PHOTRONICS INC
Form 10-K
December 21, 2018
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**UNITED STATES**
**SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

**FORM 10-K**

**ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended October 31, 2018

**OR**

o **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from ___ to ___

**Commission file number** 0-15451

**PHOTRONICS, INC.**
*(Exact name of registrant as specified in its charter)*

| **Connecticut** | **06-0854886** |
|---|---|
| *(State or other jurisdiction of incorporation or organization)* | *(IRS Employer Identification No.)* |

**15 Secor Road, Brookfield, Connecticut 06804**
*(Address of principal executive offices)(Zip Code)*

**(203) 775-9000**
*(Registrant's telephone number, including area code)*

*Securities registered pursuant to Section 12(b) of the Act:*

| **Title of each class** | **Name of each exchange on which registered** |
|---|---|
| Common Stock, $.01 par value | NASDAQ Global Select Market |

*Securities registered pursuant to Section 12(g) of the Act:*
**None**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
Yes o No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.
Yes o No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.
Yes No o

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).
Yes No o

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant s knowledge in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See definition of accelerated filer, large accelerated filer, smaller reporting company , and emerging growth company in Rule 12b-2 of the Exchange Act. (Check one):

| | | | |
|---|---|---|---|
| Large Accelerated Filer | | Accelerated Filer | o |
| Non-Accelerated Filer | o | Smaller Reporting Company | o |
| | | Emerging growth company | o |

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. o

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).
Yes o No

As of April 29, 2018, which was the last business day of the registrant s most recently completed second fiscal quarter, the aggregate market value of the shares of the registrant s common stock held by non-affiliates was approximately $534,704,024 (based upon the closing price of $7.80 per share as reported by the NASDAQ Global Select Market on that date).

As of December 13, 2018, 66,987,737 shares of the registrant s common stock were outstanding.

**DOCUMENTS INCORPORATED BY REFERENCE**

| | |
|---|---|
| Proxy Statement for the 2019 Annual Meeting of Shareholders to be held on March 25, 2019 | Incorporated into Part III of this Form 10-K |

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**Forward-Looking Statements**

The Private Securities Litigation Reform Act of 1995 provides a safe harbor for forward-looking statements made by or on behalf of Photronics, Inc. ( Photronics , the Company , we , our , or us ). These statements are based on management s beliefs, as well as assumptions made by, and information currently available to, management. Forward-looking statements may be identified by words like expect, anticipate, believe, plan, project, could, intend, may, will and similar expressions, or the negative of such terms, or other comparable terminology. All forward-looking statements involve risks and uncertainties that are difficult to predict. In particular, any statement contained in this annual report on Form 10-K or in other documents filed with the Securities and Exchange Commission in press releases or in the Company s communications and discussions with investors and analysts in the normal course of business through meetings, phone calls, or conference calls regarding, among other things, the consummation and benefits of transactions, joint ventures, business combinations, divestitures and acquisitions, expectations with respect to future sales, financial performance, operating efficiencies, or product expansion, are subject to known and unknown risks, uncertainties, and contingencies, many of which are beyond the control of the Company. Various factors may cause actual results, performance, or achievements to differ materially from anticipated results, performance, or achievements expressed or implied by forward-looking statements. Factors that might affect forward-looking statements include, but are not limited to, overall economic and business conditions; economic and political conditions in international markets; the demand for the Company s products; competitive factors in the industries and geographic markets in which the Company competes; the timing of orders received from customers; the gain or loss of significant customers; competition from other manufacturers; changes in accounting standards; federal, state and international tax requirements (including tax rate changes, new tax laws and revised tax law interpretations); changes in the jurisdictional mix of our earnings and changes in tax laws and rates; interest rate and other capital market conditions, including changes in the market price of the Company s securities; foreign currency exchange rate fluctuations; changes in technology; technology or intellectual property infringement, including cybersecurity breaches, and other innovation risks; unsuccessful or unproductive research and development or capital expenditures; the timing, impact, and other uncertainties related to transactions and acquisitions, divestitures, business combinations, and joint ventures as well as decisions the Company may make in the future regarding the Company s business, capital and organizational structures and other matters; the seasonal and cyclical nature of the semiconductor and flat panel display industries; management changes; changes in laws and government regulation impacting our operations or our products, including laws relating to export controls and import laws, rules and tariffs; the occurrence of regulatory proceedings, claims or litigation; damage or destruction to the Company s facilities, or the facilities of its customers or suppliers, by natural disasters, labor strikes, political unrest, or terrorist activity; the ability of the Company to (i) place new equipment in service on a timely basis; (ii) obtain additional financing; (iii) achieve anticipated synergies and cost savings; (iv) fully utilize its tools; (v) achieve desired yields, pricing, product mix, and market acceptance of its products and (vi) obtain necessary export licenses. Any forward-looking statements should be considered in light of these factors. Accordingly, there is no assurance that the Company s expectations will be realized. The Company does not assume responsibility for the accuracy and completeness of the forward-looking statements and does not assume an obligation to provide revisions to any forward-looking statements, except as otherwise required by securities and other applicable laws.

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**PART I**

## ITEM 1. BUSINESS

**General**

Photronics, Inc. (and its subsidiaries, collectively referred to herein as Photronics , the Company , we , our , or us ) of the world s leading manufacturers of photomasks, which are high precision photographic quartz or glass plates containing microscopic images of electronic circuits. Photomasks are a key element in the manufacture of semiconductors and flat panel displays ( FPDs ), and are used as masters to transfer circuit patterns onto semiconductor wafers and flat panel display substrates during the fabrication of integrated circuits ( ICs or semiconductors ) and a variety of FPDs and, to a lesser extent, other types of electrical and optical components. We currently operate principally from nine manufacturing facilities; two of which are located in Europe, three in Taiwan, one in Korea and three in the United States. We are building two manufacturing facilities in China and anticipate production to begin at these facilities during the first half of 2019.

Photronics is a Connecticut corporation, organized in 1969. Our principal executive offices are located at 15 Secor Road, Brookfield, Connecticut 06804, telephone (203) 775-9000. Our website address is http://www.photronics.com. We make available, free of charge through our website, our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and any amendments to these reports as soon as reasonably practicable after such materials are electronically filed with, or furnished to, the Securities and Exchange Commission ( SEC ). The information found on, or incorporated into, our website is not part of this or any other report we file with or furnish to the SEC. The SEC also maintains a website at http://www.sec.gov that contains reports, proxy statements and other information regarding SEC registrants, including Photronics.

**Products and Manufacturing Technology**

We manufacture photomasks, which are used as masters to transfer circuit patterns onto semiconductor wafers and flat panel display substrates. Photomasks are manufactured in accordance with circuit designs provided to us on a confidential basis by our customers. IC and FPD photomask sets are manufactured in layers, each having a distinct pattern which is etched onto a different photomask. The resulting series of photomasks is then used to image the circuit patterns onto each successive layer of a semiconductor wafer or flat panel display substrate. The typical manufacturing process for a photomask involves the receipt and conversion of circuit design data to manufacturing pattern data. A lithography system then exposes the circuit pattern onto the photomask blank. The exposed areas are developed and etched to produce that pattern on the photomask. The photomask is then inspected for defects and conformity to the customer s design data. After any defects are repaired, the photomask is cleaned, any required pellicles (protective translucent cellulose membranes) are applied and, after final inspection, the photomask is shipped to the customer.

We currently support customers across the full spectrum of IC production and FPD technologies by manufacturing photomasks using electron beam or optical (laser-based) systems, which are the predominant technologies used for photomask manufacturing, and are capable of producing the finer line resolution, tighter overlay and larger die size for the larger and more complex circuits currently being designed. Electron beam and laser generated photomasks can be used to produce the most advanced semiconductors and FPDs for use in an array of products. However, in the case of IC production, the large majority of higher cost critical layer photomasks are fabricated using electron beam technologies, while photomasks produced using laser-based systems are less expensive and less precise. End markets served with IC photomasks include devices used for microprocessors, memory, telecommunications and related applications. We currently own a number of both high-end and mature electron beam and laser-based systems.

The first several layers of photomasks are sometimes required to be delivered by us within 24 hours from the time we receive customers design data. The ability to manufacture high quality photomasks within short time periods is dependent upon robust processes, efficient manufacturing methods, high production yield, available manufacturing capacity and high equipment reliability. We work to meet these requirements by making significant investments in research and development, capital equipment, manufacturing and data processing systems, and by utilizing statistical process control methods to optimize our manufacturing processes and reduce cycle times.

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Quality control is an integral part of the photomask manufacturing process. Photomasks are manufactured in temperature, humidity, and particulate-controlled clean rooms because of the high level of precision, quality and manufacturing yield required. Each photomask is inspected several times during the manufacturing process to ensure compliance with customer specifications. We continue to make substantial investments in equipment to inspect and repair photomasks to ensure that customer specifications are met.

The majority of IC photomasks produced for the semiconductor industry employ geometries larger than 28 nanometers. At these geometries, we can produce full lines of photomasks and there is no significant technology employed by our competitors that is not also available to us. We are also capable of producing full lines of photomasks for high-end IC and FPD applications. In the case of ICs, this includes photomasks at and below the 28 nanometer technology node and, for FPDs, at and above the Generation 8 technology node and active-matrix organic light-emitting diode (AMOLED) display screens. We hold customer-qualified manufacturing capability and own, or have access to, technology that enables us to compete in the high-end markets that serve IC and FPD applications.

**Sales and Marketing**

The market for photomasks primarily consists of domestic and non-US semiconductor and FPD manufacturers and designers. Photomasks are manufactured by independent merchant manufacturers like Photronics, and by semiconductor and FPD manufacturers that produce photomasks for their own use (captive manufacturers). In some instances, captive manufacturers also sell to other semiconductor or FPD manufacturers. Previously there was a trend towards the divesture or closing of captive photomask operations by semiconductor manufacturers and an increase in the share of the market served by independent manufacturers. This trend was driven by the increased complexity and cost of capital equipment used in manufacturing photomasks and the lack of economy of scale for many semiconductor and FPD manufacturers to effectively utilize the equipment. However, more recently, some captive mask facilities have been investing at faster rates than independent manufacturers to reach certain roadmap milestones, particularly in the foundry logic and memory spaces. Nevertheless, most captive manufacturers maintain business and technology relationships with independent photomask manufacturers for ongoing support.

Generally, Photronics and each of its customers engage in a qualification and correlation process before one becomes an approved supplier. Thereafter, based on the customer s expectations, we typically negotiate pricing parameters for a customer s order. Some prices may remain in effect for an extended period of time. In many instances, we enter into sales arrangements with an understanding that, as long as our performance is competitive, we will receive a specified percentage of that customer s photomask requirements.

We conduct our sales and marketing activities primarily through a staff of full-time sales personnel and customer service representatives who work closely with the Company s management and technical personnel. We support non-US customers through both our domestic and foreign facilities. We consider our presence in non-US markets to be an important factor in attracting new customers, as it provides global solutions to our customers, minimizes delivery time, and allows us to serve customers that utilize manufacturing foundries outside of the United States, principally in Asia. See Note 13 to our consolidated financial statements for the amount of revenue and long-lived assets attributable to each of our geographic areas of operations.

**Customers**

We sell our products primarily to leading semiconductor and FPD manufacturers. During fiscal year 2018, we sold our products to approximately 600 customers. Revenue from Samsung Electronics Co. Ltd. accounted for approximately 16%, 16% and 19% of our total revenues, and revenue from United Microelectronics Corp. Co. Ltd. accounted for approximately 15%, 16% and 17% of our total revenues in fiscal years 2018, 2017 and 2016, respectively. Our five largest customers, in the aggregate, accounted for approximately 47%, 43% and 50% of our revenue in fiscal years

2018, 2017 and 2016, respectively. A significant decrease in the amount of revenue from any of these customers could have a material adverse effect on our financial performance and business prospects.

**Seasonality**

Our business is typically impacted during the first, and sometimes the second, quarter of our fiscal year by the North American, European, and Asian holiday periods, as some customers reduce their development and buying activities during those periods.

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**Research and Development**

We conduct research and development activities for IC photomasks at our U.S. nanoFab, which is located in Boise, Idaho, as well as at PK, Ltd. ( PKL ), our subsidiary in Korea and Photronics DNP Mask Corporation ( PDMC ), one of our subsidiaries in Taiwan. Research and development for FPD photomasks is conducted at PKL. Additionally, we conduct site-specific research and development programs to support strategic customers. These research and development programs and activities are undertaken to advance our competitiveness in technology and manufacturing efficiency. We also conduct application-oriented research and development activities to support the early adoption of new photomask or supporting data and services technology into our customers applications. Currently, research and development photomask activities for ICs are focused on masks with wafer geometrics of 20 nanometer node and below and, for FPDs, on Generations 8 and 10.5+ substrate size mask process enhancements and mask technology for complex FPD masks used in the manufacture of advanced mobile displays, such as AMOLED. We believe these core competencies will continue to be a critical part of semiconductor and FPD manufacturing, as optical lithography continues to scale capabilities on high-end devices. We incurred research and development expenses of $14.5 million, $15.9 million, and $21.7 million in fiscal years 2018, 2017, and 2016, respectively. It is our belief that we own, control, or license the proprietary information, including trade secrets and patents, that is necessary for our business, as it is presently conducted. We also believe that our intellectual property and trade secret know-how will continue to be important to our maintaining technical leadership in the field of photomasks.

On May 5, 2016, we sold our investment in MP Mask to Micron for $93.1 million and recorded a gain on the sale of $0.1 million, which is included in interest income and other income (expense) in our 2016 consolidated statements of income. On that same date a supply agreement commenced between Photronics and Micron, which provided that we would be the majority outsourced supplier of Micron s photomasks and related services. The supply agreement had a one year term, and expired in May 2017. Photronics has unlimited rights to use the technology it acquired under its prior technology license agreement.

**Patents and Trademarks**

We have ownership interests in approximately 42 issued U.S. patents. The subject matter of these patents, which are registered in various countries, generally relates to the manufacture of IC photomasks or the use of photomasks to manufacture other products. The expiration dates of these patents range from 2019 to 2034. We also have a number of trademarks and trademark registrations in the United States and in other countries.

While we believe that our intellectual property is, and will continue to be, important to our technical leadership in the field of photomasks, our operations are not dependent on any one individual patent. We protect our intellectual property rights and proprietary processes by utilizing patents and non-disclosure agreements with employees, customers and vendors.

**Materials, Supplies and Equipment**

Raw materials used by Photronics generally include: high precision quartz plates (including large area plates), which are used as photomask blanks and are primarily obtained from Japanese and Korean suppliers; pellicles and electronic grade chemicals, which are used in the manufacturing process; and compacts, which are durable plastic containers in which photomasks are shipped. These materials are generally sourced from several suppliers. We believe that our utilization of a select group of strategic suppliers enables us to access the most technologically advanced materials available. On an ongoing basis, we continue to consider additional supply sources.

We rely on a limited number of equipment suppliers to develop and supply the equipment used in the photomask manufacturing process. Although, historically, we have been able to obtain equipment on a timely basis, an inability to

obtain equipment when required could adversely affect our business and results of operations.

**Backlog**

The first several layers of a set of photomasks for a circuit pattern are often required to be shipped within 24 hours of receiving a customer s designs. Because of the short period between order and shipment dates (typically from 1 day to 2 weeks) for a significant amount of our revenue, the dollar amount of our current backlog is not considered to be a reliable indicator of future revenue.

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**International Operations**

Revenues from our non-U.S. operations were approximately 79%, 77% and 76% of our total revenues in fiscal 2018, 2017 and 2016, respectively. We believe that our ability to serve non-US markets is enhanced by our having, among other things, a local presence in the markets that we serve. This requires significant investments in financial, managerial, operational, and other resources.

Operations outside of the United States are subject to inherent risks, including fluctuations in exchange rates, political and economic conditions in various countries, legal compliance and regulatory requirements, tariffs and other trade barriers, difficulties in staffing and managing international operations, longer accounts receivable collection cycles, potential restrictions on transfers of funds and potentially adverse tax consequences. These factors may have a material adverse effect on our ability to generate revenue outside of the United States and to deploy resources where they could otherwise be used to their greatest advantage and, consequently, may adversely affect our financial condition and results of operations. Note 13 of the notes to our consolidated financial statements presents revenue and long-lived assets by geographic area.

**Competition**

The photomask industry is highly competitive, and most of our customers utilize multiple photomask suppliers. Our ability to compete depends primarily upon the consistency of our product quality, timeliness of delivery, competitive pricing, technical capability, and service, which we believe are the principal factors considered by customers in selecting their photomask suppliers. An inability to meet these requirements could adversely affect our financial condition, results of operations and cash flows. We also believe that geographic proximity to customers is an important factor in certain markets where cycle time from order to delivery is critical. While some of our competitors may have greater financial, technical, sales, marketing or other resources than Photronics, we believe that we are able to compete effectively because of our dedication to customer service, investments in state-of-the-art photomask equipment and facilities, and experienced technical employees.

We estimate that, for the types of photomasks we manufacture (IC and FPD), the size of the total market (captive and merchant) is approximately $4.7 billion. Our competitors include Compugraphics International, Ltd., Dai Nippon Printing Co., Ltd (outside of Taiwan and China), Hoya Corporation, SK-Electronics Co. Ltd., Taiwan Mask Corporation, Toppan Printing Co., Ltd., Supermask Co. Ltd., and Chengdu NeWay Photomask Making Co., Ltd. We also compete with semiconductor and FPD manufacturers captive photomask manufacturing operations that supply photomasks for internal use and, in some instances, also for external customers and foundries. We expect to face continued competition which, in the past, has led to pressure to reduce prices. We believe the pressure to reduce prices, together with the significant investment required in capital equipment to manufacture high-end photomasks, has contributed to the decrease in the number of independent manufacturers, and we expect such pressure to continue in the future.

**Employees**

As of October 31, 2018, we had approximately 1,575 employees. We believe we offer competitive compensation and other benefits, and that our employee relations are good.

## ITEM 1A. RISK FACTORS

**Technology failures or cyber security breaches could have a material adverse effect on our operations.**

We rely on information technology systems to process, transmit, store, and protect electronic information. For example, a significant portion of the communications between our personnel, customers, and suppliers depends on

information technology. Our information technology systems may be vulnerable to a variety of interruptions due to events beyond our control, including, but not limited to, natural disasters, terrorist attacks, telecommunications failures, computer viruses, hackers, and other security issues. We have technology and information security processes and disaster recovery plans in place to mitigate our risks to these vulnerabilities. However, these measures may not be adequate to ensure that our operations will not be disrupted, should such an event occur.

The General Data Protection Regulation (GDPR), which went into effect in the European Union (EU) on May 25, 2018, applies to the collection, use, retention, security, processing, and transfer of personally identifiable information of residents of EU countries. The GDPR created a range of new compliance obligations, and imposes

significant fines and sanctions for violations. It is possible that the GDPR may be interpreted or applied in a manner that is adverse to us, unforeseen by us, or otherwise inconsistent with our practices; or that we may otherwise fail to construe its requirements in ways that are satisfactory to the EU authorities.

Any failure, or perceived failure, by us to comply with the GDPR, or with any applicable regulatory requirements or orders, including but not limited to privacy, data protection, information security, or consumer protection-related privacy laws and regulations, in one or more jurisdictions within the EU or elsewhere, could: result in proceedings or actions against us by governmental entities or individuals; subject us to significant fines, penalties, and/or judgments; require us to change our business practices; limit access to our products and services in certain countries, or otherwise adversely affect our business, as we would be at risk to lose both customers and revenue, and incur substantial costs.

**The risk of loss of the Company s intellectual property, trade secrets or other sensitive business or customer confidential information or disruption of operations due to breaches of cybersecurity could negatively impact the Company s financial results.**

Cyber-attacks or security breaches could compromise confidential, business critical information, cause a disruption in the Company s operations or harm the Company s reputation. The Company has important assets, including intellectual property, trade secrets and other sensitive, business critical and/or confidential information. While the Company has a comprehensive cybersecurity program that is continuously reviewed, maintained and upgraded, a significant cyber-attack could result in the loss of critical business or confidential information and/or could negatively impact operations, which could have a negative impact on the Company s financial results.

**Our dependency on the microelectronics industry, which as a whole is volatile, could have a negative material impact on our business.**

We sell substantially all of our photomasks to semiconductor or flat panel display designers, manufacturers and foundries, as well as to other high performance electronics manufacturers. We believe that the demand for photomasks depends primarily on design activity rather than sales volume from products using photomask technologies. Consequently, an increase in semiconductor or FPD sales does not necessarily result in a corresponding increase in photomask sales. In addition, the reduced use of customized ICs, a reduction in design complexity, other changes in the technology or methods of manufacturing or designing semiconductors or FPDs, or a slowdown in the introduction of new semiconductor or FPD designs could reduce demand for photomasks – even if the demand for semiconductors and FPDs increases. Historically, the semiconductor industry has been volatile, with sharp periodic downturns and slowdowns. These downturns have been characterized by, among other things, diminished product demand, excess production capacity and accelerated erosion of selling prices with a concomitant effect on revenue and profitability.

**We may, in the future, incur net losses.**

Although we have been profitable since fiscal 2010, we have, in the past, incurred net losses. We cannot provide assurance that we will not incur net losses in the future.

**We have a high level of fixed costs.**

As a consequence of the capital-intensive nature of the photomask manufacturing business, we have a high level of fixed costs and a high degree of operating leverage. Accordingly, should our sales volumes decline as a result of a decrease in design releases from our customers or for any other reason, we may have excess or underutilized production capacity which could significantly impact our operating margins or result in write-offs from asset impairments.

**Our quarterly operating results fluctuate significantly and may continue to do so in the future.**

We have experienced fluctuations in our quarterly operating results, and we anticipate that such fluctuations will continue and could intensify in the future. Fluctuations in operating results may result in volatility in the prices of our common stock and financial instruments linked to its value. Operating results may fluctuate as a result of many factors, including the size and timing of orders and shipments, the loss of significant customers, changes in product mix, the flow of customer design releases, technological change, fluctuations in manufacturing yields, competition and general economic conditions. We operate in a high fixed-cost environment and, should our revenues and asset utilization decrease, our operating margins could be negatively impacted.

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Our customers generally order photomasks on an as-needed basis, and our revenue in any quarter is dependent on orders received during that quarter. Since we operate with little backlog, and the rate of new orders may vary significantly from quarter-to-quarter, our capital expenditures and, to some extent, expense levels are based primarily on sales forecasts and technological advancements in photomask manufacturing equipment. Consequently, if anticipated revenues in any quarter do not occur when expected, capital expenditures could be higher than needed, resulting in underutilized capacity and disproportionately high expense levels, causing operating results to be adversely affected. Due to the foregoing factors, we believe that quarter-to-quarter comparisons of our operating results cannot be relied upon as indicators of future performance. In addition, in future quarters, our operating results could be below any guidance we may provide as well as the expectations of public market analysts and investors, which, in turn, could have a material adverse effect on the market price of our common stock.

**The photomask industry is subject to rapid technological change, and we might fail to remain competitive, which could have a material adverse effect on our business and results of operations.**

The photomask industry has been, and is expected to continue to be, characterized by technological change and evolving industry standards. In order to remain competitive, we will be required to continually anticipate, respond to and utilize changing technologies of increasing complexity in both traditional and emerging markets that we serve. In particular, we believe that, as semiconductor geometries continue to become smaller and FPDs become larger or otherwise more advanced, we will be required to manufacture increasingly complex photomasks. Additionally, the demand for photomasks has been, and could in the future be, adversely affected by changes in semiconductor and high- performance electronics fabrication methods that affect the type or quantity of photomasks utilized, such as changes in semiconductor demand that favor field-programmable gate arrays and other semiconductor designs that replace application-specific ICs. Furthermore, evidence of the viability and the corresponding market acceptance of alternative methods of transferring IC designs onto semiconductor wafers could reduce or eliminate the need for photomasks in the production of semiconductors. As of the end of fiscal 2018, one alternative method, direct-write lithography, has not been proven to be a commercially viable alternative to photomasks, as it is considered to be too slow for high volume semiconductor wafer production. However, should direct-write or any other alternative method of transferring IC or FPD designs without the use of photomasks achieve market acceptance, and if we are unable to anticipate, respond to or utilize these or other technological changes, due to resource, technological or other constraints, our business and results of operations could be materially adversely affected.

**Our operations will continue to require substantial capital expenditures, for which we may be unable to provide or obtain funding.**

The manufacture of photomasks requires us to make substantial investments in high-end manufacturing capability. We expect that we will be required to continue to make substantial capital expenditures to meet the technological demands of our customers and to position us for future growth. Our capital expenditure payments for fiscal 2019 are expected to be approximately $210 million, of which $30 million was included in accounts payable on our October 31, 2018, consolidated balance sheet. We cannot provide assurance that we will be able to obtain the additional capital required to fund our operations on reasonable terms, if at all, or that any such inability will not have a material adverse effect on our business and results of operations.

