) | (0.02) |
| Merger and acquisition expense | (612) | (0.10) | (347) | (0.06) |
| Amortization of investment in partnership | (13) | (0.00) | (479) | (0.08) |
| Other noninterest expense | (1,851) | (0.31) | (1,719) | (0.30) |
| Total noninterest expense | (17,775) | (2.99) | (17,178) | (2.98) |
| Income tax expense | (1,060) | (0.18) | (819) | (0.14) |
| Net income | \$ 4,537 | 0.76% | \$ 5,156 | 0.89% |
| Average assets | \$ 593,923 | | \$ 577,341 | |

NET INTEREST INCOME

On average, total loans outstanding in 2017 increased from 2016 by 1.6%, to \$385,411,000. Average yields on loans increased by 4 basis points in 2017 when compared to 2016. As shown in the preceding Rate - Volume Analysis of Net Interest Income Table 2, the increase in yield raised interest income on loans by approximately \$149,000, while the increase in volume increased interest income by \$297,000, resulting in an aggregate increase in interest recorded on loans of \$446,000 in 2017 compared to 2016. The prime rate increased by 25 basis points in March 2017, June 2017, and mid-December 2017 to end the year at 4.50%. The increased yield on prime-related loans in 2017 assisted in the increase in the average yield on loans in 2017 compared to 2016.

During 2017, cash flows from maturities, sales and repayments of investment securities were primarily used to fund a portion of the loan growth and to reinvest in the investment portfolio. Additional funds from deposit growth were likewise invested in the securities portfolio. As a result, average balances of investment securities increased by \$10,986,000, and this volume increase accounted for a \$225,000 increase in interest income as compared to 2016. The improvement in the overall yield of the investment portfolio by 14 basis points between 2016 and 2017 further increased net interest income by \$221,000, resulting in an aggregate increase in interest recorded on investment securities of \$446,000 in 2017 compared to 2016.

In total, yield on earning assets in 2017 was 3.92% compared to 3.87% in 2016, an increase of 5 basis points. On a fully tax equivalent basis, the yield on earning assets also increased 5 basis points, from 4.00% in 2016 to 4.05% in 2017.

Average interest bearing liabilities increased by \$15,358,000 in 2017, compared to 2016. Within the categories of interest bearing liabilities, deposits increased on average by \$4,822,000, and borrowings increased by \$10,536,000 on average. The average increase in overnight borrowings of approximately \$9,774,000 in 2017 compared to 2016 was the primary reason for the increase in average borrowings. Changes in the volume of total interest-bearing liabilities increased interest expense by \$127,000 in 2017 as compared to 2016, while changes in interest rates further increased interest expense by \$459,000. The percentage of interest earning assets funded by non-interest bearing liabilities was approximately 23.1% in 2017 versus 23.6% in 2016. The total cost to fund earning assets (computed by dividing the total interest expense by the total average earning assets) in 2017 was 0.52%, compared to 0.43% in 2016. This increase was primarily caused by the 0.75% increase in the Prime rate during 2017, combined with the increased volume in overnight borrowings.

Net interest income was \$18,519,000 for 2017, an increase of \$318,000 when compared to 2016. Increases in volumes contributed \$387,000 toward the improved net interest income, partially offset by a \$69,000 reduction of net interest income due to rate changes.

PROVISION FOR LOAN LOSSES

Juniata's provision for loan losses is determined as a result of an analysis of the adequacy level of the allowance for loan losses. In order to closely reflect the potential losses within the current loan portfolio based upon current information known, the Company carries no unallocated allowance. Using the process of analysis described in "Application of Critical Accounting Policies" earlier in this discussion, the Company determined that a provision of \$439,000 was appropriate for 2017, a decrease of \$27,000 when compared to 2016 when the total loan loss provision was \$466,000. The lower provision in 2017 primarily resulted from the relatively unchanged loan volumes and asset quality in 2017 versus 2016. The discussion included in the Loans and Allowance for Loan Losses in the section below titled "Financial Condition" explains the information and analysis used to arrive at the provision for 2017.

NON-INTEREST INCOME

The Company remains committed to providing comprehensive services and products to meet the current and future financial needs of our customers. We believe that our responsiveness to customers' needs surpasses that of our competitors, and we measure our success by the customer acceptance of fee-based services. We continually explore avenues to enhance product offerings in areas beneficial to customers. We offer a variety of options for financing to home-buyers that includes a secondary market lending program, providing significant fee income. We continue to add new features and services for our electronic banking clientele. We make fraud protection services available to all consumer depositors. We provide alternative investment opportunities through an

arrangement with a broker dealer and integrate the delivery of non-traditional products with our Trust and Wealth Management Division. This arrangement enables us to meet the investment needs of a varied customer base and to better identify our clients' needs for traditional trust services.

Fee-generated non-interest revenues consist of customer service fees derived from deposit accounts, trust relationships and sales of non-deposit products. In 2017, revenues from these services totaled \$2,366,000, representing a decline of \$47,000, or 1.9%, from 2016 revenues, primarily due to a decrease in wealth management commissions. Total fees from customer deposits increased by \$11,000, or 0.6%. Fees from estate settlements decreased by \$39,000, or 34.2%, in 2017 as compared to 2016, while non-estate fees increased by \$31,000, or 9.4%. Variance in fees from estate settlements occurs because estate settlements occur sporadically and are not necessarily consistent year to year. Non-estate fees are repeatable revenues that generally increase and decrease in relation to movements in interest rates as market values of trust assets under management increase or decrease and as new relationships are established. Commissions from sales of non-deposit products decreased in 2017, in comparison to 2016, by \$50,000, or 22.4%, as sales declined.

Fees generated by debit card activity increased by \$76,000, or 7.3%, in 2017 as compared to the prior year due to general increased debit card usage.

Fees and income derived from the origination, sale and servicing of residential mortgage loans (mortgage banking income) was \$214,000 in 2017, an increase of \$56,000, or 35.4%, compared to 2016, as activity increased. Other non-interest-related fees derived from loan activity increased by \$35,000 when comparing 2017 to 2016, primarily due to revenues generated from title insurance fees and a loan referral program that commenced in the second half of 2017. Gains of \$364,000 were recorded in 2016 as a result of life insurance claims, while no claims were recorded in 2017.

Prior to April 30, 2018, the Company owned 39.16% of the stock of LCB and accounted for its ownership through the equity method. As such, 39.16% of the income of LCB was recorded by Juniata as non-interest income. As a result of this investment, \$167,000 was recorded as income in 2017, compared to \$222,000 in 2016. The decline in income from LCB was the result of merger-related expenses and the write-down of its deferred tax asset due to the passing of the TCJA. Earnings on bank-owned life insurance and annuities decreased in 2017 by \$19,000, or 5.1%, when compared to the previous year, because investment in BOLI was lower in 2017.

In 2016, student loans that were included in the FNBPA acquisition were sold, generating a gain of \$113,000; no similar corresponding gain was recorded in the 2017 period. Gains realized from the sale and call of investment securities during 2017 were \$512,000, compared to \$218,000 during 2016.

As a percentage of average assets, non-interest income (excluding securities gains on sales or calls of securities) was 0.89% and 0.90% in 2017 and 2016, respectively.

NON-INTEREST EXPENSE

Management strives to control non-interest expense where possible in order to achieve maximum operating results.

In 2017, total non-interest expense increased by \$597,000, or 3.5%, when compared to 2016. The \$377,000 in settlement costs from the first step of the "de-risking" of the defined benefit plan contributed to the increase in employee benefits expense in 2017 of \$536,000, or 23.3%, compared to 2016, as well as \$238,000 in increased medical insurance claims. Compensation expense for 2017 increased by \$276,000, or 4.0%, as compared to 2016 due to staffing enhancements and higher levels of accruals for the employee incentive bonus.

Also contributing to the year over year increase in non-interest expense was an increase of \$133,000, or 27.8%, in the amortization of two tax credit investments in low-income housing partnerships due to the addition of the amortization for the phase II project, which began in the second half of 2017. Amortization expense associated with the Bank's investment in low-income housing partnerships, which first became applicable during the second quarter of 2013, was more than offset by the recording of the benefit of the tax credit from the partnerships in both 2017 and 2016. Amortization is scheduled to continue through 2023 for phase I and through 2027 for phase II.

Occupancy and equipment expense increased in the aggregate by \$86,000, or 4.8%, due to the completion and occupation of a relocated banking office. Other noninterest expense increased \$132,000, or 7.7%, in 2017 to the same period in 2016 due to higher electronic banking losses and the addition of consultant expenses associated with the "de-risking" of the defined benefit plan.

Offsetting the increase in total non-interest expense was a decline in data processing expense of \$56,000, or 3.1%, in 2017 as compared to 2016. Merger and acquisition expense decreased \$334,000, or 96.3%, for the year 2017 compared to the same period in 2016 as the remaining merger expenses for the FNBPA acquisition were recorded in 2016. Additionally, the valuation of properties held in other real estate owned resulted in net gains of \$8,000 in 2017 compared to net losses of \$150,000 in 2016, resulting in a net decline in expense of \$158,000, or 105.3%, in 2017.

As a percentage of average assets, non-interest expense was 2.99% in 2017 as compared to 2.98% in 2016.

INCOME TAXES

Income tax expense for 2017 amounted to \$1,060,000 versus \$819,000 in 2016. The effect of the Tax Cuts and Jobs Act passed in 2017 required an immediate write-down of JVB's deferred tax assets as of December 31, 2017 resulting in an additional tax expense of \$416,000. Both periods included the effect of a tax credit amounting to \$722,000 in 2017 and \$572,000 in 2016. The tax credit was available to the Company as a result of an equity investment in a low-income housing project. Juniata's effective tax rate in 2017 was 18.9% versus 13.7% in 2016. See Note 16 of Notes to Consolidated Financial Statements for further information on income taxes.

FINANCIAL CONDITION

BALANCE SHEET SUMMARY

Juniata functions as a financial intermediary and, as such, its financial condition can be best analyzed in terms of changes in its uses and sources of funds, and can also be analyzed in terms of changes in daily average balances. The table below sets forth average daily balances for the last three years and the dollar change and percentage change for the past two years.

TABLE 3
CHANGES IN USES AND SOURCES OF FUNDS

(Dollars in thousands)

| | 2018 | | | 2017 | | | 2016 Average Balance |
|---|--------------------|---------------------|--------------|--------------------|---------------------|--------------|----------------------------|
| | Average Balance | Increase (Decrease) | | Average Balance | Increase (Decrease) | | |
| | | Amount | % | | Amount | % | |
| Funding Uses: | | | | | | | |
| Taxable loans | \$ 379,696 | \$ 24,663 | 6.9 % | \$ 355,033 | \$ 6,119 | 1.8 % | \$ 348,914 |
| Tax-exempt loans | 29,666 | (712) | (2.3) | 30,378 | 115 | 0.4 | 30,263 |
| Taxable securities | 131,420 | (3,187) | (2.4) | 134,607 | 9,996 | 8.0 | 124,611 |
| Tax-exempt securities | 19,988 | (4,809) | (19.4) | 24,797 | 990 | 4.2 | 23,807 |
| Interest bearing deposits | 3,246 | 2,666 | 459.7 | 580 | (190) | (24.7) | 770 |
| Federal funds sold | 1,267 | 1,267 | - | - | (675) | (100.0) | 675 |
| Total interest earning assets | 565,283 | 19,888 | 3.6 | 545,395 | 16,355 | 3.1 | 529,040 |
| Investment in: | | | | | | | |
| Unconsolidated subsidiary | 1,573 | (3,198) | (67.0) | 4,771 | 157 | 3.4 | 4,614 |
| Low income housing | 4,965 | (18) | (0.4) | 4,983 | 1,564 | 45.7 | 3,419 |
| BOLI and annuities | 15,552 | 761 | 5.1 | 14,791 | (97) | (0.7) | 14,888 |
| Goodwill and intangible assets | 8,294 | 2,616 | 46.1 | 5,678 | (76) | (1.3) | 5,754 |
| Other non-interest earning assets | 26,668 | 4,216 | 19.0 | 22,179 | (1,524) | (6.4) | 23,703 |
| Unrealized gains (losses) on securities | (4,687) | (3,622) | 340.1 | (1,065) | 440 | (29.2) | (1,505) |
| Less: Allowance for loan losses | (3,016) | (207) | (7.4) | (2,809) | (237) | (9.2) | (2,572) |
| Total uses | <u>\$ 614,632</u> | <u>\$ 20,436</u> | <u>3.4 %</u> | <u>\$ 593,923</u> | <u>\$ 16,582</u> | <u>2.9 %</u> | <u>\$ 577,341</u> |
| Funding Sources: | | | | | | | |
| Interest bearing | | | | | | | |
| demand deposits | \$ 141,483 | \$ 17,963 | 14.5 % | \$ 123,520 | \$ 2,041 | 1.7 % | \$ 121,479 |
| Savings deposits | 102,086 | 2,701 | 2.7 | 99,385 | 2,516 | 2.6 | 96,869 |
| Time deposits | | | | | | | |
| under \$100,000 | 110,931 | 5,326 | 5.0 | 105,605 | (3,449) | (3.2) | 109,054 |
| over \$100,000 | 37,740 | 3,693 | 10.8 | 34,047 | 3,714 | 12.2 | 30,333 |
| Repurchase agreements | 4,177 | (646) | (13.4) | 4,823 | 112 | 2.4 | 4,711 |
| Short-term borrowings | 9,906 | (15,570) | (61.1) | 25,476 | 9,763 | 62.1 | 15,713 |
| Long-term debt | 17,493 | (7,507) | (30.0) | 25,000 | 594 | 2.4 | 24,406 |
| Other interest bearing liabilities | | | | | | | |
| Total interest bearing liabilities | 1,560 | 13 | 0.8 | 1,547 | 67 | 4.5 | 1,480 |
| Total interest bearing liabilities | | | | | | | |
| Total interest bearing liabilities | 425,376 | 5,973 | 1.4 | 419,403 | 15,358 | 3.8 | 404,045 |
| Demand deposits | 120,521 | 12,380 | 11.4 | 108,141 | 2,605 | 2.5 | 105,536 |
| Other liabilities | 6,046 | (395) | (6.1) | 6,441 | (110) | (1.7) | 6,551 |
| Stockholders' equity | 62,689 | 2,478 | 4.1 | 59,938 | (1,271) | (2.1) | 61,209 |
| Total sources | <u>\$ 614,632</u> | <u>\$ 20,436</u> | <u>3.4 %</u> | <u>\$ 593,923</u> | <u>\$ 16,582</u> | <u>2.9 %</u> | <u>\$ 577,341</u> |

Overall, total average assets increased by \$20,436,000, or 3.4%, for the year 2018 compared to 2017, following an increase of \$16,582,000, or 2.9%, in 2017 over average assets in 2016. The increase in 2018 was primarily due to the acquisition of LCB on April 30, 2018. The ratio of average earning assets to total average assets was 92.0% in 2018, while it was 91.8% and 91.6% in 2017 and 2016, respectively. The ratio of average interest-bearing liabilities to total average assets decreased in 2018 to 69.2% from 70.6% in 2017, which was an increase from 70.0% in 2016. Although Juniata's previous investment in its unconsolidated subsidiary, investment in low income elderly housing projects and its bank owned life insurance and annuities are not classified as interest-earning assets, income is derived directly from those assets. These instruments have represented 3.6% and 4.1% of total average assets in 2018 and 2017, respectively. A more detailed discussion of the Company's earning assets and interest bearing liabilities will follow in the Sections titled "Loans", "Investments", "Deposits" and "Market/Interest Rate Risk".

LOANS

Loans outstanding at the end of each year consisted of the following:

| <i>(Dollars in thousands)</i> | Years ended December 31, | | | | |
|--|--------------------------|------------|------------|------------|------------|
| | 2018 | 2017 | 2016 | 2015 | 2014 |
| Commercial, financial and agricultural | \$ 46,563 | \$ 45,802 | \$ 40,827 | \$ 34,171 | \$ 23,738 |
| Real estate - commercial | 141,295 | 140,369 | 123,711 | 127,213 | 90,000 |
| Real estate - construction | 36,688 | 28,403 | 35,206 | 26,672 | 20,713 |
| Real estate - mortgage | 163,548 | 146,888 | 154,905 | 164,617 | 140,676 |
| Obligations of states and political subdivisions | 19,129 | 13,044 | 13,616 | 17,524 | 15,730 |
| Personal | 10,408 | 9,398 | 10,032 | 6,846 | 4,044 |
| Total | \$ 417,631 | \$ 383,904 | \$ 378,297 | \$ 377,043 | \$ 294,901 |

From year-end 2017 to year-end 2018, total loans outstanding increased by \$33,727,000, primarily due to the addition of \$31,331,000 at April 30, 2018 from Liverpool's loan portfolio, following an increase of \$5,607,000 in 2017 when compared to year-end 2016. The following table summarizes how the ending balances changed annually in each of the last three years.

| <i>(Dollars in thousands)</i> | 2018 | 2017 | 2016 |
|--|------------|------------|------------|
| Beginning balance | \$ 383,904 | \$ 378,297 | \$ 377,043 |
| Net new loans | 2,931 | 6,239 | 1,750 |
| Loans acquired through merger, net of fair value adjustments | 31,331 | - | - |
| Loans charged off | (285) | (292) | (279) |
| Loans transferred to other real estate owned and other adjustments to carrying value | (250) | (340) | (217) |
| Net change | 33,727 | 5,607 | 1,254 |
| Ending balance | \$ 417,631 | \$ 383,904 | \$ 378,297 |

The loan portfolio was comprised of approximately 41.7% consumer loans and 58.3% commercial loans (including construction) on December 31, 2018 as compared to 40.7% consumer loans and 59.3% commercial loans on December 31, 2017. Management believes that diversification in the loan portfolio is important and performs a loan concentration analysis on a quarterly basis. The highest loan concentration by activity type was commercial real estate loans secured by income-producing property, with debt service on this category of loans being reliant upon the cash flow generated by the property. In the aggregate, loans in this category had outstanding balances of \$93,966,000 at December 31, 2018, or 142.57% of the Bank's capital. Components of this concentration group with balances considered for general reserve purposes are as follows:

| NAIC Definition | Outstanding Balance | % of Bank Capital |
|--|---------------------|-------------------|
| Lessors of non-residential buildings | \$ 36,459,183 | 55.32% |
| Hotels and Motels | 20,424,415 | 30.99% |
| Continuing care retirement communities | 18,684,249 | 28.35% |
| Lessors of residential buildings and dwellings | 18,398,129 | 27.91% |
| Total | \$ 93,965,976 | 142.57% |

Given the reserves allocated to this sector over the past several years and the continuing softness in the market, management has assigned an additional concentration risk factor to this group of loans when analyzing the adequacy of the allowance for loan losses. See Note 7 of Notes to Consolidated Financial Statements.

There was growth in all loan categories in 2018, mainly due to the addition of Liverpool's loan portfolio, as well as organic growth. During 2017, there was growth in commercial and commercial real estate mortgages, largely offset by a decrease in real estate construction and consumer mortgages. Juniata is willing, able and continues to lend to qualifying businesses and individuals. Our business model closely aligns lenders and community office managers' efforts to effectively develop referrals and existing customer relationships. Continued emphasis is placed on responsiveness and personal attention given to customers, which we believe differentiates the Bank from its competition. Nearly all commercial loans are either variable or adjustable rate loans, while non-mortgage consumer loans generally have fixed rates for the duration of the loan.

Juniata strives to offer fair, competitive rates and to provide optimal service in order to attract loan growth. Emphasis will continue to be placed upon attracting the entire customer relationship of our borrowers.

The loan portfolio carries the potential risk of past due, non-performing or, ultimately, charged-off loans. The Bank attempts to manage this risk through credit approval standards and aggressive monitoring and collection efforts. Where prudent, the Bank secures commercial loans with collateral consisting of real and/or tangible personal property. The Company maintains a dedicated credit administration division, in response to the need for heightened credit review, both in the loan origination process and in the ongoing risk assessment process. With stringent credit standards in place, Juniata's lending strategy stresses quality growth, diversified by product. A standardized credit policy is in place throughout the Company, and the credit committee of the Board of Directors reviews and approves all loan requests for amounts that exceed management's approval levels. The Company makes credit judgments based on a customer's existing debt obligations, collateral, ability to pay and general economic trends. See Note 3 of Notes to Consolidated Financial Statements.

The allowance for loan losses has been established in order to absorb probable losses on existing loans. A quarterly provision or credit is charged to earnings to maintain the allowance at adequate levels. Charge-offs and recoveries are recorded as adjustments to the allowance. The allowance for loan losses at December 31, 2018 was 0.73% of total loans, net of unearned interest, as compared to 0.77% of total loans, net of unearned interest, at the end of 2017. Loans that Juniata acquired through mergers and acquisitions, such as those acquired from Liverpool in 2018 and FNBPA in 2015 are recorded at fair value with no carryover of the related allowance for loan losses. Acquired loans subsequently deemed impaired are included in the allowance for loan losses as impaired loans. Through loan amortization and other scheduled payments, the excluded balances become a smaller percentage of total outstanding loans over time, contributing to the increase in the allowance as a percentage of total loans. The allowance increased \$95,000 when compared to December 31, 2017, as a result of net charge-offs of \$242,000 offset by the provision of \$337,000. Net charge-offs for both 2018 and 2017 were 0.06% of average loans.

At December 31, 2018, non-performing loans (as defined in Table 4 below), as a percentage of the allowance for loan losses, were 68.4% as compared to 102.9% at December 31, 2017. Non-performing loans were 0.50% of loans as of December 31, 2018, and 0.79% of loans as of December 31, 2017. The decrease in nonperforming loans in 2018 compared to 2017 was predominantly due to successful workout efforts, which resulted in a significant reduction in non-performing loans as several of these loans were either brought current or liquidated. Of the \$2,075,000 in non-performing loans at December 31, 2018, only one loan for \$17,000 was not collateralized with real estate.

TABLE 4
NON-PERFORMING LOANS

| <i>(Dollars in thousands)</i> | Years ended December 31, | | | | |
|--|--------------------------|----------|----------|----------|----------|
| | 2018 | 2017 | 2016 | 2015 | 2014 |
| Nonaccrual loans | \$ 1,707 | \$ 2,874 | \$ 4,733 | \$ 3,688 | \$ 4,880 |
| Accruing loans past due 90 days or more, exclusive of loans acquired with credit deterioration | 329 | 64 | 554 | 2 | 400 |
| Restructured loans in default and non-accruing | 39 | 87 | 25 | - | 366 |
| Total non-performing loans | \$ 2,075 | \$ 3,025 | \$ 5,312 | \$ 3,690 | \$ 5,646 |

Loans on which the accrual of interest has been discontinued are designated as non-accrual loans. Accrual of interest on loans is generally discontinued when the contractual payment of principal or interest has become 90 days past due or reasonable doubt exists as to the full, timely collection of principal or interest. However, it is the Company's policy to continue to accrue interest on loans over 90 days past due as long as (1) they are guaranteed or well secured and (2) there is an effective means of timely collection in process. When a loan is placed on non-accrual status, all unpaid interest credited to income in the current year is reversed against current period income, and unpaid interest accrued in prior years is charged against the allowance for loan losses. Interest received on nonaccrual loans generally is either applied against principal or reported as interest income, according to management's judgment as to the collectability of principal. Generally, accruals are resumed on loans only when the obligation is brought fully current with respect to interest and principal, has performed in accordance with the contractual terms for a reasonable period of time and the ultimate collectability of the total contractual principal and interest is no longer in doubt. The Company's nonaccrual and charge-off policies are the same, regardless of loan type. During 2018, gross interest income that would have been recorded if loans on nonaccrual status had been current was \$311,000, of which \$33,000 was collected and included in net income.

ALLOWANCE FOR LOAN LOSSES

The amount of allowance for loan losses is determined through a critical quantitative and qualitative analysis performed by management that includes significant assumptions and estimates. It is maintained at a level deemed sufficient to absorb probable estimated losses within the loan portfolio, and supported by detailed documentation. To assess potential credit weaknesses, it is critical to analyze observable trends that may be occurring.

Management systematically monitors the loan portfolio and the adequacy of the allowance for loan losses on a quarterly basis to provide for probable losses inherent in the portfolio. The Bank's methodology for maintaining the allowance is highly structured and contains two components: 1) specific allowances allocated to loans evaluated for impairment under the Financial Accounting Standards Board's Accounting Standards Codification ("FASB ASC") Section 310-10-35; and 2) allowances calculated for pools of loans evaluated for impairment under FASB ASC Subtopic 450-20 (Contingencies).

Component for impaired loans:

A loan is considered to be impaired when, based on current information and events, it is probable that the Company will be unable to collect the scheduled payments of principal or interest when due according to the contractual terms of the loan agreement. Factors considered by management in determining impairment include payment status, collateral value and the probability of collecting scheduled principal and interest payments when due. Loans that experience insignificant payment delays and payment shortfalls generally are not classified as impaired. Management determines the significance of payment delays and payment shortfalls on a case-by-case basis, taking into consideration all of the circumstances surrounding the loans and the borrower, including the

length of the delay, the reasons for the delay, the borrower's prior payment record and the amount of the shortfall in relation to the principal and interest owed. Impairment is measured on a loan by loan basis by the present value of expected future cash flows discounted at the loan's effective interest rate, the loan's observable market price or the fair value of the collateral if the loan is collateral dependent.

The estimated fair values of substantially all of the Company's impaired loans are measured based on the estimated fair value of the loan's collateral. For commercial loans secured with real estate, estimated fair values are determined primarily through third-party appraisals. When a real estate secured loan becomes impaired, a decision is made regarding whether an updated certified appraisal of the real estate is necessary. This decision is based on various considerations, including the age of the most recent appraisal, the loan-to-value ratio based on the current appraisal and the condition of the property. Appraised values may be discounted to arrive at the estimated selling price of the collateral, which is considered to be the estimated fair value. The discounts also include the estimated costs to sell the property. For commercial loans secured by non-real estate collateral, estimated fair values are determined based on the borrower's financial statements, inventory reports, aging accounts receivable, equipment appraisals or invoices. Indications of value from these sources are generally discounted based on the age of the financial information or the quality of the assets. For such loans that are classified as impaired, an allowance is established when the discounted cash flows (or collateral value or observable market price) of the impaired loan is lower than the carrying value of that loan. The Company generally does not separately identify individual consumer segment loans for impairment analysis, unless such loans are subject to a restructuring agreement.

Loans whose terms are modified are classified as troubled debt restructurings if the Company grants borrower's concessions and it is deemed that those borrowers are experiencing financial difficulty. Concessions granted under a troubled debt restructuring generally involve a below-market interest rate based on the loan's risk characteristics or an extension of a loan's stated maturity date. Nonaccrual troubled debt restructurings are restored to accrual status if principal and interest payments, under the modified terms, are current for a sustained period of time after modification. Loans classified as troubled debt restructurings are designated as impaired.

As of December 31, 2018, 34 loans, with aggregate outstanding balances of \$2,133,000, were evaluated for impairment. A collateral analysis was performed on each of these 34 loans in order to establish a portion of the reserve needed to carry impaired loans at no higher than fair value. As a result of this analysis, no loans were determined to have insufficient collateral, and therefore, no specific reserves were established. Loans acquired with credit impairment are considered to be impaired loans, but are not included with this component for consideration in the allowance, as they are carried at fair value of \$1,515,000 as of December 31, 2018.

Component for pooled loan contingencies:

A contingency is an existing condition, or set of circumstances, involving uncertainty as to possible gain or loss to the Company that will ultimately be resolved when one or more future events occur or fail to occur. These conditions may be considered in relation to individual loans or in relation to groups of similar types of loans. If the conditions are met, a provision is made even though the particular loans that are uncollectible may not be identifiable.

In accordance with FASB ASC Subtopic 450-20, when measuring estimated credit losses, these loans are grouped into homogenous pools with similar characteristics and evaluated collectively considering both quantitative measures, such as historical loss, and qualitative measures, in the form of environmental adjustments.

These pools are established by general loan type, or “portfolio segments,” as follows:

- Commercial, financial and agricultural
- Real estate – commercial
- Real estate - construction
- Real estate – mortgage
- Obligations of states and political subdivisions
- Personal

Some portfolio segments are further disaggregated and evaluated collectively for impairment based on “class segments,” which are largely based on the type of collateral underlying each loan. For commercial, financial and agricultural loans, class segments include commercial loans secured by other-than real estate collateral. Real estate – commercial class segments include loans secured by farmland, multi-family properties, owner-occupied non-farm, non-residential properties and other nonfarm non-residential properties. Real estate – mortgage includes loans secured by first and junior liens on residential real estate. Construction loan class segments include loans secured by commercial real estate, loans to commercial borrowers secured by residential real estate and loans to individuals secured by residential real estate. Personal loan class segments include direct consumer installment loans, indirect automobile loans and other revolving and unsecured loans to individuals.

Quantitative factor determination:

An average annual loss rate is calculated for each pool through an analysis of historical losses over a five-year look-back period. Using data for each loan, a loss emergence period is determined within each segmented class pool. The loss emergence period reflects the approximate length of time from the point when a loss is incurred (the loss trigger event) to the point of loss confirmation (the date of eventual charge-off). The loss emergence period is applied to the average annual loss to produce the qualitative factor for each pooled class segment.

Qualitative factor determination:

Historical loss rates computed in the quantitative component reflects an estimate of the level of incurred losses in the portfolio based on historical experience. Management considers that the current conditions may deviate from those that prevailed over the historical look-back period. Thus, the quantitative rates are an imperfect estimate, necessitating an evaluation of qualitative considerations, i.e. environmental factors to incorporate these risks.

Management considered qualitative, environmental risk factors including:

- National, regional and local economic and business conditions, and developments that affect the collectability of the portfolio, including the condition of various market segments;
- Changes in the volume and severity of past due loans, the volume of nonaccrual loans, and the volume and severity of adversely classified loans;
- Changes in the nature and volume of the portfolio and terms of loans;
- Changes in the experience, ability and depth of lending and credit management and other relevant staff;
- Existence and effect of any concentrations of credit and changes in the level of such concentrations;
- Changes in the quality of the loan review system;
- Changes in lending policies and procedures including changes in underwriting standards and collection, charge-off and recovery practices;
- Changes in the value of underlying collateral for collateral-dependent loans; and
- Effect of external influences, including competition, legal and regulatory requirements.

Within each loan segment, an analysis was performed over a ten-year look-back period to discover peak historical losses, and with this data, management established ranges of risk from minimal to very high, for each risk factor, to produce a supportable anchor for risk assignment. Based on the framework for risk factor evaluation and range of adjustments established through the anchoring process, a risk assessment and corresponding adjustment was assigned for each portfolio segment as of December 31, 2018. Adjustments to the factors are supported through documentation of changes in conditions in a narrative accompanying the allowance for loan loss calculation.

The combination of quantitative and qualitative factors were applied to year-end balances in each pooled segment to establish the overall allowance.

A summary of activity in the allowance for loan loss for the last five years is shown below. The area most affected by charge-offs in each of the five years presented was real estate – mortgages, which balances accounted for approximately 39% of the total loan portfolio at December 31, 2018. In 2018, the Company recorded net charge-offs of \$242,000. Based on the analysis described above, the provision for loan loss in 2018 was 23.2% lower than in 2017. With the provision exceeding net charge-offs, the loan loss allowance increased by 3.2% over the allowance level in December 31, 2017. Management’s analysis indicated that the loan loss allowance of \$3,034,000 at December 31, 2018 was adequate.

(Dollars in thousands)

| | Years Ended December 31, | | | | |
|---|--------------------------|----------|----------|----------|----------|
| | 2018 | 2017 | 2016 | 2015 | 2014 |
| Balance of allowance - beginning of period | \$ 2,939 | \$ 2,723 | \$ 2,478 | \$ 2,380 | \$ 2,287 |
| Loans charged off: | | | | | |
| Commercial, financial and agricultural | - | 46 | 4 | 11 | 20 |
| Real estate - commercial | 60 | 70 | 146 | 66 | 92 |
| Real estate - construction | - | - | - | 24 | 18 |
| Real estate - mortgage | 183 | 149 | 103 | 305 | 125 |
| Personal | 42 | 27 | 26 | 9 | 20 |
| Total charge-offs | 285 | 292 | 279 | 415 | 275 |
| Recoveries of loans previously charged off: | | | | | |
| Commercial, financial and agricultural | 10 | 5 | - | 7 | 4 |
| Real estate - commercial | 5 | 2 | 24 | - | 5 |
| Real estate - mortgage | 12 | 45 | 15 | 1 | - |
| Personal | 16 | 17 | 19 | 3 | 2 |
| Total recoveries | 43 | 69 | 58 | 11 | 11 |
| Net charge-offs | 242 | 223 | 221 | 404 | 264 |
| Provision for loan losses | 337 | 439 | 466 | 502 | 357 |
| Balance of allowance - end of period | \$ 3,034 | \$ 2,939 | \$ 2,723 | \$ 2,478 | \$ 2,380 |
| Ratio of net charge-offs during period to average loans outstanding | 0.06% | 0.06% | 0.06% | 0.13% | 0.09% |

The following tables show how the allowance for loan losses is allocated among the various types of outstanding loans and the percent of loans by type to total loans.

(Dollars in thousands)

| | Years Ended December 31, | | | | |
|--|--------------------------|-----------------|-----------------|-----------------|-----------------|
| | 2018 | 2017 | 2016 | 2015 | 2014 |
| Commercial, financial and agricultural | \$ 275 | \$ 273 | \$ 318 | \$ 264 | \$ 222 |
| Real estate - commercial | 1,074 | 1,022 | 948 | 836 | 665 |
| Real estate - construction | 558 | 288 | 231 | 191 | 155 |
| Real estate - mortgage | 1,035 | 1,285 | 1,143 | 1,140 | 1,300 |
| Obligations of states and political subdivisions | 20 | - | - | - | - |
| Personal | 72 | 71 | 83 | 47 | 38 |
| | <u>\$ 3,034</u> | <u>\$ 2,939</u> | <u>\$ 2,723</u> | <u>\$ 2,478</u> | <u>\$ 2,380</u> |

(Dollars in thousands)

| | Years Ended December 31, | | | | |
|--|--------------------------|---------------|---------------|---------------|---------------|
| | 2018 | 2017 | 2016 | 2015 | 2014 |
| Commercial, financial and agricultural | 11.1% | 11.9% | 10.8% | 9.1% | 8.0% |
| Real estate - commercial | 33.8% | 36.6% | 32.7% | 33.7% | 30.5% |
| Real estate - construction | 8.8% | 7.4% | 9.3% | 7.1% | 7.0% |
| Real estate - mortgage | 39.2% | 38.3% | 40.9% | 43.7% | 47.8% |
| Obligations of states and political subdivisions | 4.6% | 3.4% | 3.6% | 4.6% | 5.3% |
| Personal | 2.5% | 2.4% | 2.7% | 1.8% | 1.4% |
| | <u>100.0%</u> | <u>100.0%</u> | <u>100.0%</u> | <u>100.0%</u> | <u>100.0%</u> |

INVESTMENTS

Total investments, defined to include all interest earning assets except loans (i.e. investment securities available for sale (at fair value), equity securities, federal funds sold, interest bearing deposits, restricted investment in bank stock and other interest-earning assets), totaled \$149,641,000 on December 31, 2018, representing a decrease of \$7,695,000 when compared to year-end 2017. The following table summarizes how the ending balances changed annually in each of the last three years.

(Dollars in thousands)

| | 2018 | 2017 | 2016 |
|---|-------------------|-------------------|-------------------|
| Beginning balance | \$ 157,336 | \$ 154,543 | \$ 156,259 |
| Purchases of investment securities | 20,610 | 42,510 | 48,309 |
| Sales, calls and maturities of investment securities | (29,794) | (37,614) | (47,974) |
| Change in value of equity securities under ASU 2016-01 | (1) | - | - |
| Adjustment in market value of AFS securities | (1,028) | (830) | (1,434) |
| Amortization/Accretion | (540) | (650) | (740) |
| Restricted investment in bank stock, net change | (663) | (586) | 101 |
| Federal funds sold, net change | 729 | - | - |
| Interest bearing deposits with others, net change | 52 | (37) | 22 |
| Interest bearing time deposits with banks acquired through merger | 3,675 | - | - |
| Maturities of interest bearing time deposits with banks | (735) | - | - |
| Net change | <u>(7,695)</u> | <u>2,793</u> | <u>(1,716)</u> |
| Ending balance | <u>\$ 149,641</u> | <u>\$ 157,336</u> | <u>\$ 154,543</u> |

On average, total investments declined by \$4,063,000, or 2.5%, during 2018, following an increase of \$10,121,000, or 6.8%, during 2017. The decline in 2018 was the result of a strategy to apply cash flows from the investment portfolio to reduce high cost borrowings, as opposed to reinvesting in additional investment securities. The increase in 2017 resulted from excess cash available from loan repayments.

The investment area is managed according to internally established guidelines and quality standards. Juniata segregates its investment securities portfolio into two classifications: those held to maturity and those available for sale. Juniata classifies all new marketable investment securities as available for sale, and currently holds no securities in the held to maturity or trading classifications. At December 31, 2018, the market value of the entire securities portfolio was less than amortized cost by \$3,357,000 as compared to December 31, 2017, when the market value was less than amortized cost by \$2,132,000. The weighted average life of the investment portfolio was 4.5 years on December 31, 2018 and 4.3 years on December 31, 2017. The weighted average maturity has remained short in order to achieve a desired level of liquidity. Table 5, "Maturity Distribution", in this Management's Discussion and Analysis of Financial Condition shows the remaining maturity or earliest possible repricing for investment securities.

The following table sets forth the maturities of securities and the weighted average yields of such securities by contractual maturities or call dates. Yields on obligations of states and public subdivisions are presented on a tax-equivalent basis.

| <i>(Dollars in thousands)</i> | December 31, 2018 | | December 31, 2017 | | December 31, 2016 | |
|---|-------------------|------------------------|-------------------|------------------------|-------------------|------------------------|
| | Fair Value | Weighted Average Yield | Fair Value | Weighted Average Yield | Fair Value | Weighted Average Yield |
| <u>Security type and maturity</u> | | | | | | |
| <u>Obligations of U.S. Government agencies and corporations</u> | | | | | | |
| Within one year | \$ - | 0.00% | \$ 5,969 | 1.11% | \$ - | 0.00% |
| After one year but within five years | 20,355 | 1.96% | 14,689 | 1.84% | 19,331 | 1.38% |
| After five years but within ten years | 2,911 | 2.29% | 13,556 | 1.99% | 16,468 | 1.87% |
| | <u>23,266</u> | <u>2.00%</u> | <u>34,214</u> | <u>1.78%</u> | <u>35,799</u> | <u>1.61%</u> |
| <u>Obligations of state and political subdivisions</u> | | | | | | |
| Within one year | 826 | 3.37% | 2,516 | 1.84% | 2,820 | 2.04% |
| After one year but within five years | 14,686 | 3.82% | 13,955 | 2.75% | 13,240 | 2.50% |
| After five years but within ten years | 2,669 | 3.74% | 8,510 | 3.02% | 10,599 | 3.00% |
| | <u>18,181</u> | <u>3.79%</u> | <u>24,981</u> | <u>2.75%</u> | <u>26,659</u> | <u>2.65%</u> |
| <u>Mortgage-backed securities</u> | | | | | | |
| After one year but within five years | - | 0.00% | - | 0.00% | 104 | 1.37% |
| After five years but within ten years | 5,664 | 2.19% | 5,249 | 2.21% | 7,701 | 2.22% |
| After ten years | 94,842 | 2.52% | 88,261 | 2.27% | 77,897 | 2.13% |
| | <u>100,506</u> | <u>2.51%</u> | <u>93,510</u> | <u>2.26%</u> | <u>85,702</u> | <u>2.13%</u> |
| Available for sale equity securities | - | | 1,119 | | 2,328 | |
| | <u>\$ 141,953</u> | | <u>\$ 153,824</u> | | <u>\$ 150,488</u> | |

BANK OWNED LIFE INSURANCE AND ANNUITIES

The Company periodically insures the lives of certain bank officers in order to provide split-dollar life insurance benefits to some key officers and to offset the cost of providing post-retirement benefits through non-qualified plans. Some annuities are also owned to provide cash streams that match certain post-retirement liabilities. See Note 9 of Notes to Consolidated Financial Statements. The following table summarizes how the cash surrender values of these instruments changed annually in each of the last three years.

| <i>(Dollars in thousands)</i> | 2018 | 2017 | 2016 |
|--|-----------|-----------|-----------|
| Beginning balance | \$ 14,972 | \$ 14,631 | \$ 14,905 |
| BOLI net increase in cash surrender value | 303 | 311 | 349 |
| BOLI policy acquired through merger | 632 | - | - |
| BOLI receipt of death benefit | - | - | (651) |
| Annuities net increase in cash surrender value | 31 | 30 | 28 |
| Net change | 966 | 341 | (274) |
| Ending balance | \$ 15,938 | \$ 14,972 | \$ 14,631 |

INVESTMENT IN UNCONSOLIDATED SUBSIDIARY

The Company no longer has an investment in an unconsolidated subsidiary following its acquisition of the remainder of the outstanding common stock of Liverpool on April 30, 2018. Prior to the acquisition, the Company owned 39.16% of the outstanding common stock of Liverpool, and the investment was carried at \$4,812,000 as of December 31, 2017. The investment was accounted for under the equity method of accounting. The Company increased its investment in LCB for its share of earnings and decreased its investment by any dividends received from LCB. The investment was evaluated quarterly for impairment. A loss in value of the investment which is determined to be other than a temporary decline would have been recognized as a loss in the period in which such determination was made. Evidence of a loss in value might include, but would not necessarily be limited to, absence of an ability to recover the carrying amount of the investment or inability of LCB to sustain an earnings capacity that would justify the current carrying value of the investment. There was no impairment of the investment relating to LCB prior to the acquisition on April 30, 2018. In connection with this investment, two representatives of Juniata served on the Board of Directors of LCB.

GOODWILL AND INTANGIBLE ASSETS

Branch Acquisition

On September 8, 2006, the Company acquired a branch office in Richfield, PA. Goodwill at December 31, 2018 and 2017 was \$2,046,000. The core deposit intangible of \$431,000 was fully amortized as of December 31, 2018 and 2017. Core deposit intangible amortization expense of \$29,000 was recorded in 2016, while no such expense was recorded during the years 2018 and 2017. The core deposit intangible was amortized over a ten-year period on a straight-line basis. Goodwill is not amortized, but is measured annually for impairment.

FNBPA Acquisition

On November 30, 2015, the Company completed its acquisition of FNBPA and, as a result, recorded goodwill of \$3,335,000, which was subsequently adjusted in 2016 to \$3,402,000. As of December 31, 2018, goodwill related to the FNBPA acquisition remained at \$3,402,000. In addition, a core deposit intangible in the amount of \$303,000 was recorded and is being amortized over a ten-year period using a sum of the year's digits basis. Core deposit intangible amortization expense recorded in 2018 was \$44,000 and, for the succeeding five years beginning 2019, is estimated to be \$38,000, \$33,000, \$27,000, \$22,000, and \$16,000 per year, respectively, and \$15,000 in total for years after 2023. Other intangible assets were identified and recorded as of November 30, 2015, in the amount of \$40,000 and were amortized on a straight-line basis over two years, through November 30, 2017. Expense recognized in 2017 was \$18,000, while no such expense was recognized in 2018. Core deposit and other intangible assets, net of amortization, was \$151,000 as of December 31, 2018.

LCB Acquisition

On April 30, 2018, Juniata completed the acquisition of LCB and, as a result, recorded goodwill of \$3,691,000. In addition, a core deposit intangible of \$289,000 was recorded and will be amortized over a ten-year period using a sum of the years' digits basis. Core deposit intangible expense recorded in 2018 was \$35,000, and for the succeeding five years beginning 2019, is estimated to be \$49,000, \$44,000, \$39,000, \$33,000, and \$28,000 per year, respectively, and \$68,000 in total for years after 2023. Core deposit intangible, net of amortization, was \$254,000 as of December 31, 2018.

Mortgage Servicing Rights

Due to a strategic shift in focus to a new mortgage product, which is increasing fees derived from loan activity, the Company did not originate and sell residential mortgage loans to the secondary market in 2018; however, the Company retains the servicing on loans originated and sold in prior years. The mortgage servicing rights are valued based on the present value of estimated future cash flows on pools of mortgages stratified by rate and maturity date. The computed value is carried as an intangible asset. As of December 31, 2018 and December 31, 2017, the fair value of mortgage servicing rights was \$200,000 and \$225,000, respectively.

DEFERRED TAXES

The Company accounts for income taxes under the asset/liability method. Deferred tax assets and liabilities are recognized for the future consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases, as well as operating loss and tax credit carry-forwards, if applicable. A valuation allowance is established against deferred tax assets when, in the judgment of management, it is more likely than not that such deferred tax assets will not become realizable. Management has determined that there was no need for a valuation allowance for deferred taxes as of December 31, 2018 or 2017. As of December 31, 2018 and 2017, the Company recorded a net deferred tax asset of \$1,000,000 and \$652,000, respectively, which was carried as a non-interest earning asset.

The Tax Cuts and Jobs Act, lowered Juniata's future maximum corporate tax rate from 34% to 21% on January 1, 2018. While the reduced rate provides tax savings to Juniata now and in future periods, the reduction resulted in write-downs of Juniata's net deferred tax asset as of year-end 2017, which was previously valued based upon the projection of a 34% future tax rate. Overall, the TCJA resulted in a reduction in net deferred taxes of \$416,000, or 69.7%, of the total reduction of \$597,000 at December 31, 2017. In 2018, the value of the Juniata's deferred tax asset was adjusted again, due primarily to a defined benefit contribution applied to the prior tax year, along with the removal of a deferred tax liability no longer applicable. The net adjustment resulted in a decrease in tax expense in 2018 of \$168,000.

The remainder of the difference was due to the various other changes in gross temporary tax differences. See Note 16 of Notes to Consolidated Financial Statements.

OTHER NON-INTEREST EARNING ASSETS

The following table summarizes the components of the non-interest earning asset category, and how the ending balances changed annually in each of the last three years.

| <i>(Dollars in thousands)</i> | 2018 | 2017 | 2016 |
|--|-----------|-----------|-----------|
| Beginning balance | \$ 27,992 | \$ 24,988 | \$ 25,886 |
| Cash and cash equivalents | 5,778 | 375 | (921) |
| Premises and equipment, net | (143) | 2,030 | (52) |
| Other real estate owned | 389 | (283) | 21 |
| Investment in low income housing | (700) | 1,433 | 444 |
| Other receivables and prepaid expenses, including deferred tax assets | 2,000 | (551) | (390) |
| Net change | 7,324 | 3,004 | (898) |
| Ending balance | \$ 35,316 | \$ 27,992 | \$ 24,988 |

DEPOSITS

At December 31, 2018, total deposits were \$521,722,000, an increase of \$44,054,000 as compared to the previous year end. At December 31, 2017, total deposits were \$477,668,000, an increase of \$21,846,000 from total deposits on December 31, 2016. Deposits assumed from the LCB acquisition accounted for an increase of \$36,052,000 in 2018. The following table summarizes how the ending balances changed annually in each of the last three years.

| <i>(Dollars in thousands)</i> | 2018 | 2017 | 2016 |
|----------------------------------|------------|------------|------------|
| Beginning balance | \$ 477,668 | \$ 455,822 | \$ 457,126 |
| Demand deposits | 10,146 | 11,905 | (2,661) |
| Interest bearing demand deposits | 25,006 | 3,977 | 4,023 |
| Savings deposits | 270 | 3,517 | 526 |
| Time deposits | 8,632 | 2,447 | (3,192) |
| Net change | 44,054 | 21,846 | (1,304) |
| Ending balance | \$ 521,722 | \$ 477,668 | \$ 455,822 |

The following table shows the comparison of average core deposits and average time deposits as a percentage of total deposits for each of the last three years.

| <i>(Dollars in thousands)</i> | Changes in Deposits | | | | | | |
|------------------------------------|---------------------|---------------------|-------|--------------------|---------------------|-------|--------------------|
| | 2018 | | | 2017 | | | 2016 |
| | Average Balance | Increase (Decrease) | | Average Balance | Increase (Decrease) | | Average Balance |
| | | Amount | % | | Amount | % | |
| Core transaction deposits: | | | | | | | |
| Money market | \$ 48,210 | \$ 1,544 | 3.3% | \$ 46,666 | \$ 2,770 | 6.3% | \$ 43,896 |
| Interest bearing demand | 93,273 | 16,419 | 21.4 | 76,854 | (729) | (0.9) | 77,583 |
| Savings | 102,086 | 2,701 | 2.7 | 99,385 | 2,516 | 2.6 | 96,869 |
| Demand | 120,521 | 12,380 | 11.4 | 108,141 | 2,605 | 2.5 | 105,536 |
| Total core transaction deposits | 364,090 | 33,044 | 10.0 | 331,046 | 7,162 | 2.2 | 323,884 |
| Time deposits: | | | | | | | |
| \$100,000 and greater | 37,740 | 3,693 | 10.8 | 34,047 | 3,714 | 12.2 | 30,333 |
| Other | 110,931 | 5,326 | 5.0 | 105,605 | (3,449) | (3.2) | 109,054 |
| Total time deposits | 148,671 | 9,019 | 6.5 | 139,652 | 265 | 0.2 | 139,387 |
| Total deposits | \$ 512,761 | \$ 42,063 | 8.9 % | \$ 470,698 | \$ 7,427 | 1.6 % | \$ 463,271 |

Average deposits increased \$42,063,000, or 8.9%, to \$512,761,000 in 2018 following an increase in 2017 of \$7,427,000, or 1.6%, to \$470,698,000. Core transaction accounts increased by 10.0% and 2.2%, respectively, in 2018 and 2017. The large increase in 2018 was largely due to the acquisition of LCB in the second quarter of 2018. Since market rates increased during the period, many customers sought higher rates, in both time deposits, as well as interest-bearing demand deposits, particularly money market deposits. In addition to our deposit products, we continue to provide alternatives to our customers through the sale of our wealth management (non-deposit) products.

The consumer continues to have a need for transaction accounts, and the Bank is continuing to focus on that need in order to build deposit relationships. Our products are geared toward low-cost convenience and ease for the customer. The Company's strategy is to aggressively seek to grow customer relationships by staying in touch with customers' changing needs and new methods of connectivity, in an effort to increase deposit (and loan) market share. The Bank offers identity protection services as an option for all consumer demand depositors. We believe this product to be a valuable and essential tool necessary to combat the upsurge in fraud and identity theft. This product is a unique benefit to our customers as there are no other banks in our immediate market that offer a similar service.

The Bank competes in the marketplace with many sources that offer products that directly compete with traditional banking products. In keeping with our desire to provide our customers with a full array of financial services, we supplement the services traditionally offered by our Trust Department by staffing our community offices with wealth management consultants that are licensed and trained to sell variable and fixed rate annuities, mutual funds, stock brokerage services and long-term care insurance. Although the sale of these products can reduce the Bank's deposit levels, these products offer solutions for our customers that traditional bank products cannot and allow us to more completely service our customer base. Fee income from the sale of non-deposit products (primarily annuities and mutual funds) was \$259,000 and \$173,000 in 2018 and 2017, respectively, representing approximately 5.2% and 3.3%, respectively, of total non-interest income.

OTHER INTEREST BEARING LIABILITIES

Juniata funds its needs primarily with local deposits and when necessary, relies on external funding sources for additional funding. External funding sources include credit facilities at correspondent banks and the Federal Home Loan Bank of Pittsburgh. Juniata's average balances for all borrowings declined by \$23,710,000 in 2018 compared to 2017, and increased by \$10,536,000 in 2017 compared to 2016.

| <i>(Dollars in thousands)</i> | Changes in Borrowings | | | | | | |
|------------------------------------|-----------------------|-------------------------------|----------------|--------------------|-------------------------------|--------------|--------------------|
| | 2018 | | | 2017 | | | 2016 |
| | Average Balance | Increase (Decrease) Amount | % | Average Balance | Increase (Decrease) Amount | % | Average Balance |
| Repurchase agreements | \$ 4,177 | \$ (646) | (13.4)% | \$ 4,823 | \$ 112 | 2.4% | \$ 4,711 |
| Short-term borrowings | 9,906 | (15,570) | (61.1) | 25,476 | 9,763 | 62.1 | 15,713 |
| Long-term debt | 17,493 | (7,507) | (30.0) | 25,000 | 594 | 2.4 | 24,406 |
| Other interest bearing liabilities | 1,560 | 13 | 0.8 | 1,547 | 67 | 4.5 | 1,480 |
| Total borrowings | <u>\$ 33,136</u> | <u>\$ (23,710)</u> | <u>(41.7)%</u> | <u>\$ 56,846</u> | <u>\$ 10,536</u> | <u>22.8%</u> | <u>\$ 46,310</u> |

PENSION PLAN

The Company sponsors a noncontributory pension plan, the JVB Plan. The JVB Plan has unfunded liabilities that totaled \$373,000 as of December 31, 2018. Through the JVB Plan, the Company provides pension benefits to substantially all employees that were employed as of December 31, 2007. Benefits are provided based upon an employee's years of service and compensation through December 31, 2012. Effective December 31, 2012, the JVB Plan was amended to cease future service accruals after that date (i.e., it was frozen). The JVB Plan was amended

in 2016 to provide pension benefits to all former FNBPA employees that were previously participants in the former FNB Plan at the same level of benefit provided in the FNB Plan. ASC Topic 715 gives guidance on the allowable pension expense that is recognized in any given year. In determining the appropriate amount of pension expense to recognize, management must make subjective assumptions relating to amounts and rates that are inherently uncertain.

In 2017, Juniata initiated a strategy to reduce the liability associated with its defined benefit pension plan. The first step of the initiative consisted of the purchase of a single premium group annuity for a group of Juniata's retirees, transferring the associated pension liability to the issuer of the annuity. This step reduced Juniata's overall pension liability by approximately 12%, which resulted in a pre-tax charge to earnings of \$377,000. In 2018, Juniata completed the second step of the strategy to reduce the liability associated with its defined benefit pension plan by making a lump sum payment offer to a small group of terminated vested participants in Juniata's defined benefit plan. This step further reduced Juniata's remaining pension liability by approximately 9%, which resulted in a pre-tax charge to earnings of \$210,000 in 2018. The pre-tax charges represent a further acceleration of pension expenses that would otherwise have impacted Juniata's future earnings.

Management plans to terminate the JVB Plan in 2019. Please refer to Note 22 of Notes to Consolidated Financial Statements.

STOCKHOLDERS' EQUITY

Total stockholders' equity increased by \$7,991,000, or 13.5%, in 2018. The Company is well-capitalized and had the capacity to maintain the traditional dividend level in 2018. The Company's net income exceeded dividends paid by \$1,493,000. Common stock issued to LCB shareholders increased total stockholders' equity by \$6,463,000. The adjustment to accumulated other comprehensive loss ("AOCI") to record the change in net unrealized gains from the previous unconsolidated subsidiary, the reclassification adjustment for losses on sales of debt securities, as well as the unrecognized net gains and amortization of the costs associated with the Company's defined benefit retirement plan decreased the Company's equity by \$109,000. Stock based compensation expense recorded pursuant to the Company's Stock Option Plan added \$82,000 to stockholders' equity in 2018, while payments for exercised stock options increased shareholders' equity by \$90,000 and employee stock plans added \$42,000. Treasury stock purchases during the year ended December 31, 2018 decreased stockholders' equity by \$70,000.

The following table summarizes how the components of equity changed annually in each of the last three years.

| <i>(Dollars in thousands)</i> | 2018 | 2017 | 2016 |
|---|------------------|------------------|------------------|
| Beginning balance | \$ 59,387 | \$ 59,090 | \$ 59,962 |
| Net income | 5,904 | 4,537 | 5,156 |
| Dividends | (4,411) | (4,194) | (4,226) |
| Common stock issued for acquisition | 6,463 | - | - |
| Common stock issued for stock plans | 42 | 34 | 64 |
| Treasury stock issued for stock plans | 90 | 172 | - |
| Stock-based compensation | 82 | 71 | 67 |
| Repurchase of stock, net of re-issuance | (70) | (86) | (927) |
| Net change in unrealized security gains | (807) | (817) | (963) |
| Defined benefit retirement plan adjustments, net of tax | 698 | (8) | (43) |
| AOCI deferred tax adjustment due to tax reform | - | 588 | - |
| Net change | 7,991 | 297 | (872) |
| Ending balance | <u>\$ 67,378</u> | <u>\$ 59,387</u> | <u>\$ 59,090</u> |

Average stockholders' equity in 2018 was \$62,689,000, an increase of 4.6% from \$59,938,000 in 2017, and was \$61,209,000 in 2016. At December 31, 2018, Juniata held 42,201 shares of stock in treasury versus 43,955 at December 31, 2017. Return on average equity increased to 9.42% in 2018 from 7.57% in 2017. Return on average equity increased in 2018 due to a 30.1% increase in net income mainly due to the enactment of the TCJA, as well as the removal of the deferred tax liability related to the Company's previous ownership of Liverpool, which resulted in a net tax benefit of \$659,000 in 2018 compared to a net tax expense of \$1,060,000 in 2017. See the discussion in the 2018 Financial Overview section.

The Company periodically repurchases shares of its common stock under the share repurchase program approved by the Board of Directors. In December of 2016, the Board of Directors authorized the repurchase of an additional 200,000 shares of its common stock through its share repurchase program. The program will remain authorized until all approved shares are repurchased, unless terminated by the Board of Directors. Repurchases have typically been accomplished through open market transactions and have complied with all regulatory restrictions on the timing and amount of such repurchases. Shares repurchased have been added to treasury stock and accounted for at cost. These shares may be reissued for stock option exercises, employee stock purchase plan purchases, restricted stock awards, to fulfill dividend reinvestment program needs and to supply shares needed as consideration in an acquisition. During 2018, 2017 and 2016, 3,416, 4,289 and 49,370 shares, respectively, were repurchased in conjunction with this program. Treasury shares of 5,170 and 9,704 were also redeemed for stock option exercises in 2018 and 2017, respectively. Shares remaining authorized for repurchase in the program were 170,574 as of December 31, 2018.

In each of the years 2018, 2017 and 2016, Juniata declared dividends of \$0.88 per common share (See Note 17 of Notes to Consolidated Financial Statements regarding restrictions on dividends from the Bank to the Company). The dividend payout ratio was 74.71% and 92.4% in 2018 and 2017, respectively. The dividend payout ratio in 2017 was greater than 2018 due to the impact of recording less net income in 2017 compared to 2018 resulting from increased expenses including the "de-risking" of the defined benefit plan and the TCJA tax reform adjustments recorded in 2017. In January 2019, the Board of Directors declared a dividend of \$0.22 per share to stockholders of record on February 18, 2019, payable on March 1, 2019.

Juniata's book value per share at December 31, 2018 was \$13.23 as compared to \$12.46 and \$12.43 at December 31, 2017 and 2016, respectively. Juniata's average equity to assets ratio for 2018, 2017 and 2016 was 10.20%, 10.09% and 10.60%, respectively. Refer also to the Capital Risk section in the Asset / Liability management discussion that follows.

ASSET / LIABILITY MANAGEMENT OBJECTIVES

Management believes that optimal performance is achieved by maintaining overall risks at a low level. Therefore, the objective of asset/liability management is to control risk and produce consistent, high quality earnings independent of changing interest rates. The Company has identified five major risk areas discussed below:

- Liquidity Risk
- Capital Risk
- Interest Rate Risk
- Investment Portfolio Risk
- Economic Risk

Liquidity Risk

Through liquidity risk management, we seek to maintain our ability to readily meet commitments to fund loans, purchase assets and other securities and repay deposits and other liabilities. Liquidity management also includes the ability to manage unplanned changes in funding sources and recognize and address changes in market conditions that affect the quality of liquid assets. Juniata has developed a methodology for assessing its liquidity risk through an analysis of its primary and total liquidity sources. Juniata relies on three main types of liquidity sources: (1) asset liquidity, (2) liability liquidity and (3) off-balance sheet liquidity.

Asset liquidity refers to assets that we are quickly able to convert into cash, consisting of cash, federal funds sold and securities. Short-term liquid assets generally consist of federal funds sold and securities maturing over the next twelve months. The quality of our short-term liquidity is very good; as federal funds are unimpaired by market risk and as bonds approach maturity, their value moves closer to par value. Liquid assets tend to reduce earnings when there is not an immediate use for such funds, since normally these assets generate income at a lower rate than loans or other longer-term investments.

Liability liquidity refers to funding obtained through deposits. The largest challenge associated with liability liquidity is cost. Juniata's ability to attract deposits depends primarily on several factors, including sales effort, competitive interest rates and other conditions that help maintain consumer confidence in the stability of the financial institution. Large certificates of deposit, public funds and brokered deposits are all acceptable means of generating and providing funding. If the cost is favorable or fits the overall cost structure of the Bank, then these sources have many benefits. They are readily available, come in large block size, have investor-defined maturities and are generally low maintenance.

Off-balance sheet liquidity is closely tied to liability liquidity. Sources of off-balance sheet liquidity include Federal Home Loan Bank borrowings, repurchase agreements and federal funds lines with correspondent banks. These sources provide immediate liquidity to the Bank. They are available to be deployed when a need arises. These instruments also come in large block sizes, have investor-defined maturities and generally require low maintenance.

"Available liquidity" encompasses all three sources of liquidity when determining liquidity adequacy. It results from the Bank's access to short-term funding sources for immediate needs and long-term funding sources when the need is determined to be permanent. Management uses both on-balance sheet liquidity and off-balance sheet liquidity to manage its liquidity position. The Company's liquidity strategy seeks to maintain an adequate volume of high quality liquid instruments to facilitate customer liquidity demands. Management also maintains sufficient capital, which provides access to the liability and off-balance sheet sides of the balance sheet for funding. An active knowledge of debt funding sources is important to liquidity adequacy.

Contingency funding management involves maintaining contingent sources of immediate liquidity. Management believes that it must consider an array of available sources in terms of volume, maturity, cash flows and pricing. To meet demands in the normal course of business or for contingency, secondary sources of funding such as public funds deposits, collateralized loans, sales of investment securities or sales of loan receivables are considered.

It is the Company's policy to maintain both a primary liquidity ratio and a total liquidity ratio greater than 10% of total assets. The primary liquidity ratio equals liquid assets divided by total assets, where liquid assets equal the sum of cash and due from banks, federal funds sold, interest-bearing deposits with other banks and available for sale securities. Total liquidity is comprised of all components noted in primary liquidity plus securities classified as held-to-maturity, if any. If either of these liquidity ratios falls below 10%, it is the Company's policy to increase liquidity in a timely manner to achieve the required ratio.

It is the Company's policy to maintain available liquidity greater than 10% of total assets and contingency liquidity greater than 7.5% of total assets.

Juniata is a member of the Federal Home Loan Bank ("FHLB") of Pittsburgh, which provides short-term liquidity and a source for long-term borrowings. The Bank uses this vehicle to satisfy temporary funding needs throughout the year. The Company had short-term borrowings of \$11,600,000 on December 31, 2018 and \$12,000,000 on December 31, 2017.

The Bank's maximum borrowing capacity with the FHLB was \$187,818,000 at December 31, 2018. In order to borrow additional amounts, the FHLB would require the Bank to purchase additional FHLB Stock. The FHLB is a source of both short-term and long-term funding. The Bank must maintain sufficient qualifying collateral to secure all outstanding advances.

Juniata needs to have liquid resources available to fulfill contractual obligations that require future cash payments.

Capital Risk

The Company maintains sufficient core capital to protect depositors and stockholders and to take advantage of business opportunities while ensuring that it has resources to absorb the risks inherent in the business. Federal banking regulators have established capital adequacy requirements for banks and bank holding companies based on risk factors, which require more capital backing for assets with higher potential credit risk than assets with lower credit risk.

In December 2010, the Basel Committee released its final framework for strengthening international capital and liquidity regulation, officially identified by the Basel Committee as "Basel III". In July 2013, the FRB approved final rules to implement the Basel III capital framework which revises the risk-based capital requirements applicable to bank holding companies and depository institutions. The new minimum regulatory capital requirements established by the U.S. Basel III Capital Rules became effective for the Company on January 1, 2015 and were fully phased in on January 1, 2019.

As fully phased in, Basel III requires financial institutions to maintain: (a) Common Equity Tier 1 (CET1) to risk-weighted assets ratio of at least 4.5%; (b) a minimum ratio of tier 1 capital to risk-weighted assets of at least 6.0%; (c) a minimum ratio of total (that is, tier 1 plus tier 2) capital to risk-weighted assets of at least 8.0%; and (d) as a newly adopted international standard, a minimum leverage ratio of 3.0%, calculated as the ratio of tier 1 capital balance sheet exposures plus certain off-balance sheet exposures (computed as the average for each quarter of the month-end ratios for the quarter). However, unless the Company maintains an additional 2.5% "capital conservation buffer" above the percentages stated above in (a) - (c), the Company may be unable to obtain capital distributions from it, which could negatively impact the Company's ability to pay dividends, service debt obligations or repurchase common stock. In addition, such a failure could result in a restriction on the Company's ability to pay certain cash bonuses to executive officers, negatively impacting the Company's ability to retain key personnel.

As of December 31, 2018, the Company's current capital levels met the fully phased-in minimum capital requirements, including capital conservation buffer, as prescribed in the U.S. Basel III Capital Rules. See Note 17 of Notes to the Consolidated Financial Statements.

Market / Interest Rate Risk

Table 5, presented below, illustrates the maturity distribution of the Company's interest-sensitive assets and liabilities as of December 31, 2018. Earliest re-pricing opportunities for variable and adjustable rate products and scheduled maturities for fixed rate products have been placed in the appropriate column to compute the cumulative sensitivity ratio (ratio of interest-earning assets to interest-bearing liabilities). Securities with call features are treated as though the call date is the maturity date. Through one year, the cumulative sensitivity ratio is 0.44, indicating a liability-sensitive balance sheet, when measured on a static basis.