**We have been dependent on sales to a limited number of large customers; the loss of any of these customers or a significant reduction in orders from these customers could have a material adverse effect on our revenues and results of operations.**

Historically, we have sold a significant proportion of photomasks to a limited number of IC and FPD manufacturers. During fiscal years 2018, 2017 and 2016 our two largest customers accounted for 31%, 32% and 36%, respectively, of our revenue. Our five largest customers accounted for 47%, 43% and 50% of our revenue in fiscal years 2018, 2017

and 2016 respectively. The loss of a significant customer or a significant reduction or delay in orders from any significant customer, (including reductions or delays due to customer departures from recent buying patterns), or an unfavorable change in competitive conditions in the semiconductor or FPD industries, could have a material adverse effect on our financial performance and business prospects. The consolidation of semiconductor manufacturers or an economic downturn in the semiconductor industry may increase the likelihood of losing a significant customer and could also have an adverse effect on our financial performance and business prospects.

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**We depend on a limited number of suppliers for equipment and raw materials, and, if those suppliers fail to timely deliver their products to us, we may be unable to fulfill orders from our customers, which could adversely affect our business and results of operations.**

We rely on a limited number of photomask equipment manufacturers to develop and supply the equipment we use. These equipment manufacturers currently require lead times of up to twelve months or longer between the order and the delivery of certain photomask imaging and inspection equipment. The failure of our suppliers to develop or deliver such equipment on a timely basis could have a material adverse effect on our business and results of operations. In addition, the manufacturing equipment necessary to produce advanced photomasks could become prohibitively expensive, which could similarly affect us.

We use high precision quartz photomask blanks, pellicles, and electronic grade chemicals in our manufacturing processes. There are a limited number of suppliers of these raw materials and we have no long-term contracts with these suppliers. Any delays or quality problems in connection with significant raw materials, particularly photomask blanks, could cause delays in the shipments of photomasks, which could have a material adverse effect on our business and results of operations. The fluctuation of foreign currency exchange rates, with respect to prices of equipment and raw materials used in manufacturing, could also have a material adverse effect on our business and results of operations.

**We face risks associated with the use of sophisticated equipment and complex manufacturing processes and technologies. Our inability to effectively utilize such equipment and technologies and perform such processes could have a material adverse effect on our business and results of operations.**

Our complex manufacturing processes require the use of expensive and technologically sophisticated equipment and materials, and are continually modified in an effort to improve manufacturing yields and product quality. Minute impurities, defects or other difficulties in the manufacturing process can lower manufacturing yields and render products unmarketable. Moreover, the manufacture of leading-edge photomasks is more complex and time consuming than manufacturing less advanced photomasks, and their fabrication may result in delays in the manufacture of all levels of photomasks. We have, on occasion, experienced manufacturing difficulties and capacity limitations that have delayed our ability to deliver products within the time frames contracted for by our customers. We cannot provide assurance that we will not experience these or other manufacturing difficulties, or be subject to increased costs which could result in a loss of customers or could otherwise have a material adverse effect on our business and results of operations.

**We could be subject to damages based on claims brought against us by our customers or lose customers as a result of the failure of our products to meet certain quality specifications.**

Our products provide important performance attributes to our customers   products. If a product fails to perform in a manner consistent with quality specifications, or has a shorter useful life than warranted, a customer could seek replacement of the product or damages for costs incurred as a result of the product failing to perform, particularly if such products are sold under agreements that contain limited performance and life cycle warrantees. Our customers often require us to represent that our products conform to certain product specifications that they provide. Any failure to comply with such specifications could result in claims or legal action. A successful claim or series of claims against us could have a material adverse effect on our financial condition and results of operations and could result in a loss of one or more customers.

**Our credit agreements restrict our business activities, limit our ability to obtain additional financing and may obligate us to repay debt before its maturity.**

Financial covenants related to our credit facility, which expires in September 2023, include a Total Leverage Ratio, a Minimum Interest Coverage Ratio, and Minimum Unrestricted Cash Balances. Our credit facility may also limit our flexibility in planning for, or reacting to, changes in our business and industry, which may place us at a competitive disadvantage compared with our competitors. We are also subject to covenants that limit our operating flexibility, such as limiting our ability to repurchase shares of our common stock. Existing covenant restrictions limit our ability to obtain additional debt financing and, should we be unable to meet one or more of these covenants, our lenders may require us to repay any outstanding balance prior to the expiration date of the agreements. Our ability to comply with the financial and other covenants in our credit agreements may be affected by worsening economic or business conditions, or other events. We cannot assure that, under such circumstances, additional sources of financing would be available to fund operating requirements or pay off any long-term borrowings, so as to avoid default.

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**Joint ventures may not operate according to their business plans if our partners fail to fulfill their obligations, which may adversely affect our results of operations and may force us to dedicate additional resources to these joint ventures.**

The nature of a joint venture requires us to share control in certain areas with unaffiliated third parties. If our joint venture partner does not fulfill its obligations, the affected joint venture may not be able to operate according to its business plan. Should that be the case, our results of operations may be adversely affected and we may be required to increase the level of our commitment to the joint venture. Also, differences in views among joint venture participants may result in delayed decisions or failures to agree on major issues. If these differences cause the joint ventures to deviate from their business plans, our results of operations could be adversely affected.

**We may not be able to consummate future acquisitions or joint ventures or integrate acquisitions into our business, which could result in unanticipated expenses and losses.**

As part of our business growth strategy, we have acquired businesses and entered into joint ventures in the past, and we may pursue acquisitions and joint venture opportunities in the future. Future efforts to grow the Company may include expanding into new or related markets or industries. Our ability to implement this component of our growth strategy may be limited by both our ability to identify appropriate acquisition or joint venture candidates and our financial resources, including our available cash and borrowing capacity. The expense incurred in consummating acquisitions or entering into joint ventures, the time it takes to integrate an acquisition, or our failure to integrate businesses successfully, could result in unanticipated expenses and losses. Furthermore, we may not be able to realize any of the anticipated benefits from acquisitions or joint ventures.

The process of integrating acquired operations into our existing operations may result in unforeseen operating difficulties, and may require significant financial resources that would otherwise be available for the ongoing development or expansion of existing operations. Some of the risks associated with the integration of acquisitions include: potential disruption of our ongoing business and distraction of management; unforeseen claims and liabilities, including unexpected environmental exposures; unforeseen adjustments, taxes, charges and write-offs; problems enforcing the indemnification obligations of sellers of businesses or joint venture partners for claims and liabilities; unexpected losses of customers of, or suppliers to, the acquired business; difficulty in conforming the acquired businesses standards, processes, procedures and controls with our operations; variability in financial information arising from the implementation of purchase price accounting; inability to coordinate new product and process development; loss of senior managers and other critical personnel and problems with new labor unions; and challenges arising from the increased scope, geographic diversity and complexity of our operations.

**Our expansion into China entails substantial risks.**

We are currently building two manufacturing facilities in China. These investments are subject to substantial risks which may include, but are not limited to: delays in or the inability to obtain necessary permits that are needed to enable us to construct our facilities or conduct our ongoing business; the inability to protect our intellectual property rights under Chinese law, which may not offer as high a level of protection as U.S. law; unexpectedly long negotiation periods with Chinese suppliers and customers; quality issues related to materials sourced from local vendors; unexpectedly high labor costs due to a tight labor supply; and difficulty in repatriating funds and selling or transferring assets. Our investments in China also expose us to a significant additional foreign currency exchange risk, which we have not been subject to in recent years. These and other risks may result in our not realizing a return on, or losing some, or all, of our planned investments in China, which would have a material adverse effect on our financial condition and financial performance.

**Our cash flows from operations and current holdings of cash may not be adequate for our current and long-term needs.**

Our liquidity, as we operate in a high fixed cost environment, is highly dependent on our revenue volume and the timing of our capital expenditures, which can vary significantly from period to period. Depending on conditions in the semiconductor and FPD markets, our cash flows from operations and current holdings of cash may not be adequate to meet our current and long-term needs for capital expenditures, operations and debt repayments. Historically, in certain years, we have used external financing to fund these needs. Due to conditions in the credit markets and covenant restrictions on our existing debt, some financing instruments used by us in the past may not be available. Therefore, we cannot provide assurance that additional sources of financing would be available to us on commercially favorable terms, if at all, should our cash requirements exceed our existing cash, operating cash flow and cash available under our credit facility.

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**We may incur unforeseen charges related to possible future facility closures or restructurings.**

We cannot provide assurance that there will not be facility closures or restructurings in the near or long-term, nor can we assure that we will not incur significant charges should there be any future facility closures or restructurings.

**We operate in a highly competitive environment, and, should we be unable to meet our customers requirements for product quality, timeliness of delivery or technical capabilities, our revenue could be adversely affected.**

The photomask industry is highly competitive, and most of our customers utilize more than one photomask supplier. Our competitors include Compugraphics International, Ltd., DNP (outside of Taiwan and China), Hoya Corporation, SK-Electronics Co., Ltd., Taiwan Mask Corporation and Toppan Printing Co., Ltd. We also compete with semiconductor manufacturers captive photomask manufacturing operations, some of which market their photomask manufacturing services to outside customers. We expect to face continued competition from these and other suppliers in the future. Some of our competitors have substantially greater financial, technical, sales, marketing or other resources than we do. Also, when producing smaller geometry photomasks, some of our competitors may be able to more rapidly develop, produce, and achieve higher manufacturing yields than we can. We believe that consistency of product quality and timeliness of delivery, competitive pricing, technical capability, and service are the principal factors considered by customers when selecting their photomask suppliers. Our inability to meet these competitive requirements could have a material adverse effect on our business and results of operations. In the past, competition has led to pressure to reduce prices and the need to invest in advanced manufacturing technology, which we believe contributed to the decrease in the number of independent photomask suppliers. These pressures may continue in the future.

**We operate in a global, competitive environment which gives rise to operating and market risk exposure.**

We sell our products in a competitive, global environment, and compete worldwide for sales on the basis of product quality, price, technology and customer service. Sales of our products are also subject to federal, state, local and foreign taxes, laws and regulations, trade agreements, import and export controls and duties and tariffs. The imposition of additional regulations, controls including export controls and duties and tariffs or changes to bilateral and regional trade agreements could negatively impact our results of operations.

**Our substantial non-US operations are subject to additional risks.**

Revenues from our non-U.S. operations were approximately 79%, 77% and 76% of our total revenues in fiscal years 2018, 2017 and 2016, respectively. We believe that maintaining significant international operations requires us to have, among other things, a local presence in the geographic markets that we supply. This requires significant investments in financial, managerial, operational, and other resources. Since 1996, we have significantly expanded our operations in international markets by acquiring existing businesses in Europe, acquiring majority equity interests in photomask manufacturing operations in Korea and Taiwan and building a manufacturing facility for FPD photomasks in Taiwan. Currently, we are building two manufacturing facilities in China. In order to enable us to optimize our investments and other resources, we closely monitor the semiconductor and FPD manufacturing markets for indications of geographic movement and, in conjunction with these efforts, continue to assess the locations of our manufacturing facilities. These assessments may result in the opening or closing of facilities.

Operations outside of the United States are subject to inherent risks, including fluctuations in exchange rates, unstable political and economic conditions in various countries, changes in economic alliances, unexpected changes in regulatory requirements, compliance with: a variety of burdensome foreign laws and regulations, with anti-bribery and anti-corruption laws (such as the Foreign Corrupt Practices Act), as well as anti-money-laundering laws may be costly, tariffs and other trade barriers, difficulties in staffing and managing international operations, longer accounts

receivable payment cycles, foreign countries may adopt other restrictions on foreign trade or investment, including currency exchange controls, trade sanctions could result in losing access to customers and suppliers in those countries, agreements may be difficult to enforce and receivables difficult to collect and potentially adverse tax consequences. These factors may have a material adverse effect on our ability to generate revenues outside of the United States and, consequently, on our business and results of operations.

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**Our business could suffer as a result of the United Kingdom s decision to end its membership in the European Union.**

The decision of the United Kingdom to exit from the European Union (generally referred to as BREXIT ) could cause disruptions to and create uncertainty surrounding our business, including affecting our relationships with existing and potential customers, suppliers, and employees. The effects of BREXIT will depend on any agreements the United Kingdom makes to retain access to European Union markets either during a transitional period or more permanently. The measures could potentially disrupt some of our target markets and jurisdictions in which we operate, and adversely change tax benefits or liabilities in these or other jurisdictions. In addition, BREXIT could lead to legal uncertainty and potentially divergent national laws and regulations, as the United Kingdom determines which European Union laws to replace or replicate. BREXIT also may create global economic uncertainty, which may cause our customers and potential customers to monitor their costs and reduce their budgets for either our products or other products that incorporate our products. Any of these effects of BREXIT, among others, could materially adversely affect our business, business opportunities, results of operations, financial condition, and cash flows.

**Changes in foreign currency exchange rates could have a material adverse effect on our results of operations, financial condition or cash flows.**

Our consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP) and are reported in U.S. dollars. Our operations have transactions and balances denominated in currencies other than the U.S. dollar; primarily the Korean won, New Taiwan dollar, Japanese yen, Chinese renminbi, euro, Singapore dollar, and the pound sterling. In fiscal year 2018, we recorded a net gain from changes in foreign currency exchange rates of $0.4 million in our statement of income, while our net assets were decreased by $16.7 million as a result of the translation of foreign currency financial statements to U.S. dollars. Significant foreign currency fluctuations may adversely affect our results of operations, financial condition or cash flows.

**Our business depends on managerial and technical personnel, who are in great demand, and our inability to attract and retain qualified employees could adversely affect our business and results of operations.**

Our success depends, in part, upon key managerial and technical personnel, as well as our ability to continue to attract and retain additional qualified personnel. The loss of certain key personnel could have a material adverse effect on our business and results of operations. There can be no assurance that we can retain our key managerial and technical employees, or that we can attract similar additional employees in the future.

**We may be unable to enforce or defend our ownership and use of proprietary technology, and the utilization of unprotected company developed technology by our competitors could adversely affect our business, results of operations and financial position.**

We believe that the success of our business depends more on proprietary technology, information and processes, and know-how than on our patents or trademarks. Much of our proprietary information and technology related to manufacturing processes is not patented and may not be patentable. We cannot offer assurance that:

- we will be able to adequately protect our technology;
- competitors will not independently develop similar technology; or
- international intellectual property laws will adequately protect our intellectual property rights.

We may become the subject of infringement claims or legal proceedings by third parties with respect to current or future products or processes. Any such claims, with or without merit, or litigation to enforce or protect our intellectual property rights that require us to defend against claimed infringements of the rights of others, could result in

substantial costs, diversion of resources, and product shipment delays or could force us to enter into royalty or license agreements, rather than dispute the merits of these claims. Any of the foregoing could have a material adverse effect on our business, results of operations and financial position.

**We may be unprepared for changes to environmental laws and regulations and may incur liabilities arising from environmental matters.**

We are subject to numerous environmental laws and regulations that impose various environmental controls on, among other things, the discharge of pollutants into the air and water and the handling, use, storage, disposal and

clean-up of solid and hazardous wastes. Changes in these laws and regulations may have a material adverse effect on our financial position and results of operations, and inadequate compliance with their requirements could give rise to significant liabilities.

If we violate environmental, health or safety laws or regulations, in addition to being required to correct such violations, we can be held liable in administrative, civil or criminal proceedings, and substantial fines and other sanctions could be imposed that could disrupt or limit our operations. Liabilities associated with the investigation and cleanup of hazardous substances, as well as personal injury, property damages or natural resource damages arising from the release of, or exposure to, such hazardous substances, may be imposed in many situations without regard to violations of laws or regulations or other fault, and may also be imposed jointly and severally (so that a responsible party may be held liable for more than its share of the losses involved, or even the entire loss). Such liabilities may also be imposed on many different entities with a relationship to the hazardous substances at issue, including, for example, entities that formerly owned or operated the property affected by the hazardous substances and entities that arranged for the disposal of the hazardous substances at the affected property, as well as entities that currently own or operate such property. The nature of our business, including historical operations at our current and former facilities, exposes us to risks of liability under these laws and regulations due to the production, storage, use, transportation and sale of materials that can cause contamination or personal injury if released into the environment. Additional information may arise in the future concerning the nature or extent of our liability with respect to identified sites and additional sites that may be identified for which we are alleged to be liable.

**Our production facilities could be damaged or disrupted by natural disasters or labor strikes, either of which could adversely affect our financial position, results of operations and cash flows.**

A major catastrophe, such as an earthquake or other natural disaster, labor strike, or work stoppage at any of our manufacturing facilities, or a manufacturing facility of our suppliers or customers, could result in a prolonged interruption of our business. A disruption resulting from any one of these events could cause significant delays in shipments of our products and the loss of revenue and customers, which could have a material adverse effect on our financial position, results of operations, and cash flows. Our facilities in Taiwan are located in a seismically active area.

**Our sales can be impacted by the health and stability of the general economy, which could adversely affect our results of operations and cash flows.**

Unfavorable general economic conditions in the U.S. or other countries in which we or our customers conduct business may have the effect of reducing the demand for photomasks. Economic downturns may lead to a decrease in demand for end products whose manufacturing processes involve the use of photomasks, which may result in a reduction in new product design and development by semiconductor or FPD manufacturers and adversely affect our results of operations and cash flows.

**Additional taxes could adversely affect our financial results.**

Our tax filings are subject to audits by tax authorities in the various jurisdictions in which we do business. These audits may result in assessments of additional taxes that are subsequently resolved with the taxing authorities or through the courts. Currently, we believe there are no outstanding assessments whose resolution would result in a material adverse financial result. However, we cannot offer assurances that unasserted or potential future assessments would not have a material adverse effect on our financial condition or results of operations.

**Our business could be adversely impacted by global or regional catastrophic events.**

Our business could be adversely affected by terrorist acts, major natural disasters, widespread outbreaks of infectious diseases, or the outbreak or escalation of wars, especially in the Asian markets, where we generate a significant portion of our sales, and in Japan where we purchase raw materials and capital equipment. Such events in the geographic regions in which we do business, including escalations of political tensions and military operations within the Korean Peninsula, where a significant portion of our foreign operations are located, could have material adverse impacts on our revenue, cost and availability of raw materials, results of operations, cash flows and financial condition.

**Servicing our debt requires a significant amount of cash, and we may not generate sufficient cash flows from our operations to pay our indebtedness.**

Our ability to make scheduled payments of debt principal and interest, or to refinance our indebtedness, depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control.

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Our business may not continue to generate sufficient cash flows from operations to both service our debt and make necessary capital expenditures. If we are unable to generate such cash flows, we may be required to adopt one or more alternatives, such as selling assets, restructuring debt or obtaining additional equity capital on terms that may be onerous or highly dilutive. Our ability to refinance our indebtedness would depend upon the conditions in the capital markets and our financial condition at such time. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations.

**Our hedging activity could negatively impact our results of operations and cash flows.**

We may enter into derivatives to manage our exposure to interest rate and currency movements. If we do not accurately forecast our results of operations, execute contracts that do not effectively mitigate our economic exposure to interest rates and currency rates, elect to not apply hedge accounting, or fail to comply with the complex accounting requirements for hedging transactions, our results of operations and cash flows could be volatile, as well as negatively impacted.

**The market price of our common stock is subject to volatility and could fluctuate widely in response to various factors, many of which are beyond our control.**

Factors that may influence the price of our common stock include, but are not limited to, the following:

- loss of any of our key customers or suppliers;
- additions or departures of key personnel;
- third party sales of common stock;
- our ability to execute our business plan, including but not limited to, our expansion into China;
- announcements and consummations of business acquisitions;
- operating results that fall below expectations;
- issuances or repurchases of our common stock;
- intellectual property disputes;
- industry developments;
- news or disclosures by competitors or customers;
- business combinations, divestitures or bankruptcies by customers, suppliers or competitors;
- economic and other external factors; and
- period-to-period fluctuations in our financial results.

In addition, securities markets have from time to time experienced significant price and volume fluctuations that are unrelated to the operating performance of particular companies. These market fluctuations may also materially and adversely affect the market price of our common stock. Such fluctuations may be the result of imbalances between buy and sell offers, or low trading volume which can magnify the effects of a small number of transactions on the price of a stock.

**Ineffective Internal Controls could impact our Business and Operating Results.**

Our internal controls over financial reporting may not prevent or detect misstatements because of the inherent limitations, including the possibility of human error, the circumvention or overriding of controls, or fraud. Even effective internal controls can provide only reasonable assurance with respect to the preparation and fair presentation of financial statements. If we fail to maintain the adequacy of our internal controls, including any failure to implement required new or improved controls, or if we experience difficulties in their implementation, our business and operating results could be harmed, and we could fail to meet our financial reporting obligations.

## ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

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## ITEM 2. PROPERTIES

The following table presents certain information about the Company s photomask manufacturing facilities:

| Location | Type of Interest |
|---|---|
| Allen, Texas | Owned |
| Boise, Idaho | Owned |
| Brookfield, Connecticut | Owned |
| Bridgend, Wales | Leased |
| Cheonan, Korea | Owned |
| Dresden, Germany | Leased |
| Hsinchu, Taiwan | Owned[(1)] |
| Hsinchu, Taiwan | Leased |
| Taichung, Taiwan | Owned[(1)] |

(1) The Company owns its manufacturing facility in Taichung and one of its manufacturing facilities in Hsinchu. However, it leases the related land.

We are currently building two manufacturing facilities on lands that we lease in Xiamen and Hefei, China.

## ITEM 3. LEGAL PROCEEDINGS

We are subject to various claims that arise in the ordinary course of business. We believe such claims, individually or in the aggregate, will not have a material adverse effect on our business.

## ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

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**PART II**

**ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS, AND ISSUER PURCHASES OF EQUITY SECURITIES**

The Common Stock of the Company is traded on the NASDAQ Global Select Market ( NASDAQ ) under the symbol PLAB. On December 13, 2018, the closing sale price of our Common Stock, per the NASDAQ Global Select Market, was $10.02. Based on available information, we estimate that we have approximately 8,000 shareholders.

To date, we have not paid any cash dividends on PLAB shares, and, for the foreseeable future, we anticipate that earnings will continue to be retained for use in our business. Further, our credit facility limits the amount that can be paid as cash dividends on Photronics stock.

**Issuer Purchases of Equity Securities**

In July 2018 and October 2018, the Company s Board of Directors authorized the repurchase of up to $20 million and $25 million, respectively, of its common stock, to be executed in open-market transactions or in accordance with a repurchase plan under rule 10b5-1 of the Securities Act of 1933 (as amended). The authorization does not obligate us to repurchase any dollar amount or number of shares of common stock, and the repurchase program may be suspended or discontinued at any time.

| Period | Total Number of Shares Purchased (in millions) | Average Price Paid Per share | Total Number of Shares Purchased as Part of Publicly Announced Program (in millions) | Dollar Value of Shares That May Yet Be Purchased (in millions) |
|---|---|---|---|---|
| July 10, 2018 – July 29, 2018 | 0.8 | $ 8.72 | 0.8 | $ 13.2 |
| July 30, 2018 – August 26, 2018 | 0.9 | $ 9.05 | 0.9 | $ 5.0 |
| September 23, 2018 – October 31, 2018 | 0.9 | $ 9.46 | 0.9 | $ 21.9 |
| Total | 2.6 | $ 9.04 | 2.6 | |

*Securities authorized for issuance under equity compensation plans*

The information regarding our equity compensation required to be disclosed by Item 201(d) of Regulation S-K is incorporated by reference from the Photronics, Inc. 2019 definitive Proxy Statement in Item 12 of Part III of this report. The 2019 Proxy Statement will be filed within 120 days after our fiscal year ended October 31, 2018.