TABLE 5
MATURITY DISTRIBUTION

| <i>(Dollars in thousands)</i> | As of December 31, 2018 | | | | |
|---|--|--|-------------------|-----------------------|-------|
| | Remaining Maturity / Earliest Possible Repricing | | | | |
| | Within One Year | Over One Year But Within Five Years | | Over Five Years | Total |
| | | Year | Years | | |
| Interest bearing deposits | \$ 945 | \$ 2,455 | \$ - | \$ 3,400 | |
| Federal funds sold | 729 | - | - | 729 | |
| Investment securities: | | | | | |
| Debt securities - taxable | - | 20,355 | 2,911 | 23,266 | |
| Debt securities - tax-exempt | 826 | 14,686 | 2,669 | 18,181 | |
| Mortgage-backed securities | - | - | 100,506 | 100,506 | |
| Stocks | - | - | - | - | |
| Loans: | | | | | |
| Commercial, financial, and agricultural | 24,857 | 14,557 | 7,149 | 46,563 | |
| Real estate - construction | 18,376 | 16,056 | 2,256 | 36,688 | |
| Other loans | 99,315 | 141,908 | 93,157 | 334,380 | |
| Total Interest Earning Assets | <u>145,048</u> | <u>210,017</u> | <u>208,648</u> | <u>563,713</u> | |
| Interest Bearing Liabilities | | | | | |
| Demand deposits | 147,413 | - | - | 147,413 | |
| Savings deposits | 99,236 | - | - | 99,236 | |
| Certificates of deposit over \$100,000 | 11,678 | 20,223 | 6,259 | 38,160 | |
| Time deposits | 40,916 | 60,696 | 9,244 | 110,856 | |
| Securities sold under agreements to repurchase | 2,911 | - | - | 2,911 | |
| Short-term borrowings | 11,600 | - | - | 11,600 | |
| Long-term debt | 15,000 | - | - | 15,000 | |
| Other interest bearing liabilities | 1,596 | - | - | 1,596 | |
| Total Interest Bearing Liabilities | <u>330,350</u> | <u>80,919</u> | <u>15,503</u> | <u>426,772</u> | |
| Gap | <u>\$ (185,302)</u> | <u>\$ 129,098</u> | <u>\$ 193,145</u> | <u>\$ 136,941</u> | |
| Cumulative Gap | <u>\$ (185,302)</u> | <u>\$ (56,204)</u> | <u>\$ 136,941</u> | | |
| Cumulative sensitivity ratio | 0.44 | 0.86 | 1.32 | | |
| Commercial, financial and agricultural loans maturing after one year with: | | | | | |
| Fixed interest rates | | \$ 12,375 | \$ 7,301 | \$ 19,676 | |
| Variable interest rates | | 19,104 | 3,264 | 22,368 | |
| Total | | <u>\$ 31,479</u> | <u>\$ 10,565</u> | <u>\$ 42,044</u> | |
| Certificates of Deposit of \$100,000 or more | | | | | |
| Maturing within 3 months | | | | \$ 3,047 | |
| Maturing within 3 to 6 months | | | | 3,530 | |
| Maturing within 6 to 12 months | | | | 5,101 | |
| Maturing 1-5 years | | | | 20,223 | |
| Maturing after 5 years | | | | 6,259 | |
| | | | | <u>\$ 38,160</u> | |

Investment Portfolio Risk

Management considers its investment portfolio risk as the amount of appreciation or depreciation the investment portfolio will sustain when interest rates change. The securities portfolio will decline in value when interest rates rise and increase in value when interest rates decline. Securities with long maturities, excessive optionality (as a result of call features) and unusual indexes tend to produce the most market risk during interest rate movements. Rate shocks of minus 100 and plus 100, 200, 300 and 400 basis points were applied to the securities portfolio to determine how Tier 1 capital would be affected if the securities portfolio had to be liquidated and all gains and losses were recognized. The test revealed that, as of December 31, 2018, the risk-based capital ratio would remain adequate under these scenarios.

Economic Risk

Economic risk is the risk that the long-term or underlying value of the Company will change if interest rates change. Economic value of equity ("EVE") represents the change in the value of the balance sheet without regard to business continuity. Rate shocks are applied to all financial assets and liabilities, using parallel and non-parallel rate shifts of 100 to 400 basis points to estimate the change in EVE under the various hypothetical scenarios. As of December 31, 2018, in a rising rate environment, the modeling results indicate that the Company's liabilities would increase in value slightly more than assets would lose value. A non-parallel 200 basis point increase shock in rates produced an estimated 2.4% increase in EVE, indicating a stable value well within Juniata's policy guidelines.

OFF-BALANCE SHEET ARRANGEMENTS

The Company has numerous off-balance sheet loan obligations that exist in order to meet the financing needs of its customers. These financial instruments include commitments to extend credit, unused lines of credit and letters of credit. Because many commitments are expected to expire without being drawn upon, the total commitment amounts do not necessarily represent future cash requirements. These instruments involve, to varying degrees, elements of credit and interest rate risk that are not recognized in the consolidated financial statements. The Company does not expect that these commitments will have an adverse effect on its liquidity position.

Exposure to credit loss in the event of non-performance by the other party to the financial instrument for commitments to extend credit and financial guarantees written is represented by the contractual notional amount of those instruments. The Company uses the same credit policies in making these commitments as it does for on-balance sheet instruments.

The Company had outstanding loan origination commitments aggregating \$72,755,000 and \$77,023,000 at December 31, 2018 and 2017, respectively. In addition, the Company had \$14,468,000 and \$3,150,000 outstanding in unused lines of credit commitments extended to its customers at December 31, 2018 and 2017, respectively. The increase was mainly due to the acquisition of Liverpool's consumer lines of credit.

Letters of credit are instruments issued by the Company that guarantee payment by the Bank to the beneficiary in the event of default by the Company's customer in the non-performance of an obligation or service. Most letters of credit are extended for a one-year period. The credit risk involved in issuing letters of credit is essentially the same as that involved in extending loan facilities to customers. The Company holds collateral supporting those commitments for which collateral is deemed necessary. The amount of the liability as of December 31, 2018 and 2017 for guarantees under letters of credit issued is not material.

The maximum undiscounted exposure related to these guarantees at December 31, 2018 was \$2,749,000, and the approximate value of underlying collateral upon liquidation that would be expected to cover this maximum potential exposure was \$22,963,000.

In 2017, the Company executed renewal agreements for technology outsourcing services through two outside service bureaus. Both agreements provide for termination fees if the Company cancels the services prior to the end of the 7-year commitment period that runs through May 31, 2024. At December 31, 2018, termination fees are estimated to be approximately \$1,672,000 and \$1,542,000 on the two contracts. The termination fees would decrease by approximately 15% in each succeeding year through 2024. Since the Company does not expect to terminate these services with either vendor prior to the end of the commitment periods, no liability has been recorded as of December 31, 2018.

EFFECTS OF INFLATION

The performance of a bank is affected more by changes in interest rates than by inflation; therefore, the effect of inflation is normally not as significant to the Company as it is to other businesses and industries. During periods of high inflation, the money supply usually increases and banks normally experience above average growth in assets, loans and deposits. A bank's operating expenses may increase during inflationary times as the price of goods and services increase.

A bank's performance is also affected during recessionary periods. In times of recession, a bank usually experiences a tightening on its earning assets and on its profits. A recession is usually an indicator of higher unemployment rates, which could mean an increase in the number of nonperforming loans because of continued layoffs and other deterioration of consumers' financial condition.

REPORT ON MANAGEMENT'S ASSESSMENT OF INTERNAL CONTROL OVER FINANCIAL REPORTING

Management is responsible for the preparation, integrity and fair presentation of the consolidated financial statements included in this Annual Report on Form 10-K. The consolidated financial statements and notes included in this annual report have been prepared in conformity with accounting principles generally accepted in the United States of America, and as such, include some amounts that are based on management's best estimates and judgments.

The Company's management is responsible for establishing and maintaining effective internal control over financial reporting. The system of internal control over financial reporting, as it relates to the financial statements, is evaluated for effectiveness by management and tested for reliability through a program of internal audits and management testing and review. Actions are taken to correct potential deficiencies as they are identified. Any system of internal control, no matter how well designed, has inherent limitations, including the possibility that a control can be circumvented or overridden and misstatements due to error or fraud may occur and not be detected. Also, because of changes in conditions, internal control effectiveness may vary over time. Accordingly, even an effective system of internal control will provide only a reasonable assurance with respect to financial statement preparation.

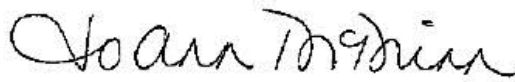
Management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2018. In making this assessment, it used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control-Integrated Framework (2013)*.

Based on our assessment, management concluded that as of December 31, 2018, the Company's internal control over financial reporting was not effective and did not meet the criteria of the *Internal Control-Integrated Framework (2013)*. We concluded that material weaknesses in our internal control over financial reporting existed related to management not designing and maintaining controls over the annual review process for evaluating risk ratings on commercial loans and over the accounting for income taxes.

The independent registered public accounting firm that audited the consolidated financial statements included in the annual report has issued an attestation report on the Company's internal control over financial reporting which contains an adverse opinion. During the first quarter of 2019, Management has evaluated the causes of the material weaknesses and is taking steps to improve its internal controls over financial reporting, including formally documenting policies and procedures pertaining to the ongoing process for evaluating risk ratings on commercial loans and to the accounting for income taxes, as well as formally testing key controls.



Marcie A. Barber,
President and Chief Executive Officer



JoAnn N. McMinn,
Chief Financial Officer

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM ON EFFECTIVENESS OF INTERNAL CONTROL OVER FINANCIAL REPORTING

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Shareholders
Juniata Valley Financial Corp.
Mifflintown, Pennsylvania

Opinion on Internal Control over Financial Reporting

We have audited Juniata Valley Financial Corp., and its wholly-owned subsidiary, The Juniata Valley Bank's (the "Company's") internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (the "COSO criteria"). In our opinion, the Company did not maintain, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on the COSO criteria. We do not express an opinion or any other form of assurance on management's statements referring to any corrective actions taken by the Company after the date of management's assessment.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated statement of financial condition of the Company as of December 31, 2018 and 2017, the related consolidated statements of income, comprehensive income, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2018, and the related notes, and our report dated April 2, 2019 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying "Item 9A, Report on Management's Assessment of Internal Control over Financial Reporting". Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit of internal control over financial reporting in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis. Material weaknesses regarding management not designing and maintaining controls over the annual review process for evaluating risk ratings on commercial loans and over the accounting for income taxes have been described in management's assessment. These material weaknesses were considered in determining the nature, timing, and extent of audit tests applied in our audit of the 2018 financial statements, and this report does not affect our report dated April 2, 2019 on those financial statements.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ BDO USA, LLP
Harrisburg, Pennsylvania
April 2, 2019

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM ON CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Shareholders
Juniata Valley Financial Corp.
Mifflintown, Pennsylvania

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated statements of financial condition of Juniata Valley Financial Corp., and its wholly-owned subsidiary, The Juniata Valley Bank, (the “Company”) as of December 31, 2018 and 2017, the related consolidated statements of income, comprehensive income, stockholders’ equity, and cash flows for each of the three years in the period ended December 31, 2018, and the related notes (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company and subsidiaries at December 31, 2018 and 2017, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the Company’s internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”) and our report dated April 2, 2019 expressed an adverse opinion thereon.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

We have served as the Company’s auditor since 2013.

/s/ BDO USA, LLP
Harrisburg, Pennsylvania
April 2, 2019

**JUNIATA VALLEY FINANCIAL CORP. AND SUBSIDIARY
CONSOLIDATED STATEMENTS OF FINANCIAL CONDITION**

| | December 31, | |
|---|-------------------|-------------------|
| | 2018 | 2017 |
| <i>(Dollars in thousands, except share data)</i> | | |
| ASSETS | | |
| Cash and due from banks | \$ 15,617 | \$ 9,839 |
| Interest bearing deposits with banks | 110 | 58 |
| Federal funds sold | 729 | - |
| Cash and cash equivalents | 16,456 | 9,897 |
| Interest bearing time deposits with banks | 3,290 | 350 |
| Equity securities | 1,118 | - |
| Securities available for sale | 141,953 | 153,824 |
| Restricted investment in bank stock | 2,441 | 3,104 |
| Investment in unconsolidated subsidiary | - | 4,812 |
| Total loans | 417,631 | 383,904 |
| Less: Allowance for loan losses | (3,034) | (2,939) |
| Total loans, net of allowance for loan losses | 414,597 | 380,965 |
| Premises and equipment, net | 8,744 | 8,887 |
| Other real estate owned | 744 | 355 |
| Bank owned life insurance and annuities | 15,938 | 14,972 |
| Investment in low income housing partnerships | 4,545 | 5,245 |
| Core deposit and other intangible | 405 | 195 |
| Goodwill | 9,139 | 5,448 |
| Mortgage servicing rights | 200 | 225 |
| Accrued interest receivable and other assets | 5,666 | 3,666 |
| Total assets | \$ 625,236 | \$ 591,945 |
| LIABILITIES AND STOCKHOLDERS' EQUITY | | |
| Liabilities: | | |
| Deposits: | | |
| Non-interest bearing | \$ 126,057 | \$ 115,911 |
| Interest bearing | 395,665 | 361,757 |
| Total deposits | 521,722 | 477,668 |
| Securities sold under agreements to repurchase | 2,911 | 9,769 |
| Short-term borrowings | 11,600 | 12,000 |
| Long-term debt | 15,000 | 25,000 |
| Other interest bearing liabilities | 1,596 | 1,593 |
| Accrued interest payable and other liabilities | 5,029 | 6,528 |
| Total liabilities | 557,858 | 532,558 |
| Stockholders' Equity: | | |
| Preferred stock, no par value: | | |
| Authorized - 500,000 shares, none issued | - | - |
| Common stock, par value \$1.00 per share: | | |
| Authorized 20,000,000 shares | | |
| Issued - | | |
| 5,134,249 shares at December 31, 2018; | | |
| 4,811,611 shares at December 31, 2017; | | |
| Outstanding - | | |
| 5,092,048 shares at December 31, 2018; | | |
| 4,767,656 shares at December 31, 2017; | 5,134 | 4,811 |
| Surplus | 24,821 | 18,565 |
| Retained earnings | 42,525 | 40,876 |
| Accumulated other comprehensive loss | (4,299) | (4,034) |
| Cost of common stock in Treasury: | | |
| 42,201 shares at December 31, 2018; | | |
| 43,955 shares at December 31, 2017; | (803) | (831) |
| Total stockholders' equity | 67,378 | 59,387 |
| Total liabilities and stockholders' equity | \$ 625,236 | \$ 591,945 |

See Notes to Consolidated Financial Statements

**JUNIATA VALLEY FINANCIAL CORP. AND SUBSIDIARY
CONSOLIDATED STATEMENTS OF INCOME**

(Dollars in thousands, except share and per share data)

| | Years Ended December 31, | | |
|---|--------------------------|-----------------|-----------------|
| | 2018 | 2017 | 2016 |
| Interest income: | | | |
| Loans, including fees | \$ 20,060 | \$ 18,005 | \$ 17,559 |
| Taxable securities | 3,040 | 2,888 | 2,475 |
| Tax-exempt securities | 393 | 451 | 418 |
| Other interest income | 158 | 30 | 17 |
| Total interest income | 23,651 | 21,374 | 20,469 |
| Interest expense: | | | |
| Deposits | 3,068 | 2,129 | 1,811 |
| Securities sold under agreements to repurchase | 62 | 31 | 5 |
| Short-term borrowings | 190 | 295 | 94 |
| Long-term debt | 276 | 369 | 328 |
| Other interest bearing liabilities | 39 | 31 | 30 |
| Total interest expense | 3,635 | 2,855 | 2,268 |
| Net interest income | 20,016 | 18,519 | 18,201 |
| Provision for loan losses | 337 | 439 | 466 |
| Net interest income after provision for loan losses | 19,679 | 18,080 | 17,735 |
| Non-interest income: | | | |
| Customer service fees | 1,779 | 1,747 | 1,736 |
| Debit card fee income | 1,280 | 1,120 | 1,044 |
| Earnings on bank owned life insurance and annuities | 352 | 352 | 371 |
| Trust fees | 430 | 446 | 454 |
| Commissions from sales of non-deposit products | 259 | 173 | 223 |
| Income/gain from unconsolidated subsidiary | 296 | 167 | 222 |
| Fees derived from loan activity | 416 | 267 | 232 |
| Mortgage banking income | 70 | 214 | 158 |
| (Loss) gain on sales and calls of securities | (188) | 512 | 218 |
| Change in value of equity securities | (1) | - | - |
| Gain on sales of loans | - | - | 113 |
| Gain from life insurance proceeds | - | - | 364 |
| Other non-interest income | 334 | 294 | 283 |
| Total non-interest income | 5,027 | 5,292 | 5,418 |
| Non-interest expense: | | | |
| Employee compensation expense | 7,822 | 7,159 | 6,883 |
| Employee benefits | 2,458 | 2,837 | 2,301 |
| Occupancy | 1,217 | 1,173 | 1,137 |
| Equipment | 818 | 711 | 661 |
| Data processing expense | 1,924 | 1,751 | 1,807 |
| Director compensation | 215 | 241 | 238 |
| Professional fees | 640 | 571 | 539 |
| Taxes, other than income | 498 | 463 | 437 |
| FDIC Insurance premiums | 274 | 334 | 375 |
| (Gain) loss on sales of other real estate owned | (60) | (8) | 150 |
| Amortization of intangibles | 79 | 67 | 105 |
| Amortization of investment in low-income housing partnerships | 800 | 612 | 479 |
| Merger and acquisition expense | 884 | 13 | 347 |
| Other non-interest expense | 1,892 | 1,851 | 1,719 |
| Total non-interest expense | 19,461 | 17,775 | 17,178 |
| Income before income taxes | 5,245 | 5,597 | 5,975 |
| Income tax (benefit) provision | (659) | 1,060 | 819 |
| Net income | \$ 5,904 | \$ 4,537 | \$ 5,156 |
| Earnings per share | | | |
| Basic | \$ 1.18 | \$ 0.95 | \$ 1.07 |
| Diluted | \$ 1.18 | \$ 0.95 | \$ 1.07 |
| Cash dividends declared per share | \$ 0.88 | \$ 0.88 | \$ 0.88 |
| Weighted average basic shares outstanding | 4,987,186 | 4,765,165 | 4,801,245 |
| Weighted average diluted shares outstanding | 5,009,484 | 4,775,505 | 4,802,175 |

See Notes to Consolidated Financial Statements

**JUNIATA VALLEY FINANCIAL CORP. AND SUBSIDIARY
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME**

(Dollars in thousands)

| | Year ended December 31, 2018 | | |
|--|------------------------------|---------------|----------------------|
| | Pre-Tax Amount | Tax Effect | Net-of-Tax Amount |
| Net income | \$ 5,245 | \$ 659 | \$ 5,904 |
| Other comprehensive income (loss): | | | |
| Available for sale securities : | | | |
| Unrealized holding loss arising during the period | (1,216) | 255 | (961) |
| Unrealized holding gain from unconsolidated subsidiary | 5 | - | 5 |
| Less reclassification adjustment for gains included in net income (1) (3) | 188 | (39) | 149 |
| Unrecognized pension net gain (2) (3) | (55) | 11 | (44) |
| Unrecognized pension gain due to change in assumptions (2) (3) | 601 | (126) | 475 |
| Amortization of pension net actuarial loss (2) (3) | 338 | (71) | 267 |
| Other comprehensive (loss) income | (139) | 30 | (109) |
| Total comprehensive income | \$ 5,106 | \$ 689 | \$ 5,795 |

| | Year ended December 31, 2017 | | |
|--|------------------------------|---------------|----------------------|
| | Pre-Tax Amount | Tax Effect | Net-of-Tax Amount |
| Net income | \$ 5,597 | \$ (1,060) | \$ 4,537 |
| Other comprehensive income (loss): | | | |
| Available for sale securities : | | | |
| Unrealized holding loss arising during the period | (318) | 108 | (210) |
| Unrealized holding loss from unconsolidated subsidiary | 3 | - | 3 |
| Less reclassification adjustment for gains included in net income (1) (3) | (512) | 174 | (338) |
| Unrecognized pension net loss (2) (3) | 1,024 | (348) | 676 |
| Unrecognized pension loss due to change in assumptions (2) (3) | (1,141) | 388 | (753) |
| Amortization of pension net actuarial loss (2) (3) | 584 | (199) | 385 |
| Other comprehensive (loss) income | (360) | 123 | (237) |
| Total comprehensive income | \$ 5,237 | \$ (937) | \$ 4,300 |

| | Year ended December 31, 2016 | | |
|--|------------------------------|---------------|----------------------|
| | Pre-Tax Amount | Tax Effect | Net-of-Tax Amount |
| Net income | \$ 5,975 | \$ (819) | \$ 5,156 |
| Other comprehensive income (loss): | | | |
| Available for sale securities : | | | |
| Unrealized holding loss arising during the period | (1,215) | 413 | (802) |
| Unrealized holding gains from unconsolidated subsidiary | (17) | - | (17) |
| Less reclassification adjustment for gains included in net income (1) (3) | (218) | 74 | (144) |
| Unrecognized pension net loss (2) (3) | (9) | 3 | (6) |
| Unrecognized pension gain due to change in assumptions (2) (3) | (305) | 104 | (201) |
| Amortization of pension net actuarial loss (2) (3) | 248 | (84) | 164 |
| Other comprehensive (loss) income | (1,516) | 510 | (1,006) |
| Total comprehensive income | \$ 4,459 | \$ (309) | \$ 4,150 |

- (1) Amounts are included in (loss) gain on calls of securities on the Consolidated Statements of Income as a separate element within total non-interest income.
- (2) Amounts are included in the computation of net periodic benefit cost and are included in employee benefits expense on the Consolidated Statements of Income as a separate element within total non-interest expense.
- (3) Income tax amounts are included in the provision for income taxes on the Consolidated Statements of Income.

See Notes to Consolidated Financial Statements

**JUNIATA VALLEY FINANCIAL CORP. AND SUBSIDIARY
 CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY**

| | Years Ended December 31, 2018, 2017 and 2016 | | | | | | |
|---|--|-----------------|-----------|----------------------|---|-------------------|----------------------------------|
| | Number of Shares Outstanding | Common Stock | Surplus | Retained Earnings | Accumulated Other Comprehensive Loss | Treasury Stock | Total Stockholders' Equity |
| | <i>(Dollars in thousands, except per share data)</i> | | | | | | |
| Balance at January 1, 2016 | 4,798,086 | \$ 4,798 | \$ 18,352 | \$ 39,015 | \$ (2,203) | \$ - | \$ 59,962 |
| Net income | | | | 5,156 | | | 5,156 |
| Other comprehensive loss | | | | | (1,006) | | (1,006) |
| Cash dividends at \$0.88 per share | | | | (4,226) | | | (4,226) |
| Stock-based compensation activity | | | 67 | | | | 67 |
| Purchase of treasury stock | (49,370) | | | | | (927) | (927) |
| Common stock issued to FNBPA stockholders | 6,914 | 7 | 57 | | | | 64 |
| Balance at December 31, 2016 | 4,755,630 | 4,805 | 18,476 | 39,945 | (3,209) | (927) | 59,090 |
| Net income | | | | 4,537 | | | 4,537 |
| Other comprehensive loss | | | | | (237) | | (237) |
| Reclassification due to tax reform | | | | 588 | (588) | | - |
| Cash dividends at \$0.88 per share | | | | (4,194) | | | (4,194) |
| Stock-based compensation activity | | | 71 | | | | 71 |
| Purchase of treasury stock | (4,289) | | | | | (86) | (86) |
| Treasury stock issued for stock plans | 9,704 | | (10) | | | 182 | 172 |
| Common stock issued for stock plans | 6,611 | 6 | 28 | | | | 34 |
| Balance at December 31, 2017 | 4,767,656 | 4,811 | 18,565 | 40,876 | (4,034) | (831) | 59,387 |
| Net income | | | | 5,904 | | | 5,904 |
| Other comprehensive loss | | | | | (109) | | (109) |
| Reclassification for ASU 2016-01 | | | | 156 | (156) | | - |
| Cash dividends at \$0.88 per share | | | | (4,411) | | | (4,411) |
| Stock-based compensation activity | | | 82 | | | | 82 |
| Purchase of treasury stock | (3,416) | | | | | (70) | (70) |
| Treasury stock issued for stock plans | 5,170 | | (8) | | | 98 | 90 |
| Common stock issued for stock plans | 7,354 | 8 | 34 | | | | 42 |
| Common stock issued for acquisition | 315,284 | 315 | 6,148 | | | | 6,463 |
| Balance at December 31, 2018 | 5,092,048 | \$ 5,134 | \$ 24,821 | \$ 42,525 | \$ (4,299) | \$ (803) | \$ 67,378 |

See Notes to Consolidated Financial Statements

**JUNIATA VALLEY FINANCIAL CORP. AND SUBSIDIARY
CONSOLIDATED STATEMENTS OF CASH FLOWS**

(Dollars in thousands)

| | Years Ended December 31, | | |
|--|---------------------------------|-----------------|-----------------|
| | 2018 | 2017 | 2016 |
| Operating activities: | | | |
| Net income | \$ 5,904 | \$ 4,537 | \$ 5,156 |
| Adjustments to reconcile net income to net cash provided by operating activities: | | | |
| Provision for loan losses | 337 | 439 | 466 |
| Depreciation | 815 | 672 | 595 |
| Net amortization of securities premiums | 540 | 650 | 740 |
| Net amortization of loan origination costs | 43 | 75 | 63 |
| Deferred net loan origination costs | (348) | (410) | (124) |
| Amortization of core deposit intangible | 79 | 67 | 105 |
| Amortization of investment in low income housing partnership | 800 | 612 | 479 |
| Net (amortization) accretion of purchase fair value adjustments | (102) | 17 | (9) |
| Net realized loss (gain) on sales and calls of securities | 188 | (512) | (218) |
| Change in value of equity securities | 1 | - | - |
| Net (gain) loss on sales of other real estate owned | (60) | (8) | 148 |
| Earnings on bank owned life insurance and annuities | (352) | (352) | (371) |
| Deferred income tax (benefit) expense | (96) | 681 | 320 |
| Equity loss (gain) in unconsolidated subsidiary, net of dividends of \$75, \$61 and \$55 | 194 | (106) | (167) |
| Equity gain from acquisition of unconsolidated subsidiary | (415) | - | - |
| Stock-based compensation expense | 82 | 71 | 67 |
| Mortgage loans originated for sale | - | (4,170) | (1,582) |
| Proceeds from loans sold to others | 95 | 4,257 | 1,822 |
| Mortgage banking income | (70) | (107) | (228) |
| Gain from life insurance proceeds | - | - | (364) |
| (Increase) decrease in accrued interest receivable and other assets | (1,493) | (6) | 461 |
| (Decrease) increase in accrued interest payable and other liabilities | (821) | 393 | (1,056) |
| Net cash provided by operating activities | 5,321 | 6,800 | 6,303 |
| Investing activities: | | | |
| Purchases of: | | | |
| Securities available for sale | (20,610) | (42,510) | (48,195) |
| FHLB stock | - | - | (111) |
| Premises and equipment | (548) | (2,703) | (542) |
| Bank owned life insurance and annuities | (39) | (40) | (53) |
| Proceeds from: | | | |
| Sales of securities available for sale | 10,461 | 21,799 | 4,304 |
| Maturities of and principal repayments on securities available for sale | 19,145 | 16,322 | 43,835 |
| Redemption of FHLB stock | 787 | 586 | - |
| Sale of student loans | - | - | 1,796 |
| Life insurance claims | - | - | 1,016 |
| Sale of other real estate owned | 352 | 1,007 | 144 |
| Sale of other assets | 22 | 25 | 20 |
| Net cash received from acquisition | 7,561 | - | - |
| Investment in low income housing partnerships | (100) | (2,045) | (923) |
| Net decrease in interest bearing time deposits with banks | 735 | - | - |
| Net increase in loans | (2,931) | (6,239) | (1,750) |
| Net cash provided by (used in) investing activities | 14,835 | (13,798) | (459) |
| Financing activities: | | | |
| Net increase (decrease) in deposits | 8,010 | 21,837 | (1,293) |
| Net decrease in short-term borrowings and securities sold under agreements to repurchase | (7,258) | (10,427) | (2,861) |
| Issuance of long-term debt | - | - | 10,000 |
| Repayment of long-term debt | (10,000) | - | (7,500) |
| Cash dividends | (4,411) | (4,194) | (4,226) |
| Purchase of treasury stock | (70) | (86) | (927) |
| Treasury stock issued for employee stock plans | 90 | - | - |
| Common stock issued for employee stock plans | 42 | 206 | 64 |
| Net cash (used in) provided by financing activities | (13,597) | 7,336 | (6,743) |
| Net increase (decrease) in cash and cash equivalents | 6,559 | 338 | (899) |
| Cash and cash equivalents at beginning of year | 9,897 | 9,559 | 10,458 |
| Cash and cash equivalents at end of year | \$ 16,456 | \$ 9,897 | \$ 9,559 |

| <i>(Dollars in thousands)</i> | Years Ended December 31, | | |
|---|---------------------------------|-------------|-------------|
| | 2018 | 2017 | 2016 |
| Supplemental information: | | | |
| Interest paid | \$ 3,646 | \$ 2,823 | \$ 2,237 |
| Income tax (refund) paid | (663) | 735 | 200 |
| Supplemental schedule of noncash investing and financing activities: | | | |
| Transfer of loans to other real estate owned | \$ 681 | \$ 716 | \$ 313 |
| Transfer of loans to other assets | 12 | 21 | 20 |
| Securities sold settling after year-end | - | - | 104 |
| Supplemental schedule of assets and liabilities in connection with merger: | | | |
| Assets acquired: | | | |
| Investment in time deposits with banks | \$ 3,675 | | |
| Loans | 31,331 | | |
| Premises and equipment | 125 | | |
| Accrued interest receivable | 123 | | |
| Core deposit and other intangible assets | 289 | | |
| Bank owned life insurance | 632 | | |
| FHLB stock | 124 | | |
| Other assets | 267 | | |
| | <u>\$ 36,566</u> | | |
| Liabilities assumed: | | | |
| Deposits | 36,052 | | |
| Accrued interest payable and other liabilities | 266 | | |
| | <u>\$ 36,318</u> | | |

See Notes to Consolidated Financial Statements

JUNIATA VALLEY FINANCIAL CORP. AND SUBSIDIARY**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
YEARS ENDED DECEMBER 31, 2018, 2017 AND 2016****1. NATURE OF OPERATIONS**

Juniata Valley Financial Corp. (“Juniata” or the “Company”) is a bank holding company operating in central Pennsylvania for the purpose of delivering financial services within its local market. Through its wholly-owned banking subsidiary, The Juniata Valley Bank (the “Bank”), Juniata provides retail and commercial banking and other financial services through 16 branch locations located in Juniata, Mifflin, Perry, McKean, Potter and Huntingdon Counties. Additionally, in Mifflin, Juniata and Centre Counties, the Company maintains three offices for loan production, trust services and wealth management sales. Each of the Company’s lines of business are part of the same reporting segment, whose operating results are regularly reviewed and managed by a centralized executive management group. As a result, the Company has only one reportable segment for financial reporting purposes. The Bank provides a full range of banking services, including online and mobile banking, an automatic teller machine network, checking accounts, identity protection products for consumers, savings accounts, money market accounts, fixed rate certificates of deposit, club accounts, secured and unsecured commercial and consumer loans, construction and mortgage loans, safe deposit facilities and credit loans with overdraft checking protection. The Bank also provides a variety of trust services. The Company has a contractual arrangement with a broker-dealer to allow the offering of annuities, mutual funds, stock and bond brokerage services and long-term care insurance to its local market. Most of the Company’s commercial customers are small and mid-sized businesses operating in the Bank’s local service area. The Bank operates under a state bank charter and is subject to regulation by the Pennsylvania Department of Banking and the Federal Deposit Insurance Corporation. Juniata is subject to regulation by the Board of Governors of the Federal Reserve Bank and the Pennsylvania Department of Banking and Securities.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The accounting policies of Juniata Valley Financial Corp. and its wholly owned subsidiary conform to accounting principles generally accepted in the United States of America (“GAAP”) and to general financial services industry practices. A summary of the more significant accounting policies applied in the preparation of the accompanying consolidated financial statements follows.

Principles of consolidation

The consolidated financial statements include the accounts of Juniata Valley Financial Corp. and its wholly owned subsidiary, The Juniata Valley Bank. All significant intercompany transactions and balances have been eliminated.

Use of estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. Material estimates that are particularly susceptible to significant change in the near term relate to the determination of the allowance for loan losses, the determination of other-than-temporary impairment on securities, impairment of goodwill and the value of assets acquired and liabilities assumed in business combinations.

Significant group concentrations of credit risk

Most of the Company's activities are with customers located within the Juniata Valley and the JVB Northern Tier regions. Note 6 discusses the types of securities in which the Company invests. Note 7 discusses the types of lending in which the Company engages.

As of December 31, 2018, credit exposure to lessors of non-residential buildings and dwellings represented 55.3% of capital, credit exposure to hotels and motels represented 40.0% of capital, credit exposure to continuing care retirement communities represented 28.4% of capital, and credit exposure to residential buildings and dwellings represented 27.9% of capital. Otherwise, there were no concentrations of credit to any particular industry equaling more than 25% of total capital. The Bank's business activities are geographically concentrated in the counties of Juniata, Mifflin, Perry, Huntingdon, Centre, Franklin, McKean, Potter and Snyder, Pennsylvania. The Bank has a diversified loan portfolio; however, a substantial portion of its debtors' ability to honor their obligations is dependent upon the economy in central Pennsylvania.

Revenue Recognition

The Company generally acts in a principal capacity, on its own behalf, in most contracts with customers. In such transactions, revenue and related costs to provide these services are recognized on a gross basis in the financial statements. In some cases, the Company acts in an agent capacity, deriving revenue through assisting other entities in transactions with its customers. In such transactions, revenue and the related costs to provide the services are recognized on a net basis in the financial statements. These transactions primarily relate to non-deposit product commissions and fees derived from customer's use of various interchange and ATM/debit card networks.

All of the Company's revenue from contracts with customers in the scope of ASC Topic 606, *Revenue from Contracts with Customers*, are recognized within non-interest income on the consolidated statements of income. Revenue streams not within the scope of ASC 606 included in non-interest income on the consolidated statements of income include earnings on bank-owned life insurance and annuities, income from unconsolidated subsidiary, fees derived from loan activity, mortgage banking income, gain/loss on sales and calls of securities, and the change in value of equity securities. Refer to Note 21 for a description of the Company's sources of revenue accounted for under ASC 606.

Cash and cash equivalents

For purposes of reporting cash flows, cash and cash equivalents include cash on hand, amounts due from banks, interest bearing demand deposits with banks and federal funds sold. Generally, federal funds are sold for one-day periods.

Interest bearing time deposits with banks

Interest-bearing time deposits with banks consist of certificates of deposits in other banks with maturities within five years.

Securities

Securities classified as available for sale, which include marketable investment securities, are stated at fair value, with the unrealized gains and losses, net of tax, reported as a component of other comprehensive income (loss). Securities classified as available for sale are those securities that the Company intends to hold for an indefinite period of time but not necessarily to maturity. Any decision to sell a security classified as available for sale would be based on various factors, including significant movement in interest rates, changes in maturity mix

of the Company's assets and liabilities, liquidity needs, regulatory capital considerations and other similar factors. Interest and dividends are recognized as income when earned. Premiums and discounts are recognized in interest income using the interest method over the terms of the securities. Gains or losses on the disposition of securities available for sale are based on the net proceeds and the adjusted carrying amount of the securities sold, determined on a specific identification basis.

Prior to January 1, 2018, both debt and equity securities were accounted for under ASC 320, *Investments – Debt and Equity Securities*. ASC 320 clarified the interaction of the factors that should be considered when determining whether a debt security is other-than-temporarily impaired. For debt securities, management had to assess whether (a) it had the intent to sell the security and (b) it was more likely than not that it would be required to sell the security prior to its anticipated recovery. These steps were taken before an assessment was made as to whether the entity would recover the cost basis of the investment. If either of these circumstances was present, the securities would be written down to fair value through an impairment charge recorded on the income statement.

In instances when a determination is made that an other-than-temporary impairment exists and the entity does not intend to sell the debt security and it is not more likely than not that it will be required to sell the debt security prior to its anticipated recovery, the other-than-temporary impairment is separated into the amount of the total other-than-temporary impairment related to a decrease in cash flows expected to be collected from the debt security (the credit loss) and the amount of the total other-than-temporary impairment related to all other factors. The amount of the total other-than-temporary impairment related to the credit loss is recognized in earnings. The amount of the total other-than-temporary impairment related to all other factors is recognized in other comprehensive (loss) income. Management determines the appropriate classification of debt securities at the time of purchase and re-evaluates such designation as of each balance sheet date.

For equity securities under ASC 320, consideration was given to management's intention and ability to hold the securities until recovery of unrealized losses in assessing potential other-than-temporary impairment. More specifically, factors considered to determine other-than-temporary impairment status for individual equity holdings included the length of time the stock remained in an unrealized loss position, the percentage of unrealized loss compared to the carrying cost of the stock, dividend reduction or suspension, market analyst reviews and expectations, and other pertinent factors that would affect expectations for recovery or further decline.

As of January 1, 2018, upon the adoption of ASU 2016-01, all of the Company' equity securities are within the scope of ASC 321, *Investments – Equity Securities*, while debt securities remain under ASC 320, *Investments – Debt Securities*. ASC 321 requires all equity securities within its scope to be measured at fair value with changes in fair value recognized in net income.

Restricted Investment in Bank Stock

The Bank owns restricted stock investments in the Federal Home Loan Bank and the Atlantic Community Bankers Bank ("ACBB"). Federal law requires a member institution of the Federal Home Loan Bank to hold stock according to a predetermined formula. Both the FHLB and ACBB stock is carried at cost.

Management evaluates the restricted stock for impairment on an annual basis. Management's determination of whether these investments are impaired is based on management's assessment of the ultimate recoverability of the cost of these investments rather than by recognizing temporary declines in value. The recoverability of the cost of the FHLB investments is influenced by criteria such as (1) the significance of the decline in net assets of the FHLB as compared to the capital stock amount for the FHLB and the length of time this situation has

persisted, (2) commitments by the FHLB to make payments required by law or regulation and the level of such payments in relation to the operating performance of the FHLB, and (3) the impact of legislative and regulatory changes on institutions and, accordingly, on the customer base of the FHLB.

Management believes no impairment charge was necessary related to the FHLB or ACBB restricted stock during 2018, 2017 or 2016.

Loans

Loans that the Company has the intent and ability to hold for the foreseeable future or until maturity are stated at the outstanding unpaid principal balances, net of any deferred fees or costs and the allowance for loan losses. Interest income on all loans, other than nonaccrual loans, is accrued over the term of the loans based on the amount of principal outstanding. Unearned income is amortized to income over the life of the loans, using the interest method.

The loan portfolio is segmented into commercial and consumer loans. Commercial loans are comprised of the following classes of loans: (1) commercial, financial and agricultural, (2) commercial real estate, (3) real estate construction, (4) mortgage loans and (5) obligations of states and political subdivisions. Consumer loans are comprised of (4) mortgage loans and (6) personal loans.

Loans on which the accrual of interest has been discontinued are designated as non-accrual loans. Accrual of interest on loans is generally discontinued when the contractual payment of principal or interest has become 90 days past due or reasonable doubt exists as to the full, timely collection of principal or interest. However, it is the Company's policy to continue to accrue interest on loans over 90 days past due as long as (1) they are guaranteed or well secured and (2) there is an effective means of collection in process. When a loan is placed on non-accrual status, all unpaid interest credited to income in the current year is reversed against current period income and unpaid interest accrued in prior years is charged against the allowance for loan losses. Interest received on nonaccrual loans generally is either applied against principal or reported as interest income, according to management's judgment as to the collectability of principal. Generally, accruals are resumed on loans only when the obligation is brought fully current with respect to interest and principal, has performed in accordance with the contractual terms for a reasonable period of time and the ultimate collectability of the total contractual principal and interest is no longer in doubt.

The Company originates loans in the portfolio with the intent to hold them until maturity. At the time the Company no longer intends to hold loans to maturity based on asset/liability management practices, the Company transfers loans from its portfolio to held for sale at fair value. Any write-down recorded upon transfer is charged against the allowance for loan losses. Any write-downs recorded after the initial transfers are recorded as a charge to other non-interest expense. Gains or losses recognized upon sale are included in other non-interest income.

Loan origination fees and costs

Loan origination fees and related direct origination costs for a given loan are deferred and amortized over the life of the loan on a level-yield basis as an adjustment to interest income over the contractual life of the loan. As of December 31, 2018 and 2017, the amount of net unamortized origination fees carried as an adjustment to outstanding loan balances was \$11,000 and \$52,000, respectively.

Allowance for credit losses

The allowance for credit losses consists of the allowance for loan losses and the reserve for unfunded lending commitments. The allowance for loan losses ("allowance") represents management's estimate of losses inherent

in the loan portfolio as of the consolidated statement of financial condition date and is recorded as a reduction to loans. The reserve for unfunded lending commitments represents management's estimate of losses inherent in its unfunded lending commitments and is recorded in other liabilities on the consolidated statement of financial condition, when necessary. The amount of the reserve for unfunded lending commitments is not material to the consolidated financial statements. The allowance for loan losses is increased by the provision for loan losses, and decreased by charge-offs, net of recoveries. Loans deemed to be uncollectible are charged against the allowance for loan losses, and subsequent recoveries, if any, are credited to the allowance.

For financial reporting purposes, the provision for loan losses charged to current operating income is based on management's estimates, and actual losses may vary from estimates. These estimates are reviewed and adjusted at least quarterly and are reported in earnings in the periods in which they become known.

Loans included in any class are considered for charge-off when:

- principal or interest has been in default for 120 days or more and for which no payment has been received during the previous four months;
- all collateral securing the loan has been liquidated and a deficiency balance remains;
- a bankruptcy notice is received for an unsecured loan;
- a confirming loss event has occurred; or
- the loan is deemed to be uncollectible for any other reason.

The allowance for loan losses is maintained at a level considered adequate to offset probable losses on the Company's existing loans. The analysis of the allowance for loan losses relies heavily on changes in observable trends that may indicate potential credit weaknesses. Management's periodic evaluation of the adequacy of the allowance is based on the Bank's past loan loss experience, known and inherent risks in the portfolio, adverse situations that may affect the borrower's ability to repay, the estimated value of any underlying collateral, composition of the loan portfolio, current economic conditions and other relevant factors. This evaluation is inherently subjective as it requires material estimates that may be susceptible to significant revision as more information becomes available.

Based on management's comprehensive analysis of the loan portfolio, management believes the level of the allowance for loan losses as of December 31, 2018 was adequate.

There are two components of the allowance: 1) specific allowances allocated to loans evaluated for impairment under ASC Section 310-10-35; and 2) allowances calculated for pools of loans evaluated collectively for impairment under ASC Subtopic 450-20 (Contingencies).

A loan is considered to be impaired when, based on current information and events, it is probable that the Company will be unable to collect the scheduled payments of principal or interest when due according to the contractual terms of the loan agreement. Factors considered by management in determining impairment include payment status, collateral value and the probability of collecting scheduled principal and interest payments when due. Loans that experience insignificant payment delays and payment shortfalls generally are not classified as impaired. Management determines the significance of payment delays and payment shortfalls on a case-by-case basis, taking into consideration all of the circumstances surrounding the loans and the borrower, including the length of the delay, the reasons for the delay, the borrower's prior payment record and the amount of the shortfall in relation to the principal and interest owed. Impairment is measured on a loan by loan basis by the present value of expected future cash flows discounted at the loan's effective interest rate, the loan's observable market price or the fair value of the collateral if the loan is collateral dependent.

The estimated fair values of substantially all of the Company's impaired loans are measured based on the estimated fair value of the loan's collateral. For commercial loans secured with real estate, estimated fair values are determined primarily through third-party appraisals. When a real estate secured loan becomes impaired, a decision is made regarding whether an updated certified appraisal of the real estate is necessary. This decision is based on various considerations, including the age of the most recent appraisal, the loan-to-value ratio based on the current appraisal and the condition of the property. Appraised values may be discounted to arrive at the estimated selling price of the collateral, which is considered to be the estimated fair value. The discounts also include the estimated costs to sell the property. For commercial loans secured by non-real estate collateral, estimated fair values are determined based on the borrower's financial statements, inventory reports, aging accounts receivable, equipment appraisals or invoices. Indications of value from these sources are generally discounted based on the age of the financial information or the quality of the assets. For such loans that are classified as impaired, an allowance is established when the discounted cash flows (or collateral value or observable market price) of the impaired loan is lower than the carrying value of that loan. The Company generally does not separately identify individual consumer segment loans for impairment analysis, unless such loans are subject to a restructuring agreement.

Loans whose terms are modified are classified as troubled debt restructurings if the Company grants borrowers concessions and it is deemed that those borrowers are experiencing financial difficulty. Concessions granted under a troubled debt restructuring generally involve a below-market interest rate based on the loan's risk characteristics, an extension of a loan's stated maturity date or a significant delay in payment. Nonaccrual troubled debt restructurings are restored to accrual status if principal and interest payments, under the modified terms, are current for a sustained period of time after modification. Loans classified as troubled debt restructurings are designated as impaired.

The component of the allowance for pooled loan contingencies relates to other loans that have been segmented into risk rated categories. In accordance with ASC Subtopic 450-20, when measuring estimated credit losses, these loans are grouped into homogenous pools with similar characteristics and evaluated collectively considering both quantitative measures, such as historical loss, and qualitative measures, in the form of environmental adjustments.

Some portfolio segments are further disaggregated and evaluated collectively for impairment based on "class segments," which are largely based on the type of collateral underlying each loan. For commercial, financial and agricultural loans, class segments include commercial loans secured by other-than real estate collateral. Real estate – commercial class segments include loans secured by farmland, multi-family properties, owner-occupied non-farm, non-residential properties and other nonfarm non-residential properties. Real estate – mortgage includes loans secured by first and junior liens on residential real estate. Construction loan class segments include loans secured by commercial real estate, loans to commercial borrowers secured by residential real estate and loans to individuals secured by residential real estate. Personal loan class segments include direct consumer installment loans, indirect automobile loans and other revolving and unsecured loans to individuals.

Quantitative factor determination:

An average annual loss rate is calculated for each pool through an analysis of historical losses over a five-year look-back period. Using data for each loan, a loss emergence period is determined within each segmented class pool. The loss emergence period reflects the approximate length of time from the point when a loss is incurred (the loss trigger event) to the point of loss confirmation (the date of eventual charge-off). The loss emergence period is applied to the average annual loss to produce the qualitative factor for each pooled class segment.

Qualitative factor determination:

Historical loss rates computed in the quantitative component reflects an estimate of the level of incurred losses in the portfolio based on historical experience. Management considers that the current conditions may deviate from those that prevailed over the historical look-back period. Thus, the quantitative rates are an imperfect estimate, necessitating an evaluation of qualitative considerations, i.e. environmental factors to incorporate these risks.

Management considered qualitative, environmental risk factors including:

- National, regional and local economic and business conditions, and developments that affect the collectability of the portfolio, including the condition of various market segments;
- Changes in the volume and severity of past due loans, the volume of nonaccrual loans, and the volume and severity of adversely classified loans;
- Changes in the nature and volume of the portfolio and terms of loans;
- Changes in the experience, ability and depth of lending and credit management and other relevant staff;
- Existence and effect of any concentrations of credit and changes in the level of such concentrations;
- Changes in the quality of the loan review system;
- Changes in lending policies and procedures including changes in underwriting standards and collection, charge-off and recovery practices;
- Changes in the value of underlying collateral for collateral-dependent loans; and
- Effect of external influences, including competition, legal and regulatory requirements.

Within each loan segment, an analysis was performed over a ten-year look-back period to discover peak historical losses, and with this data, management established ranges of risk from minimal to very high, for each risk factor, to produce a supportable anchor for risk assignment. Based on the framework for risk factor evaluation and range of adjustments established through the anchoring process, a risk assessment and corresponding adjustment was assigned for each portfolio segment as of December 31, 2018. Adjustments to the factors are supported through documentation of changes in conditions in a narrative accompanying the allowance for loan loss calculation.

The combination of quantitative and qualitative factors were applied to year-end balances in each pooled segment to establish the overall allowance.

Acquired Loans

Loans that Juniata acquires through business combinations are recorded at fair value with no carryover of the related allowance for loan losses. Fair value of the loans involves estimating the amount and timing of principal and interest cash flows expected to be collected on the loans and discounting those cash flows at a market rate of interest.

The excess of cash flows expected at acquisition over the estimated fair value is referred to as the accretable discount and is recognized into interest income over the remaining life of the loan. The difference between contractually required payments at acquisition and the cash flows expected to be collected at acquisition is referred to as the nonaccretable discount. The nonaccretable discount includes estimated future credit losses expected to be incurred over the life of the loan. Subsequent decreases to the expected cash flows will require Juniata to evaluate the need for an additional allowance for credit losses. Subsequent improvement in expected cash flows will result in the reversal of a corresponding amount of the nonaccretable discount which Juniata will then reclassify as accretable discount that will be recognized into interest income over the remaining life of the loan.

Acquired loans that met the criteria for impaired or nonaccrual of interest prior to the acquisition may be considered performing upon acquisition, regardless of whether the customer is contractually delinquent, if Juniata expects to fully collect the new carrying value (i.e. fair value) of the loans. As such, Juniata may no longer consider the loan to be nonaccrual or nonperforming and may accrue interest on these loans, including the impact of any accretable discount. In addition, charge-offs on such loans would be first applied to the nonaccretable difference portion of the fair value adjustment.

Loans acquired through business combinations that do not meet the specific criteria of ASC 310-30, but for which a discount is attributable at least in part to credit quality, are also accounted for in accordance with this guidance. As a result, related discounts are recognized subsequently through accretion based on the contractual cash flows of the acquired loans.

Loans Held for Sale

The Company has originated residential mortgage loans with the intent to sell. These individual loans are normally funded by the buyer immediately. The Company maintains servicing rights on these loans. Mortgage servicing rights are recognized as an asset upon the sale of a mortgage loan. A portion of the cost of the loan is allocated to the servicing right based upon relative fair value. Servicing rights are intangible assets and are carried at estimated fair value. Adjustments to fair value are recorded as non-interest income and included in mortgage banking income in the consolidated statements of income.

In a business combination, the Company may acquire loans which it intends to sell. These loans are assigned a fair value by obtaining actual bids on the loans and adjusting for contingencies in the bids. These loans are carried at lower of cost or market value until sold, adjusted periodically if conditions change before the subsequent sale. Adjustments to fair value and gains or losses recognized upon sale are included in gains on sales of loans which is a component of non-interest income.

Commercial, Financial and Agricultural Lending

The Company originates commercial, financial and agricultural loans primarily to businesses located in its primary market area and surrounding areas. These loans are used for various business purposes, which include short-term loans and lines of credit to finance machinery and equipment purchases, inventory and accounts receivable. Generally, the maximum term for loans extended on machinery and equipment is shorter and does not exceed the projected useful life of such machinery and equipment. Most business lines of credit are written with a five year maturity, subject to an annual review.

Commercial loans are generally secured with short-term assets; however, in many cases, additional collateral, such as real estate, is provided as additional security for the loan. Loan-to-value maximum values have been established by the Company and are specific to the type of collateral. Collateral values may be determined using invoices, inventory reports, accounts receivable aging reports, collateral appraisals, etc.

In underwriting commercial loans, an analysis of the borrower's character, capacity to repay the loan, the adequacy of the borrower's capital and collateral, as well as an evaluation of conditions affecting the borrower, is performed. Analysis of the borrower's past, present and future cash flows is also an important aspect of the Company's analysis.

Concentration analysis assists in identifying industry specific risk inherent in commercial, financial and agricultural lending. Mitigants include the identification of secondary and tertiary sources of repayment and appropriate increases in oversight.

Commercial, financial and agricultural loans generally present a higher level of risk than certain other types of loans, particularly during slow economic conditions.

Commercial Real Estate Lending

The Company engages in commercial real estate lending in its primary market area and surrounding areas. The Company's commercial real estate portfolio is secured primarily by residential housing, commercial buildings, raw land and hotels. Generally, commercial real estate loans have terms that do not exceed 20 years, have loan-to-value ratios of up to 80% of the appraised value of the property and are typically secured by personal guarantees of the borrowers.

As economic conditions deteriorate, the Company reduces its exposure in real estate loans with higher risk characteristics. In underwriting these loans, the Company performs a thorough analysis of the financial condition of the borrower, the borrower's credit history, and the reliability and predictability of the cash flow generated by the property securing the loan. Appraisals on properties securing commercial real estate loans originated by the Company are performed by independent appraisers.

Commercial real estate loans generally present a higher level of risk than certain other types of loans, particularly during slow economic conditions.

Real Estate Construction Lending

The Company engages in real estate construction lending in its primary market area and surrounding areas. The Company's real estate construction lending consists of commercial and residential site development loans, as well as commercial building construction and residential housing construction loans.

The Company's commercial real estate construction loans are generally secured with the subject property, and advances are made in conformity with a pre-determined draw schedule supported by independent inspections. Terms of construction loans depend on the specifics of the project, such as estimated absorption rates, estimated time to complete, etc.

In underwriting commercial real estate construction loans, the Company performs a thorough analysis of the financial condition of the borrower, the borrower's credit history, the reliability and predictability of the cash flow generated by the project using feasibility studies, market data, etc. Appraisals on properties securing commercial real estate loans originated by the Company are performed by independent appraisers.

Real estate construction loans generally present a higher level of risk than certain other types of loans, particularly during slow economic conditions. The difficulty of estimating total construction costs adds to the risk as well.

Mortgage Lending

The Company's real estate mortgage portfolio is comprised of consumer residential mortgages and business loans secured by one-to-four family properties. One-to-four family residential mortgage loan originations, including home equity installment and home equity lines of credit loans, are generated by the Company's marketing efforts, its present customers, walk-in customers and referrals. These loans originate primarily within the Company's market area or with customers primarily from the market area.

The Company offers fixed-rate and adjustable rate mortgage loans with terms up to a maximum of 25 years for both permanent structures and those under construction. The Company's one-to-four family residential mortgage originations are secured primarily by properties located in its primary market area and surrounding areas. The majority of the Company's residential mortgage loans originate with a loan-to-value of 80% or less. Home equity installment loans are secured by the borrower's primary residence with a maximum loan-to-value of 80% and a maximum term of 15 years. Home equity lines of credit are secured by the borrower's primary residence with a maximum loan-to-value of 90% and a maximum term of 20 years.

In underwriting one-to-four family residential real estate loans, the Company evaluates the borrower's ability to make monthly payments, the borrower's repayment history and the value of the property securing the loan. The ability to repay is determined by the borrower's employment history, current financial conditions, and credit background. The analysis is based primarily on the customer's ability to repay and secondarily on the collateral or security. Most properties securing real estate loans made by the Company are appraised by independent fee appraisers. The Company generally requires mortgage loan borrowers to obtain an attorney's title opinion or title insurance, and fire and property insurance (including flood insurance, if necessary) in an amount not less than the amount of the loan. The Company does not engage in sub-prime residential mortgage originations.

Residential mortgage loans and home equity loans generally present a lower level of risk than certain other types of consumer loans because they are secured by the borrower's primary residence. Risk is increased when the Company is in a subordinate position for the loan collateral.

Obligations of States and Political Subdivisions

The Company lends to local municipalities and other tax-exempt organizations. These loans are primarily tax-anticipation notes and, as such, carry little risk. Historically, the Company has never had a loss on any loan of this type.

Personal Lending

The Company offers a variety of secured and unsecured personal loans, including vehicle loans, mobile home loans and loans secured by savings deposits as well as other types of personal loans.

Personal loan terms vary according to the type and value of collateral and creditworthiness of the borrower. In underwriting personal loans, a thorough analysis of the borrower's willingness and financial ability to repay the loan as agreed is performed. The ability to repay is determined by the borrower's employment history, current financial conditions and credit background.

Personal loans may entail greater credit risk than do residential mortgage loans, particularly in the case of personal loans which are unsecured or are secured by rapidly depreciable assets, such as automobiles or recreational equipment. In such cases, any repossessed collateral for a defaulted personal loan may not provide an adequate source of repayment of the outstanding loan balance as a result of the greater likelihood of damage, loss or depreciation. In addition, personal loan collections are dependent on the borrower's continuing financial stability and, thus are more likely to be affected by adverse personal circumstances. Furthermore, the application of various federal and state laws, including bankruptcy and insolvency laws, may limit the amount which can be recovered on such loans.

Other real estate owned

Assets acquired in settlement of mortgage loan indebtedness are recorded as other real estate owned ("OREO") at fair value less estimated costs to sell, establishing a new cost basis. Costs to maintain the assets and subsequent gains and losses attributable to their disposal are included in other expense as realized. No depreciation or amortization expense is recognized. At December 31, 2018 and 2017, the carrying value of other real estate owned was \$744,000 and \$355,000, respectively.

Goodwill and intangibles

The Company accounts for its business combinations using the purchase accounting method. Purchase accounting requires the total purchase price to be allocated to the estimated fair values of assets acquired and

liabilities assumed, including certain intangible assets that must be recognized. Typically, this allocation results in the purchase price exceeding the fair value of net assets acquired, which is recorded as goodwill. Core deposit intangibles are a measure of the value of checking, money market and savings deposits acquired in business combinations accounted for under the purchase method. Core deposit intangibles and other identified intangibles with finite useful lives are amortized over their estimated useful lives.

Goodwill and other intangible assets are tested for impairment annually or when circumstances arise indicating impairment may have occurred. In determining whether impairment has occurred, management considers a number of factors including, but not limited to, the market value of the Company's stock, operating results, business plans, economic projections, anticipated future cash flows and current market data. There are inherent uncertainties related to these factors and management's judgment in applying them to the analysis of impairment. Changes in economic and operating conditions, as well as other factors, could result in impairment in future periods. Any impairment losses arising from such testing would be reported in the Consolidated Statements of Income as a separate line item within operations. There were no impairment losses recognized as a result of periodic impairment testing in each of the three years ended December 31, 2018.

Mortgage servicing rights

The Company originates residential mortgage loans with the intent to sell. These individual loans are normally funded by the buyer immediately. The Company maintains servicing rights on these loans.

Mortgage servicing rights are recognized as an asset upon the sale of a mortgage loan. A portion of the cost of the loan is allocated to the servicing right based upon relative fair value. Servicing rights are intangible assets and are carried at estimated fair value. The carrying amount of mortgage servicing rights was \$200,000 and \$225,000 at December 31, 2018 and 2017, respectively. Adjustments to fair value are recorded as non-interest income and included in gain on sales of loans in the consolidated statements of income.

The Company retains the servicing rights on mortgage loans sold to the FHLB and receives mortgage banking fee income based upon the principal balance outstanding. Total loans serviced for the FHLB were \$23,563,000 and \$23,647,000 at December 31, 2018 and 2017, respectively. The mortgage loans sold to the FHLB and serviced by the Company are not reflected in the consolidated statements of financial condition.

Premises and equipment and depreciation

Premises and equipment are stated at cost less accumulated depreciation. Depreciation is computed principally using the straight-line method over the estimated useful lives of the related assets, which range from 3 to 10 years for furniture and equipment and 25 to 50 years for buildings. Expenditures for maintenance and repairs are charged against income as incurred. Costs of major additions and improvements are capitalized. Amortization of leasehold improvements is computed on a straight-line basis over the shorter of the assets' useful life or the related lease term.

Trust assets and revenues

Assets held in a fiduciary capacity are not assets of the Bank or the Bank's Trust Department and are, therefore, not included in the consolidated financial statements. Trust revenues are recorded on the accrual basis.

Bank owned life insurance, annuities and split-dollar arrangements

The cash surrender value of bank owned life insurance and annuities is carried as an asset, and changes in cash surrender value are recorded as non-interest income.

GAAP requires split-dollar life insurance arrangements to have a liability recognized related to the postretirement benefits covered by an endorsement split-dollar life insurance arrangement. The accrued benefit liability was \$1,081,000 and \$1,014,000 as of December 31, 2018 and 2017, respectively. Related expenses for 2018, 2017 and 2016 were \$38,000, \$95,000 and \$61,000, respectively.

Investments in low-income housing partnerships

Juniata has invested as a limited partner in two partnerships that provide low-income housing in Lewistown, Pennsylvania. The carrying value of the investment in the limited partnerships was \$4,545,000 at December 31, 2018 and \$5,245,000 at December 31, 2017. The decline in carrying value in 2018 was the result of amortization exceeding the draws taken for the completion of the phase II low-income housing project. Federal credits are available for ten years for each of the two projects. Tax credits associated with phase I will continue through 2023 annually at \$572,000. Phase II credits were initiated in 2017 and will run through 2027 at an annual amount of \$333,000. The tax credits are included in the tax expense line item on the Consolidated Statements of Income. Amortization of the investment using the cost method is scheduled to occur over the same period as tax credits are earned. Juniata's maximum exposure to loss is limited to the carrying value of the investment at year-end.

Income taxes

The Company accounts for income taxes in accordance with income tax accounting guidance ASC Topic 740, *Income Taxes*.

Current income tax accounting guidance results in two components of income tax expense: current and deferred. Current income tax expense reflects taxes to be paid or refunded for the current period by applying the provisions of the enacted tax law to the taxable income or excess of deductions over revenues. The Company determines deferred income taxes using the liability (or balance sheet) method. Under this method, the net deferred tax asset or liability is based on the tax effects of the differences between the book and tax bases of assets and liabilities, and enacted changes in tax rates and laws are recognized in the period in which they occur.

Deferred income tax expense results from changes in deferred tax assets and liabilities between periods. Deferred tax assets are reduced by a valuation allowance if, based on the weight of the evidence available, it is more likely than not that some portion or all of a deferred tax asset will not be realized.

The Company accounts for uncertain tax positions if it is more likely than not, based on the technical merits, that the tax position will be realized or sustained upon examination. The term "more likely than not" means a likelihood of more than 50 percent; the terms "examined" and "upon examination" also include resolution of the related appeals or litigation processes, if any. A tax position that meets the more-likely-than-not recognition threshold is initially and subsequently measured as the largest amount of tax benefit that has a greater than 50 percent likelihood of being realized upon settlement with a taxing authority that has full knowledge of all relevant information. The determination of whether or not a tax position has met the more-likely-than-not recognition threshold considers the facts, circumstances and information available at the reporting date and is subject to management's judgment.

The Company recognizes interest and penalties on income taxes, if any, as a component of income tax expense.

Advertising

The Company follows the policy of charging costs of advertising to expense as incurred. Advertising expenses were \$294,000, \$272,000 and \$243,000 in 2018, 2017 and 2016, respectively.

Off-balance sheet financial instruments

In the ordinary course of business, the Bank has entered into off-balance sheet financial instruments consisting of commitments to extend credit and letters of credit. Such financial instruments are recorded on the consolidated statement of financial condition when they are funded.

Transfer of financial assets

Transfers of financial assets are accounted for as sales when control over the assets has been surrendered. Control over transferred assets is deemed to be surrendered when (1) the assets have been isolated from the Company, (2) the transferee obtains the right (free of conditions that constrain it from taking advantage of that right) to pledge or exchange the transferred assets, and (3) the Company does not maintain effective control over the transferred assets through an agreement to repurchase them before their maturity.

Comprehensive Income

Comprehensive income consists of net income and other comprehensive income (loss). Other comprehensive income (loss) includes changes in unrealized gains and losses on securities available for sale arising during the period and reclassification adjustments for realized gains and losses on securities available for sale included in net income. The Company has a defined benefit retirement plan which utilizes assumptions and methods to calculate the fair value of Plan assets and recognizing the funded status of the Plans on its consolidated balance sheet. Gains and losses on the Plan are recognized in other comprehensive income (loss), net of tax, until they are amortized, or immediately upon curtailment.

Stock-based compensation

The Company sponsors a stock compensation plan for certain key officers which allows, among other stock-based compensation methods, for stock options and restricted stock awards. Prior to 2016, stock options were used exclusively for long-term compensation, but beginning in 2016, restricted shares awards were used. Compensation expense for stock options granted and restricted stock awarded is measured using the fair value of the award on the grant date and is recognized over the vesting period. The stock-based compensation expense amounts for stock options were derived based on the fair value of options using the Black-Scholes option-pricing model.

Segment reporting

Management does not separately allocate expenses, including the cost of funding loan demand, between the commercial, retail and trust operations of the Company. As such, discrete financial information is not available, and segment reporting would not be meaningful.

Subsequent events

The Company has evaluated events and transactions occurring subsequent to the consolidated statement of financial condition date of December 31, 2018, for items that should potentially be recognized or disclosed in the consolidated financial statements. The evaluation was conducted through the date these consolidated financial statements were issued.

3. RECENT ACCOUNTING STANDARDS UPDATE ("ASU")

New Accounting Standards Adopted in 2018

ASU 2014-09, Revenue from Contracts with Customers (Topic 606)

Issued: May 2014

Summary: The amendments in this Update establish a comprehensive revenue recognition standard for virtually all industries under U.S. GAAP, including those that previously followed industry-specific guidance. The revenue standard's core principle requires an entity to recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. To accomplish this objective, the standard requires five basic steps: (i) identify the contract with the customer, (ii) identify the performance obligations in the contract, (iii) determine the transaction price, (iv) allocate the transaction price to the performance obligations in the contract, and (v) recognize revenue when (or as) the entity satisfies a performance obligation.

In August 2015, the FASB issued *ASU 2015-14, Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date*. ASU 2015-14 deferred the effective date of the new revenue recognition standard by one year. As a result, the standard was effective for public entities in fiscal years beginning after December 15, 2017.

The Company adopted the ASU 2014-09 on January 1, 2018 and elected the modified retrospective transition method. Because the amended guidance does not apply to revenue associated with financial instruments accounted for under other U.S. GAAP, the Company assessed the effect the guidance had on the recognition processes of certain recurring revenue streams related to non-interest income. The Company did not identify any significant changes in the timing of revenue recognition when considering the amended accounting guidance. Additional disclosures related to revenue recognition appear in Note 21.

ASU 2018-02, Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income.

Issued: February 2018

Summary: The Update allows entities to reclassify from accumulated other comprehensive income ("AOCI") to retained earnings the 'stranded' tax effects of accounting for income tax rate changes on items accounted for in AOCI that were impacted by tax reform enacted in December 2017. Because the impact of tax rate changes is recorded in income, items accounted for in AOCI could be left with a stranded tax effect appearing as though those items do not reflect the appropriate tax rate. The FASB's changes were intended to improve the usefulness of information reported to financial statement users.

Effective Date: The changes are effective for years beginning after December 31, 2018, with early adoption permitted. The Company elected to adopt the changes in the first quarter of 2018, as of December 31, 2017. The amount transferred from AOCI to retained earnings totaled \$588,000 and represented the impact of the Company's corporate tax rate change from 34% to 21% at the date of enactment of the tax reform for the unrealized gains and losses on securities and the defined benefit plan accounted for in AOCI.

ASU 2016-01, Measurement of Financial Instruments

Issued: January 2016

Summary: The amendments in this Update require all equity investments to be measured at fair value with changes in the fair value recognized through net income (other than those changes accounted for under the equity method of accounting or those that result in consolidation of the investee). The amendments in this Update also require an entity to present separately in AOCI the portion of the total change in the fair value of a liability resulting from a change in the instrument-specific credit risk when the entity has elected to measure the liability at fair value in accordance with the fair value option for financial instruments. In addition, the Update emphasizes the existing requirement to use exit prices to measure fair value for disclosure purposes and clarifies that entities should not make use of a practicability exception in determining the fair value of loans. Accordingly, we refined the calculations used to determine the disclosed fair value of our loans as part of adopting this standard. The redefined calculation did not have a significant impact on our fair value disclosures.

Effective Date: For public entities, the amendments in the Update are effective for fiscal years beginning after December 15, 2017, including interim periods within those fiscal years. The Company currently holds a small portfolio of equity investments for which the fair value fluctuates with market activity. The Company adopted ASU 2016-01 on January 1, 2018. As of this date, the Company had \$197,000 in unrealized gains on equity securities (see Note 6). The adoption of this Update resulted in a reclassification of \$156,000 from other comprehensive loss to retained earnings. The Company recorded a decline of \$1,000 during the year ended December 31, 2018 for the change in fair value of equity securities on the consolidated statements of income.