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## ITEM 6. SELECTED FINANCIAL DATA

The following selected financial data (in thousands, except per share amounts) is derived from our audited consolidated financial statements. The data should be read in conjunction with the audited consolidated financial statements and notes thereto, and other financial information included elsewhere in this Annual Report on Form 10-K.

| | Year Ended | | | | |
|---|---|---|---|---|---|
| | **October 31, 2018** | **October 29, 2017** | **October 30, 2016** | **November 1, 2015** | **November 2, 2014** |
| **OPERATING DATA:** | | | | | |
| Revenue | $ 535,276 | $ 450,678 | $ 483,456 | $ 524,206 | $ 455,527 |
| Cost of goods sold | (403,773) | (359,363) | (364,750) | (381,070) | (355,181) |
| Gross profit | 131,503 | 91,315 | 118,706 | 143,136 | 100,346 |
| Selling, general and administrative | (51,395) | (43,585) | (44,577) | (48,983) | (49,638) (e) |
| Research and development | (14,481) | (15,862) | (21,654) | (21,920) | (21,913) |
| Operating income | 65,627 | 31,868 | 52,475 | 72,233 | 28,795 |
| Other income (expense): | | | | | |
| Interest and other income (expense), net | 5,206 (a) | (3,068) | 2,424 | 2,797 (d) | 3,410 |
| Interest expense | (2,262) | (2,235) | (3,365) | (4,990) | (7,247) |
| Gains on sales of investments | — | — | 8,940 (b) | — | — |
| Gain on acquisition | — | — | — | — | 16,372 (f) |
| Income before income tax provision | 68,571 | 26,565 | 60,474 | 70,040 | 41,330 |
| Income tax provision | (7,335) | (5,276) | (4,798) (c) | (13,181) | (9,295) |
| Net income | 61,236 (a) | 21,289 | 55,676 | 56,859 (d) | 32,035 (e)(f) |
| Net income attributable to noncontrolling interests | (19,181) | (8,159) | (9,476) | (12,234) | (6,039) |
| Net income attributable to Photronics, Inc. shareholders | $ 42,055 (a) | $ 13,130 | $ 46,200 (b)(c) | $ 44,625 (d) | $ 25,996 (e)(f) |
| Earnings per share: | | | | | |
| Basic | $ 0.61 (a) | $ 0.19 | $ 0.68 (b)(c) | $ 0.67 (d) | $ 0.42 (e)(f) |
| Diluted | $ 0.59 (a) | $ 0.19 | $ 0.64 (b)(c) | $ 0.63 (d) | $ 0.41 (e)(f) |

| Weighted-average number of common shares outstanding: | | | | | |
|---|---|---|---|---|---|
| Basic | 68,829 | 68,436 | 67,539 | 66,331 | 61,779 |
| Diluted | 74,821 | 69,288 | 76,354 | 78,383 | 66,679 |

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**BALANCE SHEET DATA**

| | As of | | | | |
|---|---|---|---|---|---|
| | **October 31, 2018** | **October 29, 2017** | **October 30, 2016** | **November 1, 2015** | **November 2, 2014** |
| Working capital | $ 311,655 | $ 367,348 | $ 360,269 | $ 168,237 | $ 190,152 |
| Property, plant and equipment, net | 571,781 | 535,197 | 506,434 | 547,284 | 550,069 |
| Total assets | 1,110,009 | 1,020,794 | 987,988 | 1,042,811 | 1,025,564 |
| Total debt | 57,453 | 61,976 | 67,288 | 132,219 | 141,011 |
| Total Photronics, Inc. shareholders' equity | 759,671 | 744,564 | 710,363 | 646,555 | 628,050 |

(a) Includes $0.6 million gain on sale of assets.

(b) Includes $8.8 million gain on sale of investment in a foreign entity and $0.2 million gain on the sale of the Company's 49.99% interest in the MP Mask joint venture.

(c) Includes tax benefits in Taiwan of $4.8 million primarily related to the recognition of prior period tax benefits and other tax positions no longer deemed necessary.

(d) Includes $0.9 million of financing expenses related to the exchange of $57.5 million of 3.25% convertible senior notes.

(e) Includes $2.5 million, net of tax, of expenses related to the acquisition of DPTT.

(f) Includes non-cash gain of $16.4 million, net of tax, on acquisition of DPTT.

## ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

**Results of Operations for the Years Ended October 31, 2018, October 29, 2017 and October 30, 2016**

**Overview**

We sell substantially all of our photomasks to semiconductor designers and manufacturers, and manufacturers of FPDs. Photomask technology is also being applied to the fabrication of other higher performance electronic products such as photonics, micro-electronic mechanical systems and certain nanotechnology applications. Our selling cycle is tightly interwoven with the development and release of new semiconductor designs and flat panel display applications, particularly as they relate to the semiconductor industry s migration to more advanced product innovation, design methodologies and fabrication processes. We believe that the demand for photomasks primarily depends on design activity rather than sales volumes from products manufactured using photomask technologies. Consequently, an increase in semiconductor or FPD sales does not necessarily result in a corresponding increase in photomask sales. However, the reduced use of customized ICs, reductions in design complexity, other changes in the technology or methods of manufacturing or designing semiconductors, or a slowdown in the introduction of new semiconductor or FPD designs could reduce demand for photomasks – even if the demand for semiconductors and FPDs increases. Advances in semiconductor, FPD and photomask design and semiconductor and FPD production methods that shift the burden of achieving device performance away from lithography could also reduce the demand for photomasks. Historically, the microelectronic industry has been volatile, experiencing periodic downturns and slowdowns in design activity. These downturns have been characterized by, among other things, diminished product demand, excess production capacity and accelerated erosion of selling prices with a concomitant effect on revenue and profitability.

We are typically required to fulfill customer orders within a short period of time, sometimes within 24 hours. This results in our having a minimal level of backlog orders, typically one to two weeks of backlog for IC photomasks and two to three weeks of backlog for FPD photomasks.

The global semiconductor industry is driven by end markets which have been closely tied to consumer driven applications of high performance semiconductor devices, including, but not limited to, mobile display devices, mobile communications, and computing solutions. While we cannot predict the timing of the industry s transition to volume production of next-generation technology nodes, or the timing of up and down cycles with precise accuracy, we believe that such transitions and cycles will continue into the future, beneficially and adversely affecting our business, financial condition and operating results as they occur. We believe our ability to remain successful in these environments is dependent upon the achievement of our goals of being a service and technology leader and efficient solutions supplier, which we believe should enable us to continually reinvest in our global infrastructure.

We are focused on improving our competitiveness by advancing our technology and reducing costs and, in connection therewith, have invested and plan to continue to invest in manufacturing equipment to serve the high-end markets. As we face challenges in the current and near term that require us to make significant improvements in our competitiveness, we continue to evaluate further cost reduction initiatives.

As of December 2018, state-of-the-art production for semiconductor masks is considered to be 28 nanometer and smaller for ICs and Generation 8 and above and AMOLED display-based process technologies for FPDs. However, 32 nanometer and above geometries for semiconductors and Generation 7 and below, excluding AMOLED, process technologies for FPDs constitute the majority of designs currently being fabricated in volume. At these geometries, we can produce full lines of photomasks, and there is no significant technology employed by our competitors that is not available to us. We expect 28 nanometer and below designs to continue to move to wafer fabrication throughout fiscal 2019, and we believe we are well positioned to service an increasing volume of this business as a result of our

investments in manufacturing processes and technology in the regions where our customers are located.

The photomask industry has been, and is expected to continue to be, characterized by technological change and evolving industry standards. In order to remain competitive, we will be required to continually anticipate, respond to, and utilize changing technologies. In particular, we believe that, as semiconductor geometries continue to become smaller, and FPD designs become larger or otherwise more advanced, we will be required to manufacture even more complex optically-enhanced reticles, including optical proximity correction and phase-shift photomasks. Additionally, demand for photomasks has been, and could in the future be, adversely affected by changes in semiconductor and high performance electronics fabrication methods that affect the type or quantity of photomasks

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used, such as changes in semiconductor demand that favor field-programmable gate arrays and other semiconductor designs that replace application-specific ICs, or the use of certain chip stacking methodologies that lessen the emphasis on conventional lithography technology. Furthermore, increased market acceptance of alternative methods of transferring circuit designs onto semiconductor wafers could reduce or eliminate the need for photomasks in the production of semiconductors. As of the end of fiscal year 2018, one alternative method, direct-write lithography, has not been proven to be a commercially viable alternative to photomasks, as it is considered to be too slow for high volume semiconductor wafer production, and we have not experienced a significant loss of revenue as a result of this or other alternative semiconductor design methodologies. However, should direct-write lithography or any other alternative method of transferring IC designs to semiconductor wafers without the use of photomasks achieve market acceptance, and we do not anticipate, respond to, or utilize these or other changing technologies due to resource, technological or other constraints, our business and results of operations could be materially adversely affected.

Both our revenues and costs have been affected by the increased demand for high-end technology photomasks that require more advanced manufacturing capabilities, but generally command higher average selling prices ( ASPs ). Our capital expenditure payments aggregated approximately $235 million for the three fiscal years ended October 31, 2018, which has significantly contributed to our cost of goods sold. We intend to continue to make the required investments to support the technological demands of our customers that we believe will position the Company for future growth. In support of this effort, we expect capital expenditure payments to be approximately $210 million in fiscal year 2019.

The manufacture of photomasks for use in fabricating ICs, FPDs, and other related products built using comparable photomask-based process technologies has been, and continues to be, capital intensive. Our employees and our integrated global manufacturing network, which will expand to eleven manufacturing sites in 2019, represent a significant portion of our fixed operating cost base. Should our revenue decrease as a result of a decrease in design releases from our customers, we may have excess or underutilized production capacity, which could significantly impact our operating margins, or result in write-offs from asset impairments.

In the first quarter of fiscal 2019, PDMC, the Company s majority owned subsidiary in Taiwan, paid a dividend of which 49.99%, or approximately $26.0 million, was paid to noncontrolling interests.

In November FY2019, Xiamen American Japan Photronics Mask Co., Ltd. ( PDMCX ), an indirect majority owned joint venture subsidiary of Photronics, Inc., entered into a commitment letter for an 8-year term loan agreement under which it can borrow up to approximately $50.0 million ( the Project Loan ). PDMCX will use the Project Loan to finance certain capital expenditures in China. PDMCX will grant a lien on the land, building and equipment owned by PDMCX as collateral for the Project Loan. The interest rate of the Project Loan is based on the benchmark lending rate (as defined in the Project Loan agreement) plus a floating rate spread, of the People s Bank of China on the date of borrowings. We anticipate that interest incurred on this loan will be reimbursed through incentives provided by the Xiamen Torch Hi-Tech Industrial Development Zone, up to a certain cap.

On November 7, 2018, PDMCX entered into a working capital loan agreement with a maximum borrowing limit of approximately $25.0 million, ( the Working Capital Loan ). In November 2018, we borrowed $2.2 million against this loan. PDMCX will use the Working Capital Loan for general financing purposes including for the payment of import and value added taxes. The term of the Working Capital Loan will not exceed three years, and no guarantees were required under the terms of the Working Capital Loan. The interest rate of the Working Capital Loan is based on the benchmark lending rate (as defined in the Working Capital Loan agreement) plus a floating rate spread, of the People s Bank of China on the date of borrowings. We anticipate that interest incurred on this loan will be reimbursed through incentives provided by the Xiamen Torch Hi-Tech Industrial Development Zone, up to a certain cap.

In the fourth quarter of fiscal 2018, we entered into an amendment to our credit agreement (the credit agreement ) which allows us to sell, transfer, lease, or otherwise dispose of our assets to a subsidiary guarantor. Subsequently, in that same fiscal quarter, we entered into an amended and restated credit agreement ( the new agreement ) that expires in September 2023, which carried forward the amendment made to the credit agreement. The new agreement, which replaced our prior credit agreement, has a $50 million borrowing limit, and a $50 million expansion capacity, which represents a $25 million increase over the previous credit agreement. The new agreement is secured by substantially all of our assets located in the United States and common stock we own in certain of our foreign subsidiaries, and limits the amount we can pay in cash dividends on Photronics, Inc. stock. The new agreement contains the following financial covenants: minimum interest coverage ratio, total leverage ratio and

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minimum unrestricted cash balance, all of which we were in compliance with at October 31, 2018. We had no outstanding borrowings against the new agreement at October 31, 2018, and $50 million was available for borrowing. The interest rate on the new agreement (2.30% at October 31, 2018) is based on our total leverage ratio at LIBOR plus a spread, as defined in the credit agreement.

In the fourth quarter of fiscal 2018, the Company s Board of Directors authorized the repurchase of up to $25 million of its common stock, to be executed in open-market transactions or in accordance with a repurchase plan under rule 10b5-1 of the Securities Act of 1933 (as amended). The share repurchase program commenced, under 10b5-1, on October 22, 2018, and will expire no later than October 21, 2019. As of October 31, 2018, we had repurchased a combined 2.6 million shares at a cost of $23.1 million (an average of $9.04 per share) under this and our share repurchase program that commenced in the third quarter of fiscal 2018 (discussed below). The volume of shares repurchased are subject to market conditions, and our continual evaluation of the optimal use of our cash.

In the third quarter of fiscal 2018, the Company s Board of Directors authorized the repurchase of up to $20 million of its common stock, to be effectuated in open-market transactions or in accordance with a repurchase plan under rule 10b5-1 of the Securities Act of 1933 (as amended). The share repurchase program commenced on July 10, 2018, and was completed in October 2018.

In the third quarters of fiscal years 2018, 2017, and 2016, our majority owned IC facility in Taiwan paid dividends of $8.2 million, $8.3 million, and $11.9 million, respectively, to its noncontrolling interest.

In the first quarter of fiscal 2018, we announced the successful closing of the China joint venture agreement with Dai Nippon Printing Co., Ltd. ( DNP ), which we had agreed to enter into and announced in the third quarter of fiscal 2017 (see discussion below). Under the agreement, our wholly-owned Singapore subsidiary owns 50.01% of the joint venture, which is named Photronics DNP Mask Corporation Xiamen (PDMCX), and a subsidiary of DNP owns the remaining 49.99%. The financial results of the joint venture are included in the Photronics, Inc. consolidated financial statements. See Note 4 of the condensed consolidated financial statements for additional information on the joint venture.

In the fourth quarter of fiscal 2017, we announced that Photronics UK, Ltd., a wholly-owned subsidiary of ours, signed an investment agreement with Hefei State Hi-tech Industry Development Zone to establish a manufacturing facility in Hefei, China. Under the terms of the agreement, through our subsidiary, we will invest a minimum of $160 million, a portion of which may be funded with local borrowings, to build and operate a research and development and manufacturing facility for high-end and mainstream FPD photomasks. Hefei State Hi-tech Industry Development Zone will provide certain investment incentives and support for this facility, which will have initial capability to produce up to G10.5+ large area masks and AMOLED products. Construction began in late 2017 and production is anticipated to commence in the first half 2019.

In the fourth quarter of 2016, Photronics Singapore Pte, Ltd., a wholly-owned subsidiary, signed an investment agreement with the Administrative Committee of Xiamen Torch Hi-Tech Industrial Development Zone (Xiamen Torch) to establish an IC manufacturing facility in Xiamen, China. Under the terms of the agreement, we will build and operate an IC facility to engage in research and development, manufacture and sale of photomasks, in return for which Xiamen Torch will provide certain investment incentives and support. This expansion is also substantially supported by customer commitments for its output. As discussed above, in the first quarter of fiscal 2018, we entered into a joint venture agreement with DNP, under which they hold a 49.99% ownership interest in this investment. The total investment per the agreement is $160 million, of which approximately $62 million remained for Photronics as of October 31, 2018, and will be funded over the next several years with cash and local borrowings. Construction began in 2017 and production is anticipated to start in the first half of 2019.

In the third quarter of fiscal 2016, we sold our investment in MP Mask to Micron for $93.1 million and recorded a gain of $0.1 million on the sale. On that same date, a supply agreement commenced between Photronics and Micron, which provided that we would be the majority outsourced supplier of Micron s photomasks and related services. The supply agreement had a one year term and expired in May 2017. We have unlimited rights to use the technology under our prior technology license agreement.

In the second quarter of fiscal 2016, $57.5 million of our senior convertible notes matured. We repaid $50.1 million to noteholders, and issued approximately 0.7 million shares to noteholders that elected to convert their notes to common stock. The notes were exchanged at the rate of approximately 96 shares per $1,000 note principle, equivalent to a conversion rate of $10.37 per share.

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**Results of Operations**

The following tables present selected operating information expressed as a percentage of revenue:

| | Three Months Ended | | |
|---|---|---|---|
| | **October 31, 2018** | **July 29, 2018** | **October 29, 2017** |
| Revenue | 100.0 % | 100.0 % | 100.0 % |
| Cost of goods sold | (75.5 ) | (73.9 ) | (78.1 ) |
| Gross profit | 24.5 | 26.1 | 21.9 |
| Selling, general and administrative expenses | (9.3 ) | (9.2 ) | (8.4 ) |
| Research and development expenses | (2.7 ) | (1.9 ) | (3.2 ) |
| Operating income | 12.5 | 15.0 | 10.3 |
| Other income (expense), net | 1.5 | 1.0 | 0.4 |
| Income before income tax provision | 14.0 | 16.0 | 10.7 |
| Income tax provision | (2.4 ) | (1.5 ) | (2.0 ) |
| Net income | 11.6 | 14.5 | 8.7 |
| Net income attributable to noncontrolling interests | (3.0 ) | (5.0 ) | (4.2 ) |
| Net income attributable to Photronics, Inc. shareholders | 8.6 % | 9.5 % | 4.5 % |

| | Year Ended | | |
|---|---|---|---|
| | **October 31, 2018** | **October 29, 2017** | **October 30, 2016** |
| Revenue | 100.0 % | 100.0 % | 100.0 % |
| Cost of goods sold | (75.4 ) | (79.7 ) | (75.4 ) |
| Gross profit | 24.6 | 20.3 | 24.6 |
| Selling, general and administrative expenses | (9.6 ) | (9.7 ) | (9.2 ) |
| Research and development expenses | (2.7 ) | (3.5 ) | (4.5 ) |
| Operating income | 12.3 | 7.1 | 10.9 |
| Interest income and other income (expense) | 0.9 | (0.7 ) | 0.5 |
| Interest expense | (0.4 ) | (0.5 ) | (0.7 ) |
| Gains on sales of investments | — | — | 1.8 |
| Income before income tax provision | 12.8 | 5.9 | 12.5 |
| Income tax provision | (1.4 ) | (1.2 ) | (1.0 ) |
| Net income | 11.4 | 4.7 | 11.5 |
| Net income attributable to noncontrolling interests | (3.5 ) | (1.8 ) | (1.9 ) |
| Net income attributable to Photronics, Inc. shareholders | 7.9 % | 2.9 % | 9.6 % |

Note: All the following tabular comparisons, unless otherwise indicated, are for the three months ended October 31, 2018 (Q4 FY18), July 29, 2018 (Q3 FY18) and October 29, 2017 (Q4 FY17), and for the fiscal years ended October 31, 2018 (FY18), October 29, 2017 (FY17) and October 30, 2016 (FY16), in millions of dollars.

***Revenue***

| | | Q4 FY18 Compared with Q3 FY18 | | Q4 FY18 Compared with Q4 FY17 | |
|---|---|---|---|---|---|
| | Revenue in Q4 FY18 | Percent Change | Increase (Decrease) | Percent Change | Increase (Decrease) |
| <u>IC</u> | | | | | |
| High-end | $ 39.4 | (14.4 )% | $ (6.7 ) | 29.5 % | $ 9.0 |
| Mainstream | 71.5 | 16.8 % | 10.3 | 8.9 % | 5.8 |
| Total IC | $ 110.9 | 3.4 % | $ 3.6 | 15.4 % | $ 14.8 |
| <u>FPD</u> | | | | | |
| High-end | $ 22.0 | 29.0 % | $ 5.0 | 28.5 % | $ 4.9 |
| Mainstream | 11.8 | (2.5 )% | (0.3 ) | 51.2 % | 4.0 |
| Total FPD | $ 33.8 | 15.9 % | $ 4.7 | 35.6 % | $ 8.9 |
| Total Revenue | $ 144.7 | 6.1 % | $ 8.3 | 19.6 % | $ 23.7 |

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In Q1 FY18, we changed the threshold for the definition of high-end IC, from 45 nanometer or smaller to 28 nanometer or smaller, to reflect the overall advancement of technology in the semiconductor industry. All comparisons to prior period results in this MD&A reflect this modification. Our definition of high-end FPD products remains as G8 and above and active matrix organic light-emitting diode (AMOLED) display screens. High-end photomasks typically have higher ASPs than mainstream products.

Our quarterly revenues can be affected by the seasonal purchasing tendencies of our customers. As a result, demand for our products is typically negatively impacted during the first, and sometimes the second, quarters of our fiscal year by the North American, European, and Asian holiday periods, as some of our customers reduce their development and, consequently, their buying activities during those periods.

The following tables compare revenue in Q4 FY18 with revenue in Q3 FY18 and Q4 FY17 by geographic area:

| | Q4 FY18 with Q3 FY18 | | | Q4 FY18 with Q4 FY17 | |
|---|---|---|---|---|---|
| | Revenue in Q4 FY18 | Percent Change | Increase (Decrease) | Percent Change | Increase (Decrease) |
| Taiwan | $ 62.3 | 0.3 % | $ 0.2 | 13.1 % | $ 7.2 |
| Korea | 40.8 | 9.5 % | 3.6 | 40.7 % | 11.8 |
| United States | 30.7 | 10.8 % | 3.0 | 16.0 % | 4.2 |
| Europe | 9.8 | 14.5 % | 1.2 | 0.5 % | 0.1 |
| Other | 1.1 | 38.9 % | 0.3 | 54.2 % | 0.4 |
| | $ 144.7 | 6.1 % | $ 8.3 | 19.6 % | $ 23.7 |

Revenue increased 6.1% in Q4 FY18 compared with Q3 FY18, as a result of mainstream IC and high end FPD growth. IC mainstream increased 16.8% from Q3 FY18, due to healthy foundry demand across Asia. High end IC decreased 14.4%, as soft demand for high-end logic offset growth in high-end memory. FPD revenue increased 15.9% from Q3 FY18 due to an increase in high end driven by mobile AMOLED demand, partially offset by a decrease in FPD mainstream. The decrease in FPD mainstream was slightly offset by improved demand from masks used in LTPS LCD mobile displays.

Revenue increased 19.6% in Q4 FY18 compared with Q4 FY17, primarily as a result of high-end and mainstream IC growth. That revenue increased 15.4% from Q4 FY17, due to high-end growth in both logic and memory from the healthy foundry demand across Asia. FPD revenue increased 35.6% from Q4 FY17 due to better demand across our products and markets, particularly in mobile displays.

The following tables compare revenue in FY18 with revenue in FY17, and revenue in FY17 with revenue in FY16:

| | FY18 Compared with FY17 | | | FY17 Compared with FY16 | |
|---|---|---|---|---|---|
| | Revenue in FY18 | Percent Change | Increase (Decrease) | Percent Change | Increase (Decrease) |
| IC | | | | | |
| High-end | $ 160.4 | 61.9 % | $ 61.3 | 16.3 % | $ 13.9 |
| Mainstream | 255.7 | 1.8 % | 4.5 | (10.1 )% | (28.2 ) |
| Total IC | $ 416.1 | 18.8 % | $ 65.8 | (3.9 )% | $ (14.3 ) |
| FPD | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| High-end | $ | 76.1 | 12.1 % | $ | 8.2 | (21.6 )% | $ | (18.7 | ) |
| Mainstream | | 43.1 | 32.6 % | | 10.6 | 0.7 % | | 0.2 | |
| Total FPD | $ | 119.2 | 18.7 % | $ | 18.8 | (15.6 )% | $ | (18.5 | ) |
| Total Revenue | $ | 535.3 | 18.8 % | $ | 84.6 | (6.8 )% | $ | (32.8 | ) |

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| | FY18 with FY17 | | | FY17 with FY16 | | |
|---|---|---|---|---|---|---|
| | Revenue in FY18 | Percent Change | Increase (Decrease) | Revenue in FY17 | Percent Change | Increase (Decrease) |
| Taiwan | $ 237.0 | 26.2 % | $ 49.2 | $ 187.8 | (2.8 )% | $ (5.4 ) |
| Korea | 147.1 | 20.4 % | 24.9 | 122.2 | (13.4 )% | (18.9 ) |
| United States | 112.7 | 10.4 % | 10.6 | 102.0 | (10.2 )% | (11.6 ) |
| Europe | 35.5 | (1.5 )% | (0.5 ) | 36.1 | 8.1 % | 2.7 |
| Other | 3.0 | 15.9 % | 0.4 | 2.6 | 18.7 % | 0.4 |
| | $ 535.3 | 18.8 % | $ 84.6 | $ 450.7 | (6.8 )% | $ (32.8 ) |

Revenue increased 18.8% in FY18 compared with FY17 primarily due to increased high end IC growth. That revenue increased 61.9% due to growth in both logic and memory from healthy foundry demand across Asia. FPD revenue increased 18.7% from FY17 due to better demand across our products and markets.

Revenue decreased 6.8% in FY17 compared with FY16 primarily due to decreases in both IC and FPD. IC photomask revenue decreased 3.9% as growth in high-end memory was offset by weakness in high-end and mainstream logic. FPD sales decreased 15.6% in FY17 compared with FY16 primarily due to a decline in high-end mobile displays.