ASU 2018-03, Technical Corrections and Improvements to Financial Instruments – Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities

Issued: February 2018

Summary: The FASB issued this Update to clarify certain aspects of the guidance on recognizing and measuring financial assets and liabilities in ASU 2016-01:

- Clarification regarding the ability to discontinue application of the measurement alternative for equity securities without a readily determinable fair value;
- Clarification of the measurement date for fair value adjustments to the carrying amount of equity securities without a readily determinable fair value for which the measurement alternative is elected;
- Clarification of the unit of account for fair value adjustments to forward contracts and purchased options on equity securities without a readily determinable fair value for which the measurement alternative is expected to be elected;
- Presentation requirements for certain hybrid financial liabilities for which the fair value option is elected;
- * Measurement of financial liabilities denominated in a foreign currency for which the fair value option is elected; and
- Transition guidance for equity securities without a readily determinable fair value.

The amendments in ASU 2018-03 are effective for public business entities for fiscal years beginning after December 15, 2017 and for interim periods within those fiscal years beginning after June 15, 2018. For all other entities, the effective date is the same as the effective date for ASU 2016-01. All entities may early adopt the amendments, including adoption in an interim period, provided they have already adopted ASU 2016-01. The Company adopted this Update in conjunction with the adoption of ASU 2016-01 on January 1, 2018. The adoption had no material impact to the Company's consolidated financial position or results of operations.

ASU 2017-09, Scope of Modification Accounting

Issued: May 2017

Summary: ASU 2017-09 clarifies Topic 718 such that an entity must apply modification accounting to changes in the terms or conditions of a share-based payment award unless all of the following criteria are met:

1. The fair value of the modified award is the same as the fair value of the original award immediately before the modification. The standard indicates that if the modification does not affect any of the inputs to the valuation technique used to value the award, the entity is not required to estimate the value immediately before and after the modification.
2. The vesting conditions of the modified award are the same as the vesting conditions of the original award immediately before the modification.
3. The classification of the modified award as an equity instrument or a liability instrument is the same as the classification of the original award immediately before the modification.

Effective Date: The amendments were effective for all entities for fiscal years beginning after December 15, 2017, including interim periods within those years. The Company adopted ASU 2017-09 on January 1, 2018 and it had no material impact on the Company's consolidated financial position or results of operations.

ASU 2017-08, Premium Amortization on Purchased Callable Debt Securities

Issued: March 2017

Summary: ASU 2017-08 shortens the amortization period for premiums on purchased callable debt securities to the earliest call date, rather than amortizing over the full contractual term. The ASU does not change the accounting for securities held at a discount.

Effective Date: The amendments are effective for public business entities for fiscal years beginning after December 15, 2018. Early adoption is permitted. The Company chose to early adopt this standard, and the financial statements as of, and for the year ended, December 31, 2017 reflected the impact of premium amortization on callable debt securities to the earliest call date. The adoption of this ASU did not have a material impact on the Company's consolidated financial statements.

ASU 2017-07, Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost

Issued: March 2017

Summary: ASU 2017-07 requires that an employer disaggregate the service cost component from the other components of net benefit cost. The amendments also provide explicit guidance on how to present the service cost component and the other components of net benefit cost in the income statement and allows only the service cost component of net benefit cost to be eligible for capitalization.

Effective Date: The amendments were effective for public business entities for fiscal years beginning after December 15, 2017. The Company adopted this Update on January 1, 2018, and it had no impact on the Company's consolidated financial position and results of operations because the Company's defined benefit plan is frozen; therefore, there is no service cost component to consider. The cost for other components related to the defined benefit plan are recorded in employee benefits expense on the consolidated statements of income.

ASU 2016-15, Classification of Certain Cash Receipts and Cash Payments

Issued: August 2016

Summary: ASU 2016-15 clarifies how certain cash receipts and cash payments are presented and classified in the statement of cash flows. The amendments are intended to reduce diversity in practice.

Effective Date: The amendments were effective for public business entities for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2017. The Company adopted this Update on January 1, 2018 and it did not have a material impact on the Company's consolidated financial position or results of operations.

Pending Accounting Standards

ASU 2016-02, Leases

Issued: February 2016

Summary: The new standard establishes a right-of-use ("ROU") model that requires a lessee to record a ROU asset and a lease liability on the balance sheet for all leases with terms longer than 12 months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement.

In July 2018, the FASB issued ***ASU-2018-10, Codification Improvements to Topic 842, Leases***. ASU 2018-10 clarifies the intended application of certain narrow aspects of the guidance in ASU 2016-02. The amendments are similar in nature to those in the FASB's ongoing project to make improvements to clarify the Codification or correct unintended application of the guidance. Key amendments in this ASU include:

- Updating the definition of Rate Implicit in the Lease to clarify that the rate cannot be less than zero;
- Clarifying application of guidance for lessors when determining impairment of net investment in the lease;
- Clarifying whether lessors and lessees should recognize certain transition adjustments to earnings rather than through equity;
- Clarifying certain transition guidance for amounts previously recognized in business combinations.

In July 2018, the FASB also issued ***ASU 2018-11, Leases (Topic 842): Targeted Improvements***. ASU 2018-11 provides entities with an additional (and optional) transition method to adopt the new leases standard. Under this new transition method, an entity initially applies the new leases standard at the adoption date and recognizes a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption.

ASU 2018-11 also provides lessors with a practical expedient, by class of underlying asset, to elect not to separate nonlease components from the associated lease component and, instead, to account for those components as a single component if the nonlease components otherwise would be accounted for under the new revenue guidance (Topic 606) and both the timing and pattern of transfer of the nonlease component(s) and

associated lease component are the same, and the lease component, if accounted for separately, would be classified as an operating lease. If the nonlease component or components associated with the lease component are the predominant component of the combined component, an entity is required to account for the combined component in accordance with Topic 606. Otherwise, the entity must account for the combined component as an operating lease in accordance with Topic 842.

Effective Date: ASU 2016-02 is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. The effective date and transition requirements of ASU 2018-10 and ASU 2018-11 are the same as the effective date and transition requirements in Topic 842.

The Company adopted ASU 2016-02 on January 1, 2019 using the optional transition method. The Company also elected the following practical expedients: the package of practical expedients, combining lease and nonlease components by class of underlying asset, and using hindsight in determining the lease terms. The adoption of this standard resulted in the recording of a ROU asset of \$519,000 and a lease liability of \$510,000 as of January 1, 2019 for the Company's four operating lease obligations. The adoption of this standard is not expected to have a material impact on the Company's operations, cash flows, or capital ratios, nor should it cause the Company to no longer be well capitalized.

ASU 2018-14, Compensation—Retirement Benefits—Defined Benefit Plans—General (Topic 715-20): Disclosure Framework—Changes to the Disclosure Requirements for Defined Benefit Plans

Issued: August 2018

Summary: ASU 2018-14 modifies the disclosure requirements under ASC 715-20 for employers that sponsor defined benefit pension or other postretirement plans. Those modifications include the removal and addition of disclosure requirements as well as clarifying specific disclosure requirements.

Effective Date: The amendments are effective for public business entities for fiscal years ending after December 15, 2020. For all other entities, the amendments are effective for annual reporting periods ending after December 15, 2021. Early adoption is permitted. This Update will have no impact on the Company's consolidated financial position and results of operations because in August 2018, Juniata's Board of Directors resolved to terminate the Company's defined benefit retirement plan, The Juniata Valley Bank Retirement Plan, effective November 30, 2018. All participants have been properly notified and settlement of all obligations is expected to occur in mid-2019. See Note 22 for additional information.

ASU 2018-13, Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement

Issued: August 2018

Summary: ASU 2018-13 modifies the disclosure requirements for fair value measurements required under ASC 820. Those modifications include the removal and addition of disclosure requirements as well as clarifying specific disclosure requirements.

Effective Date: The amendments become effective for all entities for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years. Early adoption is permitted upon issuance of this ASU. An entity is permitted to early adopt all disclosure requirements in the ASU or early adopt only the removed and modified disclosures and delay adoption of the additional disclosures until their effective date. This Update is not expected to have an impact on the Company's consolidated financial position or results of operations.

ASU 2017-12, Targeted Improvements to Accounting for Hedging Activities

Issued: August 2017

Summary: ASU 2017-12 improves Topic 815 by simplifying and expanding the eligible hedging strategies for financial and nonfinancial risks by more closely aligning hedge accounting with a company’s risk management activities, and also simplifies its application through targeted improvements in key practice areas. This includes expanding the list of items eligible to be hedged and amending the methods used to measure the effectiveness of hedging relationships. In addition, the ASU prescribes how hedging results should be presented and requires incremental disclosures. These changes are intended to allow preparers more flexibility and to enhance the transparency of how hedging results are presented and disclosed. Further, the new standard provides partial relief on the timing of certain aspects of hedge documentation and eliminates the requirement to recognize hedge ineffectiveness separately in earnings in the current period.

Effective Date: The amendments are effective for public business entities, for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. Early application is permitted in any interim period after issuance of the amendments for existing hedging relationships on the date of adoption. This Update will have no impact on the Company’s consolidated financial position and results of operations.

ASU 2017-04, Simplifying the Test for Goodwill Impairment

Issued: January 2017

Summary: ASU 2017-04 eliminates the requirement of Step 2 in the current guidance to calculate the implied fair value of goodwill to measure a goodwill impairment charge. Instead, entities will record an impairment charge based on the excess of a reporting unit’s carrying amount over its fair value in Step 1 of the current guidance.

Effective Date: The amendments are effective for public business entities for fiscal years beginning after December 15, 2019. The adoption of this Update is not expected to have an impact on the Company’s consolidated financial position and results of operations.

ASU 2016-13, Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments

Issued: June 2016

Summary: ASU 2016-13 requires credit losses on most financial assets to be measured at amortized cost and certain other instruments to be measured using an expected credit loss model (referred to as the current expected credit loss (“CECL”) model). Under this model, entities will estimate credit losses over the entire contractual term of the instrument (considering estimated prepayments, but not expected extensions or modifications unless reasonable expectation of a troubled debt restructuring exists) from the date of initial recognition of that instrument.

The ASU also replaces the current accounting model for purchased credit impaired loans and debt securities. The allowance for credit losses for purchased financial assets with a more-than insignificant amount of credit deterioration since origination (“PCD assets”), should be determined in a similar manner to other financial assets measured on an amortized cost basis. However, upon initial recognition, the allowance for credit losses is added to the purchase price (“gross up approach”) to determine the initial amortized cost basis. The subsequent accounting for PCD financial assets is the same expected loss model described above.

Further, the ASU made certain targeted amendments to the existing impairment model for available for sale (AFS) debt securities. For an AFS debt security for which there is neither the intent nor a more-likely-than-not requirement to sell, an entity will record credit losses as an allowance rather than a write-down of the amortized cost basis.

Effective Date: The new standard is effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years. While the Company's senior management is currently in the process of evaluating the impact of the amended guidance on its consolidated financial statements and disclosures, it currently expects the ALLL to increase upon adoption given that the allowance will be required to cover the full remaining expected life of the portfolio, rather than the incurred loss under current U.S. GAAP. The extent of this increase is still being evaluated and will depend on economic conditions and the composition of the Company's loan portfolio at the time of adoption. In preparation, the Company has taken steps to prepare for the implementation when it becomes effective by forming an internal taskforce, gathering pertinent data, participating in training courses, and partnering with a software provider that specializes in ALLL analysis, as well as assessing the sufficiency of data currently available through its core database.

4. MERGER

On April 30, 2018, the Company completed the acquisition of Liverpool Community Bank, a Pennsylvania state-chartered bank with one branch location in Liverpool, Perry County. Liverpool was merged with and into The Juniata Valley Bank. As of the merger date, Liverpool had assets of \$45,360,000, loans of \$32,091,000, and equity of \$9,246,000.

Prior to the acquisition, Juniata owned 1,214, or 39.16%, of the 3,100 outstanding common shares of Liverpool. The merger was accounted for using the acquisition method of accounting, in accordance with the provisions of ASC 805, Business Combinations. Juniata obtained control over Liverpool in a step acquisition by acquiring the previously unowned interest in Liverpool. As such, Juniata was required to remeasure its previously held equity interest in Liverpool at its acquisition date fair value and recognize the resulting gain in earnings. The purchase price for the step acquisition was calculated as the aggregate of the consideration transferred for the newly acquired interest (Step Two 60.84% interest) and the fair value of Juniata's previously held equity interest (Step One 39.16% interest) in Liverpool.

On April 30, 2018, Juniata's Step One adjusted basis in Liverpool was \$5,037,000, which included a \$415,000 equity gain from the acquisition, in addition to Juniata's basis in Liverpool of \$4,622,000 prior to the recording of the equity gain.

Liverpool shareholders (other than Juniata, whose Liverpool common stock owned of record or beneficially was cancelled) received either: (i) 202.6286 shares of common stock of Juniata or (ii) \$4,050.00 in cash in exchange for each share of Liverpool common stock subject to the limitation that cash would be paid for no more than 20% and no less than 15% of Liverpool's outstanding common stock. As a result, Juniata issued 315,284 shares of common stock with an acquisition date fair value of approximately \$6,463,000, based on Juniata's closing stock price of \$20.50 on April 30, 2018, and cash of \$1,362,000, including cash in lieu of fractional shares for a total Step Two purchase price consideration of \$7,825,000. The total purchase price of the merger, including both the Step One adjusted basis and Step Two purchase price consideration, was \$12,862,000.

The assets and liabilities of Liverpool were recorded on the consolidated balance sheet at their estimated fair value as of April 30, 2018, and its results of operations have been included in the consolidated income statement since such date.

The purchase price included goodwill and a core deposit intangible of \$3,691,000 and \$289,000, respectively. The core deposit intangible will be amortized over a ten-year period using a sum of the year's digits basis. The goodwill will not be amortized but will be tested annually for impairment, or more frequently if circumstances require.

The allocation of the purchase price is as follows:

(Dollars in thousands)

Step One Purchase Price Consideration

| | |
|--|------------|
| April 30, 2018 JUVF basis in LCB (before gain) | \$ 4,622 |
| Increase in Step One basis from equity gain in acquisition | <u>415</u> |
| Total Step One adjusted basis | 5,037 |

Step Two Purchase Price Consideration

| | |
|---|-----------------|
| Purchase price assigned to LCB common shares exchanged for 315,284 JUVF common shares | \$ 6,463 |
| Purchase price assigned to LCB common shares exchanged for cash including cash in lieu of fractional shares | <u>1,362</u> |
| Total Step Two purchase price consideration | <u>7,825</u> |
| Total purchase price | <u>12,862</u> |
| LCB net assets acquired: | |
| Tangible common equity | 9,246 |
| Adjustments to reflect assets acquired and liabilities assumed at fair value: | |
| Total fair value adjustments | (95) |
| Associated deferred income taxes | <u>20</u> |
| Fair value adjustment to net assets acquired, net of tax | <u>(75)</u> |
| Total LCB net assets acquired | <u>9,171</u> |
| Goodwill resulting from the merger | <u>\$ 3,691</u> |

The following table summarizes the estimated fair value of the assets acquired and liabilities assumed.

(Dollars in thousands)

| | |
|---|------------------|
| Total purchase price | \$ <u>12,862</u> |
| Net assets acquired: | |
| Cash and cash equivalents | 8,923 |
| Investments in time deposits with banks | 3,675 |
| Loans | 31,331 |
| Premises and equipment | 125 |
| Accrued interest receivable | 123 |
| Core deposit and other intangibles | 289 |
| Bank owned life insurance | 632 |
| FHLB stock | 124 |
| Other assets | 267 |
| Deposits | (36,052) |
| Accrued interest payable | (17) |
| Other liabilities | <u>(249)</u> |
| Goodwill | <u>\$ 3,691</u> |

As of April 30, 2018, the merger date, goodwill was recorded at \$3,691,000. ASC 805 allows for adjustments to the estimated fair value of assets and liabilities, and the resulting goodwill for a period of up to one year after the merger date for new information that becomes available that reflects circumstances at the merger date.

The fair value of the financial assets acquired included loans receivable with a gross amortized cost basis of \$32,091,000. The table below illustrates the fair value adjustments made to the amortized cost basis in order to present a fair value of the loans acquired.

(Dollars in thousands)

| | |
|---|------------------|
| Gross amortized cost basis at April 30, 2018 | \$ 32,091 |
| Market rate adjustment | 272 |
| Credit fair value adjustment on pools of homogeneous loans | (496) |
| Credit fair value adjustment on purchased credit impaired loans | (622) |
| Reversal of existing deferred fees and premiums | 86 |
| Fair value of purchased loans at April 30, 2018 | <u>\$ 31,331</u> |

The market rate adjustment represents the movement in market interest rates, irrespective of credit adjustments, compared to the stated rates of the acquired loans. The credit adjustment made on pools of homogeneous loans represents the changes in credit quality of the underlying borrowers from the loan inception to the acquisition date. The credit adjustment on impaired loans is derived in accordance with ASC 310-30 and represents the portion of the loan balances that has been deemed uncollectible based on the Company's expectations of future cash flows for each respective loan.

Summarized below is the acquired Liverpool purchased credit impaired loan portfolio as of April 30, 2018.

(Dollars in thousands)

| | |
|--|---------------|
| Contractually required principal and interest at acquisition | \$ 2,022 |
| Contractual cash flows not expected to be collected (nonaccretable discount) | (1,273) |
| Expected cash flows at acquisition | 749 |
| Interest component of expected cash flows (accretable discount) | (177) |
| Fair value of acquired loans | <u>\$ 572</u> |

The following table presents unaudited pro forma information as if the merger between Juniata and Liverpool had been completed on January 1, 2017. The pro forma information does not necessarily reflect the results of operations that would have occurred had Juniata merged with Liverpool at the beginning of 2017. Due to Juniata's former 39.16% ownership in Liverpool, the income previously recorded in 2018 and 2017 that was attributable to the partial ownership of Liverpool has been excluded, in addition to merger-related costs incurred in 2018 and the resulting tax impacts. Supplemental pro forma earnings for the year ended December 31, 2018 were adjusted to exclude \$296,000 from the income/gain from unconsolidated subsidiary, \$884,000 in merger-related expenses, and the resulting tax benefit of \$123,000. The results for the comparable 2017 period were adjusted to include the aforementioned merger-related expenses; however, those results exclude the income from unconsolidated subsidiary and merger-related expenses previously recorded in the year ended December 31, 2017 of \$167,000 and \$13,000, respectively. The resulting tax benefit included in the year ended December 31, 2017 was \$218,000. A 21%

tax rate was assumed in both the 2018 and 2017 periods. The pro forma financial information does not include the impact of possible business model changes, nor does it consider any potential impacts of current market conditions or revenues, expense efficiencies or other factors.

| | Years ended December 31, | |
|--|-----------------------------|-----------|
| | 2018 | 2017 |
| <i>(Dollars in thousands, except share data)</i> | | |
| Net interest income after loan loss provision | \$ 20,629 | \$ 19,943 |
| Noninterest income | 4,816 | 5,347 |
| Noninterest expense | 18,818 | 19,098 |
| Net income available to common shareholders | 6,996 | 5,184 |
| Net income per common share | 1.37 | 1.02 |

5. RESTRICTIONS ON CASH AND DUE FROM BANKS

The Bank is required to maintain cash reserve balances with the Federal Reserve Bank if vault cash is insufficient to cover the reserve requirement. As of December 31, 2018, and 2017, respectively, no reserves were required to be held at the Federal Reserve Bank.

6. SECURITIES

On January 1, 2018, the Company adopted ASU 2016-01, Measurement of Financial Assets Instruments. Upon adoption, equity securities with readily determinable fair values are stated at fair value with realized and unrealized gains and losses reported in net income. For periods prior to January 1, 2018, equity securities were classified as available for sale and stated at fair value with unrealized gains and losses reported as a separate component of AOCI, net of tax. At December 31, 2017, the fair value of equity securities classified as available for sale was \$1,119,000. The adoption of ASU 2016-01 resulted in a reclassification of \$156,000 in net unrealized gains from AOCI to retained earnings. As of December 31, 2018, the Company had \$1,118,000 in equity investments recorded at fair value.

The Company's investment portfolio includes primarily mortgage-backed securities issued by U.S. Government sponsored agencies and backed by residential mortgages (approximately 71%), bonds issued by U.S. Government sponsored agencies (approximately 16%) and municipalities (approximately 13%) as of December 31, 2018. Most of the municipal bonds are general obligation bonds with maturities or pre-refunding dates within 5 years.

The amortized cost and fair value of securities available for sale as of December 31, 2018 and 2017, by contractual maturity, are shown below. Expected maturities may differ from contractual maturities because the securities may be called or prepaid with or without prepayment penalties.

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| <i>(Dollars in thousands)</i> Securities Available for Sale Type and maturity | December 31, 2018 | | | |
|---|-------------------|-------------------|------------------------------|-------------------------------|
| | Amortized Cost | Fair Value | Gross Unrealized Gains | Gross Unrealized Losses |
| Obligations of U.S. Government agencies and corporations | | | | |
| After one year but within five years | \$ 20,998 | \$ 20,355 | \$ - | \$ (643) |
| After five years but within ten years | 2,999 | 2,911 | - | (88) |
| | <u>23,997</u> | <u>23,266</u> | <u>-</u> | <u>(731)</u> |
| Obligations of state and political subdivisions | | | | |
| Within one year | 826 | 826 | - | - |
| After one year but within five years | 14,751 | 14,686 | 13 | (78) |
| After five years but within ten years | 2,779 | 2,669 | - | (110) |
| | <u>18,356</u> | <u>18,181</u> | <u>13</u> | <u>(188)</u> |
| Mortgage-backed securities | <u>102,957</u> | <u>100,506</u> | <u>172</u> | <u>(2,623)</u> |
| Total | <u>\$ 145,310</u> | <u>\$ 141,953</u> | <u>\$ 185</u> | <u>\$ (3,542)</u> |

| <i>(Dollars in thousands)</i> Securities Available for Sale Type and maturity | December 31, 2017 | | | |
|---|-------------------|-------------------|------------------------------|-------------------------------|
| | Amortized Cost | Fair Value | Gross Unrealized Gains | Gross Unrealized Losses |
| Obligations of U.S. Government agencies and corporations | | | | |
| Within one year | \$ 6,000 | \$ 5,969 | \$ - | \$ (31) |
| After one year but within five years | 15,000 | 14,689 | - | (311) |
| After five years but within ten years | 13,998 | 13,556 | - | (442) |
| | <u>34,998</u> | <u>34,214</u> | <u>-</u> | <u>(784)</u> |
| Obligations of state and political subdivisions | | | | |
| Within one year | 2,521 | 2,516 | - | (5) |
| After one year but within five years | 13,959 | 13,955 | 50 | (54) |
| After five years but within ten years | 8,611 | 8,510 | 18 | (119) |
| | <u>25,091</u> | <u>24,981</u> | <u>68</u> | <u>(178)</u> |
| Mortgage-backed securities | <u>94,945</u> | <u>93,510</u> | <u>38</u> | <u>(1,473)</u> |
| Equity securities | 922 | 1,119 | 197 | - |
| Total | <u>\$ 155,956</u> | <u>\$ 153,824</u> | <u>\$ 303</u> | <u>\$ (2,435)</u> |

Certain obligations of the U.S. Government and state and political subdivisions are pledged to secure public deposits, securities sold under agreements to repurchase and for other purposes as required or permitted by law. The carrying value of the pledged assets was \$50,157,000 and \$47,825,000 at December 31, 2018 and 2017, respectively.

In addition to cash received from the scheduled maturities of securities, some investment securities available for sale are sold at current market values during the course of normal operations. Following is a summary of proceeds received from all investment securities transactions and the resulting realized gains and losses:

| <i>(Dollars in thousands)</i> | Years Ended December 31, | | |
|---|--------------------------|-----------|----------|
| | 2018 | 2017 | 2016 |
| Gross proceeds from sales of securities | \$ 10,461 | \$ 21,799 | \$ 4,304 |
| Securities available for sale: | | | |
| Gross realized gains from sold and called securities | \$ - | \$ 539 | \$ 139 |
| Gross realized losses from sold and called securities | (188) | (32) | (21) |
| Gross gains from business combinations | - | 5 | 100 |

Equity securities owned by the Company consist of common stock of various financial services providers (“Bank Stocks”). As of January 1, 2018, upon the adoption of ASU 2016-01, all of the Company’ equity securities are within the scope of ASC Topic 321, Investments – Equity Securities. ASC 321 requires all equity investments within its scope to be measured at fair value with changes in fair value recognized in net income. The Company recorded a decline of \$1,000 during the year ended December 31, 2018 for the change in fair value of equity securities on the consolidated statements of income.

The following table shows gross unrealized losses and fair values of securities available for sale, aggregated by category and length of time that individual securities have been in a continuous unrealized loss position, at December 31, 2018:

| | Unrealized Losses at December 31, 2018 | | | | | | | | |
|--|--|------------|-------------------|----------------------|------------|-------------------|----------------------|------------|-------------------|
| | Less Than 12 Months | | | 12 Months or More | | | Total | | |
| | Number of Securities | Fair Value | Unrealized Losses | Number of Securities | Fair Value | Unrealized Losses | Number of Securities | Fair Value | Unrealized Losses |
| <i>(Dollars in thousands)</i> | | | | | | | | | |
| Obligations of U.S. Government agencies and corporations | - | \$ - | \$ - | 14 | \$ 23,267 | \$ (731) | 14 | \$ 23,267 | \$ (731) |
| Obligations of state and political subdivisions | 8 | 5,055 | (10) | 13 | 8,242 | (178) | 21 | 13,297 | (188) |
| Mortgage-backed securities | 3 | 6,726 | (32) | 43 | 77,170 | (2,591) | 46 | 83,896 | (2,623) |
| Total debt securities | 11 | 11,781 | (42) | 70 | 108,679 | (3,500) | 81 | 120,460 | (3,542) |
| Total temporarily impaired securities | 11 | \$ 11,781 | \$ (42) | 70 | \$ 108,679 | \$ (3,500) | 81 | \$ 120,460 | \$ (3,542) |

At December 31, 2018, 14 U.S. Government and agency securities had unrealized losses that, in the aggregate, did not exceed 1% of amortized cost. All of these securities have been in a continuous loss position for 12 months or more.

At December 31, 2018, 21 obligations of state and political subdivision bonds had unrealized losses that, in the aggregate, did not exceed 1% of amortized cost. Thirteen of these securities have been in a continuous loss position for 12 months or more.

At December 31, 2018, 46 mortgage-backed securities had an unrealized loss that did not exceed 2% of amortized cost. Forty-three of these securities have been in a continuous loss position for 12 months or more.

The mortgage-backed securities in the Company’s portfolio are government sponsored enterprise (“GSE”) pass-through instruments issued by the Federal National Mortgage Association (“FNMA”), which guarantees the timely payment of principal on these investments.

The unrealized losses noted above are considered to be temporary impairments. The decline in the values of the debt securities is due only to interest rate fluctuations, rather than erosion of issuer credit quality. As a result, the payment of contractual cash flows, including principal repayment, is not at risk. As the Company does not intend to sell the securities, does not believe the Company will be required to sell the securities before recovery and expects to recover the entire amortized cost basis, none of the debt securities are deemed to be other-than-temporarily impaired.

There were two available for sale equity securities in an unrealized loss position on December 31, 2017, with one in an unrealized loss position for 12 months or more. The total unrealized loss on available for sale equity securities at December 31, 2017 was less than \$1,000. Management identified no other-than-temporary impairment as of, or for the years ended, December 31, 2017 and 2016.

The following table shows gross unrealized losses and fair values of securities available for sale, aggregated by category and length of time that individual securities had been in a continuous unrealized loss position, at December 31, 2017:

| | Unrealized Losses at December 31, 2017 | | | | | | | | |
|--|--|------------|-------------------|----------------------|------------|-------------------|----------------------|------------|-------------------|
| | Less Than 12 Months | | | 12 Months or More | | | Total | | |
| | Number of Securities | Fair Value | Unrealized Losses | Number of Securities | Fair Value | Unrealized Losses | Number of Securities | Fair Value | Unrealized Losses |
| <i>(Dollars in thousands)</i> | | | | | | | | | |
| Obligations of U.S. Government agencies and corporations | 5 | \$ 10,845 | \$ (157) | 15 | \$ 23,369 | \$ (627) | 20 | \$ 34,214 | \$ (784) |
| Obligations of state and political subdivisions | 23 | 10,491 | (70) | 6 | 3,862 | (108) | 29 | 14,353 | (178) |
| Mortgage-backed securities | 23 | 51,050 | (518) | 20 | 38,740 | (955) | 43 | 89,790 | (1,473) |
| Total debt securities | 51 | 72,386 | (745) | 41 | 65,971 | (1,690) | 92 | 138,357 | (2,435) |
| Equity securities | 1 | 9 | - | 1 | 4 | - | 2 | 13 | - |
| Total temporarily impaired securities | 52 | \$ 72,395 | \$ (745) | 42 | \$ 65,975 | \$ (1,690) | 94 | \$ 138,370 | \$ (2,435) |

7. LOANS AND RELATED ALLOWANCE FOR LOAN LOSSES

The following table presents the classes of the loan portfolio summarized by the aggregate pass rating and the classified ratings of special mention, substandard and doubtful within the Company's internal risk rating system as of December 31, 2018 and December 31, 2017. Due to the expansion of the Company's internal credit quality risk ratings in the second quarter of 2018, the amount reclassified from the special mention rating to the pass/watch rating, which is included within the pass rating classification below, was \$32,603,000 at June 30, 2018. Previously, both special mention and watch rated loans were reported under the special mention rating classification.

| <i>(Dollars in thousands)</i> | Special | | | | |
|--|------------|-----------|-------------|----------|------------|
| | Pass | Mention | Substandard | Doubtful | Total |
| As of December 31, 2018 | | | | | |
| Commercial, financial and agricultural | \$ 42,757 | \$ 2,992 | \$ 814 | \$ - | \$ 46,563 |
| Real estate - commercial | 125,352 | 8,590 | 6,459 | 894 | 141,295 |
| Real estate - construction | 34,131 | - | 2,528 | 29 | 36,688 |
| Real estate - mortgage | 160,774 | 24 | 2,569 | 181 | 163,548 |
| Obligations of states and political subdivisions | 19,129 | - | - | - | 19,129 |
| Personal | 10,389 | - | 19 | - | 10,408 |
| Total | \$ 392,532 | \$ 11,606 | \$ 12,389 | \$ 1,104 | \$ 417,631 |

| <i>(Dollars in thousands)</i> | Special | | | | |
|--|------------|-----------|-------------|----------|------------|
| | Pass | Mention | Substandard | Doubtful | Total |
| As of December 31, 2017 | | | | | |
| Commercial, financial and agricultural | \$ 34,826 | \$ 8,692 | \$ 2,280 | \$ 4 | \$ 45,802 |
| Real estate - commercial | 114,299 | 17,928 | 7,189 | 953 | 140,369 |
| Real estate - construction | 22,470 | 3,297 | 2,636 | - | 28,403 |
| Real estate - mortgage | 139,861 | 3,551 | 2,859 | 617 | 146,888 |
| Obligations of states and political subdivisions | 12,088 | 956 | - | - | 13,044 |
| Personal | 9,360 | 32 | 6 | - | 9,398 |
| Total | \$ 332,904 | \$ 34,456 | \$ 14,970 | \$ 1,574 | \$ 383,904 |

The Company has certain loans in its portfolio that are considered to be impaired. It is the policy of the Company to recognize income on impaired loans that have been transferred to nonaccrual status on a cash basis, only to the extent that it exceeds principal balance recovery. A collateral analysis is performed on each impaired loan at least quarterly, and results are used to determine if a specific reserve is necessary to adjust the carrying value of each individual loan down to the estimated fair value of the collateral less costs to sell. Generally, specific reserves are carried against impaired loans based upon estimated collateral value until a confirming loss event occurs or until termination of the credit is scheduled through liquidation of the collateral or foreclosure. Consumer mortgage loans secured by residential real estate properties for which formal foreclosure proceedings were in process at December 31, 2018 and December 31, 2017 totaled \$94,000 and \$1,285,000, respectively. Charge-offs will occur when a confirmed loss is identified. Professional appraisals of collateral, discounted for expected selling costs, are used to determine the charge-off amount.