As we begin our 2019 fiscal year, we are cautiously optimistic, as we observe favorable signs of demand drivers, but we are aware of certain potential macro challenges. While the photomask market has held up well, there are some sectors in the semiconductor industry that have witnessed slowing demand. If this expands into a more widespread economic slowdown, then it s possible that our markets will also be impacted. In addition to potential demand challenges, there are also geopolitical risks, the outcome of which are uncertain. We currently expect greater than normal seasonal impact in Q1 as the high-end IC market looks to remain soft, and we will have fewer days in our fiscal first quarter. Beyond the first quarter, growth will be dependent on the shape and duration of any potential market downturn. As we approach the second half of the year, we anticipate additional growth from the ramp of our new China facilities. As a result, we anticipate that, our 2019 growth will be dependent on underlying market demand and how effectively we ramp production in China.

***Gross Profit***

| | | | | Percent Change | |
|---|---|---|---|---|---|
| | Q4 FY18 | Q3 FY18 | Q4 FY17 | Q4 FY18 from Q3 FY18 | Q4 FY18 from Q4 FY17 |
| Gross profit | $ 35.4 | $ 35.6 | $ 26.4 | (0.5 )% | 34.0 % |
| Gross margin | 24.5 % | 26.1 % | 21.9 % | | |

Gross profit and gross margin decreased in Q4 FY18, compared with Q3 FY18, primarily due to increased materials and equipment maintenance costs incurred in the current quarter. Gross profit and gross margin increased in Q4 FY18, compared with Q4 FY17, primarily as a result of the increased revenue in the current quarter, which exceeded increased materials, labor, and other overhead costs incurred in Q4 FY18. As we operate in a high fixed-cost environment increases or decreases in our revenues and capacity utilization will generally positively or negatively impact our gross margin.

| | | | | Percent Change | |
|---|---|---|---|---|---|
| | FY18 | FY17 | FY16 | FY18 | FY17 |

| | | | | from FY17 | from FY16 |
|---|---|---|---|---|---|
| Gross profit | $ 131.5 | $ 91.3 | $ 118.7 | 44.0 % | (23.1 )% |
| Gross margin | 24.6 % | 20.3 % | 24.6 % | | |

Gross profit and gross margin increased on a full-year basis in FY18, compared with FY17, primarily as a result of the increased revenue in the current year, which exceeded increased materials, labor, and other overhead costs incurred in FY18. Gross profit and gross margin decreased in FY17, compared with FY16, primarily due to a decrease in overall revenue that resulted from lower ASPs and, to a lesser extent, a reduction in units sold.

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***Selling, General and Administrative Expenses***

Selling, general and administrative expenses increased by $1.0 million, or 8.0%, to $13.5 million in Q4 FY18, from $12.5 million in Q3 FY18, primarily due to increased compensation and freight expenses. Selling, general and administrative expenses increased in Q4 FY18 by $3.3 million, or 32.6%, to $13.5 million, from $10.2 million in Q4 FY17, primarily as a result of increased compensation, professional services, and freight expenses.

On a full year basis, selling, general and administrative expenses increased $7.8 million, or 17.9% in FY18, to $51.4 million from $43.6 million in FY17, primarily due to increases in compensation, freight, and travel expenses, partially as a result of activities related to our expansion into China. In addition, bad debt recoveries were more favorable in FY17 than in the current year. Selling, general and administrative expenses decreased by $1.0 million in FY17, compared with FY16, primarily due to reduced bad debt expense and professional fees, which were partially offset by increased compensation costs and selling expenses.

***Research and Development***

In the U.S., research and development expenses consist of development efforts related to high-end process technologies for 28nm and smaller IC nodes, while in Asia, in addition to the focus on high-end IC technology nodes, G8 and above FPDs and AMOLED applications are also under development.

Research and development expense increased $1.3 million to 3.9 million in Q4 FY18, or 47.2%, from Q3 FY18, as a result of increased expenditures in both the U.S. and Asia. Research and development expense was up moderately ($0.1 million, or 1.8%) in Q4 FY18 from Q4 FY17, with increased spending in Taiwan exceeding decreased expenditures and related activities on large area masks in Korea.

On a full year basis, research and development expense decreased $1.4 million in FY18, or 8.7%, to $14.5 million, as spending decreases in the U.S. and Taiwan exceeded an increase in Korea, primarily related to large area masks. Research and development expenses decreased by $5.8 million in FY17 to $15.9 million, from $21.7 million in FY16 as a result of lower customer qualification costs for high-end reticles in both Asia and the U.S.

***Other Income (Expense), net***

| | Q4 FY18 | Q3 FY18 | Q4 FY17 |
|---|---|---|---|
| Interest income and other income (expense) | $ 2.9 | $ 2.0 | $ 1.1 |
| Interest expense | (0.6) | (0.6) | (0.6) |
| Total other income (expense), net | $ 2.3 | $ 1.4 | $ 0.5 |

Interest income and other income (expense) increased by $0.9 million in Q4 FY18, compared with Q3 FY18, primarily as a result of increased foreign currency transaction gains. Interest income and other income (expense) increased by $1.8 million in Q4 FY18, compared with Q4 FY17, also primarily as a result of increased foreign currency transaction gains in Q4 FY18 and gains realized on the sales of assets in Q4 FY18. Interest expense, which is principally related to our 3.25% convertible senior notes was essentially unchanged over the comparative quarterly periods.

| | FY18 | FY17 | FY16 |
|---|---|---|---|
| Interest income and other income (expense) | $ 5.2 | $ (3.1) | $ 2.4 |
| Interest expense | (2.3) | (2.2) | (3.3) |
| Gains on sales of investments | — | — | 8.9 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Total other income (expense), net | $ | 2.9 | $ | (5.3 ) | $ | 8.0 |

Interest income and other income (expense) increased by $8.3 million on a full-year basis in FY18, compared with FY17, primarily as a result of our experiencing moderate foreign currency transaction gains in FY18, in contrast to significant losses in FY17. In addition, we realized gains on asset sales in FY18, and achieved better investment results on our cash balances than we did in the prior year.

Interest income and other income (expense) decreased by $5.5 million in FY17, compared with FY16, primarily as a result of increased foreign currency transaction losses in FY17. Interest expense decreased in FY17 compared with FY16 primarily as a result of the maturity of our 3.25% convertible senior notes in April 2016, and lower average outstanding debt balance on our other debt obligations.

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In January 2016, we sold a minority interest investment in a foreign entity and recognized a gain of $8.8 million. In May 2016, we sold our 49.99% interest in the MP Mask joint venture and recognized a gain of $0.1 million.

***Income Tax Provision***

The U.S. Tax Cuts and Jobs Act (the Act ) that was signed into law on December 22, 2017, included significant changes to the United States Internal Revenue Code of 1986, as amended, which we expect to have a positive impact on our future after-tax earnings. Our FY18 results reflect the corporate rate reduction, alternative minimum tax refund, meals and entertainment and deemed repatriation tax provisions. Other provisions of the Tax Act are effective for tax years beginning on or after January 1, 2018. As a fiscal year U.S. taxpayer, these provisions will apply to our fiscal 2019, including eliminating the domestic manufacturing deduction, creating new taxes on certain foreign sourced income, and introducing new limitations on certain business deductions.

| | Q4 FY18 | Q3 FY18 | Q4 FY17 |
|---|---|---|---|
| Income tax provision | $ 3.6 | $ 2.1 | $ 2.5 |
| Effective income tax rate | 17.5 % | 9.4 % | 19.0 % |

The effective income tax rate is sensitive to the jurisdictional mix of our earnings, due, in part, to the non-recognition of tax benefits on losses in jurisdictions with valuation allowances.

The effective income tax rate in Q4 FY18, compared with Q3 FY18, increased primarily due to Q3 FY18 nonrecurring tax benefits of $1.8 million related to tax audit settlements. The difference was somewhat reduced by an increased tax holiday benefit of $1.1 million in Q4 FY18. The effective income tax rate decreased in Q4 FY18, compared with Q4 FY17, primarily due to a greater percentage of the Q4 FY17 income before taxes being generated in jurisdictions where the Company incurs tax losses that, due to valuation allowances, did not result in the recognition of tax benefits, and an increased benefit of $0.9 million from the tax holiday in Taiwan.

| | FY18 | FY17 | FY16 |
|---|---|---|---|
| Income tax provision | $ 7.3 | $ 5.3 | $ 4.8 |
| Effective income tax rate | 10.7 % | 19.9 % | 7.9 % |

The decrease in effective income tax rate on a full-year basis in FY18, compared with FY17, was primarily due to the recognition of a tax benefit related to $3.7 million of alternative minimum tax credits that became fully refundable under US tax reform, an increased benefit of $2.4 million from a tax holiday in Taiwan, and an increase in the recognition of $1.2 million of previously unrecognized tax benefits, which resulted from audit settlements and expirations of assessment period statutes of limitations, partially offset by a greater percentage of the FY17 income before taxes being generated in jurisdictions where the Company incurs tax losses that, due to valuation allowances, did not result in the recognition of tax benefits.

The increase in effective income tax rate in FY17, compared with FY16, was primarily due to recognition of $1.0 million of previously unrecognized tax benefits, which arose from audit settlements and expirations of assessment period statutes of limitations. Those effects were partially offset by FY16 benefit factors, including: the recognition of $2.5 million of previously unrecognized deferred tax assets resulting from improved performance of our FPD operations; the reversal of previously recognized tax expense of $2.4 million that was eliminated by a distribution of the earnings of a foreign subsidiary to its foreign parent; a higher percentage of income before income taxes, including an $8.8 million gain on the sale of an investment in the first quarter of FY16, generated in jurisdictions where we previously incurred losses that, due to valuation allowances, did not result in recognition of expense.

We consider all available evidence when evaluating the potential future realization of deferred tax assets, and when, based on the weight of all available evidence, we determine that it is more likely than not that some portion or all of our deferred tax assets will not be realized, we reduce our deferred tax assets by a valuation allowance. We also regularly assess the potential outcomes of ongoing and future tax examinations and, accordingly, have recorded accruals for such contingencies. Included in the balance of unrecognized tax benefits as of October 31, 2018, October 29, 2017 and October 30, 2016, are $1.9 million, $3.4 million and $4.6 million, respectively, recorded in other liabilities in the consolidated balance sheets that, if recognized, would impact the effective tax rate.

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***Net Income Attributable to Noncontrolling Interests***

| | Q4 FY18 | Q3 FY18 | Q4 FY17 | FY18 | FY17 | FY16 |
|---|---|---|---|---|---|---|
| Net income attributable to noncontrolling interest | $ 4.3 | $ 6.8 | $ 5.1 | $ 19.2 | $ 8.2 | $ 9.5 |

Periods subsequent to FY17 include DNP s share of the earnings of our IC subsidiary in Taiwan, as well as their attribution of losses incurred at our IC facility in China, which will commence operations in the first half of fiscal 2019. For all periods prior to FY18, substantially all of the net income attributable to noncontrolling interests reflects DNP s share of the earnings of our IC manufacturing subsidiary in Taiwan.

**Liquidity and Capital Resources**

| | October 31, 2018 | October 29, 2017 | October 30, 2016 |
|---|---|---|---|
| | *(in $ millions)* | *(in $ millions)* | *(in $ millions)* |
| Cash and cash equivalents | $ 329.3 | $ 308.0 | $ 314.1 |
| | | | |
| Net cash provided by operating activities | $ 130.6 | $ 96.8 | $ 122.1 |
| Net cash used in/provided by investing activities | $ (90.7 ) | $ (98.1 ) | $ 52.3 |
| Net cash used in financing activities | $ (13.8 ) | $ (10.9 ) | $ (67.0 ) |

As of October 31, 2018, we had cash and cash equivalents of $329.3 million compared with $308.0 million as of October 29, 2017. Our working capital decreased $55.7 million to $311.7 million at October 31, 2018, compared with $367.3 million at October 29, 2017, primarily due to the reclassification of our 3.25% senior convertible notes, which mature in April 2019 to current status. We may use our available cash on hand for operations, capital expenditures, debt repayments, strategic opportunities, stock repurchases or other corporate uses, any of which may be material.

As of October 29, 2017, we had cash and cash equivalents of $308.0 million compared with $314.1 million as of October 30, 2016. Our working capital increased $7.1 million to $367.3 million at October 29, 2017, compared with $360.3 million at October 30, 2016.

As of October 31, 2018 and October 29, 2017, our total cash and cash equivalents included $244.5 million and $190.0 million, respectively, held by our foreign subsidiaries. The majority of earnings of our foreign subsidiaries are considered to be indefinitely reinvested. Repatriation of these funds to the U.S. are, as a result of the U.S. Tax Cut and Jobs Act, generally not subject to U.S. federal income tax, but may be subject to U.S. state income taxes and local country withholding taxes. Our foreign subsidiaries continue to grow through the reinvestment of earnings in additional manufacturing capacity and capability, particularly in the high-end IC and FPD areas.

Net cash provided by operating activities increased to $130.6 million in FY18, compared with $96.8 million in FY17, primarily due to increased net income and an increase in cash from accounts payable and other liabilities exceeding decreases in most operating accounts and non-cash items, partially attributable to beginning operations in China. Net cash provided by operating activities decreased by $25.3 million to $96.8 million in FY17, compared with $122.1 million in FY16, primarily due to the decrease of $34.4 million of net income. Net cash provided by operating activities decreased to $122.1 million in FY16, compared with $133.2 million in fiscal 2015, primarily due to reduced year-over-year operating income, partially offset by net cash favorable changes in accrual accounts.

Net cash used in investing activities in FY18 was $90.7 million primarily resulting from capital expenditure payments. Cash flows from investing activities decreased from funds provided of $52.3 million in FY16 to $98.1 million used in

FY17 due to $101.9 million aggregate proceeds received from the sale of our investments in MP Mask and an interest we held in a foreign entity in FY16, compared to increased capital expenditures of $41.8 million and the acquisition of a business of $5.4 million in FY17. Cash flows from investing activities increased to $52.3 million provided in FY16 from $104.3 used in fiscal year 2015, primarily due to proceeds of $101.9 million received from the sale of our investments in the MP Mask joint venture and an interest we held in a foreign entity, as well as decreased expenditures for capital equipment. Capital expenditure payments for the FY18, FY17, and FY16, were $92.6, $92.0, and $50.1 million, respectively. We expect capital expenditure payments in fiscal 2019 to be approximately $210 million.

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Net cash used in financing activities was $13.8 million in FY18, primarily comprised of the receipt of $18.0 million from a noncontrolling interest for their investment in our recently established joint venture in China and $4.6 million of proceeds received from share-based arrangements, which partially offset the payment of a dividend to the noncontrolling interest of our IC facility in Taiwan of $8.2 million, $23.1 million used to acquire our common stock under a share repurchase program, and debt repayments of $4.6 million. Net cash used in financing activities was $10.9 million in FY17, which primarily comprised repayments of long-term borrowings and a dividend paid to the noncontrolling interest in a subsidiary, partially offset by proceeds received from employee share-based arrangements. Net cash used in financing activities was $67.0 million in FY16, primarily comprised of repayments of long-term borrowings (including $50.1 million to retire our 3.25% convertible senior notes which matured in April FY16) and $11.9 million dividend paid to the noncontrolling interest in a subsidiary, partially offset by proceeds received from employee share-based arrangements.

Our liquidity, as we operate in a high fixed-cost environment, is highly dependent on our revenue, cash conversion cycle, and the timing of our capital expenditures (which can vary significantly from period to period). Depending on conditions in the semiconductor and FPD markets, our cash flows from operations and current holdings of cash may not be adequate to meet our current and long-term needs for capital expenditures, operations and debt repayments. Historically, in certain years, we have used external financing to fund these needs. Due to conditions in the credit markets and covenant restrictions on our existing debt, some financing instruments we have used in the past may not be available to us when required. Consequently, we cannot assure that additional sources of financing would be available to us on commercially favorable terms, should our long-term cash requirements exceed our existing cash and cash available under our credit facilities.

As of October 31, 2018, we had capital commitments outstanding of approximately $130 million, nearly all of which related to the building and equipping of our China facilities (discussed below). We intend to finance our capital expenditures with our working capital, cash generated from operations, and, if necessary, additional borrowings. We have entered into a joint venture that is constructing an IC facility in China with an estimated total joint investment of $160 million. Our remaining funding commitment for the joint venture is approximately $62 million which we will fulfill over the next several quarters. We have also commenced construction of an FPD facility in China in which, as of October 31, 2018, we have invested $90 million, and will invest an additional $70 million during the first half of 2019. We believe that our cash on hand, cash generated from operations and amounts available to borrow will be sufficient to meet our cash requirements for the next twelve months. We regularly review the availability and terms at which we might issue additional equity or debt securities in the public or private markets. However, we cannot assure that additional sources of financing would be available to us on commercially favorable terms, should our capital requirements exceed our existing cash, cash generated by operations, and cash available under our credit facilities.

**Cash Requirements**

Our cash requirements in fiscal 2019 will be primarily to: fund our operations; capital spending, including the completion of constructing and equipping an IC research and development and manufacturing facility in Xiamen, China and an FPD manufacturing facility in Hefei, China; and service our debt. We believe that our cash on hand, cash generated from operations and amounts available to borrow will be sufficient to meet our cash requirements for the next twelve months. We regularly review the availability and terms at which we might issue additional equity or debt securities in the public or private markets. However, we cannot assure that additional sources of financing would be available to us on commercially favorable terms, should our cash requirements exceed our existing cash and cash available under our credit facilities.

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**Contractual Obligations**

The following table presents our contractual obligations as of October 31, 2018:

| | | Payment due by period | | | |
|---|---|---|---|---|---|
| **Contractual Obligations** | **Total** | **Less Than 1 Year** | **1 - 3 Years** | **3 - 5 Years** | **More Than 5 Years** |
| Long-term debt | $ 57,500 | $ 57,500 | $ — | $ — | $ — |
| Operating leases | 7,495 | 1,943 | 2,922 | 1,963 | 667 |
| Purchase obligations | 144,174 | 137,034 | 7,042 | 98 | — |
| Interest | 1,234 | 1,034 | 200 | — | — |
| Other noncurrent liabilities | 11,858 | 1,038 | 3,793 | 2,771 | 4,256 |
| Total | $ 222,261 | $ 198,549 | $ 13,957 | $ 4,832 | $ 4,923 |

Long-term debt of $57.5 million in the table above represent our obligation under our 3.25% senior convertible notes, which mature on April 1, 2019, and, at the option of the note holders, may be settled either in cash or by conversion into our common stock. See Note 6 to the consolidated financial statements for additional information. As of October 31, 2018, the Company had recorded accruals for uncertain tax positions and related interest and penalties of $1.9 million which were not included in the above table due to the high degree of uncertainty regarding the timing of future payments related to such liabilities.

In November FY2019, Xiamen American Japan Photronics Mask Co., Ltd. ( PDMCX ), an indirect majority-owned joint venture subsidiary of Photronics, Inc., entered into a commitment letter under which it can borrow up to approximately $50.0 million ( the Project Loan ). PDMCX will use the Project Loan to finance certain capital expenditures in China. During the eight-year term of the Project Loan, PDMCX will grant a lien on the land, building and equipment owned by PDMCX as collateral for the Project Loan. The interest rate of the Project Loan is based on the benchmark lending rate (as defined in the Project Loan agreement) plus a floating rate spread of the People s Bank of China on the date of borrowings. We anticipate that interest incurred on this loan will be reimbursed through incentives provided by the Xiamen Torch Hi-Tech Industrial Development Zone, up to a certain cap.

On November 7, 2018, PDMCX entered into a working capital loan agreement with a maximum borrowing limit of approximately $25.0 million, ( the Working Capital Loan ). In November 2018, we borrowed $2.2 million against this loan. PDMCX will use the Working Capital Loan for general financing purposes including the payment of import and value added taxes. The term of the Working Capital Loan will not exceed three years, and no guarantees were required under the terms of the Working Capital Loan. The interest rate of the Working Capital Loan is based on the benchmark lending rate (as defined in the Working Capital Loan agreement) plus a floating rate spread of the People s Bank of China on the date of borrowings. We anticipate that interest incurred on this loan will be reimbursed through incentives provided by the Xiamen Torch Hi-Tech Industrial Development Zone, up to a certain cap.

**Off-Balance Sheet Arrangements**

In January 2018, Photronics, through its wholly-owned Singapore subsidiary, and DNP, through its wholly-owned subsidiary DNP Asia Pacific PTE, Ltd. entered into a joint venture under which DNP obtained a 49.99% interest in our IC business in Xiamen, China. The joint venture, known as Photronics DNP Mask Corporation Xiamen ( PDMCX ), was established to develop and manufacture photomasks for leading edge and advanced generation semiconductors. Under the Joint Venture Operating Agreement of Photronics DNP Mask Corporation Xiamen ( the Agreement ), DNP is afforded, under certain circumstances, the right to put its interest in PDMCX to Photronics. These circumstances include disputes regarding the strategic direction of PDMCX that may arise after the initial two

year term of the Agreement that cannot be resolved between the two parties. In addition, both Photronics and DNP have the option to purchase, or put, their interest from, or to, the other party, should their ownership interest fall below 20% for a period of more than six consecutive months. Under all such circumstances, the sales of ownership interests would be at the exiting party s ownership percentage of the joint venture s net book value, with closing to take place within three business days of obtaining required approvals and clearance. Should DNP exercise an option to put their, or purchase our, interest in PDMCX, we may, depending on the relationship of the fair and book value of the net assets of PDMCX, incur a loss. As of October 31, 2018, Photronics and DNP each had net investments in PDMCX of $15.9 million.

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We lease certain office facilities and equipment under operating leases that may require us to pay taxes, insurance and maintenance expenses related to the properties. Certain of these leases contain renewal or purchase options exercisable at the end of the lease terms. See Note 7 to the consolidated financial statements for additional information on these operating leases.

**Business Outlook**

A majority of our revenue growth is expected to continue to come from the Asia region, predominantly in China. In response to this expectation, we have entered into a joint venture that will complete the construction of an IC research and development and manufacturing facility in Xiamen, China, in late 2018. Production is anticipated to begin at this facility during the first half of 2019. In addition, in August 2017, we entered into an investment agreement to construct an FPD manufacturing facility in Hefei, China. Construction of this facility commenced in Q1 FY18, and production is anticipated to begin during the first half of 2019.

We make continual assessments of our global manufacturing strategy and monitor our revenue and related cash flows from operations. This ongoing assessment could result in future facility closures, asset redeployments, impairments of intangible or long-lived assets, workforce reductions, or the addition of manufacturing facilities, all of which would be based on market conditions and customer requirements.

We are cautiously optimistic regarding results of operations in fiscal 2019, as we observe favorable signs of demand drivers, but we are aware of certain potential macro challenges. While the photomask market has held up well, there are some sectors in the semiconductor industry that have seen slowing demand. If this spreads into a more widespread economic slowdown, then it s possible that our markets will also be impacted. In addition to potential demand challenges, there are also geopolitical risks, the outcome of which, are uncertain. Entering 2019, we currently expect higher than normal seasonal impact in Q1 as the high-end IC market looks to remain soft, and we will have fewer days in our first quarter. Beyond the first quarter, growth will be dependent on the shape and duration of any potential market downturn. As we get to the second half of the year, we should see additional growth from the ramp of our new China facilities. Therefore, our 2019 growth will be dependent on underlying market demand and how effectively we ramp production in China.

Our future results of operations and the other forward-looking statements contained in this filing involve a number of risks and uncertainties. While various risks and uncertainties have been discussed, a number of other unforeseen factors could cause actual results to differ materially from our expectations.

**Critical Accounting Estimates**

Our consolidated financial statements are based on the selection and application of accounting policies, which require management to make significant estimates and assumptions. We believe the following to be the more critical areas that require judgement when applying our accounting policies:

- the determination of the useful lives of our property, plant, and equipment and the timing of when depreciation should begin on such assets, as these determinations can significantly impact our gross margin and research and development expenses;
- the evaluation of the recoverability of our long-lived and definite-lived intangible assets, which requires us to forecast the future cash flows related to these assets, and the potential impacts to our gross margin and operating expenses;
- the estimation of the collectability of our accounts receivables which impacts our gross margin and operating expenses;
-

the recognition and measurement of current and deferred income taxes, including the measurement of uncertain tax positions, which impact our provision for income taxes and our tax-related asset and liability balances.

Please refer to Note 1 to our consolidated financial statements for additional information related to these critical accounting estimates and our other significant accounting policies.

**Recent Accounting Pronouncements**

See Item 8. Financial Statements and Supplementary Data – Notes to Consolidated Financial Statements – Note 23 Recent Accounting Pronouncements for recent accounting pronouncements that may affect our financial reporting.

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## ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

**Foreign Currency Exchange Rate Risk**

We conduct business in several major currencies throughout our worldwide operations, and our financial performance may be affected by fluctuations in the exchange rates of these currencies. Changes in exchange rates can positively or negatively affect our reported revenue, operating income, assets, liabilities, and equity. The functional currencies of our Asian subsidiaries are the South Korean won, the New Taiwan dollar, the Chinese renminbi and the Singapore dollar. The functional currencies of our European subsidiaries are the British pound and the euro. In addition, we have transactions and balances in Japanese yen.