The following tables summarize information regarding impaired loans by portfolio class as of December 31, 2018 and December 31, 2017:

| <i>(Dollars in thousands)</i> | As of December 31, 2018 | | | As of December 31, 2017 | | |
|--|-------------------------|--------------------------|-------------------|-------------------------|--------------------------|-------------------|
| | Recorded Investment | Unpaid Principal Balance | Related Allowance | Recorded Investment | Unpaid Principal Balance | Related Allowance |
| Impaired Loans | | | | | | |
| With no related allowance recorded: | | | | | | |
| Commercial, financial and agricultural | \$ - | \$ - | \$ - | \$ 468 | \$ 477 | \$ - |
| Real estate - commercial | 909 | 1,303 | - | 5,031 | 5,957 | - |
| Acquired with credit deterioration | 544 | 592 | - | 191 | 247 | - |
| Real estate - construction | 27 | 1,123 | - | - | - | - |
| Real estate - mortgage | 1,180 | 1,912 | - | 2,232 | 3,738 | - |
| Acquired with credit deterioration | 971 | 1,061 | - | 337 | 384 | - |
| Personal | 17 | 17 | - | - | - | - |
| Total: | | | | | | |
| Commercial, financial and agricultural | \$ - | \$ - | \$ - | \$ 468 | \$ 477 | \$ - |
| Real estate - commercial | 909 | 1,303 | - | 5,031 | 5,957 | - |
| Acquired with credit deterioration | 544 | 592 | - | 191 | 247 | - |
| Real estate - construction | 27 | 1,123 | - | - | - | - |
| Real estate - mortgage | 1,180 | 1,912 | - | 2,232 | 3,738 | - |
| Acquired with credit deterioration | 971 | 1,061 | - | 337 | 384 | - |
| Personal | 17 | 17 | - | - | - | - |
| | <u>\$ 3,648</u> | <u>\$ 6,008</u> | <u>\$ -</u> | <u>\$ 8,259</u> | <u>\$ 10,803</u> | <u>\$ -</u> |

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(Dollars in thousands)

| | Year Ended December 31, 2018 | | | Year Ended December 31, 2017 | | | Year Ended December 31, 2016 | | |
|--|------------------------------|----------------------------|----------------------------|------------------------------|----------------------------|----------------------------|------------------------------|----------------------------|----------------------------|
| | Average Recorded Investment | Interest Income Recognized | Cash Basis Interest Income | Average Recorded Investment | Interest Income Recognized | Cash Basis Interest Income | Average Recorded Investment | Interest Income Recognized | Cash Basis Interest Income |
| Impaired loans | | | | | | | | | |
| With no related allowance: | | | | | | | | | |
| Commercial, financial and agricultural | \$ 234 | \$ - | \$ - | \$ 452 | \$ 25 | \$ - | \$ 456 | \$ 29 | \$ - |
| Real estate - commercial | 2,970 | - | - | 5,265 | 313 | - | 3,675 | 331 | - |
| Acquired with credit deterioration | 368 | - | - | 416 | - | - | 738 | - | - |
| Real estate - construction | 14 | - | - | 1,228 | 34 | - | 1,228 | 136 | - |
| Real estate - mortgage | 1,706 | 19 | 33 | 2,789 | 21 | 20 | 2,991 | 28 | 37 |
| Acquired with credit deterioration | 654 | - | - | 376 | - | - | 523 | - | - |
| Personal | 9 | - | - | - | - | - | - | - | - |
| With an allowance recorded: | | | | | | | | | |
| Real estate - mortgage | \$ - | \$ - | \$ - | \$ 356 | \$ - | \$ - | \$ 356 | \$ - | \$ - |
| Total: | | | | | | | | | |
| Commercial, financial and agricultural | 234 | - | - | 452 | 25 | - | 456 | 29 | - |
| Real estate - commercial | 2,970 | - | - | 5,265 | 313 | - | 3,675 | 331 | - |
| Acquired with credit deterioration | 368 | - | - | 416 | - | - | 738 | - | - |
| Real estate - construction | 14 | - | - | 1,228 | 34 | - | 1,228 | 136 | - |
| Real estate - mortgage | 1,706 | 19 | 33 | 3,145 | 21 | 20 | 3,347 | 28 | 37 |
| Acquired with credit deterioration | 654 | - | - | 376 | - | - | 523 | - | - |
| Personal | 9 | - | - | - | - | - | - | - | - |
| | <u>\$ 5,955</u> | <u>\$ 19</u> | <u>\$ 33</u> | <u>\$ 10,882</u> | <u>\$ 393</u> | <u>\$ 20</u> | <u>\$ 9,967</u> | <u>\$ 524</u> | <u>\$ 37</u> |

The following table presents nonaccrual loans by classes of the loan portfolio as of December 31, 2018 and December 31, 2017:

(Dollars in thousands)

| | December 31, 2018 | December 31, 2017 |
|--|-------------------|-------------------|
| Nonaccrual loans: | | |
| Commercial, financial and agricultural | \$ - | \$ 4 |
| Real estate - commercial | 908 | 953 |
| Real estate - construction | 29 | - |
| Real estate - mortgage | 753 | 1,917 |
| Personal | 17 | - |
| Total | <u>\$ 1,707</u> | <u>\$ 2,874</u> |

Interest income not recorded based on the original contractual terms of the loans for nonaccrual loans was \$311,000, \$300,000 and \$281,000 in 2018, 2017 and 2016, respectively.

The performance and credit quality of the loan portfolio is also monitored by analyzing the age of the loans receivable as determined by the length of time a recorded payment is past due. The following table presents the classes of the loan portfolio summarized by the past due status as of December 31, 2018 and December 31, 2017:

| <i>(Dollars in thousands)</i> As of December 31, 2018 | 30-59 Days Past Due | 60-89 Days Past Due | Greater than 90 Days | Total Past Due | Current | Total Loans | Loans Past Due Greater than 90 Days and Accruing (1) |
|--|------------------------|------------------------|----------------------------|----------------------|------------|----------------|---|
| Commercial, financial and agricultural | \$ 6 | \$ - | \$ - | \$ 6 | \$ 46,557 | \$ 46,563 | \$ - |
| Real estate - commercial | | | | | | | |
| Real estate - commercial | - | - | 1,214 | 1,214 | 139,890 | 141,104 | 306 |
| Acquired with credit deterioration | 140 | - | - | 140 | 51 | 191 | - |
| Real estate - construction | 32 | - | 29 | 61 | 36,627 | 36,688 | - |
| Real estate - mortgage | | | | | | | |
| Real estate - mortgage | 824 | 561 | 175 | 1,560 | 161,651 | 163,211 | 23 |
| Acquired with credit deterioration | 259 | - | 7 | 266 | 71 | 337 | 7 |
| Obligations of states and political subdivisions | - | - | - | - | 19,129 | 19,129 | - |
| Personal | 24 | 15 | 17 | 56 | 10,352 | 10,408 | - |
| Total | \$ 1,285 | \$ 576 | \$ 1,442 | \$ 3,303 | \$ 414,328 | \$ 417,631 | \$ 336 |

| <i>(Dollars in thousands)</i> As of December 31, 2017 | 30-59 Days Past Due | 60-89 Days Past Due | Greater than 90 Days | Total Past Due | Current | Total Loans | Loans Past Due Greater than 90 Days and Accruing (1) |
|--|------------------------|------------------------|----------------------------|----------------------|------------|----------------|---|
| Commercial, financial and agricultural | \$ - | \$ - | \$ - | \$ - | \$ 45,802 | \$ 45,802 | \$ - |
| Real estate - commercial | | | | | | | |
| Real estate - commercial | 16 | 23 | - | 39 | 140,139 | 140,178 | - |
| Acquired with credit deterioration | - | - | 28 | 28 | 163 | 191 | 28 |
| Real estate - construction | - | - | - | - | 28,403 | 28,403 | - |
| Real estate - mortgage | | | | | | | |
| Real estate - mortgage | 694 | 80 | 64 | 838 | 145,713 | 146,551 | 64 |
| Acquired with credit deterioration | - | - | 123 | 123 | 214 | 337 | 123 |
| Obligations of states and political subdivisions | - | - | - | - | 13,044 | 13,044 | - |
| Personal | 66 | 6 | - | 72 | 9,326 | 9,398 | - |
| Total | \$ 776 | \$ 109 | \$ 215 | \$ 1,100 | \$ 382,804 | \$ 383,904 | \$ 215 |

(1) These loans are guaranteed, or well secured, and there is an effective means of collection in process.

The following table summarizes information regarding troubled debt restructurings by loan portfolio class as of and for the years ended December 31, 2018 and 2017.

| <i>(Dollars in thousands)</i> As of December 31, 2018 | Number of Contracts | Pre-Modification Outstanding Recorded Investment | Post-Modification Outstanding Recorded Investment | Recorded Investment |
|--|------------------------|---|--|------------------------|
| Accruing troubled debt restructurings: | | | | |
| Real estate - mortgage | 8 | \$ 522 | \$ 550 | \$ 428 |
| Non-accruing troubled debt restructurings: | | | | |
| Real estate - mortgage | 1 | 25 | 25 | 17 |
| | 9 | \$ 547 | \$ 575 | \$ 445 |

(Dollars in thousands)

| | Number of Contracts | Pre-Modification Outstanding Recorded Investment | Post-Modification Outstanding Recorded Investment | Recorded Investment |
|--|------------------------|---|--|------------------------|
| As of December 31, 2017 | | | | |
| Accruing troubled debt restructurings: | | | | |
| Real estate - commercial | | | | |
| Real estate - mortgage | 7 | \$ 369 | \$ 397 | \$ 315 |
| Non-accruing troubled debt restructurings: | | | | |
| Commercial, financial, agricultural | 1 | 19 | 20 | 4 |
| Real estate - mortgage | 1 | 25 | 25 | 20 |
| | 9 | \$ 413 | \$ 442 | \$ 339 |

The Company's troubled debt restructurings are also impaired loans, which may result in a specific allocation and subsequent charge-off, if appropriate. As of December 31, 2018, there were no specific reserves relating to the troubled debt restructurings, nor were there any charge-offs on troubled debt restructured loans recorded in 2018. The amended terms of the restructured loans vary, whereby interest rates have been reduced, principal payments have been reduced or deferred for a period of time and/or maturity dates have been extended.

As of December 31, 2018, one restructured loan for \$39,000 was in default because it was delinquent in excess of 30 days with respect to the terms of the restructuring. There were no defaults of troubled debt restructurings within 12 months of restructure during 2018, 2017 or 2016.

The following tables summarize loans whose terms were modified, resulting in troubled debt restructurings during 2018 and 2017.

(Dollars in thousands)

| | Number of Contracts | Pre-Modification Outstanding Recorded Investment | Post-Modification Outstanding Recorded Investment | Recorded Investment |
|--|------------------------|---|--|------------------------|
| As of December 31, 2018 | | | | |
| Non-accruing troubled debt restructurings: | | | | |
| Real estate - mortgage | 1 | \$ 153 | \$ 153 | \$ 147 |
| | 1 | \$ 153 | \$ 153 | \$ 147 |

(Dollars in thousands)

| | Number of Contracts | Pre-Modification Outstanding Recorded Investment | Post-Modification Outstanding Recorded Investment | Recorded Investment |
|--|------------------------|---|--|------------------------|
| As of December 31, 2017 | | | | |
| Non-accruing troubled debt restructurings: | | | | |
| Commercial, financial, agricultural | 1 | \$ 19 | \$ 20 | \$ 4 |
| | 1 | \$ 19 | \$ 20 | \$ 4 |

The following tables summarize loans and the activity in the allowance for loan losses by loan class, segregated into the amount required for loans individually evaluated for impairment and the amount required for loans collectively evaluated for impairment as of and for the years ended December 31, 2018, 2017 and 2016:

(Dollars in thousands)

| | Commercial, financial and agricultural | Real estate- commercial | Real estate- construction | Real estate- mortgage | Obligations of states and political subdivisions | Personal | Total |
|---------------------------------------|---|----------------------------|------------------------------|--------------------------|---|----------|----------|
| Allowance for loan losses | | | | | | | |
| Beginning Balance, January 1, 2018 | \$ 273 | \$ 1,022 | \$ 288 | \$ 1,285 | \$ - | \$ 71 | \$ 2,939 |
| Charge-offs | - | (60) | - | (183) | - | (42) | (285) |
| Recoveries | 10 | 5 | - | 12 | - | 16 | 43 |
| Provisions | (8) | 107 | 270 | (79) | 20 | 27 | 337 |
| Ending balance, December 31, 2018 | \$ 275 | \$ 1,074 | \$ 558 | \$ 1,035 | \$ 20 | \$ 72 | \$ 3,034 |
| collectively evaluated for impairment | \$ 275 | \$ 1,074 | \$ 558 | \$ 1,035 | \$ 20 | \$ 72 | \$ 3,034 |

Loans receivable:

| | | | | | | | |
|---------------------------------------|-----------|------------|-----------|------------|-----------|-----------|------------|
| Ending balance | \$ 46,563 | \$ 141,295 | \$ 36,688 | \$ 163,548 | \$ 19,129 | \$ 10,408 | \$ 417,631 |
| individually evaluated for impairment | - | 909 | 27 | 1,180 | - | 17 | 2,133 |
| acquired with credit deterioration | - | 544 | - | 971 | - | - | 1,515 |
| collectively evaluated for impairment | \$ 46,563 | \$ 139,842 | \$ 36,661 | \$ 161,397 | \$ 19,129 | \$ 10,391 | \$ 413,983 |

Allowance for loan losses:

| | Commercial, financial and agricultural | Real estate- commercial | Real estate- construction | Real estate- mortgage | Obligations of states and political subdivisions | Personal | Total |
|---------------------------------------|---|----------------------------|------------------------------|--------------------------|---|----------|----------|
| Beginning Balance, January 1, 2017 | \$ 318 | \$ 948 | \$ 231 | \$ 1,143 | \$ - | \$ 83 | \$ 2,723 |
| Charge-offs | (46) | (70) | - | (149) | - | (27) | (292) |
| Recoveries | 5 | 2 | - | 45 | - | 17 | 69 |
| Provisions | (4) | 142 | 57 | 246 | - | (2) | 439 |
| Ending balance, December 31, 2017 | \$ 273 | \$ 1,022 | \$ 288 | \$ 1,285 | \$ - | \$ 71 | \$ 2,939 |
| collectively evaluated for impairment | \$ 273 | \$ 1,022 | \$ 288 | \$ 1,285 | \$ - | \$ 71 | \$ 2,939 |

Loans receivable:

| | | | | | | | |
|---------------------------------------|-----------|------------|-----------|------------|-----------|----------|------------|
| Ending balance | \$ 45,802 | \$ 140,369 | \$ 28,403 | \$ 146,888 | \$ 13,044 | \$ 9,398 | \$ 383,904 |
| individually evaluated for impairment | 468 | 5,031 | - | 2,232 | - | - | 7,731 |
| acquired with credit deterioration | - | 191 | - | 337 | - | - | 528 |
| collectively evaluated for impairment | \$ 45,334 | \$ 135,147 | \$ 28,403 | \$ 144,319 | \$ 13,044 | \$ 9,398 | \$ 375,645 |

(Dollars in thousands)

| | Commercial, financial and agricultural | Real estate- commercial | Real estate- construction | Real estate- mortgage | Obligations of states and political subdivisions | Personal | Total |
|---------------------------------------|---|----------------------------|------------------------------|--------------------------|---|----------|----------|
| Allowance for loan losses: | | | | | | | |
| Beginning Balance, January 1, 2016 | \$ 264 | \$ 836 | \$ 191 | \$ 1,140 | \$ - | \$ 47 | \$ 2,478 |
| Charge-offs | (4) | (146) | - | (103) | - | (26) | (279) |
| Recoveries | - | 24 | - | 15 | - | 19 | 58 |
| Provisions | 58 | 234 | 40 | 91 | - | 43 | 466 |
| Ending balance, December 31, 2016 | \$ 318 | \$ 948 | \$ 231 | \$ 1,143 | \$ - | \$ 83 | \$ 2,723 |
| individually evaluated for impairment | - | - | - | 56 | - | - | 56 |
| collectively evaluated for impairment | \$ 318 | \$ 948 | \$ 231 | \$ 1,087 | \$ - | \$ 83 | \$ 2,667 |

Loans receivable:

| | | | | | | | |
|---------------------------------------|-----------|------------|-----------|------------|-----------|-----------|------------|
| Ending balance | \$ 40,827 | \$ 123,711 | \$ 35,206 | \$ 154,905 | \$ 13,616 | \$ 10,032 | \$ 378,297 |
| individually evaluated for impairment | 436 | 5,499 | 2,455 | 4,057 | - | - | 12,447 |
| acquired with credit deterioration | - | 641 | - | 415 | - | - | 1,056 |
| collectively evaluated for impairment | \$ 40,391 | \$ 117,571 | \$ 32,751 | \$ 150,433 | \$ 13,616 | \$ 10,032 | \$ 364,794 |

8. PLEDGED ASSETS

The Bank must maintain sufficient qualifying collateral with the FHLB in order to secure borrowings. Therefore, a Master Collateral Agreement has been entered into which pledges all mortgage related assets as collateral for future borrowings. Mortgage related assets could include loans or investment securities. As of December 31, 2018, the amount of loans included in qualifying collateral was \$261,442,000, for a lending value of \$187,818,000. As of December 31, 2017, the amount of loans included in qualifying collateral was \$224,561,000, for a lending value of \$163,181,000. No investment securities are included in qualifying collateral as of December 31, 2018 or 2017.

9. BANK OWNED LIFE INSURANCE AND ANNUITIES

The Company holds bank-owned life insurance ("BOLI") and deferred annuities with a combined cash value of \$15,938,000 and \$14,972,000 at December 31, 2018 and 2017, respectively. As annuitants retire, the deferred annuities may be converted to payout annuities to create payment streams that match certain post-retirement liabilities. The net increase in cash surrender value on the BOLI and annuities was \$966,000 and \$341,000 in 2018 and 2017, respectively, while the cash surrender value decreased in 2016 by \$274,000; the net change resulting from the addition of BOLI acquired through acquisition, proceeds from life insurance claim payments, premium payments and earnings recorded as non-interest income. The contracts are owned by the Bank in various insurance companies. The crediting rate on the policies varies annually based on the insurance companies' investment portfolio returns in their general fund and market conditions. Changes in cash value of BOLI and annuities in 2018 and 2017 are shown below:

| <i>(Dollars in thousands)</i> | Life Insurance | Deferred Annuities | Total |
|-----------------------------------|-------------------|-----------------------|------------------|
| Balance as of January 1, 2017 | \$ 14,198 | \$ 433 | \$ 14,631 |
| Earnings | 285 | 16 | 301 |
| Premiums on existing policies | 27 | 13 | 40 |
| Balance as of December 31, 2017 | 14,510 | 462 | 14,972 |
| Earnings | 277 | 18 | 295 |
| Premiums on existing policies | 25 | 13 | 38 |
| Annuity payments received | 1 | - | 1 |
| BOLI acquired through acquisition | 632 | - | 632 |
| Balance as of December 31, 2018 | <u>\$ 15,445</u> | <u>\$ 493</u> | <u>\$ 15,938</u> |

10. PREMISES AND EQUIPMENT

Premises and equipment consist of the following:

| <i>(Dollars in thousands)</i> | December 31, | |
|--|-----------------|-----------------|
| | 2018 | 2017 |
| Land | \$ 1,158 | \$ 1,126 |
| Buildings and improvements | 11,645 | 11,358 |
| Furniture, computer software and equipment | 6,217 | 5,898 |
| | 19,020 | 18,382 |
| Less: accumulated depreciation | (10,276) | (9,495) |
| | <u>\$ 8,744</u> | <u>\$ 8,887</u> |

Depreciation expense on premises and equipment charged to operations was \$815,000 in 2018, \$672,000 in 2017 and \$595,000 in 2016.

11. GOODWILL AND OTHER INTANGIBLE ASSETS

Branch Acquisition

On September 8, 2006, the Company acquired a branch office in Richfield, PA. Goodwill at December 31, 2018 and 2017 was \$2,046,000. The core deposit intangible of \$431,000 was fully amortized as of December 31, 2018 and 2017. The core deposit intangible was being amortized over a ten-year period on a straight-line basis. Goodwill is not amortized, but is measured annually for impairment.

FNBPA Acquisition

On November 30, 2015, the Company completed its acquisition of FNBPA and, as a result, recorded goodwill of \$3,335,000. In 2016, an adjustment was made to increase goodwill to \$3,402,000, which is where the balance remained as of December 31, 2018 and 2017. Core deposit intangible in the amount of \$303,000 was recorded and is being amortized over a ten-year period using a sum of the year's digits basis. Other intangible assets were identified and recorded as of November 30, 2015, in the amount of \$40,000 and were amortized on a straight-line basis over two years, through November 30, 2017.

LCB Acquisition

On April 30, 2018, Juniata completed the acquisition of LCB and, as a result, recorded goodwill of \$3,691,000, which was also the balance at December 31, 2018. In addition, a core deposit intangible of \$289,000 was recorded and will be amortized over a ten-year period using a sum of the years' digits basis.

The following table shows the amortization schedule for each of the intangible assets recorded.

| | LCB Acquisition | FNBPA Acquisition | FNBPA Acquisition | Branch Acquisition |
|--|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| | Core Deposit Intangible | Core Deposit Intangible | Other Intangible Assets | Core Deposit Intangible |
| <i>(Dollars in thousands)</i> | | | | |
| Beginning Balance at Acquisition Date | \$ 289 | \$ 303 | \$ 40 | \$ 431 |
| Amortization expense recorded prior to December 31, 2015 | - | 4 | 2 | 402 |
| Amortization expense recorded in Years ended: | | | | |
| December 31, 2016 | - | 55 | 20 | 29 |
| December 31, 2017 | - | 49 | 18 | - |
| December 31, 2018 | 35 | 44 | - | - |
| Unamortized balance as of December 31, 2018 | 254 | 151 | - | - |
| Scheduled Amortization expense for years ended: | | | | |
| December 31, 2019 | 49 | 38 | - | - |
| December 31, 2020 | 44 | 33 | - | - |
| December 31, 2021 | 39 | 27 | - | - |
| December 31, 2022 | 33 | 22 | - | - |
| December 31, 2023 | 28 | 16 | - | - |
| After December 31, 2023 | 61 | 15 | - | - |

12. INVESTMENT IN UNCONSOLIDATED SUBSIDIARY

The Company no longer has an investment in an unconsolidated subsidiary following its acquisition of the remainder of the outstanding common stock of Liverpool on April 30, 2018. Prior to the acquisition, the Company owned 39.16% of the outstanding common stock of Liverpool. The investment was accounted for under the equity method of accounting and was carried at \$4,812,000 as of December 31, 2017. The Company increased its investment in LCB for its share of earnings and decreased its investment by any dividends received from LCB. The investment was evaluated quarterly for impairment. A loss in value of the investment which is determined to be other than a temporary decline would have been recognized as a loss in the period in which such determination was made. Evidence of a loss in value might include, but would not necessarily be limited to, absence of an ability to recover the carrying amount of the investment or inability of LCB to sustain an earnings capacity that would justify the current carrying value of the investment. There was no impairment of the investment relating to LCB prior to the acquisition on April 30, 2018. A deferred tax liability of \$406,000 related to the previous 39.16% ownership in LCB was removed as of April 30, 2018, resulting in a corresponding reduction in income tax expense.

The following table illustrates the components of the income/gain from the unconsolidated subsidiary investment recorded for the years ended December 31, 2018, 2017, and 2016.

| | Years Ended December 31, | | |
|---|---------------------------------|---------------|---------------|
| | 2018 | 2017 | 2016 |
| <i>(Dollars in thousands)</i> | | | |
| Income from unconsolidated subsidiary (excluding merger-related adjustments) | | | |
| Dividend income | \$ 36 | \$ 61 | \$ 55 |
| Equity income | 45 | 106 | 167 |
| Total income (excluding merger-related adjustments) | <u>81</u> | <u>167</u> | <u>222</u> |
| Merger-related adjustments for investment in unconsolidated subsidiary | | | |
| Adjustment to LCB book value at April 30, 2018 | (239) | - | - |
| Special merger-related dividend | 39 | - | - |
| Fair value gain | 415 | - | - |
| Total merger-related adjustments | <u>215</u> | <u>-</u> | <u>-</u> |
| Total income/gain from unconsolidated subsidiary | <u>\$ 296</u> | <u>\$ 167</u> | <u>\$ 222</u> |

13. DEPOSITS

The aggregate amount of demand deposit overdrafts that were reclassified as loans were \$75,000 at December 31, 2018, compared to \$33,000 at December 31, 2017.

Deposits consist of the following:

| | December 31, | |
|--|---------------------|-------------------|
| | 2018 | 2017 |
| <i>(Dollars in thousands)</i> | | |
| Demand, non-interest bearing | \$ 126,057 | \$ 115,911 |
| Interest-bearing demand and money market | 147,413 | 122,407 |
| Savings | 99,236 | 98,966 |
| Time deposits, \$250,000 or more | 8,368 | 8,456 |
| Other time deposits | 140,648 | 131,928 |
| | <u>\$ 521,722</u> | <u>\$ 477,668</u> |

Deposits and other funds from related parties held by Juniata amounted to \$1,215,000 and \$1,116,000 at December 31, 2018 and 2017, respectively.

Aggregate amount of scheduled maturities of time deposits as of December 31, 2018 include the following:

| <i>(Dollars in thousands)</i> Maturing in: | Time Deposits | | |
|---|-------------------|-------------------|---------------------|
| | \$250,000 or more | Other | Total Time Deposits |
| 2019 | \$ 3,538 | \$ 49,056 | \$ 52,594 |
| 2020 | 2,715 | 34,817 | 37,532 |
| 2021 | 513 | 21,694 | 22,207 |
| 2022 | - | 9,503 | 9,503 |
| 2023 | 607 | 11,070 | 11,677 |
| Later | 995 | 14,508 | 15,503 |
| | <u>\$ 8,368</u> | <u>\$ 140,648</u> | <u>\$ 149,016</u> |

14. BORROWINGS

Short term borrowings as of December 31, 2018, 2017 and 2016, and the related maximum amounts outstanding at the end of any month in each of the three years ended, are presented below.

| <i>(Dollars in thousands)</i> | December 31, | | | Maximum Outstanding at Any Month End | | |
|--|------------------|------------------|------------------|--------------------------------------|------------------|------------------|
| | 2018 | 2017 | 2016 | 2018 | 2017 | 2016 |
| Securities sold under agreements to repurchase | \$ 2,911 | \$ 9,769 | \$ 4,496 | \$ 4,620 | \$ 9,769 | \$ 6,018 |
| Short-term borrowings with FHLB: | | | | | | |
| Overnight advances | 11,600 | 12,000 | 27,700 | 29,238 | 30,721 | 32,300 |
| | <u>\$ 14,511</u> | <u>\$ 21,769</u> | <u>\$ 32,196</u> | <u>\$ 33,858</u> | <u>\$ 40,490</u> | <u>\$ 38,318</u> |

The following table presents supplemental information related to short-term borrowings.

| <i>(Dollars in thousands)</i> | Securities sold under agreements to repurchase | | | Short-term borrowings with Federal Home Loan Bank | | |
|--|--|----------|----------|---|-----------|-----------|
| | 2018 | 2017 | 2016 | 2018 | 2017 | 2016 |
| Amount outstanding as of December 31 | \$ 2,911 | \$ 9,769 | \$ 4,496 | \$ 11,600 | \$ 12,000 | \$ 27,700 |
| Weighted average interest rate as of December 31 | 2.13% | 0.32% | 0.18% | 2.62% | 1.54% | 0.74% |
| Average amount outstanding during the year | 4,177 | 4,823 | 4,712 | 9,906 | 25,476 | 15,696 |
| Weighted average interest rate during the year | 1.49% | 0.64% | 0.11% | 1.92% | 1.16% | 0.60% |

Long-term debt is comprised only of FHLB advances with an original maturity of one year or more. Outstanding balances were \$15,000,000 as of December 31, 2018 and \$25,000,000 as of December 31, 2017.

The following table summarizes the scheduled maturities of long-term debt as of December 31, 2018.

| <i>(Dollars in thousands)</i> Year | Scheduled Maturities | Weighted Average Interest Rate |
|---------------------------------------|----------------------|--------------------------------|
| 2019 | \$ 15,000 | 1.59% |
| 2020 | - | - |
| 2021 | - | - |
| 2022 | - | - |
| 2023 | - | - |
| Thereafter | <u>\$ 15,000</u> | <u>1.59%</u> |

The Bank has repurchase agreements with several of its depositors, under which customers' funds are invested daily into an interest bearing account. These funds are carried by the Company as short-term debt. It is the Company's policy to completely collateralize repurchase agreements with U.S. Government securities. As of December 31, 2018, the securities that serve as collateral for securities sold under agreements to repurchase had a fair value of \$8,666,000. The interest rate paid on these funds is variable and subject to change daily.

The Bank's maximum borrowing capacity with the FHLB is \$187,818,000, with a balance of \$26,600,000 outstanding as of December 31, 2018. In order to borrow additional amounts, the FHLB would require the Bank to purchase additional FHLB Stock. The FHLB is a source of both short-term and long-term funding. The Bank must maintain sufficient qualifying collateral to secure all outstanding advances. Qualifying collateral is defined by the FHLB and includes outstanding balances of the Company's real estate loans, excluding loans with certain risk mitigants, including delinquencies and loans made to insiders, borrowers with low credit scores or loans with high loan-to-value ratios.

15. OPERATING LEASE OBLIGATIONS

The Company has entered into four operating lease arrangements. The operating leases are for two branch and two office locations. The majority of the leases are renewable at the Company's option. One of the office location lease agreements is with a related party. The original term of this lease was for ten years followed by fifteen annual renewal options. The Company is currently in the fifth annual renewal period.

Future minimum lease commitments are based on current rental payments. Rental expense charged to operations, including license fees for branch offices, was \$109,000, \$147,000 and \$142,000 in 2018, 2017 and 2016, respectively. The primary reason for the decline in rental expense in 2018 was because a previously leased branch office was relocated to a newly constructed branch facility owned by Juniata at the end of 2017.

The following is a summary of future minimum rental payments for the next five years required under operating leases that have initial or remaining noncancelable lease terms in excess of one year as of December 31, 2018:

| <i>(Dollars in thousands)</i> | <u>Years ending December 31,</u> | <u>Lease Obligation</u> |
|-------------------------------|----------------------------------|-------------------------|
| | 2019 | \$ 111 |
| | 2020 | 93 |
| | 2021 | 83 |
| | 2022 | 26 |
| | 2023 | 21 |
| | 2024 and beyond | <u>95</u> |
| | Total minimum payments required | <u>\$ 429</u> |

16. INCOME TAXES

ASC 740 requires the effects of tax law and rate changes be reflected as a component of tax expense from continuing operations. Due to the enactment of the Tax Cuts and Jobs Act on December 22, 2017, Juniata's future maximum corporate tax rate was lowered from 34% to 21%, thereby decreasing the future tax benefit of its net deferred tax asset by 13%. Though the reduced rate will provide tax savings to Juniata in future periods, the reduction resulted in a write-downs of Juniata's net deferred tax assets, which was previously valued based upon the projection of a 34% future tax rate. As a result, a non-cash charge of \$416,000 was included in the 2017 expense for income taxes. In 2018, the value of Juniata's net deferred tax asset was adjusted again, primarily due to a defined benefit contribution applied to the 2017 tax year that resulted in a decline in tax expense of \$168,000 in 2018. Offsetting the tax expense was the effect of tax credits for Juniata's investment in two low-income housing partnerships amounting to \$901,000 in 2018, \$722,000 in 2017 and \$572,000 in 2016. Tax credits associated with phase I will continue through 2023. Phase II credits were initiated in the second half of 2017 and will run through 2027. The tax credits are included in the tax expense line item on the Consolidated Statements of Income. In addition, a \$406,000 deferred tax liability related to the previous 39.16% ownership of Liverpool, was removed as of April 30, 2018, resulting in a corresponding reduction in income tax expense.

The components of income tax (benefit) expense for the three years ended December 31 were:

(Dollars in thousands)

| | Years Ended December 31, | | |
|-------------------------------|--------------------------|----------|--------|
| | 2018 | 2017 | 2016 |
| Current tax (benefit) expense | \$ (563) | \$ 379 | \$ 499 |
| Deferred tax expense | (96) | 681 | 320 |
| Total tax (benefit) expense | \$ (659) | \$ 1,060 | \$ 819 |

A reconciliation of the statutory income tax (benefit) expense computed at 21% in 2018 and 34% in both 2017 and 2016 to the income tax expense included in the consolidated statements of income follows:

(Dollars in thousands)

| | Years Ended December 31, | | |
|---|--------------------------|----------|----------|
| | 2018 | 2017 | 2016 |
| Income before income taxes | \$ 5,245 | \$ 5,597 | \$ 5,975 |
| Statutory tax rate | 21.0% | 34.0% | 34.0% |
| Federal tax at statutory rate | 1,101 | 1,903 | 2,032 |
| Tax-exempt interest | (271) | (443) | (427) |
| Net earnings on BOLI | (50) | (75) | (84) |
| Gain from life insurance proceeds | - | - | (124) |
| Dividend from unconsolidated subsidiary | (10) | (17) | (15) |
| Stock-based compensation | 19 | 24 | 23 |
| Federal tax credits | (901) | (722) | (572) |
| Merger and acquisition expenses | 33 | - | - |
| Tax reform adjustment | - | 416 | - |
| Defined benefit prior year contribution, net of other PTR adjustments | (198) | - | - |
| Basis difference related to Liverpool investment prior to acquisition | (406) | - | - |
| Other permanent differences | 24 | (26) | (14) |
| Total tax (benefit) expense | \$ (659) | \$ 1,060 | \$ 819 |
| Effective tax rate | (12.6)% | 18.9% | 13.7% |

Deductible temporary differences and taxable temporary differences gave rise to a net deferred tax asset for the Company as of December 31, 2018 and 2017. The components giving rise to the net deferred tax asset are detailed below:

(Dollars in thousands)

| | Years Ended December 31, | |
|---|--------------------------|---------|
| | 2018 | 2017 |
| Deferred Tax Assets | | |
| Allowance for loan losses | \$ 494 | \$ 369 |
| Deferred directors' compensation | 345 | 338 |
| Employee and director benefits | 309 | 320 |
| Qualified pension liability | 78 | 512 |
| Unrealized losses on securities available for sale | 655 | 439 |
| Unrealized loss from securities impairment | 34 | 37 |
| Investment in low income housing project | 142 | 141 |
| Fair value adjustments to acquired assets and liabilities | 293 | 168 |
| Tax credit carryforward | 225 | 75 |
| Valuation reserves on other real estate owned | 1 | 1 |
| Other | 1 | - |
| Total deferred tax assets | 2,577 | 2,400 |
| Deferred Tax Liabilities | | |
| Depreciation | (445) | (345) |
| Equity income from unconsolidated subsidiary | - | (368) |
| Loan origination costs | (384) | (340) |
| Prepaid expense | (229) | (230) |
| Annuity earnings | (56) | (52) |
| Fair value of mortgage servicing rights | (42) | (47) |
| Intangible assets | (68) | (18) |
| Goodwill | (353) | (324) |
| Other | - | (24) |
| Total deferred tax liabilities | (1,577) | (1,748) |
| Net deferred tax asset included in other assets | \$ 1,000 | \$ 652 |

The Company has concluded that the deferred tax assets are realizable (on a more likely than not basis) through the combination of future reversals of existing taxable temporary differences, certain tax planning strategies and expected future taxable income.

It is the Company's policy to recognize interest and penalties on unrecognized tax benefits in income tax expense in the Consolidated Statements of Income. No significant income tax uncertainties were identified as a result of the Company's evaluation of its income tax position. Therefore, the Company recognized no adjustment for unrecognized income tax benefits for the years ended December 31, 2018, 2017 and 2016. The Company is no longer subject to examination by taxing authorities for years before 2015. Tax years 2015 through the present, with limited exception, remain open to examination.

17. STOCKHOLDERS' EQUITY AND REGULATORY MATTERS

The Company is authorized to issue 500,000 shares of preferred stock with no par value. The Board has the ability to fix the voting, dividend, redemption and other rights of the preferred stock, which can be issued in one or more series. No shares of preferred stock have been issued.

The Company has a dividend reinvestment and stock purchase plan. Under this plan, additional shares of Juniata Valley Financial Corp. stock may be purchased at the prevailing market prices through reinvested

dividends and voluntary cash payments, within limits. To the extent that shares are not available in the open market, the Company has reserved common stock to be issued under the plan. Any adjustment in capitalization of the Company will result in a proportionate adjustment to the reserved shares for this plan. At December 31, 2018, 141,887 shares were available for issuance under the Dividend Reinvestment Plan.

The Company periodically repurchases shares of its common stock under a share repurchase program approved by the Board of Directors. Repurchases have typically been through open market transactions and have complied with all regulatory restrictions on the timing and amount of such repurchases. Shares repurchased have been added to treasury stock and accounted for at cost. These shares may be reissued for stock option exercises, stock awards, employee stock purchase plan purchases, to fulfill dividend reinvestment program needs and to supply shares needed for exchange in an acquisition. During 2018, 2017 and 2016, 3,416, 4,289 and 49,370 shares, respectively, were repurchased in conjunction with this program. Remaining shares authorized in the program were 170,574 as of December 31, 2018.

The Company and the Bank are subject to risk-based capital standards by which bank holding companies and banks are evaluated in terms of capital adequacy. These regulatory capital requirements are administered by the federal banking agencies. Failure to meet minimum capital requirements can result in certain mandatory and possibly additional discretionary actions by regulators that, if undertaken, could have a direct material effect on the Company's consolidated financial statements. Under capital adequacy guidelines and the regulatory framework for prompt corrective action, the Company and the Bank must meet specific capital guidelines that involve quantitative measures of the Company's and the Bank's assets, liabilities, and certain off-balance sheet items as calculated under regulatory accounting practices. The Company's and Bank's capital amounts and classification are also subject to qualitative judgments by the regulators about components, risk weightings, and other factors.

Quantitative measures established by regulation to ensure capital adequacy require the Company and the Bank to each maintain minimum amounts and ratios. The requirements were revised and became effective on a phased-in basis beginning January 1, 2015 and included the establishment of a Common Equity Tier I level. Juniata's and the Bank's Total, Tier I and Common Equity Tier I capital (as defined in the regulations) to risk-weighted assets (as defined in the regulations), and Tier I capital (as defined in the regulations) to average assets (as defined in the regulations) are set forth in the table below. These risk-based capital rules require that banks and holding companies maintain a "capital conservation buffer" of 250 basis points in excess of the "minimum capital ratio". The minimum capital ratio is equal to the prompt corrective action adequately capitalized threshold ratio. The capital conservation buffer was fully phased in as of January 1, 2019. The maximum buffer for 2018 was 1.875% and is 2.5% for 2019 and thereafter. Failure to maintain the required capital conservation buffer will result in limitations on capital distributions and on discretionary bonuses to executive officers. Management believes, as of December 31, 2018 and 2017, that the Company and the Bank met all capital adequacy requirements to which they were subject.

As of December 31, 2018, the most recent notification from the regulatory banking agencies categorized the Bank as well capitalized under the regulatory framework for prompt corrective action. To be categorized as "well capitalized", the Bank must maintain minimum Total risk-based, Tier I risk-based, Common Equity Tier I risk-based and Tier I leverage ratios as set forth in the table. To the knowledge of management, there are no conditions or events since these notifications that have changed the Bank's category.

The table below provides a comparison of the Company's and the Bank's risk-based capital ratios and leverage ratios to the minimum regulatory requirements as of the dates indicated.

| Juniata Valley Financial Corp. (Consolidated) | Actual | | Minimum Requirement For Capital Adequacy Purposes | |
|--|-------------------------------|--------|---|-------|
| | Amount | Ratio | Amount | Ratio |
| | <i>(Dollars in thousands)</i> | | | |
| As of December 31, 2018: | | | | |
| Total Capital (to Risk Weighted Assets) | \$ 63,883 | 15.86% | \$ 32,214 | 8.00% |
| Tier 1 Capital (to Risk Weighted Assets) | 60,849 | 15.11% | 24,160 | 6.00% |
| Common Equity Tier 1 Capital (to Risk Weighted Assets) | 60,849 | 15.11% | 18,120 | 4.50% |
| Tier 1 Capital (to Average Assets) Leverage | 60,849 | 10.01% | 24,318 | 4.00% |
| As of December 31, 2017: | | | | |
| Total Capital (to Risk Weighted Assets) | \$ 59,667 | 15.01% | \$ 31,809 | 8.00% |
| Tier 1 Capital (to Risk Weighted Assets) | 55,808 | 14.04% | 23,857 | 6.00% |
| Common Equity Tier 1 Capital (to Risk Weighted Assets) | 55,808 | 14.04% | 17,892 | 4.50% |
| Tier 1 Capital (to Average Assets) Leverage | 55,808 | 9.43% | 23,666 | 4.00% |

| The Juniata Valley Bank | Actual | | Minimum Requirement For Capital Adequacy Purposes | | Minimum Capital Adequacy With Capital Buffer | | Minimum Regulatory Requirements to be "Well Capitalized" under Prompt Corrective Action Provisions | |
|--|-------------------------------|--------|---|-------|--|--------|--|--------|
| | Amount | Ratio | Amount | Ratio | Amount | Ratio | Amount | Ratio |
| | <i>(Dollars in thousands)</i> | | | | | | | |
| As of December 31, 2018: | | | | | | | | |
| Total Capital (to Risk Weighted Assets) | \$ 62,422 | 15.50% | \$ 32,222 | 8.00% | \$ 39,774 | 9.875% | \$ 40,278 | 10.00% |
| Tier 1 Capital (to Risk Weighted Assets) | 59,388 | 14.74% | 24,167 | 6.00% | 31,719 | 7.875% | 32,222 | 8.00% |
| Common Equity Tier 1 Capital (to Risk Weighted Assets) | 59,388 | 14.74% | 18,125 | 4.50% | 25,677 | 6.375% | 26,181 | 6.50% |
| Tier 1 Capital (to Average Assets) Leverage | 59,388 | 9.77% | 24,317 | 4.00% | 24,317 | 4.000% | 30,397 | 5.00% |
| As of December 31, 2017: | | | | | | | | |
| Total Capital (to Risk Weighted Assets) | \$ 52,009 | 13.24% | \$ 31,435 | 8.00% | \$ 36,346 | 9.250% | \$ 39,293 | 10.00% |
| Tier 1 Capital (to Risk Weighted Assets) | 49,026 | 12.48% | 23,576 | 6.00% | 28,488 | 7.250% | 31,435 | 8.00% |
| Common Equity Tier 1 Capital (to Risk Weighted Assets) | 49,026 | 12.48% | 17,682 | 4.50% | 22,594 | 5.750% | 25,541 | 6.50% |
| Tier 1 Capital (to Average Assets) Leverage | 49,026 | 8.36% | 23,460 | 4.00% | 23,460 | 4.000% | 29,325 | 5.00% |

Certain regulatory restrictions exist regarding the ability of the Bank to transfer funds to the Company in the form of cash dividends, loans or advances. At December 31, 2018, \$42,119,000 of undistributed earnings of the Bank, included in the consolidated stockholders' equity, was available for distribution to the Company as dividends without prior regulatory approval, subject to the regulatory capital requirements above.

18. CALCULATION OF EARNINGS PER SHARE

Basic earnings per share ("EPS") is computed by dividing net income by the weighted average number of common shares outstanding for the period. Diluted EPS reflects the potential dilution that could occur if securities or other contracts to issue common stock were exercised or converted into common stock or resulted in the issuance of common stock that then shared in the earnings of the Company. Potential common shares that may be issued by the Company relate solely to outstanding stock options and are determined using the treasury stock method. Restricted stock is participating, and therefore, is included in the EPS calculation. The following table sets forth the computation of basic and diluted earnings per share:

| | Years Ended December 31, | | |
|--|--------------------------|----------------|----------------|
| | 2018 | 2017 | 2016 |
| <i>(Dollars in thousands, except earnings per share)</i> | | | |
| Net income | \$ 5,904 | \$ 4,537 | \$ 5,156 |
| Weighted-average common shares outstanding | 4,987 | 4,765 | 4,801 |
| Basic earnings per share | \$ 1.18 | \$ 0.95 | \$ 1.07 |
| Weighted-average common shares outstanding | 4,987 | 4,765 | 4,801 |
| Common stock equivalents due to effect of stock options | 22 | 10 | 1 |
| Total weighted-average common shares and equivalents | \$ 5,009 | \$ 4,775 | \$ 4,802 |
| Diluted earnings per share | \$ 1.18 | \$ 0.95 | \$ 1.07 |
| Anti-dilutive stock options outstanding | - | 6 | 401 |

19. ACCUMULATED OTHER COMPREHENSIVE LOSS

Components of accumulated other comprehensive loss, net of tax as of December 31 of each of the last three years consist of the following:

| | As of December 31, | | |
|--|--------------------|------------|------------|
| | 2018 | 2017 | 2016 |
| <i>(Dollars in thousands)</i> | | | |
| Unrealized losses on available for sale securities | \$ (2,647) | \$ (1,683) | \$ (866) |
| Unrecognized expense for defined benefit pension | (1,652) | (2,351) | (2,343) |
| Accumulated other comprehensive loss | \$ (4,299) | \$ (4,034) | \$ (3,209) |

20. FAIR VALUE MEASUREMENT

Fair value measurement and disclosure guidance defines fair value as the price that would be received to sell an asset or transfer a liability in an orderly transaction (that is, not a forced liquidation or distressed sale) between market participants at the measurement date under current market conditions. Additional guidance is provided on determining when the volume and level of activity for the asset or liability has significantly decreased. The guidance also includes guidance on identifying circumstances when a transaction may not be considered orderly.

Fair value measurement and disclosure guidance provides a list of factors that a reporting entity should evaluate to determine whether there has been a significant decrease in the volume and level of activity for the asset or liability in relation to normal market activity for the asset or liability. When the reporting entity concludes there has been a significant decrease in the volume and level of activity for the asset or liability, further analysis of the information from that market is needed, and significant adjustments to the related prices may be necessary to estimate fair value in accordance with fair value measurement and disclosure guidance.

This guidance clarifies that, when there has been a significant decrease in the volume and level of activity for the asset or liability, some transactions may not be orderly. In those situations, the entity must evaluate the weight of the evidence to determine whether the transaction is orderly. The guidance provides a list of circumstances that may indicate that a transaction is not orderly. A transaction price that is not associated with an orderly transaction is given little, if any, weight when estimating fair value.

Fair value measurement and disclosure guidance defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. A fair value measurement assumes that the transaction to sell the asset or transfer the liability occurs in the principal market for the asset or liability or, in the absence of a principal market, the most advantageous market for the asset or liability. The price in the principal (or most advantageous) market used to measure the fair value of the asset or liability is not adjusted for transaction costs. An orderly transaction is a transaction that assumes exposure to the market for a period prior to the measurement date to allow for marketing activities that are usual and customary for transactions involving such assets and liabilities; it is not a forced transaction. Market participants are buyers and sellers in the principal market that are (i) independent, (ii) knowledgeable, (iii) able to transact and (iv) willing to transact.

Fair value measurement and disclosure guidance requires the use of valuation techniques that are consistent with the market approach, the income approach and/or the cost approach. The market approach uses prices and other relevant information generated by market transactions involving identical or comparable assets and liabilities. The income approach uses valuation techniques to convert future amounts, such as cash flows or earnings, to a single present amount on a discounted basis. The cost approach is based on the amount that currently would be required to replace the service capacity of an asset (replacement cost). Valuation techniques should be consistently applied. Inputs to valuation techniques refer to the assumptions that market participants would use in pricing the asset or liability. Inputs may be observable, meaning those that reflect the assumptions market participants would use in pricing the asset or liability developed based on market data obtained from independent sources, or unobservable, meaning those that reflect the reporting entity's own assumptions about the assumptions market participants would use in pricing the asset or liability developed based on the best information available in the circumstances. In that regard, the guidance establishes a fair value hierarchy for valuation inputs that gives the highest priority to quoted prices in active markets for identical assets or liabilities and the lowest priority to unobservable inputs.

The fair value hierarchy for valuation inputs is as follows:

- Level 1 Inputs* – Unadjusted quoted prices in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date.
- Level 2 Inputs* – Inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly or indirectly. These might include quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs other than quoted prices that are observable for the asset or liability (such as interest rates, volatilities, prepayment speeds, credit risks, etc.) or inputs that are derived principally from or corroborated by market data by correlation or other means.
- Level 3 Inputs* – Unobservable inputs for determining the fair values of assets or liabilities that reflect an entity's own assumptions about the assumptions that market participants would use in pricing the assets or liabilities.

An asset's or liability's placement in the fair value hierarchy is based on the lowest level of input that is significant to the fair value measurement.

A description of the valuation methodologies used for instruments measured at fair value, as well as the general classification of such instruments pursuant to the valuation hierarchy, is set forth below.

In general, fair value is based upon quoted market prices, where available. If such quoted market prices are not available, fair value is based upon internally developed models that primarily use, as inputs, observable market-based parameters. Valuation adjustments may be made to ensure that financial instruments are recorded at fair value. These adjustments may include amounts to reflect counterparty credit quality, the Company's creditworthiness, among other things, as well as unobservable parameters. Any such valuation adjustments are applied consistently over time. The Company's valuation methodologies may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. While management believes the Company's valuation methodologies are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different estimate of fair value at the reporting date.

Equities Securities

The fair value of equity securities is based upon quoted prices in active markets and is reported using Level 1 inputs.

Securities Available for Sale

Debt securities classified as available for sale are reported at fair value utilizing Level 2 inputs. For these securities, the Company obtains fair value measurement from an independent pricing service. The fair value measurements consider observable data that may include dealer quotes, market spreads, cash flows, the U.S. Treasury yield curve, live trading levels, trade execution data, market consensus prepayment speeds, credit information and the debt securities' terms and conditions, among other things. Equity securities classified as available for sale are reported at fair value using Level 1 inputs.

Impaired Loans

Certain impaired loans are reported on a non-recurring basis at the fair value of the underlying collateral since repayment is expected solely from the collateral. Fair value is generally determined based upon independent third-party appraisals of the properties, or discounted cash flows based upon the expected proceeds. These assets are included as Level 3 fair values, based upon the lowest level of input that is significant to the fair value measurements.

Other Real Estate Owned

Certain assets included in other real estate owned are carried at fair value as a result of impairment and accordingly are presented measured on a non-recurring basis as they are carried at the lower of cost or fair value. Values are estimated using Level 3 inputs, based on appraisals that consider the sales prices of property in the proximate vicinity less estimated costs to sell.

Mortgage Servicing Rights

The fair value of servicing assets is based on the present value of estimated future cash flows on pools of mortgages stratified by rate and maturity date and are considered Level 3 inputs.

The following table summarizes financial assets and financial liabilities measured at fair value as of December 31, 2018 and December 31, 2017, segregated by the level of the valuation inputs within the fair value hierarchy utilized to measure fair value. There were no transfers of assets between fair value Level 1 and Level 2 during the years ended December 31, 2018 or 2017.

| <i>(Dollars in thousands)</i> | December 31, 2018 | (Level 1) | (Level 2) | (Level 3) |
|---|----------------------|---|--|--|
| | | Quoted Prices in Active Markets for Identical Assets | Significant Other Observable Inputs | Significant Other Unobservable Inputs |
| Measured at fair value on a recurring basis: | | | | |
| Debt securities available-for-sale: | | | | |
| Obligations of U.S. Government agencies and corporations | \$ 23,266 | \$ - | \$ 23,266 | \$ - |
| Obligations of state and political subdivisions | 18,181 | - | 18,181 | - |
| Mortgage-backed securities | 100,506 | - | 100,506 | -- |
| Measured at fair value on a non-recurring basis: | | | | |
| Impaired loans | 1,104 | - | - | 1,104 |
| Other real estate owned | 149 | - | - | 149 |
| Mortgage servicing rights | 200 | - | - | 200 |

| <i>(Dollars in thousands)</i> | December 31, 2017 | (Level 1) | (Level 2) | (Level 3) |
|---|----------------------|---|--|--|
| | | Quoted Prices in Active Markets for Identical Assets | Significant Other Observable Inputs | Significant Other Unobservable Inputs |
| Measured at fair value on a recurring basis: | | | | |
| Debt securities available-for-sale: | | | | |
| Obligations of U.S. Government agencies and corporations | \$ 34,214 | \$ - | \$ 34,214 | \$ - |
| Obligations of state and political subdivisions | 24,981 | - | 24,981 | - |
| Mortgage-backed securities | 93,510 | - | 93,510 | - |
| Equity securities available-for-sale | 1,119 | 1,119 | - | - |
| Measured at fair value on a non-recurring basis: | | | | |
| Impaired loans | 1,574 | - | - | 1,574 |
| Other real estate owned | 27 | - | - | 27 |
| Mortgage servicing rights | 225 | - | - | 225 |

The following table presents additional quantitative information about assets measured at fair value on a nonrecurring basis and for which Level 3 inputs have been used to determine fair value:

| <i>(Dollars in thousands)</i> | | | | | |
|-------------------------------|---------------------|----------------------------------|---|-------------|------------------|
| December 31, 2018 | Fair Value Estimate | Valuation Technique | Unobservable Input | Range | Weighted Average |
| Impaired loans | \$ 1,104 | Appraisal of collateral (1) | Appraisal and liquidation adjustments (2) | 0% - 15% | 14% |
| Other real estate owned | 149 | Appraisal of collateral (1) | Appraisal and liquidation adjustments (2) | 2% | 2% |
| Mortgage servicing rights | 200 | Multiple of annual servicing fee | Estimated pre-payment speed, based on rate and term | 300% - 400% | 369% |

(Dollars in thousands)

| December 31, 2017 | Fair Value Estimate | Valuation Technique | Unobservable Input | Range | Weighted Average |
|---------------------------|---------------------|----------------------------------|---|-------------|------------------|
| Impaired loans | \$ 1,574 | Appraisal of collateral (1) | Appraisal and liquidation adjustments (2) | 0% - 13% | 8% |
| Other real estate owned | 27 | Appraisal of collateral (1) | Appraisal and liquidation adjustments (2) | 22% | 22% |
| Mortgage servicing rights | 225 | Multiple of annual servicing fee | Estimated pre-payment speed, based on rate and term | 300% - 400% | 371% |

- (1) Fair value is generally determined through independent appraisals of the underlying collateral that generally include various level 3 inputs which are not identifiable.
- (2) Appraisals may be adjusted downward by management for qualitative factors such as economic conditions and estimated liquidation expenses. The range of liquidation expenses and other appraisal adjustments are presented as a percent of the appraisal.

Fair Value of Financial Instruments

Management uses its best judgment in estimating the fair value of the Company's financial instruments; however, there are inherent weaknesses in any estimation technique. Therefore, the fair value estimates herein are not necessarily indicative of the amounts the Company could have realized in sales transactions on the dates indicated. The estimated fair value amounts have been measured as of their respective year ends and have not been re-evaluated or updated for purposes of these consolidated financial statements subsequent to those respective dates. As such, the estimated fair values of these financial instruments subsequent to the respective reporting dates may be different from the amounts reported at each year end.

The information presented below should not be interpreted as an estimate of the fair value of the entire Company since a fair value calculation is provided only for a limited portion of the Company's assets and liabilities. Due to a wide range of valuation techniques and the degree of subjectivity used in making the estimates, comparisons between the Company's disclosures and those of other companies may not be meaningful.

The following describes the estimated fair value of the Company's financial instruments as well as the significant methods and assumptions not previously disclosed used to determine these estimated fair values.

Carrying values approximate fair value for cash and due from banks, interest-bearing demand deposits with banks, federal funds sold, restricted stock in the Federal Home Loan Bank, interest receivable, mortgage servicing rights, non-interest bearing deposits, securities sold under agreements to repurchase, short-term borrowings and interest payable. Other than cash and due from banks, which are considered Level 1 inputs, and mortgage servicing rights, which are Level 3 inputs, these instruments are Level 2 inputs.

The estimated fair values of the Company's financial instruments are as follows:

FINANCIAL INSTRUMENTS

(Dollars in thousands)

| | December 31, 2018 | | December 31, 2017 | |
|---|-------------------|------------|-------------------|------------|
| | Carrying Value | Fair Value | Carrying Value | Fair Value |
| Financial assets: | | | | |
| Cash and due from banks | \$ 15,617 | \$ 15,617 | \$ 9,839 | \$ 9,839 |
| Interest bearing deposits with banks | 110 | 110 | 58 | 58 |
| Federal funds sold | 729 | 729 | - | - |
| Interest bearing time deposits with banks | 3,290 | 3,290 | 350 | 350 |
| Securities | 141,953 | 141,953 | 153,824 | 153,824 |
| Restricted investment in FHLB stock | 2,441 | 2,441 | 3,104 | 3,104 |
| Loans, net of allowance for loan losses | 414,597 | 415,195 | 380,965 | 372,906 |
| Mortgage servicing rights | 200 | 200 | 225 | 225 |
| Accrued interest receivable | 1,681 | 1,681 | 1,582 | 1,582 |
| Financial liabilities: | | | | |
| Non-interest bearing deposits | 126,057 | 126,057 | 115,911 | 115,911 |
| Interest bearing deposits | 395,665 | 395,226 | 361,757 | 361,468 |
| Securities sold under agreements to repurchase | 2,911 | 2,911 | 9,769 | 9,769 |
| Short-term borrowings | 11,600 | 11,600 | 12,000 | 12,000 |
| Long-term debt | 15,000 | 14,958 | 25,000 | 24,885 |
| Other interest bearing liabilities | 1,596 | 1,597 | 1,593 | 1,595 |
| Accrued interest payable | 289 | 289 | 300 | 300 |
| Off-balance sheet financial instruments: | | | | |
| Commitments to extend credit | - | - | - | - |
| Letters of credit | - | - | - | - |

The following presents the carrying amount, fair value and placement in the fair value hierarchy of the Company's financial instruments not previously disclosed as of December 31, 2018 and December 31, 2017. This table excludes financial instruments for which the carrying amount approximates fair value.

| <i>(Dollars in thousands)</i> | Carrying Amount | Fair Value | (Level 1) | (Level 2) | (Level 3) |
|---|--------------------|------------|--|--|--|
| | | | Quoted Prices in Active Markets for Identical Assets or Liabilities | Significant Other Observable Inputs | Significant Other Unobservable Inputs |
| December 31, 2018 | | | | | |
| Financial instruments - Assets | | | | | |
| Interest bearing time deposits with banks | \$ 3,290 | \$ 3,290 | \$ - | \$ 3,290 | \$ - |
| Loans, net of allowance for loan losses | 414,597 | 415,195 | - | - | 415,195 |
| Financial instruments - Liabilities | | | | | |
| Interest bearing deposits | \$ 395,665 | \$ 395,226 | \$ - | \$ 395,226 | \$ - |
| Long-term debt | 15,000 | 14,958 | - | 14,958 | - |
| Other interest bearing liabilities | 1,596 | 1,597 | - | 1,597 | - |

| <i>(Dollars in thousands)</i> | Carrying Amount | Fair Value | (Level 1) | (Level 2) | (Level 3) |
|---|--------------------|------------|--|--|--|
| | | | Quoted Prices in Active Markets for Identical Assets or Liabilities | Significant Other Observable Inputs | Significant Other Unobservable Inputs |
| December 31, 2017 | | | | | |
| Financial instruments - Assets | | | | | |
| Interest bearing time deposits with banks | \$ 350 | \$ 350 | \$ - | \$ 350 | \$ - |
| Loans, net of allowance for loan losses | 380,965 | 372,906 | - | - | 372,906 |
| Financial instruments - Liabilities | | | | | |
| Interest bearing deposits | \$ 361,757 | \$ 361,468 | \$ - | \$ 361,468 | \$ - |
| Long-term debt | 25,000 | 24,885 | - | 24,885 | - |
| Other interest bearing liabilities | 1,593 | 1,595 | - | 1,595 | - |

21. REVENUE RECOGNITION

As disclosed in Note 3, as of January 1, 2018, the Company adopted ASU 2014-09, "Revenue from Contracts with Customers (Topic 606)", as well as subsequent ASU's that modified ASC 606. The Company elected to apply the ASU and all related ASU's using the modified retrospective approach applied to all contracts initiated on or after the effective date, and for contracts which have remaining obligations as of the effective date, while prior period results continue to be reported under legacy U.S. GAAP. Based on this assessment, the Company concluded that ASC 606 did not materially change the method by which the Company currently recognizes revenue for these revenue streams, which is by recognizing revenues as they are earned based upon contractual terms, as transactions occur, or as services are provided and collectability is reasonably assured.

The Company generally acts in a principal capacity, on its own behalf, in most contracts with customers. In such transactions, revenue and related costs to provide these services are recognized on a gross basis in the financial statements. In some cases, the Company acts in an agent capacity, deriving revenue through assisting other entities in transactions with its customers. In such transactions, revenue and the related costs to provide the services are recognized on a net basis in the financial statements. These transactions primarily relate to non-deposit product commissions and fees derived from customer's use of various interchange and ATM/debit card networks.

All of the Company's revenue from contracts with customers in the scope of ASC 606 are recognized within non-interest income on the consolidated statements of income. Revenue streams not within the scope of ASC 606 included in non-interest income on the consolidated statements of income include earnings on bank-owned life

insurance and annuities, income from unconsolidated subsidiary, fees derived from loan activity, mortgage banking income, gain/loss on sales and calls of securities, and the change in value of equity securities.

A description of the Company's sources of revenue accounted for under ASC 606 are as follows:

Customer Service Fees – fees mainly represent fees from deposit customers for transaction based, account maintenance, and overdraft services. Transaction based fees include, but are not limited to, stop payment and overdraft fees. These fees are recognized at the time of the transaction when the performance obligation has been fulfilled. Account maintenance fees and account analysis fees are earned over the course of a month, representing the period of the performance obligation, and are recognized monthly.

Debit Card Fee Income – consists of interchange fees from cardholder transactions conducted through the card payment network. Cardholders use debit cards to conduct point-of-sale transactions that produce interchange fees. The Company acts in an agent capacity to offer processing services for debit cards to its customers. Fees are recognized with the processing of the transactions and netted against the related fees from such transactions.

Trust Fees – include asset management and estate fees. Asset management fees are generally based on a fee schedule, based upon the market value of the assets under management, and recognized monthly when the service obligation is completed. Trust fees recognized in 2018 and 2017 were \$367,000 and \$371,000, respectively. Fees for estate management services are based on a specified fee schedule and generally recognized as the following performance obligations are fulfilled: (i) 25% of total estate fee recognized when all estate assets are collected and debts paid, (ii) 50% of the total fee is recognized when the inheritance tax return is filed, and (iii) remaining 25% is recognized when the first and final account is confirmed, settling the estate. Estate fees recognized during 2018 and 2017 were \$63,000 and \$75,000, respectively.

Commissions From Sales Of Non-Deposit Products – include, but are not limited to, brokerage services, employer-based retirement solutions, individual retirement planning, insurance solutions, and fee-based investment advisory services. The Company acts in an agent capacity to offer these services to customers. Revenue is recognized, net of related fees, in the month in which the contract is fulfilled.

Other Non-Interest Income – includes certain revenue streams within the scope of ASC 606 comprised primarily of ATM surcharges, commissions on check orders, and wire transfer fees. ATM surcharges are the result of customers conducting ATM transactions that generate fee income. All of these fees, as well as wire transfer fees, are transaction based and are recognized at the time of the transaction. In addition, the Company acts in an agent capacity to offer checks to its customers and recognizes commissions, net of related fees, when the contract is fulfilled.

Gains/Losses On Sales Of Other Real Estate Owned – are recognized when control of the property transfers to the buyer, which generally occurs when the deed is executed.

Contract Balances

A contract asset balance occurs when an entity performs a service for a customer before the customer pays consideration (resulting in a contract receivable) or before payment is due (resulting in a contract asset). A contract liability balance is an entity's obligation to transfer a service to a customer for which the entity has already received payment (or payment is due from the customer). The company's non-interest revenue streams are largely based on

transactional activity, or standard month-end revenue accruals such as asset management fees based on month-end market values. Consideration is often received immediately or shortly after the Company satisfies its performance obligation and revenue is recognized. The Company does not typically enter into longer-term revenue contracts with customer, and therefore, does not experience significant contract balances.

Contract Acquisition Costs

The Company expenses all contract acquisition costs as costs are incurred.

22. EMPLOYEE BENEFIT PLANS

Long-Term Incentive Plan

The Company maintains the 2016 Long-Term Incentive Plan (the “Plan”), that amended and restated the former 2011 Stock Option Plan (the “2011 Plan”). The Plan continues in effect for any outstanding awards under the 2011 Plan in accordance with the terms and conditions governing such awards immediately prior to the effective date of the Plan but expanded the types of awards authorized to include, among others, restricted stock. Under the provisions of the Plan, while active, awards may consist of grants of incentive stock options, nonqualified stock options, stock appreciation rights, restricted stock and performance shares to officers and key employees of the Company, as well as Directors.

Compensation expense for stock options granted and restricted stock awarded is measured using the fair value of the award on the grant date and is recognized over the vesting period. The Company recognized \$82,000, \$71,000 and \$67,000 of expense for the years ended December 31, 2018, 2017 and 2016, respectively, for stock-based compensation.

The Plan is administered by a committee of the Board of Directors. The Committee determines, among other things, which officers and key employees receive stock compensation, the number of shares to be subject to each award, the option price, the duration of the option and the restricted period, as appropriate. A recipient of the restricted shares will forfeit those shares in their entirety if employment is terminated prior to the vesting date for reasons other than retirement, death or disability. The maximum number of shares of common stock that may be issued under the Plan is 300,000 shares, and 164,955 shares were available for grant as of December 31, 2018. Shares of common stock issued under the Plan may be treasury shares or authorized but unissued shares.

During 2018 and 2017, certain officers and key employees were issued restricted stock awards of 5,220 and 4,650 shares, respectively. Each of the awards carry a three-year restriction, with no interim vesting.

The following table presents compensation expense and related tax benefits for restricted stock awards recognized on the consolidated statement of income.

| <i>(Dollars in thousands)</i> | 2018 | 2017 | 2016 |
|-------------------------------|--------------|--------------|--------------|
| Compensation expense | \$ 77 | \$ 43 | \$ 16 |
| Tax benefit | (16) | (15) | (5) |
| Net income effect | <u>\$ 61</u> | <u>\$ 28</u> | <u>\$ 11</u> |

At December 31, 2018, there was \$109,000 of unrecognized compensation cost related to all non-vested restricted stock awards. This cost is expected to be recognized through February 2021.

The following table presents a summary of non-vested restricted shares activity for 2018.

| | Shares | Weighted Average Grant Date Fair Value |
|---------------------------------|---------------|---|
| Non-vested at January 1, 2017 | 7,800 | \$ 18.10 |
| Vested | - | |
| Cancelled | - | |
| Granted | 5,220 | 19.80 |
| Non-vested at December 31, 2017 | <u>13,020</u> | 18.78 |

No stock options were awarded in 2018. Options granted prior to 2018 vest over three to five years and are exercisable at the grant price, which is at least the fair market value of the stock on the grant date. The Plan provides that the option price per share is not to be less than the fair market value of the stock on the day the option was granted, but in no event less than the par value of such stock. Options granted under the Plan are exercisable no earlier than one year after the date of grant and expire ten years after the date of the grant. All options previously granted under the Plans are scheduled to expire through February 17, 2025.

Total options outstanding at December 31, 2018 have exercise prices between \$17.22 and \$18.00, with a weighted average exercise price of \$17.91 and a weighted average remaining contractual life of 5.1 years.

As of December 31, 2018, there was \$111,000 of total unrecognized compensation cost related to nonvested share-based compensation arrangements granted under the Plan. That cost is expected to be recognized through 2021.

Cash received from option exercises under the Plans for the year ended December 31, 2018 was \$90,000 and \$172,000 for the year ended December 31, 2017. No options were exercised in 2016.