We attempt to minimize our risk of foreign currency transaction losses by producing products in the same country in which the products are sold (thereby generating revenues and incurring expenses in the same currency), and by managing our working capital. However, in some instances, we sell products in a currency other than the functional currency of the country where it was produced, or purchase products in a currency that differs from the functional currency of the purchasing manufacturing facility. For example, we are currently shipping a significant quantity of photomasks into China, while our China facilities are under construction. In addition, to the extent practicable, we attempt to reduce our exposure to foreign currency exchange fluctuations by converting cash and cash equivalents into the functional currency of the subsidiary which holds the cash. We may also enter into derivative contracts to mitigate our exposure to foreign currency fluctuations when we have a significant purchase obligation or significant receivable denominated in a currency that differs from the transacting subsidiaries functional currencies. We do not enter into derivatives for speculative purposes. There can be no assurance that these practices will protect us from the need to recognize significant foreign currency transaction gains and losses, especially in the event of a significant adverse movement in the value of any foreign currency in which we conduct business against any of our functional currencies, including the U.S. dollar.

Our primary net foreign currency exposures as of October 31, 2018, included the South Korean won, the Japanese yen, the New Taiwan dollar, the Chinese renminbi, the Singapore dollar, the British pound, and the euro. As of October 31, 2018, a 10% adverse movement in the value of these currencies against the functional currencies of our subsidiaries would have resulted in a net unrealized pre-tax loss of $13.2 million, which represents an increase of $0.2 million from the same result as of October 29, 2017. The increase in foreign currency rate change risk is primarily the result of increased exposure of Korean won against USD. We do not believe that a 10% change in the exchange rates of other non-US dollar currencies would have had a material effect on our October 31, 2018 consolidated financial statements.

**Interest Rate Risk**

At October 31, 2018, we did not have any variable rate borrowings. Therefore, a 10% change in interest rates would not have had a material effect on our consolidated financial position, results of operations, or cash flows in the year ended October 31, 2018.

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## ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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**REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

To Shareholders and the Board of Directors
of Photronics, Inc.
Brookfield, Connecticut

**Opinions on the Financial Statements and Internal Control over Financial Reporting**

We have audited the accompanying consolidated balance sheets of Photronics, Inc. (the Company ) as of October 31, 2018 and October 29, 2017, and the related consolidated statements of income, consolidated statements of comprehensive income, consolidated statements of equity, and consolidated statements of cash flows for each of the years ended October 31, 2018, October 29, 2017 and October 30, 2016. We also have audited the Company s internal control over financial reporting as of October 31, 2018, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of October 31, 2018 and October 29, 2017, and the results of its operations and their cash flows for each of the fiscal years ended October 31, 2018, October 29, 2017, and October 30, 2016 in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of October 31, 2018, based on the criteria established in *Internal Control — Integrated Framework (2013) issued by COSO*.

**Basis for Opinions**

The Company s management is responsible for these financial statements, 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 Management s Report on Internal Control over Financial Reporting in Item 9A. Our responsibility is to express an opinion on these financial statements and an opinion on the Company s internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (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 Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the financial statements included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures to respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the 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 financial statements. Our audit of internal control over financial reporting 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 audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

**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.

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

/s/ Deloitte & Touche LLP
Hartford, Connecticut
December 21, 2018

We have served as the Company s auditor since 1991.

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**PHOTRONICS, INC.**
**Consolidated Balance Sheets**
*(in thousands, except per share amounts)*

| | October 31, 2018 | October 29, 2017 |
|---|---|---|
| **ASSETS** | | |
| Current assets: | | |
| Cash and cash equivalents | $ 329,277 | $ 308,021 |
| Accounts receivable, net of allowance of $1,526 in 2018 and $2,319 in 2017 | 120,515 | 105,320 |
| Inventories | 29,180 | 23,703 |
| Other current assets | 23,759 | 12,080 |
| Total current assets | 502,731 | 449,124 |
| Property, plant and equipment, net | 571,781 | 535,197 |
| Intangible assets, net | 12,368 | 17,122 |
| Deferred income taxes | 18,109 | 15,481 |
| Other assets | 5,020 | 3,870 |
| Total assets | $ 1,110,009 | $ 1,020,794 |
| **LIABILITIES AND EQUITY** | | |
| Current liabilities: | | |
| Current portion of long-term debt | $ 57,453 | $ 4,639 |
| Accounts payable | 89,149 | 50,834 |
| Accrued liabilities | 44,474 | 26,303 |
| Total current liabilities | 191,076 | 81,776 |
| Long-term debt | — | 57,337 |
| Deferred income taxes | 643 | 2,049 |
| Other liabilities | 13,721 | 14,337 |
| Total liabilities | 205,440 | 155,499 |
| Commitments and contingencies | | |
| Equity: | | |
| Preferred stock, $0.01 par value, 2,000 shares authorized, none issued and outstanding | — | — |
| Common stock, $0.01 par value, 150,000 shares authorized, 69,700 shares issued and 67,142 outstanding at October 31, 2018, and 68,666 shares issued | 697 | 687 |

| | | |
|---|---|---|
| and outstanding at October 29, 2017 | | |
| Additional paid-in capital | 555,606 | 547,596 |
| Retained earnings | 231,445 | 189,390 |
| Treasury stock, 2,558 shares at October 31, 2018 | (23,111) | — |
| Accumulated other comprehensive income (loss) | (4,966) | 6,891 |
| Total Photronics, Inc. shareholders' equity | 759,671 | 744,564 |
| Noncontrolling interests | 144,898 | 120,731 |
| Total equity | 904,569 | 865,295 |
| Total liabilities and equity | $ 1,110,009 | $ 1,020,794 |

See accompanying notes to consolidated financial statements.

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**PHOTRONICS, INC.**
**Consolidated Statements of Income**
*(in thousands, except per share amounts)*

| | Year Ended | | |
|---|---|---|---|
| | **October 31, 2018** | **October 29, 2017** | **October 30, 2016** |
| Revenue | $ 535,276 | $ 450,678 | $ 483,456 |
| Cost of goods sold | (403,773) | (359,363) | (364,750) |
| Gross profit | 131,503 | 91,315 | 118,706 |
| | | | |
| Operating expenses: | | | |
| Selling, general and administrative | (51,395) | (43,585) | (44,577) |
| Research and development | (14,481) | (15,862) | (21,654) |
| Total operating expenses | (65,876) | (59,447) | (66,231) |
| Operating income | 65,627 | 31,868 | 52,475 |
| | | | |
| Other income (expense): | | | |
| Interest income and other income (expense) | 5,206 | (3,068) | 2,424 |
| Interest expense | (2,262) | (2,235) | (3,365) |
| Gains on sales of investments | — | — | 8,940 |
| Income before income tax provision | 68,571 | 26,565 | 60,474 |
| Income tax provision | (7,335) | (5,276) | (4,798) |
| Net income | 61,236 | 21,289 | 55,676 |
| Net income attributable to noncontrolling interests | (19,181) | (8,159) | (9,476) |
| Net income attributable to Photronics, Inc. shareholders | $ 42,055 | $ 13,130 | $ 46,200 |
| Earnings per share: | | | |
| Basic | $ 0.61 | $ 0.19 | $ 0.68 |
| Diluted | $ 0.59 | $ 0.19 | $ 0.64 |
| Weighted-average number of common shares outstanding: | | | |
| Basic | 68,829 | 68,436 | 67,539 |
| Diluted | 74,821 | 69,288 | 76,354 |

See accompanying notes to consolidated financial statements.

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**PHOTRONICS, INC.**
**Consolidated Statements of Comprehensive Income**
*(in thousands)*

| | Year Ended | | |
|---|---|---|---|
| | **October 31, 2018** | **October 29, 2017** | **October 30, 2016** |
| Net income | $ 61,236 | $ 21,289 | $ 55,676 |
| Other comprehensive (loss) income, net of tax: | | | |
| Foreign currency translation adjustments | (16,672) | 19,799 | 6,334 |
| Amortization of cash flow hedge | 48 | 129 | 129 |
| Other | 101 | 478 | (589) |
| Net other comprehensive (loss) income | (16,523) | 20,406 | 5,874 |
| Comprehensive income | 44,713 | 41,695 | 61,550 |
| Less: comprehensive income attributable to noncontrolling interests | 14,515 | 14,003 | 12,448 |
| Comprehensive income attributable to Photronics, Inc. shareholders | $ 30,198 | $ 27,692 | $ 49,102 |

See accompanying notes to consolidated financial statements.

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**PHOTRONICS, INC.**
**Consolidated Statements of Equity**
**Years Ended October 31, 2018, October 29, 2017 and October 30, 2016**
*(in thousands)*

| | Common Stock | | Additional Paid-In Capital | Retained Earnings | Treasury Stock | Accumulated Other Comprehensive Income (Loss) | Non-Controlling Interests | Total Equity |
|---|---|---|---|---|---|---|---|---|
| | Shares | Amount | | | | | | |
| **Balance at November 1, 2015** | 66,602 | $ 666 | $ 526,402 | $ 130,060 | $ — | $ (10,573 ) | $ 115,511 | $ 762,066 |
| Net income | — | — | — | 46,200 | — | — | 9,476 | 55,676 |
| Other comprehensive income | — | — | — | — | — | 2,902 | 2,972 | 5,874 |
| Sales of common stock through employee stock option and purchase plan | 618 | 6 | 3,441 | — | — | — | — | 3,447 |
| Restricted stock awards vesting and expense | 143 | 2 | 1,190 | — | — | — | — | 1,192 |
| Share-based compensation expense | — | — | 2,637 | — | — | — | — | 2,637 |
| Conversion of debt to common stock | 717 | 7 | 7,431 | — | — | — | — | 7,438 |
| Dividends to noncontrolling interests | — | — | — | — | — | — | (11,901 ) | (11,901 ) |
| Return of capital to noncontrolling interest | — | — | — | — | — | — | (955 ) | (955 ) |
| Repurchase of common stock by subsidiary | — | — | (8 ) | — | — | — | 8 | — |
| **Balance at October 30, 2016** | 68,080 | 681 | 541,093 | 176,260 | — | (7,671 ) | 115,111 | 825,474 |
| Net income | — | — | — | 13,130 | — | — | 8,159 | 21,289 |
| Other | — | — | — | — | — | 14,562 | 5,844 | 20,406 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| comprehensive income | | | | | | | | |
| Sales of common stock through employee stock option and purchase plan | 459 | 5 | 2,877 | — | — | — | — | 2,882 |
| Restricted stock awards vesting and expense | 127 | 1 | 1,508 | — | — | — | — | 1,509 |
| Share-based compensation expense | — | — | 2,118 | — | — | — | — | 2,118 |
| Dividends to noncontrolling interests | — | — | — | — | — | — | (8,383 ) | (8,383 ) |
| **Balance at October 29, 2017** | 68,666 | 687 | 547,596 | 189,390 | — | 6,891 | 120,731 | 865,295 |
| Net income | — | — | — | 42,055 | — | — | 19,181 | 61,236 |
| Other comprehensive income | — | — | — | — | — | (11,857 ) | (4,666 ) | (16,523 ) |
| Sales of common stock through employee stock option and purchase plan | 870 | 9 | 4,683 | — | — | — | — | 4,692 |
| Restricted stock awards vesting and expense | 164 | 1 | 1,747 | — | — | — | — | 1,748 |
| Share-based compensation expense | — | — | 1,432 | — | — | — | — | 1,432 |
| Contribution from noncontrolling interests | — | — | 148 | — | — | — | 17,848 | 17,996 |
| Dividends to noncontrolling interests | — | — | — | — | — | — | (8,196 ) | (8,196 ) |
| Purchase of treasury stock | — | — | — | — | (23,111 ) | — | — | (23,111 ) |
| **Balance at October 31, 2018** | 69,700 | $ 697 | $ 555,606 | $ 231,445 | $ (23,111 ) | $ (4,966 ) | $ 144,898 | $ 904,569 |

See accompanying notes to consolidated financial statements.

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**PHOTRONICS, INC.**
**Consolidated Statements of Cash Flows**
*(in thousands)*

| | Year Ended | | |
|---|---|---|---|
| | **October 31, 2018** | **October 29, 2017** | **October 30, 2016** |
| Cash flows from operating activities: | | | |
| Net income | $ 61,236 | $ 21,289 | $ 55,676 |
| Adjustments to reconcile net income to net cash provided by operating activities: | | | |
| Depreciation and amortization of property, plant and equipment | 79,536 | 81,699 | 77,613 |
| Amortization of intangible assets | 4,797 | 4,874 | 5,228 |
| Gains on sales of investments | — | — | (8,940) |
| Share-based compensation | 3,180 | 3,627 | 3,827 |
| Deferred income taxes | (273) | 1,633 | (3,816) |
| Changes in assets, liabilities, and other: | | | |
| Accounts receivable | (18,553) | (9,625) | 18,807 |
| Inventories | (6,162) | (602) | 2,268 |
| Other current assets | (11,731) | 1,127 | 7,936 |
| Accounts payable, accrued liabilities and other | 18,537 | (7,189) | (36,462) |
| Net cash provided by operating activities | 130,567 | 96,833 | 122,137 |
| Cash flows from investing activities: | | | |
| Purchases of property, plant and equipment | (92,585) | (91,965) | (50,147) |
| Purchases of intangible assets | (218) | (834) | (13) |
| Acquisition of business | — | (5,400) | — |
| Proceeds from sales of investments | — | 167 | 101,853 |
| Other | 2,074 | (34) | 597 |
| Net cash (used in) provided by investing activities | (90,729) | (98,066) | 52,290 |
| Cash flows from financing activities: | | | |
| Purchase of treasury stock | (23,111) | — | — |
| Dividends paid to noncontrolling interests | (8,166) | (8,298) | (11,890) |
| Repayments of long-term debt | (4,639) | (5,428) | (57,609) |
| Contribution from noncontrolling interests | 17,996 | — | — |
| Proceeds from share-based arrangements | 4,634 | 2,830 | 3,463 |
| Return of capital to noncontrolling interests | — | — | (966) |
| Other | (519) | (32) | (20) |
| Net cash used in financing activities | (13,805) | (10,928) | (67,022) |
| Effects of exchange rate changes on cash and cash equivalents | (4,777) | 6,108 | 802 |

| | | | |
|---|---|---|---|
| Net increase (decrease) in cash and cash equivalents | 21,256 | (6,053) | 108,207 |
| Cash and cash equivalents at beginning of year | 308,021 | 314,074 | 205,867 |
| Cash and cash equivalents at end of year | $ 329,277 | $ 308,021 | $ 314,074 |
| Supplemental disclosure of non-cash information: | | | |
| Accrual for property, plant and equipment purchased during year | $ 29,602 | $ 2,767 | $ 7,866 |
| Conversion of debt to common stock | — | — | 7,439 |

See accompanying notes to consolidated financial statements.

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**PHOTRONICS, INC.**
**Notes to Consolidated Financial Statements**
**Years Ended October 31, 2018, October 29, 2017 and October 30, 2016**
*(in thousands, except share amounts)*

**NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

**Business**

Photronics, Inc. and its subsidiaries ( Photronics , the Company , we , our , or us ) is one of the world s leading manufacturers of photomasks, which are high precision photographic quartz plates containing microscopic images of electronic circuits. Photomasks are a key element in the manufacture of semiconductors and flat panel displays ( FPDs ), and are used as masters to transfer circuit patterns onto semiconductor wafers and flat panel display substrates during the fabrication of integrated circuits ( ICs or semiconductors) and a variety of FPDs and, to a lesser extent, other types of electrical and optical components. The Company currently operates principally from nine manufacturing facilities, two of which are located in Europe, three in Taiwan, one in Korea, and three in the United States. We have commenced construction of two manufacturing facilities in China.

**Consolidation**

The accompanying consolidated financial statements include the accounts of Photronics, Inc. and majority-owned subsidiaries that it controls. All intercompany balances and transactions have been eliminated in consolidation.

**Estimates and Assumptions**

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires us to make estimates and assumptions that affect amounts reported in them. Estimates are based on historical experience and on various assumptions that are believed to be reasonable under the circumstances. Our estimates are based on the facts and circumstances available at the time they are made. Actual results we report may differ from such estimates. We review these estimates periodically and reflect any effects of revisions in the period in which they are determined.

**Fiscal Year**

Commencing with our 2018 fiscal year, our fiscal year ends on October 31. In prior years, our fiscal years ended on the Sunday closest to October 31. Prior year results in this Form 10-K have not been restated to reflect yearend dates of October 31.

**Cash and Cash Equivalents**

Cash and cash equivalents include cash and highly liquid investments purchased with an original maturity of 3 months or less. The carrying values of cash equivalents approximate their fair values, due to the short-term maturities of these instruments.

**Accounts Receivable and Allowance for Doubtful Accounts**

We generally record our trade accounts receivable at their billed amounts. All outstanding past due customer invoices are reviewed during and at the end of every reporting period for collectability. When, in the judgment of management, a loss on the collection of a customer invoice is probable, the amount is charged to expense and credited to the

allowance for doubtful accounts. When the amount is determined to be uncollectible, the amount is charged to the allowance for doubtful accounts, and the related receivable is eliminated.

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**Inventories**

Inventories are stated at the lower of cost, determined under the first-in, first-out ( FIFO ) method, or net realizable value. Presented below are the components of inventory at the balance sheet dates:

| | October 31 2018 | October 29 2017 |
|---|---|---|
| Finished goods | $ 668 | $ 664 |
| Work in process | 3,402 | 2,957 |
| Raw materials | 25,110 | 20,082 |
| | $ 29,180 | $ 23,703 |

**Property, Plant and Equipment**

Property, plant and equipment, except as explained below under Impairment of Long-Lived Assets, is stated at cost less accumulated depreciation and amortization. Repairs and maintenance, as well as renewals and replacements of a routine nature, are charged to operations as incurred, while those that improve, or extend the lives of, existing assets are capitalized. Upon sale or other disposition, the cost of the asset and its related accumulated depreciation are removed from the accounts, and any resulting gain or loss is reflected in earnings.

Depreciation and amortization, substantially all of which are included in cost of goods sold, are computed using the straight-line method over the estimated useful lives of the related assets. Buildings and improvements are depreciated over 10 to 39 years, machinery and equipment over 5 to 15 years, and furniture, fixtures and office equipment over 3 to 5 years. Leasehold improvements are amortized over the life of the lease or the estimated useful life of the improvement, whichever is less. We employ judgment and assumptions when we establish estimated useful lives and depreciation periods, as well as when we periodically review property, plant and equipment for any potential impairment in carrying values, whenever events such as a significant industry downturn, plant closures, technological obsolescence, or other change in circumstances indicate that their carrying amounts may not be recoverable.

**Intangible Assets**

Intangible assets consist primarily of a technology license agreement and acquisition-related intangibles. These assets, except as explained below, are stated at fair value as of the date acquired, less accumulated amortization. Amortization is calculated based on the estimated useful lives of the assets, which range from 3 to 15 years, using the straight-line method or another method that more fairly represents the utilization of the assets.

We periodically evaluate the remaining useful lives of our intangible assets to determine whether events or circumstances warrant a revision to the remaining periods of amortization. In the event that the estimate of an intangible asset s remaining useful life has changed, the remaining carrying amount of the intangible asset is amortized prospectively over that revised remaining useful life. If it is determined that an intangible asset has an indefinite useful life, that intangible asset would be subject to impairment testing annually or whenever events or circumstances indicate that its carrying value may not, based on future undiscounted cash flows or market factors, be recoverable; and an impairment loss would be recorded in the period in which the impairment determination is made. The amount of the impairment loss recorded would be based on the fair value of the intangible asset at the measurement date.

**Impairment of Long-Lived Assets**

Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. Determinations of recoverability are based upon our judgment and

estimates of undiscounted future cash flows resulting from the use of the assets and their eventual disposition. Measurement of an impairment loss for long-lived assets that we expect to hold and use is based on the fair value of the assets determined using a market or income approach compared to the carrying value of the asset. The carrying values of assets determined to be impaired are reduced to their estimated fair values.

**Business Combinations**

When acquiring other businesses, or participating in mergers or joint ventures in which we are deemed to be the acquirer, we generally recognize identifiable assets acquired, liabilities assumed and any noncontrolling interests at

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their acquisition date fair values, separately from any goodwill that may be required to be recognized. Goodwill, when recognizable, would be measured as the excess amount of any consideration transferred, which is generally measured at fair value, over the acquisition date fair values of the identifiable assets acquired and liabilities assumed.

Accounting for such transactions requires us to make significant assumptions and estimates and, although we believe any estimates and assumptions we make to be reasonable and appropriate at the time they are made, unanticipated events and circumstances may arise that affect their accuracy, which may cause actual results to differ from those we estimated. When required, we will adjust the values of the assets acquired and liabilities assumed against the acquisition gain or goodwill, as initially recorded, for a period of up to one year after the transaction.

Costs incurred to effect a merger or acquisition, such as legal, accounting, valuation and other third party costs, as well as internal general and administrative costs incurred are charged to expense in the periods incurred. Costs incurred to issue any debt and equity securities are recognized in accordance with other applicable generally accepted accounting principles.

**Investments in Joint Ventures**

The financial results of investments in joint ventures in which we have a controlling financial interest are included in our consolidated financial statements. Investments in joint ventures over which we have the ability to exercise significant influence and that, in general, are at least 20 percent-owned are accounted for under the equity method. An impairment loss would be recognized whenever a decrease in the fair value of such an investment below its carrying amount is determined to be other than temporary. In judging other than temporary, we would consider the length of time and the extent to which the fair value of the investment has been less than the carrying amount of the investment, the near-term and longer-term operating and financial prospects of the investee, and our longer-term intent of retaining our investment in the investee.

**Variable Interest Entities**

We account for the investments we make in certain legal entities in which equity investors do not have 1) sufficient equity at risk for the legal entity to finance its activities without additional subordinated financial support or, 2) as a group, the holders of the equity investment at risk do not have either the power, through voting or similar rights, to direct the activities of the legal entity that most significantly impact the entity s economic performance or, 3) the obligation to absorb the expected losses of the legal entity or the right to receive expected residual returns of the legal entity as variable interest entities , or VIEs .

We consolidate the results of any such entity in which we have determined that we have a controlling financial interest. We would have a controlling financial interest (and thus be considered the primary beneficiary of the entity) in such an entity when we have both the power to direct the activities that most significantly affect the VIE s economic performance and the obligation to absorb the losses of, or right to receive the benefits from, the VIE that could be potentially significant to the VIE. On a quarterly basis, we reassess whether we have a controlling financial interest in any investments we have in these certain legal entities.

We account for investments we make in VIEs in which we have determined that we do not have a controlling financial interest but have a significant influence over, and hold at least a 20 percent ownership interest in, using the equity method. Any such investment not meeting the parameters to be accounted for under the equity method would be accounted for using the cost method, unless the investment had a readily determinable fair value, at which value it would then be reported.

**Income Taxes**

The income tax provision is computed on the basis of the various tax jurisdictions income or loss before income taxes. Deferred income taxes reflect the tax effects of differences between the carrying amounts of assets and liabilities for financial reporting purposes and their amounts used for income tax purposes, as well as the tax effects of net operating losses and tax credit carryforwards. We use judgment and make assumptions to determine if valuation allowances for deferred income tax assets are required, if their realization is not more likely than not, by considering future market growth, operating forecasts, future taxable income, and the mix of earnings among the tax jurisdictions in which we operate. Accordingly, income taxes charged against earnings may have been impacted by changes in the valuation allowances.

We consider income taxes in each of the tax jurisdictions in which we operate in order to determine our effective income tax rate. Our current income tax expense is thus identified, and temporary differences resulting from differing

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treatments of items for tax and financial reporting purposes are assessed. These differences result in deferred tax assets and liabilities, which are included in our consolidated balance sheets.

We account for uncertain tax positions by recording a liability for unrecognized tax benefits resulting from uncertain tax positions taken, or expected to be taken, in our tax returns. We include any applicable interest and penalties related to uncertain tax positions in our income tax provision.

**Treasury Stock**

We record treasury stock purchases under the cost method, recording the entire cost of the acquired stock as treasury stock. Gains and losses on subsequent reissuances would be credited or charged to additional paid-in capital, and we would employ the average cost method (with average cost being determined separately for each share repurchase program), in the event that we subsequently reissue shares.

**Earnings Per Share**

Basic earnings per share ( EPS ) is based on the weighted-average number of common shares outstanding for the period, excluding any dilutive common share equivalents. Diluted EPS reflects the potential dilution that could occur if certain share-based payment awards or financial instruments were exercised, earned or converted.

**Share-Based Compensation**

We recognize share-based compensation expense over the service period that the awards are expected to vest. Share-based compensation expense includes the estimated effects of forfeitures, which are adjusted over the requisite service period to the extent actual forfeitures differ, or are expected to differ, from such estimates. Changes in estimated forfeitures are recognized in the period of change, and will impact the amount of expense to be recognized in future periods. Determining the appropriate option pricing model, calculating the grant date fair value of share-based awards and estimating forfeiture rates requires considerable judgment, including estimations of stock price volatility and the expected term of options granted.

We use the Black-Scholes option pricing model to value employee stock options. We estimate stock price volatility based on daily averages of our common stock s historical volatility over a term approximately equal to the estimated time period the grant will remain outstanding. The expected term of options and forfeiture rate assumptions are derived from historical data.

**Research and Development**

Research and development costs are expensed as incurred and consist primarily of development efforts related to high-end process technologies for advanced sub-wavelength reticle solutions for IC and FPD photomask technologies.

**Foreign Currency Translation**

Our non-US subsidiaries maintain their accounts in their respective local currencies. Assets and liabilities of such subsidiaries are translated to U.S. dollars at year-end exchange rates. Income and expenses are translated at average rates of exchange prevailing during the year. Foreign currency translation adjustments are accumulated and reported in accumulated other comprehensive income, a component of equity. The effects of changes in exchange rates on foreign currency transactions, which are included in interest income and other income (expense) were a net gain/(loss) of $0.4 million, $(5.2) million and $(0.3) million in fiscal years 2018, 2017 and 2016, respectively.

**Noncontrolling Interests**

Substantially all of noncontrolling interests represents the minority shareholders proportionate share in the equity of two of the Company s majority-owned subsidiaries: Photronics DNP Mask Corporation ( PDMC ) in Taiwan, and Photronics DNP Mask Corporation Xiamen ( PDMCX ) in China, of which noncontrolling interests owned 49.99% as of October 31, 2018 and October 29, 2017. In addition, noncontrolling shareholders owned approximately 0.2% and 0.3% of PK Ltd. ( PKL ) in Korea as of October 31, 2018 and October 29, 2017, respectively.

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**Derivative Instruments and Hedging Activities**

We record derivatives in the consolidated balance sheets as assets or liabilities, measured at fair value. We do not engage in derivative instruments for speculative purposes. Gains or losses resulting from changes in the values of derivatives are reflected in earnings, or as accumulated other comprehensive income or loss, a separate component of equity, depending on the use of the derivatives and whether they qualify for hedge accounting. In order to qualify for hedge accounting, among other criteria, a derivative must be a hedge of an interest rate, price, foreign currency exchange rate, or credit risk that is expected to be highly effective at the inception of the hedge, be highly effective in achieving offsetting changes in the fair value or cash flows of the hedged item during the term of the hedge and formally documented at the inception of the hedge. In general, the types of risks we would hedge are those related to the variability of future cash flows caused by movements in foreign currency exchange and interest rates. We would document our risk management strategy and hedge effectiveness at the inception of, and during the term of, each hedge.

**Revenue Recognition**

We recognize revenue when there is persuasive evidence that an arrangement exists, delivery has occurred, the sales price of the transaction is fixed or determinable, and collectability is reasonably assured. Delivery is determined by the shipping terms of the individual revenue transactions. For transactions with FOB destination or similar shipping terms, delivery occurs when our product reaches its destination and is received by the customer. For transactions with FOB shipping point terms, delivery occurs when our product is received by the common carrier. We use judgment when estimating the effect on revenue of discounts and sales incentives, both of which are accrued when the related revenue is recognized. Our revenue is reported net of any sales taxes billed to customers.

**Product Warranty**

We warrant that items sold will conform to customer specifications for a 30-day period. However, our liability generally is limited to the repair, replacement, or refund of the cost of the photomasks at our sole option. We inspect photomasks for conformity to customer specifications prior to shipment. Accordingly, customer claims related to items under warranty have historically been insignificant. Our warranty policy includes accepting returns of products with defects, or products that have not been produced to precise customer specifications.

**NOTE 2 - PROPERTY, PLANT AND EQUIPMENT**

Property, plant and equipment consists of the following:

| | October 31, 2018 | October 29, 2017 |
|---|---|---|
| Land | $ 11,139 | $ 9,959 |
| Buildings and improvements | 124,771 | 125,290 |
| Machinery and equipment | 1,566,163 | 1,547,870 |
| Leasehold improvements | 19,577 | 20,050 |
| Furniture, fixtures and office equipment | 12,415 | 12,989 |
| Construction in progress | 128,649 | 72,045 |
| | 1,862,714 | 1,788,203 |
| Accumulated depreciation and amortization | (1,290,933 ) | (1,253,006 ) |

| | | |
|---|---|---|
| | $ 571,781 | $ 535,197 |

Equipment under capital leases is included in the property, plant and equipment amount, above, as follows:

| | October 31, 2018 | October 29, 2017 |
|---|---|---|
| Machinery and equipment | $ — | $ 34,917 |
| Less accumulated amortization | — | 13,843 |
| | $ — | $ 21,074 |

In January 2017, we acquired a business comprised of manufacturing assets and certain intellectual property that enabled us to expand our manufacturing capability, primarily in large area masks for IC, for approximately

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$5.7 million, including $0.3 million paid one year after the acquisition date. The transaction was accounted for in accordance with ASC 805, Business Combinations , with substantially all of the purchase price being allocated to long-lived assets that are being depreciated over five years.

In January 2017, we entered into a noncash transaction with a customer which resulted in the acquisition of equipment with a fair value of approximately $6.7 million and $9.0 million in fiscal years 2018 and 2017, respectively.

**NOTE 3 - INTANGIBLE ASSETS**

Amortization expense of the Company s finite-lived intangible assets was $4.8 million, $4.9 million and $4.8 million in fiscal years 2018, 2017 and 2016, respectively.

Intangible assets consist of:

| | Gross Amount | Accumulated Amortization | Net Amount |
|---|---|---|---|
| **As of October 31, 2018** | | | |
| Technology license agreement | $ 59,616 | $ (49,349 ) | $ 10,267 |
| Customer relationships | 9,147 | (7,959 ) | 1,188 |
| Software and other | 6,519 | (5,606 ) | 913 |
| | $ 75,282 | $ (62,914 ) | $ 12,368 |
| **As of October 29, 2017** | | | |
| Technology license agreement | $ 59,616 | $ (45,374 ) | $ 14,242 |
| Customer relationships | 9,375 | (7,793 ) | 1,582 |
| Software and other | 8,195 | (6,897 ) | 1,298 |
| | $ 77,186 | $ (60,064 ) | $ 17,122 |

The weighted-average amortization period of intangible assets acquired in fiscal year 2018, which is comprised of software, is three years. The weighted-average amortization period of intangible assets acquired in fiscal year 2017 was 4.5 years, primarily comprised of acquired customer relationships and technology that has an amortization period of five years, and software that has an amortization period of three years.

Intangible asset amortization over the next five years is estimated to be as follows:

| **Fiscal Years:** | |
|---|---|
| 2019 | $ 4,588 |
| 2020 | 4,539 |
| 2021 | 2,706 |
| 2022 | 129 |
| 2023 | 126 |

**NOTE 4 - PDMCX JOINT VENTURE**

In January 2018, Photronics, through its wholly-owned Singapore subsidiary (hereinafter, within this Note we , or Photronics ), and Dai Nippon Printing Co., Ltd., through its wholly owned subsidiary DNP Asia Pacific PTE, Ltd. (hereinafter, within this Note DNP ) entered into a joint venture under which DNP obtained a 49.99% interest in our recently established IC business in Xiamen, China, which includes the facility currently under construction. The joint

venture, known as Photronics DNP Mask Corporation Xiamen (hereinafter, PDMCX ), was established to develop and manufacture photomasks for leading edge and advanced generation semiconductors. We entered into this joint venture to enable us to compete more effectively for the merchant photomask business in China and to benefit from the additional resources and investment that DNP will provide to enable us to offer advanced process technology to our customers. No gain or loss was recorded upon the formation of the joint venture.

As of October 31, 2018, Photronics and DNP have each contributed cash of approximately $18.0 million to the joint venture. We estimate that, over the next several years and per the PDMCX joint venture operating agreement ( the Agreement ), DNP and Photronics will each contribute an additional $62 million of cash and additional amounts to be obtained through local borrowings.

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Under the Agreement, DNP is afforded, under certain circumstances, the right to put its interest in PDMCX to Photronics. These circumstances include disputes regarding the strategic direction of PDMCX that may arise after the initial two year term of the Agreement and cannot be resolved between the two parties. In addition, both Photronics and DNP have the option to purchase, or put, their interest from, or to, the other party, should their ownership interest fall below 20% for a period of more than six consecutive months. Under all such circumstances, the sales of ownership interests would be at the exiting party s ownership percentage of the joint venture s net book value, with closing to take place within three business days of obtaining required approvals and clearance.

We recorded net losses from the operations of the PDMCX joint venture of approximately $0.7 million in fiscal 2018. General creditors of PDMCX do not have recourse to the assets of Photronics, Inc., and the maximum exposure to loss for Photronics from PDMCX at October 31, 2018, was $15.9 million.

As required by the guidance in Topic 810 - Consolidation of the Accounting Codification Standards, we evaluated our involvement in PDMCX for the purpose of determining whether we should consolidate its results in our financial statements. The initial step of our evaluation was to determine whether PDMCX was a variable interest entity ( VIE ). Due to its lack of sufficient equity at risk to finance its activities without additional subordinated financial support, we determined that it is a VIE. Having made this determination, we then assessed whether we were the primary beneficiary of the VIE, and concluded that we were the primary beneficiary during the current reporting period; thus, as required, the PDMCX financial results should be consolidated with Photronics, Inc. Our conclusion was based on the fact that we held a controlling financial interest in PDMCX, which resulted from our having the power to direct the activities that most significantly impacted its economic performance, the obligation to absorb losses, and the right to receive benefits that could potentially be significant to PDMCX. Our conclusion that we had the power to direct the activities that most significantly affected the economic performance of PDMCX during the current period was based on our right to appoint the majority of its board of directors, which has, among others, the powers to manage the business (through its rights to appoint and evaluate PDMCX s management), incur indebtedness, enter into agreements and commitments, and acquire and dispose of PDMCX s assets. In addition, as a result of the 50.01% variable interest we held during the current period, we had the obligation to absorb losses and the right to receive benefits that could potentially be significant to PDMCX.

The carrying amounts of PDMCX assets and liabilities included in our condensed consolidated balance sheet as of October 31, 2018, are presented in the following table, together with the maximum exposure to loss of Photronics due to its interests in the net assets of this joint venture.

| **assification** | **Carrying Amount** | **Photronics Interest** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| rrent assets | $ 9,625 | $ 4,813 | | | | | | | | |
| n-current ets | 43,415 | 21,708 | | | | | | | | |
| tal assets | 53,040 | 26,521 | | | | | | | | |
| rrent liabilities | 21,205 | 10,603 | | | | | | | | |
| n-current bilities | 20 | 10 | | | | | | | | |
| tal liabilities | 21,225 | Other securities | - | - | - | 169 | (79 ) | 1 | 169 | (79 ) |
| tal securities h unrealized ses | $ - | | $ - | - | $ 169 | $ (79 ) | 1 | $ 169 | $ (79 ) | 1 |

| cember 31, 11 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| S. Treasury | $ | - | $ - | - | $ - | $ - | - | $ - | $ - | - |
| deral agency | | 34,996 | (16 ) | 3 | - | - | - | 34,996 | (16 ) | 3 |
| ite & inicipal | | 957 | (10 ) | 3 | 377 | (1 ) | 2 | 1,334 | (11 ) | 5 |
| ortgage-backed | | - | - | - | - | - | - | - | - | - |
| llateralized ortgage igations | | 27,368 | (51 ) | 3 | - | - | - | 27,368 | (51 ) | 3 |
| her securities | | 645 | (76 ) | 2 | - | - | - | 645 | (76 ) | 2 |
| tal securities th unrealized ses | $ | 63,966 | $ (153 ) | 11 | $ 377 | $ (1 ) | 2 | $ 64,343 | $ (154 ) | 13 |

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Declines in the fair value of held-to-maturity and available-for-sale securities below their cost that are deemed to be other than temporary are reflected in earnings as realized losses or in other comprehensive income, depending on whether the Company intends to sell the security or more likely than not will be required to sell the security before recovery of its amortized cost basis less any current-period credit loss. If the Company intends to sell the security or more likely than not will be required to sell the security before recovery of its amortized cost basis less any current-period credit loss, the other-than-temporary impairment shall be recognized in earnings equal to the entire difference between the investment's amortized cost basis and its fair value at the balance sheet date. If the Company does not intend to sell the security and it is not more likely than not that the entity will be required to sell the security before recovery of its amortized cost basis less any current-period credit loss, the other-than-temporary impairment shall be separated into (a) the amount representing the credit loss and (b) the amount related to all other factors. The amount of the total other-than-temporary impairment related to the credit loss shall be recognized in earnings. The amount of the total other-than-temporary impairment related to other factors shall be recognized in other comprehensive income, net of applicable taxes.

In estimating other-than-temporary impairment losses, management considers, among other things, (i) the length of time and the extent to which the fair value has been less than cost, (ii) the financial condition and near-term prospects of the issuer, and (iii) the historical and implied volatility of the fair value of the security.

Management has the intent to hold the securities classified as held to maturity until they mature, at which time it is believed the Company will receive full value for the securities. Furthermore, as of September 30, 2012, management also had the intent to hold, and will not be required to sell, the securities classified as available for sale for a period of time sufficient for a recovery of cost, which may be until maturity. The unrealized losses are due to increases in market interest rates over the yields available at the time the underlying securities were purchased. When necessary, the Company has performed a discounted cash flow analysis to determine whether or not it will receive the contractual principal and interest on certain securities. The fair value is expected to recover as the bonds approach their maturity date or repricing date or if market yields for such investments decline. As of September 30, 2012, management believes the impairments detailed in the table above are temporary and no other-than-temporary impairment losses have been realized in the Company's consolidated statements of income.

The following tables set forth information with regard to contractual maturities of debt securities at September 30, 2012:

| (In thousands) | Amortized cost | Estimated fair value |
|---|---|---|
| Debt securities classified as available for sale | | |
| Within one year | $ 26,616 | $ 26,807 |
| From one to five years | 262,685 | 265,541 |
| From five to ten years | 273,272 | 282,328 |
| After ten years | 587,919 | 605,131 |
| | $ 1,150,492 | $ 1,179,807 |
| Debt securities classified as held to maturity | | |
| Within one year | $ 24,501 | $ 24,577 |
| From one to five years | 27,735 | 28,476 |
| From five to ten years | 6,380 | 6,459 |
| After ten years | 2,686 | 2,889 |
| | $ 61,302 | $ 62,401 |

Maturities of mortgage-backed, collateralized mortgage obligations and asset-backed securities are stated based on their estimated average lives. Actual maturities may differ from estimated average lives or contractual maturities

because, in certain cases, borrowers have the right to call or prepay obligations with or without call or prepayment penalties.



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Except for U.S. Government securities, there were no holdings, when taken in the aggregate, of any single issuer that exceeded 10% of consolidated stockholders' equity at September 30, 2012.

NBT BANCORP INC. AND SUBSIDIARIES
Item 2 -- MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The purpose of this discussion and analysis is to provide a concise description of the financial condition and results of operations of NBT Bancorp Inc. and its wholly owned consolidated subsidiaries, NBT Bank, N.A. (the "Bank"), NBT Financial Services, Inc. ("NBT Financial"), and NBT Holdings, Inc. ("NBT Holdings") (collectively referred to herein as the "Company"). This discussion will focus on results of operations, financial condition, capital resources and asset/liability management. Reference should be made to the Company's consolidated financial statements and footnotes thereto included in this Form 10-Q as well as to the Company's Annual Report on Form 10-K for the year ended December 31, 2011 for an understanding of the following discussion and analysis. Operating results for the three and nine month periods ended September 30, 2012 are not necessarily indicative of the results of the full year ending December 31, 2012 or any future period.

Forward-looking Statements

Certain statements in this filing and future filings by the Company with the Securities and Exchange Commission, in the Company's press releases or other public or shareholder communications, contain forward-looking statements, as defined in the Private Securities Litigation Reform Act. These statements may be identified by the use of phrases such as "anticipate," "believe," "expect," "forecasts," "projects," "could," or other similar terms. There are a number of factors, i of which are beyond the Company's control, that could cause actual results to differ materially from those contemplated by the forward-looking statements. Factors that may cause actual results to differ materially from those contemplated by such forward-looking statements include, among others, the following: (1) competitive pressures among depository and other financial institutions may increase significantly; (2) revenues may be lower than expected; (3) changes in the interest rate environment may affect interest margins; (4) general economic conditions, either nationally or regionally, may be less favorable than expected, resulting in, among other things, a deterioration in credit quality and/or a reduced demand for credit; (5) legislative or regulatory changes, including changes in accounting standards or tax laws, may adversely affect the businesses in which the Company is engaged; (6) competitors may have greater financial resources and develop products that enable such competitors to compete more successfully than the Company; (7) adverse changes may occur in the securities markets or with respect to inflation; (8) acts of war or terrorism; (9) the costs and effects of litigation and of unexpected or adverse outcomes in such litigation; (10) internal control failures; (11) the successful completion and integration of acquisitions; and (12) the Company's success in managing the risks involved in the foregoing.

The Company cautions readers not to place undue reliance on any forward-looking statements, which speak only as of the date made, and advises readers that various factors, including those described above and other factors discussed in the Company's annual and quarterly reports previously filed with the Securities and Exchange Commission, could affect the Company's financial performance and could cause the Company's actual results or circumstances for future periods to differ materially from those anticipated or projected.

Unless required by law, the Company does not undertake, and specifically disclaims any obligations to publicly release any revisions to any forward-looking statements to reflect the occurrence of anticipated or unanticipated events or circumstances after the date of such statements.

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Critical Accounting Policies

Management of the Company considers the accounting policy relating to the allowance for loan losses to be a critical accounting policy given the judgment in evaluating the level of the allowance required to cover credit losses inherent in the loan portfolio and the material effect that such judgments can have on the results of operations. While management's current evaluation of the allowance for loan losses indicates that the allowance is adequate, under different conditions or assumptions, the allowance may need to be increased or decreased. For example, if historical loan loss experience significantly changed or if current economic conditions deteriorated or improved, particularly in the Company's primary market area, provisions for loan losses may be increased or decreased to adjust the allowance. In addition, the assumptions and estimates relating to loss experience, ability to collect and economic conditions used in the internal reviews of the Company's nonperforming loans and potential problem loans has a significant impact on the overall analysis of the adequacy of the allowance for loan losses. While management has concluded that the current evaluation of collateral values is reasonable under the circumstances, if collateral valuations were significantly changed, the Company's allowance for loan policy may require increases or decreases in the provision for loan losses.

Management of the Company considers the accounting policy relating to pension accounting to be a critical accounting policy. Management is required to make various assumptions in valuing its pension assets and liabilities. These assumptions include the expected rate of return on plan assets, the discount rate, and the rate of increase in future compensation levels. Changes to these assumptions could impact earnings in future periods. The Company takes into account the plan asset mix, funding obligations, and expert opinions in determining the various rates used to estimate pension expense. The Company also considers relevant indices and market interest rates in setting the appropriate discount rate. In addition, the Company reviews expected inflationary and merit increases to compensation in determining the rate of increase in future compensation levels.

Management of the Company considers the accounting policy relating to other-than-temporary impairment to be a critical accounting policy.  Management systematically evaluates certain assets for other-than-temporary declines in fair value, primarily investment securities.  Management considers historical values and current market conditions as a part of the assessment.  The amount of the total other-than-temporary impairment related to the credit loss is recognized in earnings and the amount of the total other-than-temporary impairment related to other factors is recognized in other comprehensive income, net of applicable taxes.

Pending Acquisition

On October 7, 2012, the Company and Alliance Financial Corporation ("Alliance") entered into a definitive agreement and plan of merger pursuant to which Alliance will merge with and into NBT Bancorp, with NBT Bancorp continuing as the surviving corporation.  The agreement also provides for Alliance Bank, N.A., a wholly-owned subsidiary of Alliance, to be merged with and into the Bank following completion of the merger.  Alliance, with assets of approximately $1.4 billion at June 30, 2012, is headquartered in Syracuse, N.Y.  Its primary subsidiary, Alliance Bank, N.A., is a nationally-chartered community bank with 28 banking locations in central New York.  The transaction is valued at approximately $233.4 million, to be paid in the form of shares of the Company's common stock.  Subject to the required approvals of NBT Bancorp and Alliance shareholders, requisite regulatory approvals and other customary closing conditions, the merger is expected to be completed in the early 2013.

Overview

Significant factors management reviews to evaluate the Company's operating results and financial condition include, but are not limited to:  net income and earnings per share, return on assets and equity, net interest margin, noninterest income, operating expenses, asset quality indicators, loan and deposit growth, capital management, liquidity and interest rate sensitivity, enhancements to customer products and services, technology advancements, market share and

peer comparisons. The following information should be considered in connection with the Company's results for the first nine months of 2012:

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- Net income for the nine months ended September 30, 2012 was $41.4 million, down $2.7 million, or 6.2%, from the nine months ended September 30, 2011. Net income per diluted share for the nine months ended September 30, 2012 was $1.23 per share, down from $1.29 for the nine months ended September 30, 2011.

- Net interest margin (on a fully taxable equivalent basis ("FTE")) was 3.87% for the nine months ended September 30, 2012 as compared to 4.13% for the same period in 2011.

- Capital ratios at September 30, 2012 declined slightly when compared to December 31, 2011:

  - Tier 1 Leverage ratio decreased from 8.74% to 8.51%

  - Tier 1 Capital ratio decreased from 11.56% to 10.82%

  - Total Risk-Based Capital Ratio decreased from 12.81% to 12.07%

- Past due loans as a percentage of total loans showed significant improvement to 0.65% at September 30, 2012, as compared with 0.89% at December 31, 2011.

- Net charge-offs improved to 0.47% of average loans for the first nine months of 2012, down 9 bps from 0.56% for the year ended December 31, 2011.

- The provision for loan losses was $13.3 million for the nine months ended September 30, 2012, down from $15.2 million for the same period in 2011.

- Annualized return on average assets was 0.95% for the nine months ended September 30, 2012, down from 1.09% for the nine months ended September 30, 2011.

- Annualized return on average equity was 9.97% for the nine months ended September 30, 2012, down from 10.95% for the nine months ended September 30, 2011.

- Continued strategic expansion in the first nine months of 2012:

  - In New York: Completed the acquisition of three branches in Greene County and customer balances of a branch in Schoharie County on January 21, 2012.

  - In Massachusetts: Opened a fifth Massachusetts branch in Lenox on February 7, 2012.

  - Successfully completed the acquisition of Hampshire First Bank on June 8, 2012.

  - Announced the planned acquisition of Alliance Financial Corporation, a $1.4 billion financial holding company headquartered in Syracuse, N.Y., expected to close in early 2013.

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The following table depicts several annualized measurements of performance using U.S. GAAP net income that management reviews in analyzing the Company's performance. Returns on average assets and average equity measure how effectively an entity utilizes its total resources and capital, respectively. Net interest margin, which is the net federal taxable equivalent (FTE) interest income divided by average earning assets, is a measure of an entity's ability to utilize its earning assets in relation to the cost of funding. Interest income for tax-exempt securities and loans is adjusted to a taxable equivalent basis using the statutory Federal income tax rate of 35%.

| 2012 | First Quarter | | Second Quarter | | Third Quarter | | Nine Months | |
|---|---|---|---|---|---|---|---|---|
| Return on average assets (ROAA) | 0.97 | % | 0.92 | % | 0.97 | % | 0.95 | % |
| Return on average equity (ROAE) | 10.12 | % | 9.66 | % | 10.13 | % | 9.97 | % |
| Net Interest Margin | 3.90 | % | 3.82 | % | 3.90 | % | 3.87 | % |
| | | | | | | | | |
| 2011 | | | | | | | | |
| Return on average assets (ROAA) | 1.08 | % | 1.09 | % | 1.12 | % | 1.09 | % |
| Return on average equity (ROAE) | 10.78 | % | 10.86 | % | 11.21 | % | 10.95 | % |
| Net Interest Margin | 4.11 | % | 4.13 | % | 4.14 | % | 4.13 | % |

Net Interest Income

Net interest income is the difference between interest income on earning assets, primarily loans and securities, and interest expense on interest bearing liabilities, primarily deposits and borrowings. Net interest income is affected by the interest rate spread, the difference between the yield on earning assets and cost of interest bearing liabilities, as well as the volumes of such assets and liabilities. Net interest income is one of the key determining factors in a financial institution's performance as it is the principal source of earnings.