A summary of the status of the outstanding stock options as of December 31, 2018, 2017 and 2016, and changes during the years ending on those dates is presented below:

| | 2018 | | 2017 | | 2016 | |
|------------------------------------|----------------|--|----------------|--|----------------|--|
| | Shares | Weighted Average Exercise Price | Shares | Weighted Average Exercise Price | Shares | Weighted Average Exercise Price |
| Outstanding at beginning of year | 125,026 | \$ 17.91 | 139,155 | \$ 17.97 | 142,524 | \$ 18.07 |
| Granted | - | - | - | - | - | - |
| Exercised | (5,170) | 17.47 | (9,704) | 17.74 | - | - |
| Forfeited | (6,100) | 21.10 | (4,425) | 20.05 | (3,369) | 22.36 |
| Outstanding at end of year | <u>113,756</u> | <u>\$ 17.76</u> | <u>125,026</u> | <u>\$ 17.91</u> | <u>139,155</u> | <u>\$ 17.97</u> |
| Options exercisable at year-end | 110,911 | | 110,282 | | 97,584 | |
| Weighted-average fair value of | | | | | | |
| of options granted during the year | \$ | - | \$ | - | \$ | - |
| Intrinsic value of options | | | | | | |
| exercised during the year | \$ | 15,240 | \$ | 10,807 | \$ | - |
| Intrinsic value of options | | | | | | |
| outstanding and exercisable at | | | | | | |
| December 31, 2018 | \$ | 387,318 | | | | |

The following table summarizes characteristics of stock options as of December 31, 2018:

| Grant Date | Exercise Price | Outstanding | | Exercisable |
|------------|----------------|----------------|----------------------------------|----------------|
| | | Shares | Contractual Average Life (Years) | Shares |
| 10/20/2009 | \$ 17.22 | 3,909 | 0.80 | 3,909 |
| 9/20/2011 | \$ 17.75 | 13,200 | 2.72 | 13,200 |
| 3/20/2012 | \$ 18.00 | 15,800 | 3.22 | 15,800 |
| 2/19/2013 | \$ 17.65 | 16,622 | 4.14 | 16,622 |
| 2/18/2014 | \$ 17.72 | 31,025 | 5.13 | 30,180 |
| 2/17/2015 | \$ 17.80 | 33,200 | 6.13 | 31,200 |
| | | <u>113,756</u> | | <u>110,911</u> |

Defined Benefit Retirement Plans

The Company sponsors a defined benefit retirement plan [The Juniata Valley Bank Retirement Plan (“JVB Plan”)] which covers substantially all of its employees employed prior to December 31, 2007. As of January 1, 2008, the JVB Plan was amended to close the plan to new entrants. All active participants as of December 31, 2007 became 100% vested in their accrued benefit and, as long as they remained eligible, continued to accrue benefits until December 31, 2012. The benefits are based on years of service and the employee’s compensation. Effective December 31, 2012, the JVB Plan was amended to cease future service accruals after that date (i.e., it was frozen).

As a result of the FNBPA acquisition, the Company assumed sponsorship of a second defined benefit retirement plan [Retirement Plan for the First National Bank of Port Allegany (“FNB Plan”)] as of November 30, 2015, which covers substantially all former FNBPA employees that were employed prior to September 30, 2008. The FNBPA Plan was amended as of December 31, 2015 to cease future service accruals to previously unfrozen participants and is now considered to be “frozen”. Effective December 31, 2016, the FNB Plan was merged into the JVB Plan, which was amended to provide the same benefits to the class of participants previously included in the FNB Plan.

The Company’s funding policy is to contribute annually no more than the maximum amount that can be deducted for federal income tax purposes. Contributions are intended to provide for benefits attributed to service through December 31, 2012.

In 2017, Juniata initiated a strategy to reduce the liability associated with its defined benefit pension plan. The first step of the initiative consisted of the purchase of a single premium group annuity for a group of Juniata’s retirees, transferring the associated pension liability to the issuer of the annuity. This step reduced Juniata’s overall pension liability by approximately 12%, which resulted in a pre-tax charge to earnings of \$377,000.

In 2018, Juniata completed the second step of the strategy to reduce the liability associated with its defined benefit pension plan by making a lump sum payment offer to a small group of terminated vested participants in Juniata’s defined benefit plan. This step further reduced Juniata’s remaining pension liability by approximately 9%, which resulted in a pre-tax charge to earnings of \$210,000 in the twelve months ended December 31, 2018. The pre-tax charges for both the 2018 and 2017 strategies executed to reduce the pension liability, represent a further acceleration of pension expenses that would otherwise have impacted Juniata’s future earnings. In 2019, Juniata plans to finalize the termination of its defined benefit plan.

Management expects to record a \$117,000 net periodic expense in 2019 for the JVB Plan, which includes expected amortization out of accumulated other comprehensive loss. The following table sets forth by level, within the fair value hierarchy, debt and equity instruments included in the JVB Plan's assets at fair value as of December 31, 2018 and December 31, 2017. Assets included in the JVB Plan that are not valued in the hierarchy table consist of cash and cash equivalents, totaling \$50,000 and \$46,000, at December 31, 2018 and 2017, respectively.

| | (Level 1) Quoted Prices in Active Markets | (Level 2) Significant Other Observable Inputs | (Level 3) Significant Other Unobservable Inputs |
|--|---|---|---|
| <i>(Dollars in thousands)</i> | December 31, 2018 | for Identical Assets | |
| Measured at fair value on a recurring basis: | | | |
| Mutual funds | \$ 11,891 | \$ 11,891 | \$ - |
| Money market funds | 241 | 241 | - |
| | <u>\$ 12,132</u> | <u>\$ 12,132</u> | <u>\$ -</u> |

| | (Level 1) Quoted Prices in Active Markets | (Level 2) Significant Other Observable Inputs | (Level 3) Significant Other Unobservable Inputs |
|--|---|---|---|
| <i>(Dollars in thousands)</i> | December 31, 2017 | for Identical Assets | |
| Measured at fair value on a recurring basis: | | | |
| Mutual funds | \$ 12,857 | \$ 12,857 | \$ - |
| Money market funds | 213 | 213 | - |
| | <u>\$ 13,070</u> | <u>\$ 13,070</u> | <u>\$ -</u> |

The measurement date for the JVB Plan is December 31. Information pertaining to the activity in the defined benefit plan is as follows:

| <i>(Dollars in thousands)</i> | Years Ended December 31, | |
|---|-----------------------------|------------|
| | 2018 | 2017 |
| Change in projected benefit obligation (PBO) | | |
| PBO at beginning of year | \$ 15,554 | \$ 16,332 |
| Interest cost | 521 | 621 |
| Change in assumptions | (1,208) | 1,141 |
| Actuarial loss | (244) | 136 |
| Group annuity purchase | - | (1,974) |
| Settlement payments | (1,485) | - |
| Benefits paid | (583) | (702) |
| PBO at end of year | \$ 12,555 | \$ 15,554 |
| Change in plan assets | | |
| Fair value of plan assets at beginning of year | \$ 13,117 | \$ 13,840 |
| Actual return on plan assets, net of expenses | (217) | 1,953 |
| Employer contribution | 1,350 | - |
| Group annuity purchase | - | (1,974) |
| Settlement payments | (1,485) | - |
| Benefits paid | (583) | (702) |
| Fair value of plan assets at end of year | \$ 12,182 | \$ 13,117 |
| Funded status, included in other (liabilities) assets | \$ (373) | \$ (2,437) |
| Amounts recognized in accumulated comprehensive loss before income taxes consist of: | | |
| Unrecognized actual loss | \$ (884) | \$ (3,081) |
| Accumulated benefit obligation | \$ 12,555 | \$ 15,554 |

For the year ended December 31, 2018, the mortality assumptions were derived using the Adjusted RP-2014 White Collar Mortality Table. Incorporated into the most recent table are rates projected generationally using Scale MP-2018 to reflect mortality improvement. For the year ended December 31, 2017, the mortality assumptions were derived using the Adjusted RP-2014 White Collar Mortality Table. Incorporated into the table are rates projected generationally using Scale MP-2017 to reflect mortality improvement.

Pension expense for the JVB Plan included the following components for the years ended December 31:

(Dollars in thousands)

| | 2018 | 2017 | 2016 |
|---|-----------------|-----------------|----------------|
| Interest cost on projected benefit obligation | \$ 521 | \$ 621 | \$ 666 |
| Expected return on plan assets | (690) | (793) | (795) |
| Settlement loss | 210 | 377 | - |
| Recognized net actuarial loss | 129 | 207 | 248 |
| Net periodic benefit cost | <u>170</u> | <u>412</u> | <u>119</u> |
| Net loss (gain) | (449) | 117 | 173 |
| Amortization of net loss | (435) | (584) | (248) |
| Total recognized in other comprehensive loss (income) | <u>\$ (884)</u> | <u>\$ (467)</u> | <u>\$ (75)</u> |
| Total recognized in net periodic benefit cost and other comprehensive loss (income) | \$ (714) | \$ (55) | \$ 44 |

Assumptions used to determine benefit obligations were:

| | 2018 | 2017 | 2016 |
|-------------------------------|-------|-------|-------|
| Discount rate | 4.10% | 3.50% | 4.00% |
| Rate of compensation increase | N/A | N/A | N/A |

Assumptions used to determine the net periodic benefit cost were:

| | 2018 | 2017 | 2016 |
|--|-------|-------|-------|
| Discount rate | 3.50% | 4.00% | 4.25% |
| Expected long-term return on plan assets | 4.20 | 6.00 | 6.00 |
| Rate of compensation increase | N/A | N/A | N/A |

As previously stated, the Company has terminated the Defined Benefit Plan as of November 30, 2018, with final distribution targeted for the second or third quarter of 2019. Accordingly, a liability-driven investment strategy has been established, which includes an asset allocation glide path that gradually increases the fixed income allocation from 40% (as of December 31, 2017) to 100% and decrease the equity allocation from 60% to zero by mid-2019. At December 31, 2018, the asset allocation was 10% equities and 90% fixed income in the JVB Plan.

Future expected benefit payments:

| <i>(Dollars in thousands)</i> | 2019 | 2020 | 2021 | 2022 | 2023 | 2024-2028 |
|-----------------------------------|--------|--------|--------|--------|--------|-----------|
| Estimated future benefit payments | \$ 626 | \$ 630 | \$ 620 | \$ 621 | \$ 631 | \$ 3,406 |

Defined Contribution Plan

The Company has a Defined Contribution Plan under which employees, through payroll deductions, are able to defer portions of their compensation. The Company makes an annual non-elective fully vested contribution equal to 3% of compensation to each eligible participant. As of December 31, 2018, a liability of \$238,000 was recorded to satisfy this obligation and was credited to employees' accounts by January 31, 2019. This liability at December 31, 2017 totaled \$224,000 and was credited to employee accounts during 2017. Expense incurred under this plan was \$234,000, \$222,000 and \$211,000 in 2018, 2017 and 2016, respectively. The Defined Contribution Plan also includes an employer matching contribution for employees that elect to defer compensation into this program. The matching contribution in 2018, 2017 and 2016 was \$199,000, \$189,000 and \$179,000, respectively.

Employee Stock Purchase Plan

The Company has an Employee Stock Purchase Plan under which employees, through payroll deductions, are able to purchase shares of Company stock annually. The option price of the stock purchases is between 95% and 100% of the fair market value of the stock on the offering termination date as determined annually by the Board of Directors. The maximum number of shares which employees may purchase under the Plan is 250,000; however, the annual issuance of shares may not exceed 5,000 shares plus any unissued shares from prior offerings. There were 2,134 shares issued in 2018, 1,961 shares issued in 2017 and 3,764 shares issued in 2016 under this plan. At December 31, 2018, there were 172,959 shares reserved for issuance under the Employee Stock Purchase Plan.

Supplemental Retirement Plans

The Company has non-qualified supplemental retirement plans for directors and key employees. At December 31, 2018 and 2017, the present value of the future liability associated with these plans was \$215,000 and \$261,000, respectively. For the years ended December 31, 2018, 2017 and 2016, \$20,000, \$25,000 and \$30,000, respectively, was charged to expense in connection with these plans. The Company offsets the cost of these plans through the purchase of bank-owned life insurance and annuities. See Note 9.

Deferred Compensation Plans

The Company has entered into deferred compensation agreements with certain directors to provide each director an additional retirement benefit, or to provide their beneficiary a benefit, in the event of pre-retirement death. At December 31, 2018 and 2017, the present value of the future liability was \$1,602,000 and \$1,609,000, respectively. For the years ended December 31, 2018, 2017 and 2016, \$40,000, \$33,000 and \$32,000, respectively, was charged to expense in connection with these plans. The Company offsets the cost of these plans through the purchase of bank-owned life insurance. See Note 9.

Salary Continuation Plans

The Company has non-qualified salary continuation plans for key employees. At December 31, 2018 and 2017, the present value of the future liability was \$1,256,000 and \$1,264,000, respectively. For the years ended December 31, 2018, 2017 and 2016 \$103,000, \$127,000 and \$185,000, respectively, was charged to expense in connection with these plans. The Company offsets the cost of these plans through the purchase of bank-owned life insurance. See Note 9.

23. FINANCIAL INSTRUMENTS WITH OFF-BALANCE SHEET RISK

The Company is a party to financial instruments with off-balance sheet risk in the normal course of business to meet the financing needs of its customers. These financial instruments may include commitments to extend credit and letters of credit. Because many commitments are expected to expire without being drawn upon, the total commitment amounts do not necessarily represent future cash requirements. These instruments involve, to varying degrees, elements of credit risk that are not recognized in the consolidated financial statements.

Exposure to credit loss in the event of non-performance by the other party to the financial instrument for commitments to extend credit and letters of credit is represented by the contractual amount of those instruments. The Bank uses the same credit policies in making these commitments and conditional obligations as it does for on-balance sheet instruments. The Company controls the credit risk of its financial instruments through credit approvals, limits and monitoring procedures; however, it does not generally require collateral for such financial instruments since there is no principal credit risk.

A summary of the Company's financial instrument commitments is as follows:

| <i>(Dollars in thousands)</i> | December 31, | |
|--|--------------|-----------|
| | 2018 | 2017 |
| Commitments to grant loans | \$ 72,755 | \$ 77,023 |
| Unfunded commitments under lines of credit | 14,468 | 3,150 |
| Outstanding letters of credit | 2,749 | 2,541 |

Commitments to extend credit are agreements to lend to a customer as long as there is no violation of any condition established in the contract. Commitments generally have fixed expiration dates or other termination clauses and may require payment of a fee. Since portions of the commitments are expected to expire without being drawn upon, the total commitment amounts do not necessarily represent future cash requirements. The Bank evaluates each customer's creditworthiness on a case-by-case basis. The amount of collateral obtained by the Bank upon extension of credit is based on management's credit evaluation of the counter-party. Collateral held varies but may include personal or commercial real estate, accounts receivable, inventory and equipment

Outstanding letters of credit are instruments issued by the Bank that guarantee the beneficiary payment by the Bank in the event of default by the Bank's customer in the non-performance of an obligation or service. Most letters of credit are extended for one year periods. The credit risk involved in issuing letters of credit is essentially the same as that involved in extending loan facilities to customers. The Bank holds collateral supporting those commitments for which collateral is deemed necessary. The amount of the liability as of December 31, 2018 and 2017 for guarantees under letters of credit issued is not material.

The maximum undiscounted exposure related to these guarantees at December 31, 2018 was \$2,749,000, and the approximate value of underlying collateral upon liquidation that would be expected to cover this maximum potential exposure was \$22,963,000.

24. RELATED-PARTY TRANSACTIONS

The Bank has granted loans to certain of its executive officers, directors and their related interests. The aggregate dollar amount of these loans was \$7,780,000 and \$7,939,000 at December 31, 2018 and 2017, respectively. During 2018, \$10,714,000 of new loans were made and repayments totaled \$10,873,000. None of these loans were past due, in non-accrual status or restructured at December 31, 2018 or 2017.

25. COMMITMENTS AND CONTINGENT LIABILITIES

In 2017, the Company executed renewal agreements for technology outsourcing services through two outside service bureaus. Both agreements provide for termination fees if the Company cancels the services prior to the end of the 7-year commitment period that runs through May 31, 2024. At December 31, 2018, potential termination fees were estimated to be approximately \$1,672,000 and \$1,542,000 on the two contracts. The potential termination fees decrease by approximately 15% in each succeeding year through 2024. Since the Company does not expect to terminate these services with either vendor prior to the end of the commitment periods, no liability has been recorded as of December 31, 2018.

The Company, from time to time, may be a defendant in legal proceedings relating to the conduct of its banking business. Most of such legal proceedings are a normal part of the banking business and, in management's opinion, the consolidated financial condition and results of operations of the Company would not be materially affected by the outcome of such legal proceedings.

Additionally, the Company has sold qualifying residential mortgage loans to the FHLB as part of its Mortgage Partnership Finance Program (“Program”). Under the terms of the Program, there is limited recourse back to the Company for loans that do not perform in accordance with the terms of the loan agreement. Each loan sold under the Program is “credit enhanced” such that the individual loan’s rating is raised to “BBB”, as determined by the FHLB. The Program can be terminated by either the FHLB or the Company, without cause, by giving notice to the other party. The FHLB has no obligation to commit to purchase any mortgage through, or from, the Company.

26. SUBSEQUENT EVENTS

In January 2019, the Board of Directors declared a dividend of \$0.22 per share to shareholders of record on February 18, 2019, payable on March 1, 2019.

**27. JUNIATA VALLEY FINANCIAL CORP. (PARENT COMPANY ONLY)
FINANCIAL INFORMATION:**

CONDENSED BALANCE SHEETS

(Dollars in thousands)

| | December 31, | |
|---|------------------|------------------|
| | 2018 | 2017 |
| ASSETS | | |
| Cash and cash equivalents | \$ 48 | \$ 1,082 |
| Investment in bank subsidiary | 65,909 | 52,522 |
| Investment in unconsolidated subsidiary | - | 4,812 |
| Investment securities available for sale | 1,193 | 1,169 |
| Other assets | 641 | 224 |
| TOTAL ASSETS | \$ 67,791 | \$ 59,809 |
| LIABILITIES | | |
| Accounts payable and other liabilities | \$ 413 | \$ 422 |
| STOCKHOLDERS' EQUITY | | |
| TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY | \$ 67,791 | \$ 59,809 |

CONDENSED STATEMENTS OF INCOME AND COMPREHENSIVE INCOME

(Dollars in thousands)

| | Years Ended December 31, | | |
|--|--------------------------|-----------------|-----------------|
| | 2018 | 2017 | 2016 |
| INCOME | | | |
| Interest and dividends on investment securities available for sale | \$ 44 | \$ 44 | \$ 59 |
| Dividends from bank subsidiary | 4,923 | 4,194 | 5,624 |
| Income from unconsolidated subsidiary | 296 | 167 | 222 |
| Gain on sale of securities | - | 314 | 166 |
| Change in value of equity securities | 26 | - | - |
| TOTAL INCOME | 5,289 | 4,719 | 6,071 |
| EXPENSE | | | |
| Merger-related expenses | 134 | 13 | 66 |
| Other non-interest expense | 155 | 146 | 157 |
| TOTAL EXPENSE | 289 | 159 | 223 |
| INCOME BEFORE INCOME TAXES AND EQUITY | | | |
| IN UNDISTRIBUTED NET INCOME OF SUBSIDIARY | 5,000 | 4,560 | 5,848 |
| Income tax (benefit) expense | (347) | (127) | 47 |
| | 5,347 | 4,687 | 5,801 |
| Undistributed net gain (loss) of subsidiary | 557 | (150) | (645) |
| NET INCOME | \$ 5,904 | \$ 4,537 | \$ 5,156 |
| COMPREHENSIVE INCOME | \$ 5,795 | \$ 4,300 | \$ 4,150 |

CONDENSED STATEMENTS OF CASH FLOWS

(Dollars in thousands)

| | Years Ended December 31, | | |
|--|--------------------------|-----------------|----------------|
| | 2018 | 2017 | 2016 |
| Cash flows from operating activities: | | | |
| Net income | \$ 5,904 | \$ 4,537 | \$ 5,156 |
| Adjustments to reconcile net income to net cash provided by operating activities: | | | |
| Undistributed net (gain) loss of subsidiary | (556) | 150 | 645 |
| Realized gains on sales of investment securities | - | (314) | (166) |
| Change in value of equity securities | (26) | - | - |
| Equity in earnings of unconsolidated subsidiary, net of dividends of \$75, \$61 and \$55 | 194 | (106) | (167) |
| Equity gain from acquisition of unconsolidated subsidiary | (415) | - | - |
| Stock-based compensation expense | 82 | 71 | 67 |
| (Increase) decrease in other assets | (93) | 513 | (413) |
| (Decrease) increase in taxes payable | (402) | (271) | 191 |
| (Decrease) increase in accounts payable and other liabilities | (12) | (254) | 1 |
| Net cash provided by operating activities | 4,676 | 4,326 | 5,314 |
| Cash flows from investing activities: | | | |
| Purchases of available for sale securities | - | - | (470) |
| Proceeds from the sale of available for sale securities | - | 734 | 252 |
| Proceeds from the maturity of available for sale investment securities | - | - | - |
| Net cash received from acquisition | (1,361) | - | - |
| Net cash provided by (used in) investing activities | (1,361) | 734 | (218) |
| Cash flows from financing activities: | | | |
| Cash dividends | (4,411) | (4,194) | (4,226) |
| Purchase of treasury stock | (70) | (86) | (927) |
| Treasury stock issued for stock plans | 90 | - | - |
| Common stock issued for stock plans | 42 | 206 | 64 |
| Net cash used in financing activities | (4,349) | (4,074) | (5,089) |
| Net (decrease) increase in cash and cash equivalents | (1,034) | 986 | 7 |
| Cash and cash equivalents at beginning of year | 1,082 | 96 | 89 |
| Cash and cash equivalents at end of year | \$ 48 | \$ 1,082 | \$ 96 |

28. QUARTERLY RESULTS OF OPERATIONS (UNAUDITED)

The unaudited quarterly results of operations for the years ended December 31, 2018 and 2017 follow:

(Dollars in thousands, except per-share data)

| | 2018 Quarter ended | | | |
|---------------------------------|--------------------|---------------------|--------------|-------------|
| | March 31 | June 30 as Revised* | September 30 | December 31 |
| Total interest income | \$ 5,439 | \$ 5,944 | \$ 6,129 | \$ 6,139 |
| Total interest expense | 794 | 890 | 950 | 1,001 |
| Net interest income | 4,645 | 5,054 | 5,179 | 5,138 |
| Provision for loan losses | 158 | 41 | 32 | 106 |
| AFS securities losses | (15) | - | - | (173) |
| Change in equity security value | (6) | 52 | (4) | (43) |
| Other income | 1,195 | 1,444 | 1,245 | 1,332 |
| Merger and acquisition expense | 64 | 376 | 185 | 259 |
| Other expense | 4,341 | 4,530 | 4,847 | 4,859 |
| Income before income taxes | 1,256 | 1,603 | 1,356 | 1,030 |
| Income tax (benefit) expense | (71) | (372) | (29) | (187) |
| Net income | \$ 1,327 | \$ 1,975 | \$ 1,385 | \$ 1,217 |
| Per-share data: | | | | |
| Basic earnings | \$ 0.28 | \$ 0.39 | \$ 0.27 | \$ 0.24 |
| Diluted earnings | \$ 0.28 | \$ 0.39 | \$ 0.27 | \$ 0.24 |
| Cash dividends | \$ 0.22 | \$ 0.22 | \$ 0.22 | \$ 0.22 |

| | 2017 Quarter ended | | | |
|--------------------------------|--------------------|----------|--------------|-------------|
| | March 31 | June 30 | September 30 | December 31 |
| Total interest income | \$ 5,174 | \$ 5,348 | \$ 5,457 | \$ 5,395 |
| Total interest expense | 627 | 702 | 752 | 774 |
| Net interest income | 4,547 | 4,646 | 4,705 | 4,621 |
| Provision for loan losses | 105 | 135 | 149 | 50 |
| Securities gains | 504 | 4 | 2 | 2 |
| Other income | 1,112 | 1,252 | 1,217 | 1,199 |
| Merger and acquisition expense | - | - | - | 13 |
| Other expense | 4,269 | 4,229 | 4,442 | 4,822 |
| Income before income taxes | 1,789 | 1,538 | 1,333 | 937 |
| Income tax expense | 330 | 244 | 127 | 359 |
| Net income | \$ 1,459 | \$ 1,294 | \$ 1,206 | \$ 578 |
| Per-share data: | | | | |
| Basic earnings | \$ 0.31 | \$ 0.27 | \$ 0.25 | \$ 0.12 |
| Diluted earnings | \$ 0.31 | \$ 0.27 | \$ 0.25 | \$ 0.12 |
| Cash dividends | \$ 0.22 | \$ 0.22 | \$ 0.22 | \$ 0.22 |

* The income tax benefit and net income for the quarter ended June 30, 2018 set forth on this table have been restated by \$406,000 from the amounts of income tax expense of \$34,000 and net income of \$1,569,000 originally reported. In addition, the basic and diluted earnings per share set forth on this table have been restated from the \$0.31 per share originally reported. The \$406,000 relates primarily to the reversal of a deferred tax liability on the previous investment in LCB prior to the acquisition on April 30, 2018. The Form 10-Qs for the quarters ending June 30, 2019 and September 30, 2019 will reflect these changes as a correction of a prior year immaterial error.

COMMON STOCK MARKET PRICES AND DIVIDENDS

The common stock of Juniata Valley Financial Corp. is quoted under the symbol “JUVF” on the over-the-counter (“OTC-Pink”) Electronic Bulletin Board, a regulated electronic quotation service made available through, and governed by, the NASDAQ system. As of December 31, 2018, the Company had 1,777 stockholders of record.

As stated in “Note 17 – Stockholders’ Equity and Regulatory Matters” in the Notes to Consolidated Financial Statements, the Company is subject to various regulatory capital requirements that limit the amount of capital available for dividends. While the Company expects to continue its policy of regular dividend payments, no assurance of future dividend payments can be given. Future dividend payments will depend upon the Company’s financial condition, future earnings, capital and regulatory requirements, future prospects, business conditions and other factors deemed relevant by the Board of Directors.

For further information on stock quotes, please contact any licensed broker-dealer, some of which make a market in Juniata Valley Financial Corp. stock.

CORPORATE INFORMATION

Corporate Headquarters
Juniata Valley Financial Corp.
128 Bridge Street
P.O. Box 66
Mifflintown, PA 17059
(855) 582-5101
JVBonline.com

INVESTOR INFORMATION

JoAnn N. McMinn,
Executive Vice President and Chief Financial Officer
P.O. Box 66
Mifflintown, PA 17059
JoAnn.McMinn@JVBonline.com

INFORMATION AVAILABILITY

Information about the Company's financial performance may be found at www.JVBonline.com, following the "Investor Information" link.

All reports filed electronically by Juniata Valley Financial Corp. with the United States Securities and Exchange Commission (SEC), including the Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K, as well as any amendments to those reports, are also accessible at no cost on the SEC's web site at www.SEC.gov.

Additionally, a copy of the Company's Annual Report to the SEC on Form 10-K for the year ended December 31, 2018 will be supplied without charge (except for exhibits) upon written request. Please direct all inquiries to Ms. JoAnn McMinn, as detailed above.

Pursuant to Part 350 of FDIC's Annual Disclosure Regulation, Juniata Valley Financial Corp. will make available to you upon request, financial information about The Juniata Valley Bank. Please contact:

Ms. Danyelle Pannebaker
The Juniata Valley Bank
P.O. Box 66
Mifflintown, PA 17059

INVESTMENT CONSIDERATIONS

In analyzing whether to make, or to continue, an investment in Juniata Valley Financial Corp., investors should consider, among other factors, the information contained in this Annual Report and certain investment considerations and other information more fully described in our Annual Report on Form 10-K for the year ended December 31, 2018, a copy of which can be obtained as described above.

Registrar and Transfer Agent

By regular mail:
Computershare
P.O. Box 30170
College Station, TX 77842-3170
United States

By overnight delivery:
Computershare
211 Quality Circle, Suite 210
College Station, TX 77845
Telephone: (800) 368-5948
Website: www.Computershare.com/investor

Shareholders of record may access their accounts via the Internet to review account holdings and transaction history through Computershare's website: www.Computershare.com/investor.

Information regarding the Company's Dividend Reinvestment and Stock Purchase Plan, including a Prospectus, may be obtained by contacting Computershare, through the means listed above.

The Company offers a dividend direct deposit option whereby shareholders of record may have their dividends deposited directly into the bank account of their choice on the dividend payment date. Please contact Computershare for further information and to register for this service.

ANNUAL MEETING OF SHAREHOLDERS

The Annual Meeting of Shareholders of Juniata Valley Financial Corp. will be held at 10:30 a.m., on Tuesday, May 21, 2019 at the Juniata Valley Bank Financial Center, 1762 Butcher Shop Road, Mifflintown, Pennsylvania.

**JUNIATA VALLEY FINANCIAL CORP.
CORPORATE OFFICERS**

Timothy I. Havice----- Chairman
Philip E. Gingerich, Jr. -----Vice Chairman
Marcie A. Barber-----President and Chief Executive Officer
JoAnn N. McMinn -----Executive Vice President, Secretary, Treasurer and Chief Financial Officer

**JUNIATA VALLEY FINANCIAL CORP. AND THE JUNIATA VALLEY BANK
BOARD OF DIRECTORS**

Marcie A. Barber
President and Chief Executive Officer

Timothy I. Havice, Chairman
Owner, T.I. Havice, Developer

Michael A. Buffington
Founder and President of
Buffington Property Management, LLC
and One-Stop Communications

Gary E. Kelsey
Potter County, PA Register of Wills and Recorder
of Deeds

Martin L. Dreibelbis
Self-Employed, Petroleum Consultant

Richard M. Scanlon, DMD
Retired Dentist and Dental Consultant to
Central PA Institute of Science and Technology

Philip E. Gingerich, Jr., Vice Chairman
President, Central Insurers Group, Inc.

Bradley J. Wagner
President and General Manager of
Hooper Feeds, President of Hegins Feed and
Supply, Inc. and President of L & K Mills

**THE JUNIATA VALLEY BANK
BUSINESS DEVELOPMENT BOARD MEMBERS**

Kim E. Bomberger
R. Franklin Campbell
Steven R. Ehrenzeller
Mark S. Elsesser
Gregory J. Gordon
Donald R. Hartzler
Robert D. Hower
Daniel F. Lane, III

William Larson
Dennis A. Long
Jeffrey C. Moyer
Craig M. Rupert
William J. Rupp, Jr.
Richard A. Smeltz
Georgiana Snyder-Leitzel
Corey P. Wray

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DIRECTORY OF OFFICERS OF JVB

■ EXECUTIVE

Marcie A. Barber President, Chief Executive Officer
JoAnn N. McMinn. Executive Vice President, Chief Financial Officer
Danyelle M. Pannebaker Executive Assistant

■ COMPLIANCE

Kathy D. Hutchinson Vice President, Compliance Specialist
and Security Officer
Camie L. Harr BSA Officer

■ FINANCE

Cortney E. Wilbert Vice President, Controller
Kristi J. Burdge Assistant Vice President, Accounting Manager
Renee D. Williamson Financial Information Manager

■ HUMAN RESOURCES

Tina J. Smith Senior Vice President, Director of Human Resources
Carol A. Noland Payroll Manager and Benefits Administrator

■ MARKETING

Suzanne E. Booher Vice President, Director of Marketing

■ BUSINESS LENDING

Jeremiah J. Trout Senior Vice President, Lending Division Manager
William T. Campbell, Jr. Vice President, Relationship Manager
Jeffrey A. Herr Vice President, Relationship Manager
Joseph W. Lashway Senior Vice President,
Northern Tier Division Manager
Thomas P. O'Connell Vice President, Relationship Manager
Kelly A. Sherman Vice President, Relationship Manager
H. Fred Wallace Vice President, Relationship Manager
Pamela K. Parson Vice President, Collections Manager
Christine L. Burlew Vice President, Collections Officer
Lora J. Rankin Northern Tier Collections Officer

■ CONSUMER LENDING

Betty D. Ryan Vice President, Secondary Mortgage Market Manager

■ CREDIT ADMINISTRATION AND LOAN OPERATIONS

Lisa M. Snyder Senior Vice President, Credit Administration Manager
Matthew J. Waddell Vice President, Portfolio Manager
Cathleen L. Miller Loan Operations Supervisor

■ OPERATIONS

Steven T. Kramm Senior Vice President,
Operations/IT Division Manager
Curtis M. Crouse Network Administrator
S. Marlene Hubler Computer Operations and Facilities Manager
Beverly M. McClellan Data Analyst
Tammy L. Miller Deposit Operations Manager
Kelly L. Yetter Business Solutions Officer

■ TRUST AND INVESTMENT SERVICES

Donald E. Shawley Senior Vice President,
Trust and Investment Services Division Manager
Paul M. Grego Vice President, Trust Investment Officer
Jonathan F. King Financial Services Representative
Adam E. Truitt Vice President, Financial Services Officer
Cynthia L. Williams Vice President, Trust Officer

■ BRANCH ADMINISTRATION

Lee Ellen Foose Vice President/Branch Operations Administrator
Laurie B. Blauvelt Northern Tier Branch Administrator
Brenda A. Brubaker Vice President,
Director of Customer Care and Training
Lynne S. Ruffner Vice President, Northern Tier Retail Sales Manager

■ BLAIRS MILLS AND PORT ROYAL OFFICES

Barbara I. Seaman Vice President,
Community Office Manager and Relationship Manager
Lori A. Yocum Assistant Office Manager, Blairs Mills Office

■ BURNHAM OFFICE

Leann M. Fisher Vice President, Community Office Manager
Holly M. Laub Assistant Office Manager

■ COUDERSPORT OFFICE

Kelly L. Bruno Community Office Manager and
Northern Tier Electronic Banking Coordinator
Diane S. Dynda Assistant Office Manager

■ GARDENVIEW OFFICE

Larry B. Cottrill, Jr. Vice President,
Community Office Manager and Relationship Manager
Kelly L. Mayes Assistant Office Manager

■ McALISTERVILLE AND RICHFIELD OFFICES

Leslie A. Miller Vice President, Community Office Manager
Amber N. Portzline Assistant Office Manager, Richfield Office

■ MIFFLINTOWN AND MOUNTAIN VIEW OFFICES

Annette M. Price Vice President,
Community Office Manager and Teller Support Manager

■ MILLERSTOWN AND LIVERPOOL OFFICES

Diana S. Orwan Community Office Manager
Lisa M. Freet Assistant Office Manager, Millerstown Office

■ MONUMENT SQUARE, WATER STREET, & WAL-MART OFFICES

Christine L. Searer Vice President, Market Manager,
Southwest Lewistown
Shana K. Mateer Assistant Office Manager, Wal-Mart Office
Stacey K. McMurtrie Assistant Office Manager,
Monument Square Office
Amy J. Pitts Assistant Office Manager, Water Street Office

■ PORT ALLEGANY AND LILLIBRIDGE OFFICES

Denise R. Russell Community Office Manager





JUNIATA VALLEY FINANCIAL CORP.

218 Bridge Street
Mifflintown, PA 17059
www.jvbonline.com