FTE net interest income increased $2.1 million during the three months ended September 30, 2012, compared to the same period of 2011. The Company experienced a decrease in the yield on interest earning assets of 37 bp to 4.53% for the three months ended September 30, 2012 from 4.90% for the same period in 2011. This decrease was partially offset by a decrease of 16 bp on the rate paid on interest bearing liabilities for the three months ended September 30, 2012 as compared to the same period in 2011. The interest rate spread decreased to 3.70% during the three months ended September 30, 2012 compared to 3.91% for the same period in 2011. The net interest margin decreased by 24 bp to 3.90% for the three months ended September 30, 2012, compared with 4.14% for the same period in 2011.

For the three months ended September 30, 2012, total interest income increased $1.5 million, or 2.5%, from the same period in 2011 as a result of the increase in average earning assets, attributed to aforementioned acquisition activity and strong organic loan growth. Average interest earning assets increased approximately $533.8 million, or 10.8%, for the three months ended September 30, 2012 as compared to the same period in 2011. The growth in average earning assets was partially offset by a decrease in the yield earned on earning assets. The yield on securities available for sale decreased 56 bp to 2.39% for the three months ended September 30, 2012 from 2.95% for the three months ended September 30, 2011. This decrease was due to the decreasing rate environment from September 30, 2011 to September 30, 2012 resulting in reinvestment of cash flows from maturing securities and cash received from branch acquisitions in 2011 and the first quarter of 2012 into lower yielding securities. In addition, the yield on loans decreased 39 bp to 5.12% for the three months ended September 30, 2012 from 5.51% for the three months ended September 30, 2011.

For the three months ended September 30, 2012, total interest expense decreased $0.7 million, or 7.9%, from the three months ended September 30, 2011. This decrease was due primarily to a decrease in the rate paid on average interest bearing liabilities from 0.99% for the three months ended September 30, 2011 to 0.83% for the three months ended September 30, 2012. The rate paid on average interest bearing deposits decreased 16 bp from 0.67% for the three months ended September 30, 2011 to 0.51% for the same period in 2012. The rate paid on average time deposits decreased from 1.75% for the three months ended September 30, 2011 to 1.35% for the three months ended September 30, 2012. The rate paid on average money market deposit accounts decreased from 0.31% for the three months ended September 30, 2011 to 0.18% for the three months ended September 30, 2012. Going forward, additional rate reductions on deposits could be more difficult as deposit rates are at or near their floors.

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Average interest bearing liabilities increased approximately $378.0 million, or 10.0%, for the three months ended September 30, 2012 as compared to the same period in 2011, which partially offset the decrease in total interest expense attributed to the decrease in the rates on interest bearing liabilities. The primary driver of this offset was an increase in average time deposits and savings deposits due to the aforementioned acquisition as well as organic deposit growth for the three months ended September 30, 2012 as compared with the three months ended September 30, 2011.

FTE net interest income increased $1.5 million during the nine months ended September 30, 2012, compared to the same period of 2011. The Company experienced a decrease in the yield on interest earning assets of 40 bp to 4.54% for the nine months ended September 30, 2012 from 4.94% for the same period in 2011. This decrease was partially offset by a decrease of 17 bp on the rate paid on interest bearing liabilities for the nine months ended September 30, 2012 as compared to the same period in 2011. The interest rate spread decreased to 3.67% during the nine months ended September 30, 2012 compared to 3.89% for the same period in 2011. The net interest margin decreased by 26 bp to 3.87% for the nine months ended September 30, 2012, compared with 4.13% for the same period in 2011.

For the nine months ended September 30, 2012, total interest income decreased $1.6 million, or 0.9%, from the same period in 2011 as a result of the decrease in the yield earned on earning assets. The yield on securities available for sale decreased 55 bp to 2.51% for the nine months ended September 30, 2012 from 3.06% for the nine months ended September 30, 2011. This decrease was due to the decreasing rate environment from September 30, 2011 to September 30, 2012 resulting in reinvestment of cash flows from maturing securities and cash received from branch acquisitions in 2011 and the first quarter of 2012 into lower yielding securities. In addition, the yield on loans decreased 42 bp to 5.21% for the nine months ended September 30, 2012 from 5.63% for the nine months ended September 30, 2011. Average interest earning assets increased approximately $371.8 million, or 7.5%, for the nine months ended September 30, 2012 as compared to the same period in 2011, which partially offset the decrease in total interest income attributed to the decrease in the yields on earning assets. This increase in average earning assets was attributed to aforementioned acquisition activity, as well as strong organic loan growth.

For the nine months ended September 30, 2012, total interest expense decreased $3.5 million, or 11.6%, from the nine months ended September 30, 2011. This decrease was due primarily to a decrease in the rate paid on average interest bearing liabilities from 1.05% for the nine months ended September 30, 2011 to 0.88% for the nine months ended September 30, 2012. The rate paid on average interest bearing deposits decreased 17 bp from 0.73% for the nine months ended September 30, 2011 to 0.56% for the same period in 2012. The rate paid on average time deposits decreased from 1.83% for the nine months ended September 30, 2011 to 1.50% for the nine months ended September 30, 2012. The rate paid on average money market deposit accounts decreased from 0.37% for the nine months ended September 30, 2011 to 0.20% for the nine months ended September 30, 2012. Going forward, additional rate reductions on deposits could be more difficult as deposit rates are at or near their floors.

Average interest bearing liabilities increased approximately $232.5 million, or 6.0%, for the nine months ended September 30, 2012 as compared to the same period in 2011, which partially offset the decrease in total interest expense attributed to the decrease in the rates on interest bearing liabilities. The primary driver of this offset was an increase in average time deposits and savings deposits for the nine months ended September 30, 2012 as compared with the nine months ended September 30, 2011.

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Average Balances and Net Interest Income

The following tables include the condensed consolidated average balance sheet, an analysis of interest income/expense and average yield/rate for each major category of earning assets and interest bearing liabilities on a taxable equivalent basis. Interest income for tax-exempt securities and loans has been adjusted to a taxable-equivalent basis using the statutory Federal income tax rate of 35%.

| Three Months ended September 30, | 2012 | | | | 2011 | | | |
|---|---|---|---|---|---|---|---|---|
| (dollars in thousands) | Average Balance | Interest | Yield/ Rates | | Average Balance | Interest | Yield/ Rates | |
| ASSETS | | | | | | | | |
| Short-term interest bearing accounts | $10,392 | $11 | 0.43 | % | $25,088 | $11 | 0.17 | % |
| Securities available for sale (1)(excluding unrealized gains or losses) | 1,168,326 | 7,023 | 2.39 | % | 1,120,083 | 8,317 | 2.95 | % |
| Securities held to maturity (1) | 62,746 | 861 | 5.46 | % | 74,482 | 1,026 | 5.46 | % |
| Investment in FRB and FHLB Banks | 28,706 | 337 | 4.67 | % | 27,022 | 329 | 4.84 | % |
| Loans and leases (2) | 4,197,046 | 54,046 | 5.12 | % | 3,686,693 | 51,227 | 5.51 | % |
| Total interest earning assets | $5,467,216 | $62,278 | 4.53 | % | $4,933,368 | $60,910 | 4.90 | % |
| Other assets | 504,194 | | | | 442,275 | | | |
| Total assets | $5,971,410 | | | | $5,375,643 | | | |
| | | | | | | | | |
| LIABILITIES AND STOCKHOLDERS' EQUITY | | | | | | | | |
| Money market deposit accounts | $1,111,624 | 495 | 0.18 | % | $1,036,572 | $811 | 0.31 | % |
| NOW deposit accounts | 686,768 | 377 | 0.22 | % | 631,284 | 483 | 0.30 | % |
| Savings deposits | 706,927 | 149 | 0.08 | % | 615,168 | 170 | 0.11 | % |
| Time deposits | 1,035,868 | 3,523 | 1.35 | % | 882,896 | 3,888 | 1.75 | % |
| Total interest bearing deposits | $3,541,187 | $4,544 | 0.51 | % | $3,165,920 | $5,352 | 0.67 | % |
| Short-term borrowings | 178,277 | 60 | 0.13 | % | 172,370 | 56 | 0.13 | % |
| Trust preferred debentures | 75,422 | 436 | 2.30 | % | 75,422 | 394 | 2.07 | % |
| Long-term debt | 367,146 | 3,640 | 3.94 | % | 370,349 | 3,621 | 3.88 | % |
| Total interest bearing liabilities | $4,162,032 | $8,680 | 0.83 | % | $3,784,061 | $9,423 | 0.99 | % |
| Demand deposits | 1,173,638 | | | | 983,318 | | | |
| Other liabilities | 64,860 | | | | 69,860 | | | |
| Stockholders' equity | 570,880 | | | | 538,404 | | | |
| Total liabilities and stockholders' equity | $5,971,410 | | | | $5,375,643 | | | |
| Net interest income (FTE) | | 53,598 | | | | 51,487 | | |
| Interest rate spread | | | 3.70 | % | | | 3.91 | % |
| Net interest margin | | | 3.90 | % | | | 4.14 | % |
| Taxable equivalent adjustment | | 991 | | | | 1,126 | | |
| Net interest income | | $52,607 | | | | $50,361 | | |

(1)Securities are shown at average amortized cost

(2)For purposes of these computations, nonaccrual loans are included in the average loan balances outstanding

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| Nine Months ended September 30, | | | | | | |
|---|---|---|---|---|---|---|
| | | 2012 | | | 2011 | |
| (dollars in thousands) | Average Balance | Interest | Yield/ Rates | Average Balance | Interest | Yield/ Rates |
| ASSETS | | | | | | |
| Short-term interest bearing accounts | $ 64,040 | $ 131 | 0.27 % | $ 97,973 | $ 191 | 0.26 % |
| Securities available for sale (1)(excluding unrealized gains or losses) | 1,196,389 | 22,483 | 2.51 % | 1,105,777 | 25,330 | 3.06 % |
| Securities held to maturity (1) | 67,237 | 2,757 | 5.48 % | 84,660 | 3,353 | 5.29 % |
| Investment in FRB and FHLB Banks | 27,874 | 1,022 | 4.90 % | 27,112 | 1,084 | 5.34 % |
| Loans and leases (2) | 3,982,486 | 155,230 | 5.21 % | 3,650,667 | 153,678 | 5.63 % |
| Total interest earning assets | $ 5,338,026 | $ 181,623 | 4.54 % | $ 4,966,189 | $ 183,636 | 4.94 % |
| Other assets | 476,575 | | | 428,959 | | |
| Total assets | $ 5,814,601 | | | $ 5,395,148 | | |
| | | | | | | |
| LIABILITIES AND STOCKHOLDERS' EQUITY | | | | | | |
| Money market deposit accounts | $ 1,105,616 | 1,646 | 0.20 % | $ 1,070,971 | $ 2,937 | 0.37 % |
| NOW deposit accounts | 695,502 | 1,387 | 0.27 % | 667,012 | 1,745 | 0.35 % |
| Savings deposits | 675,346 | 391 | 0.08 % | 599,173 | 517 | 0.12 % |
| Time deposits | 988,596 | 11,097 | 1.50 % | 911,161 | 12,491 | 1.83 % |
| Total interest bearing deposits | $ 3,465,060 | $ 14,521 | 0.56 % | $ 3,248,317 | $ 17,690 | 0.73 % |
| Short-term borrowings | 170,903 | 149 | 0.12 % | 153,857 | 166 | 0.14 % |
| Trust preferred debentures | 75,422 | 1,319 | 2.34 % | 75,422 | 1,683 | 2.98 % |
| Long-term debt | 368,592 | 10,801 | 3.91 % | 369,930 | 10,783 | 3.90 % |
| Total interest bearing liabilities | $ 4,079,977 | $ 26,790 | 0.88 % | $ 3,847,526 | $ 30,322 | 1.05 % |
| Demand deposits | 1,116,210 | | | 940,332 | | |
| Other liabilities | 63,232 | | | 67,968 | | |
| Stockholders' equity | 555,182 | | | 539,322 | | |
| Total liabilities and stockholders' equity | $ 5,814,601 | | | $ 5,395,148 | | |
| Net interest income (FTE) | | 154,833 | | | 153,314 | |
| Interest rate spread | | | 3.67 % | | | 3.89 % |
| Net interest margin | | | 3.87 % | | | 4.13 % |
| Taxable equivalent adjustment | | 3,083 | | | 3,537 | |
| Net interest income | | $ 151,750 | | | $ 149,777 | |

(1)Securities are shown at average amortized cost

(2)For purposes of these computations, nonaccrual loans are included in the average loan balances outstanding

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The following table presents changes in interest income and interest expense attributable to changes in volume (change in average balance multiplied by prior year rate), changes in rate (change in rate multiplied by prior year volume), and the net change in net interest income. The net change attributable to the combined impact of volume and rate has been allocated to each in proportion to the absolute dollar amounts of change.

Analysis of Changes in Taxable Equivalent Net Interest Income

Three months ended September 30,

| | Increase (Decrease) 2012 over 2011 | | |
|---|---|---|---|
| (in thousands) | Volume | Rate | Total |
| Short-term interest bearing accounts | $ (36) | $ 36 | $ - |
| Securities available for sale | 2,072 | (3,366) | (1,294) |
| Securities held to maturity | (164) | (1) | (165) |
| Investment in FRB and FHLB Banks | 62 | (54) | 8 |
| Loans and leases | 20,892 | (18,073) | 2,819 |
| Total interest income | 22,826 | (21,458) | 1,368 |
| | | | |
| Money market deposit accounts | 353 | (669) | (316) |
| NOW deposit accounts | 231 | (337) | (106) |
| Savings deposits | 115 | (136) | (21) |
| Time deposits | 2,865 | (3,230) | (365) |
| Short-term borrowings | 2 | 2 | 4 |
| Trust preferred debentures | - | 42 | 42 |
| Long-term debt | (158) | 177 | 19 |
| Total interest expense | 3,408 | (4,151) | (743) |
| | | | |
| Change in FTE net interest income | $ 19,418 | $ (17,307) | $ 2,111 |

Nine months ended September 30,

| | Increase (Decrease) 2012 over 2011 | | |
|---|---|---|---|
| (in thousands) | Volume | Rate | Total |
| Short-term interest bearing accounts | $ (74) | $ 14 | $ (60) |
| Securities available for sale | 2,927 | (5,774) | (2,847) |
| Securities held to maturity | (775) | 179 | (596) |
| Investment in FRB and FHLB Banks | 45 | (107) | (62) |
| Loans and leases | 17,726 | (16,174) | 1,552 |
| Total interest income | 19,849 | (21,862) | (2,013) |
| | | | |
| Money market deposit accounts | 152 | (1,443) | (1,291) |
| NOW deposit accounts | 115 | (473) | (358) |
| Savings deposits | 92 | (218) | (126) |
| Time deposits | 1,491 | (2,885) | (1,394) |
| Short-term borrowings | 25 | (42) | (17) |
| Trust preferred debentures | - | (364) | (364) |
| Long-term debt | (49) | 67 | 18 |

| | | | |
|---|---|---|---|
| Total interest expense | 1,826 | (5,358 ) | (3,532 ) |
| Change in FTE net interest income | $ 18,023 | $ (16,504 ) | $ 1,519 |

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Noninterest Income

Noninterest income is a significant source of revenue for the Company and an important factor in the Company's results of operations. The following table sets forth information by category of noninterest income for the periods indicated:

| | Three months ended September 30, | | Nine months ended September 30, | |
|---|---|---|---|---|
| | 2012 | 2011 | 2012 | 2011 |
| (in thousands) | | | | |
| Insurance and other financial services revenue | $ 5,591 | $ 5,127 | $ 17,024 | $ 15,925 |
| Service charges on deposit accounts | 4,626 | 5,532 | 13,538 | 16,059 |
| ATM and debit card fees | 3,378 | 3,135 | 9,403 | 8,731 |
| Retirement plan administration fees | 2,718 | 2,295 | 7,462 | 6,734 |
| Trust | 2,242 | 2,090 | 6,683 | 6,384 |
| Bank owned life insurance | 639 | 674 | 2,228 | 2,369 |
| Net securities gains | 26 | 12 | 578 | 98 |
| Other | 2,407 | 1,329 | 8,449 | 3,881 |
| Total noninterest income | $ 21,627 | $ 20,194 | $ 65,365 | $ 60,181 |

Noninterest income for the three months ended September 30, 2012 was $21.6 million, up 7.1% or $1.4 million, compared with $20.2 million for the same period in 2011. Insurance and other financial services revenue increased approximately $0.5 million for the three months ended September 30, 2012, compared to the three months ended September 30, 2011. This increase was due primarily to organic growth in commercial product lines. Retirement plan administration fees increased approximately $0.4 million for the three months ended September 30, 2012, compared to the three months ended September 30, 2011, due primarily to an increase in customer base. Other noninterest income increased approximately $1.1 million for the three months ended September 30, 2012 as compared to the three months ended September 30, 2011. This increase was due primarily to an increase in mortgage banking activity during the three months ended September 30, 2012 as compared with the three months ended September 30, 2011. The Company sold approximately $6.8 million residential mortgages during the three months ended September 30, 2012, as compared to no sales during the same period in 2011. These increases were partially offset by a decrease in service charges on deposit accounts of approximately $0.9 million, or 16.4%, for the three months ended September 30, 2012, compared with the same period in 2011 primarily due to a decrease in overdraft fee income.

Noninterest income for the nine months ended September 30, 2012 was $65.4 million, up 8.6% or $5.2 million, compared with $60.2 million for the same period in 2011. Insurance and other financial services revenue increased approximately $1.1 million for the nine months ended September 30, 2012, compared to the nine months ended September 30, 2011. This increase was due primarily to the acquisition of an insurance agency during the second quarter of 2011 as well as organic growth in commercial product lines. ATM and debit card fees increased approximately $0.7 million for the nine months ended September 30, 2012, compared to the nine months ended September 30, 2011, due primarily to an increase in card usage and customer base. Retirement plan administration fees increased approximately $0.7 million for the nine months ended September 30, 2012, compared to the nine months ended September 30, 2011, due primarily to an increase in customer base. Other noninterest income increased approximately $4.6 million for the nine months ended September 30, 2012 as compared to September 30, 2011. This increase was due in part to a $1.1 million payoff gain on a purchased commercial real estate loan, as well as a prepayment penalty fee collected of $0.8 million during the nine months ended September 30, 2012 related to a previously disclosed loss of a retirement plan client. In addition, mortgage banking revenue increased approximately $2.0 million for the nine months ended September 30, 2012 as compared to the same period in 2011 as the Company sold certain residential mortgages as market conditions warranted. The Company sold approximately $39.3 million

residential mortgages during the first nine months of 2012, as compared to no sales during the first nine months of 2011. The Company also realized net securities gains of approximately $0.6 million during the nine months ended September 30, 2012, as compared to $0.1 million for the same period in 2011. These increases were partially offset by a decrease in service charges on deposit accounts of approximately $2.5 million, or 15.7%, for the nine months ended September 30, 2012, compared with the same period in 2011 primarily due to a decrease in overdraft fee income.



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Noninterest Expense

Noninterest expenses are also an important factor in the Company's results of operations. The following table sets forth the major components of noninterest expense for the periods indicated:

| | Three months ended September 30, | | Nine months ended September 30, | |
|---|---|---|---|---|
| | 2012 | 2011 | 2012 | 2011 |
| (in thousands) | | | | |
| Salaries and employee benefits | $ 26,641 | $ 25,068 | $ 78,358 | $ 74,107 |
| Occupancy | 4,437 | 3,887 | 13,150 | 12,396 |
| Data processing and communications | 3,352 | 3,054 | 10,041 | 9,085 |
| Professional fees and outside services | 2,735 | 2,215 | 7,848 | 6,369 |
| Equipment | 2,435 | 2,288 | 7,224 | 6,658 |
| Office supplies and postage | 1,597 | 1,531 | 4,842 | 4,418 |
| FDIC expenses | 939 | 920 | 2,812 | 3,381 |
| Advertising | 701 | 685 | 2,308 | 2,286 |
| Amortization of intangible assets | 870 | 782 | 2,530 | 2,286 |
| Loan collection and other real estate owned | 614 | 676 | 2,051 | 1,838 |
| Merger | 558 | 155 | 1,895 | 155 |
| Other | 4,552 | 3,785 | 12,236 | 10,285 |
| Total noninterest expense | $ 49,431 | $ 45,046 | $ 145,295 | $ 133,264 |

Noninterest expense for the three months ended September 30, 2012 was $49.4 million, up $4.4 million or 9.7%, for the same period in 2011. Salaries and employee benefits increased $1.6 million, or 6.3%, for the three months ended September 30, 2012, compared with the same period in 2011. This increase was due primarily to increases in full-time-equivalent employees from acquisitions, merit increases, and increased pension expenses. Occupancy expenses for the three months ended September 30, 2012 increased $0.6 million, or 14.1%, over the same period in 2011 primarily due to aforementioned expansion. Professional fees and outside services increased approximately $0.5 million, or 23.5%, for the three months ended September 30, 2012 as compared to the same period in 2011, due primarily to a nonrecurring consulting fee incurred during the period. Merger related expenses totaled $0.6 million for the three months ended September 30, 2012 as compared with $0.2 for the same period in 2011, which also contributed to the increase in noninterest expense for the period. Other operating expenses increased $0.8 million for the three months ended September 30, 2012 as compared to the same period in 2011.

Noninterest expense for the nine months ended September 30, 2012 was $145.3 million, up $12.0 million or 9.0%, for the same period in 2011. Salaries and employee benefits increased $4.3 million, or 5.7%, for the nine months ended September 30, 2012, compared with the same period in 2011. This increase was due primarily to increases in full-time-equivalent employees from acquisitions, merit increases, and increased pension expenses. Professional fees and outside services increased $1.5 million, or 23.2%, for the nine months ended September 30, 2012 as compared to the same period in 2011. Data processing and communications expenses increased approximately $1.0 million, or 10.5%, for the nine months ended September 30, 2012 as compared to the same period in 2011, due primarily to expansion into new markets. Merger related expenses totaled $1.9 million in the first nine months of 2012, as compared to $0.2 million for the same period in 2011. Other operating expenses increased $2.0 million in the first nine months of 2012 as compared with the same period in 2011. These increases were partially offset by a decrease in Federal Deposit Insurance Corporation ("FDIC") expenses of approximately $0.6 million for the nine months ended September 30, 2012 as compared to the nine months ended September 30, 2011. This decrease was due to the FDIC redefining the deposit insurance assessment base effective the second quarter of 2011.

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Income Taxes

Income tax expense for the three month period ended September 30, 2012 was $5.5 million, up from $5.1 million for the same period in 2011. The effective tax rate was 27.5% for the three months ended September 30, 2012, compared to 25.2% for the same period in 2011. Income tax expense for the nine month period ended September 30, 2012 was $17.0 million, down from $17.4 million for the same period in 2011. The effective tax rate was 29.1% for the nine months ended September 30, 2012, compared to 28.2% for the same period in 2011. The decrease in the effective tax rate was due primarily to a decrease in tax exempt income from municipal securities in 2012.

ANALYSIS OF FINANCIAL CONDITION

Securities

Average total earning securities increased $36.5 million, or 3.1%, for the three months ended September 30, 2012 when compared to the same period in 2011. The average balance of securities available for sale increased $48.2 million, or 4.3%, for the three months ended September 30, 2012 when compared to the same period in 2011. This increase was due primarily to the increase in liquidity provided by deposits acquired in the aforementioned acquisitions. The average balance of securities held to maturity decreased $11.7 million, or 15.8%, for the three months ended September 30, 2012, compared to the same period in 2011. This decrease was due primarily to the scheduled run-off of municipal securities in the held to maturity portfolio. The average total securities portfolio represents 22.5% of total average earning assets for the three months ended September 30, 2012, down from 24.2% for the same period in 2011.

Average total earning securities increased $73.2 million, or 6.1%, for the nine months ended September 30, 2012 when compared to the same period in 2011. The average balance of securities available for sale increased $90.6 million, or 8.2%, for the nine months ended September 30, 2012 when compared to the same period in 2011. This increase was due primarily to the increase in liquidity provided by deposits acquired in the aforementioned acquisitions. The average balance of securities held to maturity decreased $17.4 million, or 20.6%, for the nine months ended September 30, 2012, compared to the same period in 2011. This decrease was due primarily to the scheduled run-off of municipal securities in the held to maturity portfolio. The average total securities portfolio represents 23.7% of total average earning assets for the nine months ended September 30, 2012, down from 24.0% for the same period in 2011.

The following table details the composition of securities available for sale, securities held to maturity and regulatory investments for the periods indicated:

| | September 30, 2012 | | December 31, 2011 | |
|---|---|---|---|---|
| Mortgage-backed securities: | | | | |
| With maturities 15 years or less | 20 | % | 21 | % |
| With maturities greater than 15 years | 2 | % | 3 | % |
| Collateral mortgage obligations | 35 | % | 35 | % |
| Municipal securities | 12 | % | 13 | % |
| US agency notes | 28 | % | 25 | % |
| Other | 3 | % | 3 | % |
| Total | 100 | % | 100 | % |

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The Company's mortgage backed securities, U.S. agency notes, and collateralized mortgage obligations are all "prime/conforming" and are guaranteed by Fannie Mae, Freddie Mac, Federal Home Loan Bank, Federal Farm Credit Banks, or Ginnie Mae ("GNMA"). GNMA securities are considered equivalent to U.S. Treasury securities, as they are backed by the full faith and credit of the U.S. government. Currently, there are no subprime mortgages in our investment portfolio.

Loans

A summary of loans, net of deferred fees and origination costs, by category for the periods indicated follows:

| (In thousands) | September 30, 2012 | December 31, 2011 |
|---|---|---|
| Residential real estate mortgages | $ 650,448 | $ 581,511 |
| Commercial | 697,213 | 611,298 |
| Commercial real estate mortgages | 1,083,675 | 888,879 |
| Real estate construction and development | 99,181 | 93,977 |
| Agricultural and agricultural real estate mortgages | 112,822 | 108,423 |
| Consumer | 1,031,572 | 946,470 |
| Home equity | 576,208 | 569,645 |
| Total loans and leases | $ 4,251,119 | $ 3,800,203 |

Total loans increased by $450.9 million, or 11.9%, at September 30, 2012 from December 31, 2011, and represent approximately 70.5% of assets, as compared to 67.9% of total assets at December 31, 2011. Commercial real estate loans increased approximately $194.8 million from December 31, 2011 to September 30, 2012, primarily from the acquisition of Hampshire First Bank in June 2012. Commercial loans increased approximately $85.9 million, or 14.1%, from December 31, 2011 to September 30, 2012, primarily from strong organic loan growth. Residential real estate loans increased by approximately $68.9 million, or 11.9%, from December 31, 2011 to September 30, 2012, due primarily organic loan growth, as well as the acquisition of Hampshire First Bank. Consumer loans increased approximately $85.1 million, or 9.0%, due primarily to strong organic growth.

Allowance for Loan Losses, Provision for Loan Losses, and Nonperforming Assets

The allowance for loan losses is maintained at a level estimated by management to provide adequately for risk of probable losses inherent in the current loan portfolio. The adequacy of the allowance for loan losses is continuously monitored using a methodology designed to ensure that the level of the allowance reasonably reflects the loan portfolio's risk profile. It is evaluated to ensure that it is sufficient to absorb all reasonably estimable credit losses inherent in the current loan portfolio.

Management considers the accounting policy relating to the allowance for loan losses to be a critical accounting policy given the degree of judgment exercised in evaluating the level of the allowance required to cover credit losses in the portfolio and the material effect that such judgments can have on the consolidated results of operations.

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For purposes of evaluating the adequacy of the allowance, the Company considers a number of significant factors that affect the collectibility of the portfolio. For individually analyzed loans, these factors include estimates of loss exposure, which reflect the facts and circumstances that affect the likelihood of repayment of such loans as of the evaluation date. For homogeneous pools of loans, estimates of the Company's exposure to credit loss reflect a thorough current assessment of a number of factors, which could affect collectibility. These factors include: past loss experience; the size, trend, composition, and nature of the loans; changes in lending policies and procedures, including underwriting standards and collection, charge-off and recovery practices; trends experienced in nonperforming and delinquent loans; current economic conditions in the Company's market; portfolio concentrations that may affect loss experienced across one or more components of the portfolio; the effect of external factors such as competition, legal and regulatory requirements; and the experience, ability, and depth of lending management and staff. In addition, various regulatory agencies, as an integral component of their examination process, periodically review the Company's allowance for loan losses. Such agencies may require the Company to recognize additions to the allowance based on their judgment about information available to them at the time of their examination, which may not be currently available to management.

After a thorough consideration and validation of the factors discussed above, required additions or reductions to the allowance for loan losses are made periodically by charges or credits to the provision for loan losses. These charges are necessary to maintain the allowance at a level which management believes is reasonably reflective of the overall inherent risk of probable loss in the portfolio. While management uses available information to recognize losses on loans, additions or reductions to the allowance may fluctuate from one reporting period to another. These fluctuations are reflective of changes in risk associated with portfolio content and/or changes in management's assessment of any or all of the determining factors discussed above. Management considers the allowance for loan losses to be adequate based on evaluation and analysis of the loan portfolio.

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The following table reflects changes to the allowance for loan losses for the periods presented. The allowance is increased by provisions for losses charged to operations and is reduced by net charge-offs. Charge-offs are made when the ability to collect loan principal within a reasonable time becomes unlikely. Any recoveries of previously charged-off loans are credited directly to the allowance for loan losses.

Allowance For Loan and Lease Losses

| (dollars in thousands) | Three months ended September 30, 2012 | | September 30, 2011 | |
|---|---|---|---|---|
| Balance, beginning of period | $70,734 | | $ 70,484 | |
| Recoveries | 1,075 | | 940 | |
| Chargeoffs | (5,830) | | (5,265) | |
| Net chargeoffs | (4,755) | | (4,325) | |
| Provision for loan losses | 4,755 | | 5,175 | |
| Balance, end of period | $70,734 | | $ 71,334 | |
| Composition of Net Chargeoffs | | | | |
| Commercial and agricultural | $(1,412) | 30% | $ (1,327) | 31% |
| Real estate mortgage | (471) | 10% | (43) | 1% |
| Consumer | (2,872) | 60% | (2,955) | 68% |
| Net chargeoffs | $(4,755) | 100% | $ (4,325) | 100% |
| Annualized net chargeoffs to average loans and leases | 0.45% | | 0.47% | |

Allowance For Loan and Lease Losses

| (dollars in thousands) | Nine months ended September 30, 2012 | | September 30, 2011 | |
|---|---|---|---|---|
| Balance, beginning of period | $71,334 | | $ 71,234 | |
| Recoveries | 3,123 | | 3,070 | |
| Chargeoffs | (17,052) | | (18,131) | |
| Net chargeoffs | (13,929) | | (15,061) | |
| Provision for loan losses | 13,329 | | 15,161 | |
| Balance, end of period | $70,734 | | $ 71,334 | |
| Composition of Net Chargeoffs | | | | |
| Commercial and agricultural | $(3,505) | 25% | $ (5,891) | 39% |
| Real estate mortgage | (1,105) | 8% | (553) | 4% |
| Consumer | (9,319) | 67% | (8,617) | 57% |
| Net chargeoffs | $(13,929) | 100% | $ (15,061) | 100% |
| Annualized net chargeoffs to average loans and leases | 0.47% | | 0.55% | |

Nonperforming assets consist of nonaccrual loans, loans 90 days or more past due and still accruing, restructured loans, OREO, and nonperforming securities. Loans are generally placed on nonaccrual when principal or interest payments become ninety days past due, unless the loan is well secured and in the process of collection. Loans may also be placed on nonaccrual when circumstances indicate that the borrower may be unable to meet the contractual principal or interest payments. OREO represents property acquired through foreclosure and is valued at the lower of the carrying amount or fair value, less any estimated disposal costs. Nonperforming securities include securities which management believes are other-than-temporarily impaired, are carried at their estimated fair value and are not accruing interest.

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Nonperforming Assets

| (Dollars in thousands) | September 30, 2012 | | December 31, 2011 | |
|---|---|---|---|---|
| Nonaccrual loans | Amount | % | Amount | % |
| Commercial and agricultural loans and real estate | $22,572 | 53 % | $17,506 | 46 % |
| Real estate mortgages | 8,505 | 20 % | 8,090 | 21 % |
| Consumer | 9,325 | 22 % | 8,724 | 23 % |
| Troubled debt restructured loans | 2,259 | 5 % | 3,970 | 10 % |
| Total nonaccrual loans | 42,661 | 100 % | 38,290 | 100 % |
| Loans 90 days or more past due and still accruing | | | | |
| Commercial and agricultural loans and real estate | 80 | 3 % | 50 | 2 % |
| Real estate mortgages | 1,285 | 43 % | 763 | 24 % |
| Consumer | 1,598 | 54 % | 2,377 | 75 % |
| Total loans 90 days or more past due and still accruing | 2,963 | 100 % | 3,190 | 100 % |
| | | | | |
| Total nonperforming loans | 45,624 | | 41,480 | |
| Other real estate owned (OREO) | 1,863 | | 2,160 | |
| Total nonperforming assets | 47,487 | | 43,640 | |
| Total nonperforming loans to total loans and leases | 1.07 % | | 1.09 % | |
| Total nonperforming assets to total assets | 0.79 % | | 0.78 % | |
| Total allowance for loan and lease losses to nonperforming loans | 155.04 % | | 171.97 % | |

Loans over 60 days past due but not over 90 days past due were 0.09% of total loans as of September 30, 2012, compared to 0.14% of total loans as of December 31, 2011. In addition to nonperforming loans, the Company has also identified approximately $81.6 million in potential problem loans at September 30, 2012 as compared to $96.9 million at December 31, 2011. At September 30, 2012, potential problem loans primarily consisted of commercial real estate and commercial and agricultural loans. Potential problem loans are loans that are currently performing, but known information about possible credit problems of the borrowers causes management to have serious doubts as to the ability of such borrowers to comply with the present loan repayment terms and which may result in classification of such loans as nonperforming at some time in the future. Potential problem loans are typically defined as loans that are performing but are classified by the Company's loan rating system as "substandard." Management cannot predict the extent to which economic conditions may worsen or other factors which may impact borrowers and the potential problem loans. Accordingly, there can be no assurance that other loans will not become 90 days or more past due, be placed on nonaccrual, become restructured, or require increased allowance coverage and provision for loan losses.

The Company recorded a provision for loan losses of $4.8 million during the third quarter of 2012 compared with $5.2 million during the third quarter of 2011. Annualized net charge-offs to average loans for the three months ended September 30, 2012 were 0.45%, compared with 0.47% for three months ended September 30, 2011. The Company's allowance for loan losses decreased to 1.66% of loans at September 30, 2012, compared with 1.88% at December 31, 2011. This reduction reflects the improved asset quality indicators noted above, as well as the addition of the Hampshire First loans that were recorded at fair value at acquisition. As acquired loans do not have a related allowance recorded, this resulted in a decrease of 9 basis points in the allowance for loan losses as a percentage of total loans as of September 30, 2012. Specific reserves on impaired loans totaled $2.7 million at September 30, 2012 and $0.2 million at December 31, 2011. General allocations decreased to $68.0 million at September 30, 2012 from $71.1 million at December 31, 2011.

The Company recorded a provision for loan losses of $13.3 million during the nine months ended September 30, 2012 compared with $15.2 million during the nine months ended September 30, 2011. Annualized net charge-offs to

average loans for the nine months ended September 30, 2012 were 0.47%, compared with 0.55% for nine months ended September 30, 2011.

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Subprime mortgage lending, which has been the riskiest sector of the residential housing market, is not a market that the Company has ever actively pursued. The market does not apply a uniform definition of what constitutes "subprime" lending. Our reference to subprime lending relies upon the "Statement on Subprime Mortgage Lending" issued by the Office of Thrift Supervision and the other federal bank regulatory agencies, or the Agencies, on September 29, 2007, which further referenced the "Expanded Guidance for Subprime Lending Programs," or the Expanded Guidance, issued by the Agencies by press release dated January 31, 2001. In the Expanded Guidance, the Agencies indicated that subprime lending does not refer to individual subprime loans originated and managed, in the ordinary course of business, as exceptions to prime risk selection standards. The Agencies recognize that many prime loan portfolios will contain such accounts. The Agencies also excluded prime loans that develop credit problems after acquisition and community development loans from the subprime arena. According to the Expanded Guidance, subprime loans are other loans to borrowers which display one or more characteristics of reduced payment capacity. Five specific criteria, which are not intended to be exhaustive and are not meant to define specific parameters for all subprime borrowers and may not match all markets or institutions' specific subprime definitions, are set forth, including having a FICO score of 660 or below. Based upon the definition and exclusions described above, management believes that the Company is a prime lender. Within the loan portfolio, there are loans that, at the time of origination, had FICO scores of 660 or below. However, since the Company is a portfolio lender, it reviews all data contained in borrower credit reports and does not base underwriting decisions solely on FICO scores. We believe the aforementioned loans, when made, were amply collateralized and otherwise conformed to our prime lending standards. The Company has not originated Alt A loans or no interest loans.

Deposits

Total deposits were $4.8 billion at September 30, 2012, up $438.9 million, or 10.0%, from December 31, 2011, due primarily to the acquisition of Hampshire First Bank in June 2012 as well as strong organic deposit growth. Savings, NOW and money market accounts increased to $2.6 billion as of September 30, 2012 as compared with $2.4 billion at December 31, 2011. Time deposits increased $85.8 million, or 9.2%, from December 31, 2011 to September 30, 2012. Demand deposits increased by $134.6 million, or 12.8%, from December 31, 2011 to September 30, 2012.

Total average deposits for the three months ended September 30, 2012 increased $565.6 million, or 13.6%, from the same period in 2011, due primarily to recent branch acquisitions as well as the aforementioned acquisition. Average savings accounts increased $91.8 million, or 14.9%, for the three month period ending September 30, 2012 as compared to the same period in 2011. This increase in average savings accounts was primarily due to recent branch acquisitions, the aforementioned acquisition, and a run-off of time deposit accounts into savings accounts, due to a decline in interest rates offered on time deposits. Average time deposits increased $153.0 million, or 17.3%, for the three months ended September 30, 2012 from the same period in 2011, due to recent branch acquisitions as well as the aforementioned acquisition, partially offset by a run-off to savings accounts. Average demand deposit accounts increased $190.3 million, or 19.4%, for the three months ended September 30, 2012 as compared to the same period in 2011. This was due primarily to an increasing customer base, as the Company continues to expand into new markets.

Total average deposits for the nine months ended September 30, 2012 increased $392.6 million, or 9.4%, from the same period in 2011, due primarily to recent branch acquisitions as well as the aforementioned acquisition. Average savings accounts increased $76.2 million, or 12.7%, for the nine month period ending September 30, 2012 as compared to the same period in 2011. This increase in average savings accounts was primarily due to recent branch acquisitions as well as a run-off of time deposit accounts into savings accounts, due to a decline in interest rates offered on time deposits. Average time deposits increased $77.4 million, or 8.5%, for the nine months ended September 30, 2012 from the same period in 2011, due to recent branch acquisitions partially offset by a run-off to savings accounts. Average demand deposit accounts increased $175.9 million, or 18.7%, for the nine months ended September 30, 2012 as compared to the same period in 2011. This was due primarily to an increasing customer base, as the Company continues to expand into new markets.

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Borrowed Funds

The Company's borrowed funds consist of short-term borrowings and long-term debt. Short-term borrowings totaled $137.4 million at September 30, 2012 compared to $181.6 million at December 31, 2011. This decrease was due primarily to a decrease in retail repurchase account balances. Long-term debt was $367.1 million at September 30, 2012, as compared to $370.3 million at December 31, 2011. For more information about the Company’s borrowing capacity and liquidity position, see “Liquidity Risk” below.

Capital Resources

Stockholders' equity of $576.7 million represented 9.56% of total assets at September 30, 2012, compared with $538.1 million, or 9.61% as of December 31, 2011. Under previously disclosed stock repurchase plans, the Company purchased 769,568 shares of its common stock during the nine month period ended September 30, 2012, for a total of $15.5 million at an average price of $20.13 per share. At September 30, 2012, there were 748,013 shares available for repurchase under a previously disclosed repurchase plan, which expires on December 31, 2013.

The Board of Directors considers the Company's earnings position and earnings potential when making dividend decisions. The Company does not have a target dividend pay out ratio.

As the capital ratios in the following table indicate, the Company remained “well capitalized” at September 30, 2012 under applicable bank regulatory requirements. Capital measurements are well in excess of regulatory minimum guidelines and meet the requirements to be considered well capitalized for all periods presented. Tier 1 leverage, Tier 1 capital and Total risk-based capital ratios have regulatory minimum guidelines of 3%, 4% and 8% respectively, with requirements to be considered well capitalized of 5%, 6% and 10%, respectively.

| Capital Measurements | | September 30, 2012 | | | December 31, 2011 | |
|---|---|---|---|---|---|---|
| Tier 1 leverage ratio | | 8.51 | % | | 8.74 | % |
| Tier 1 capital ratio | | 10.82 | % | | 11.56 | % |
| Total risk-based capital ratio | | 12.07 | % | | 12.81 | % |
| Cash dividends as a percentage of net income | | 48.18 | % | | 46.74 | % |
| Per common share: | | | | | | |
| Book value | $ | 17.09 | | $ | 16.23 | |
| Tangible book value | $ | 12.06 | | $ | 11.70 | |

Liquidity and Interest Rate Sensitivity Management

Market Risk

Interest rate risk is the primary market risk affecting the Company. Other types of market risk, such as foreign currency exchange rate risk and commodity price risk, do not arise in the normal course of the Company’s business activities. Interest rate risk is defined as an exposure to a movement in interest rates that could have an adverse effect on the Company’s net interest income. Net interest income is susceptible to interest rate risk to the degree that interest bearing liabilities mature or reprice on a different basis than earning assets. When interest bearing liabilities mature or reprice more quickly than earning assets in a given period, a significant increase in market rates of interest could adversely affect net interest income. Similarly, when earning assets mature or reprice more quickly than interest bearing liabilities, falling interest rates could result in a decrease in net interest income.

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In an attempt to manage the Company's exposure to changes in interest rates, management monitors the Company's interest rate risk. Management's Asset Liability Committee ("ALCO") meets monthly to review the Company's interest rate risk position and profitability, and to recommend strategies for consideration by the Board of Directors. Management also reviews loan and deposit pricing and the Company's securities portfolio, formulates investment and funding strategies, and oversees the timing and implementation of transactions to assure attainment of the Board's objectives in the most effective manner. Notwithstanding the Company's interest rate risk management activities, the potential for changing interest rates is an uncertainty that can have an adverse effect on net income.

In adjusting the Company's asset/liability position, the Board and management attempt to manage the Company's interest rate risk while minimizing net interest margin compression. At times, depending on the level of general interest rates, the relationship between long- and short-term interest rates, market conditions and competitive factors, the Board and management may determine to increase the Company's interest rate risk position somewhat in order to increase its net interest margin. The Company's results of operations and net portfolio values remain vulnerable to changes in interest rates and fluctuations in the difference between long- and short-term interest rates. Assuming interest rates remain at or near current historical lows, net interest margin will continue to experience compression. Additional rate reductions on deposits are becoming more difficult as deposit rates are at or near their floors, and with asset yields continuing to reprice at lower rates, this could result in additional margin pressure as well as a decrease in net interest income.

The primary tool utilized by ALCO to manage interest rate risk is a balance sheet/income statement simulation model (interest rate sensitivity analysis). Information such as principal balance, interest rate, maturity date, cash flows, next repricing date (if needed), and current rates is uploaded into the model to create an ending balance sheet. In addition, ALCO makes certain assumptions regarding prepayment speeds for loans and mortgage related investment securities along with any optionality within the deposits and borrowings.

The model is first run under an assumption of a flat rate scenario (i.e. no change in current interest rates) with a static balance sheet over a 12-month period. Two additional models are run with static balance sheets: (1) a gradual increase of 200 bp, and (2) a gradual decrease of 100 bp taking place over a 12-month period. Under these scenarios, assets subject to prepayments are adjusted to account for faster or slower prepayment assumptions. Any investment securities or borrowings that have callable options embedded into them are handled accordingly based on the interest rate scenario. The resulting changes in net interest income are then measured against the flat rate scenario.

In the declining rate scenario, net interest income is projected to decrease when compared to the forecasted net interest income in the flat rate scenario through the simulation period. The decrease in net interest income is a result of earning assets repricing downward at a faster rate than interest bearing liabilities. The inability to effectively lower deposit rates will likely reduce or eliminate the benefit of lower interest rates. In the rising rate scenarios, net interest income is projected to experience a decline from the flat rate scenario. Net interest income is projected to remain at lower levels than in a flat rate scenario through the simulation period primarily due to a lag in assets repricing while funding costs increase. The potential impact on earnings is dependent on the ability to lag deposit repricing. If short-term rates continue to increase, the Company expects competitive pressures will likely lead to core deposit pricing increases, which will likely continue compression of the net interest margin.

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Net interest income for the next 12 months in the + 200/- 100 bp scenarios, as described above, is within the internal policy risk limits of not more than a 7.5% change in net interest income. The following table summarizes the percentage change in net interest income in the rising and declining rate scenarios over a 12-month period from the forecasted net interest income in the flat rate scenario using the September 30, 2012 balance sheet position:

Interest Rate Sensitivity Analysis

| Change in interest rates (in bp points) | Percent change in net interest income |
| --- | --- |
| +200 | (1.92%) |
| -100 | (1.16%) |

Liquidity Risk

Liquidity involves the ability to meet the cash flow requirements of customers who may be depositors wanting to withdraw funds or borrowers needing assurance that sufficient funds will be available to meet their credit needs. The ALCO is responsible for liquidity management and has developed guidelines which cover all assets and liabilities, as well as off balance sheet items that are potential sources or uses of liquidity. Liquidity policies must also provide the flexibility to implement appropriate strategies and tactical actions. Requirements change as loans grow, deposits and securities mature, and payments on borrowings are made. Liquidity management includes a focus on interest rate sensitivity management with a goal of avoiding widely fluctuating net interest margins through periods of changing economic conditions.

The primary liquidity measurement the Company utilizes is called the Basic Surplus, which captures the adequacy of its access to reliable sources of cash relative to the stability of its funding mix of average liabilities. Basic Surplus is calculated by subtracting short-term liabilities from liquid assets. This approach recognizes the importance of balancing levels of cash flow liquidity from short- and long-term securities with the availability of dependable borrowing sources which can be accessed when necessary. At September 30, 2012, the Company's Basic Surplus measurement was 9.7% of total assets or $585 million as compared to the December 31, 2011 Basic Surplus of 11.7% or $654 million, and was above the Company's minimum of 5% or $301 million set forth in its liquidity policies.

This Basic Surplus approach enables the Company to adequately manage liquidity from both operational and contingency perspectives. By tempering the need for cash flow liquidity with reliable borrowing facilities, the Company is able to operate with a more fully invested and, therefore, higher interest income generating securities portfolio. The makeup and term structure of the securities portfolio is, in part, impacted by the overall interest rate sensitivity of the balance sheet. Investment decisions and deposit pricing strategies are impacted by the liquidity position.

The Company's primary source of funds is the Bank. Certain restrictions exist regarding the ability of the Bank to transfer funds to the Company in the form of cash dividends. The approval of the Office of Comptroller of the Currency (OCC) is required to pay dividends when a bank fails to meet certain minimum regulatory capital standards or when such dividends are in excess of a subsidiary bank's earnings retained in the current year plus retained net profits for the preceding two years (as defined in the regulations). At September 30, 2012, approximately $30.7 million of the total stockholders' equity of the Bank was available for payment of dividends to the Company without approval by the OCC. The Bank's ability to pay dividends is also subject to the Bank being in compliance with regulatory capital requirements. The Bank is currently in compliance with these requirements. Under the General Corporation Law of the State of Delaware, the Company may declare and pay dividends either out of its surplus or, in case there is no surplus, out of its net profits for the fiscal year in which the dividend is declared and/or the preceding fiscal year.

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At September 30, 2012 and December 31, 2011, FHLB advances outstanding totaled $339 million. The Bank is a member of the FHLB system and had additional borrowing capacity from the FHLB of approximately $394 million at September 30, 2012 and $323 million at December 31, 2011. In addition, unpledged securities could have been used to increase borrowing capacity at the FHLB by an additional $326 million at September 30, 2012, or used to collateralize other borrowings, such as repurchase agreements. At September 30, 2012 the Bank also had additional borrowing capacity from unused collateral at the Federal Reserve of $522 million.

Recent Accounting Pronouncements

In September 2011, the FASB issued ASU No. 2011-08 "Intangibles – Goodwill and Other (Topic 350) – Testing Goodwill for Impairment". ASU 2011-08 is intended to reduce complexity and costs of performing goodwill impairment tests by allowing an entity the option to make a qualitative evaluation about the likelihood of goodwill impairment to determine whether it should calculate the fair value of a reporting unit. The amendments in ASU 2011-08 also improve previous guidance by expanding upon the examples of events and circumstances that an entity should consider between annual impairment tests in determining whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. Also, the amendments improve the examples of events and circumstances that an entity having a reporting unit with a zero or negative carrying amount should consider in determining whether to measure an impairment loss, if any, under the second step of the goodwill impairment test. The amendments are effective for annual and interim goodwill impairment tests performed for fiscal years beginning after December 15, 2011. The adoption of the standard did not have a significant impact on the Company's consolidated financial statements.

In May 2011, the FASB issued ASU No. 2011-04 "Fair Value Measurement (Topic 820) - Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs." ASU 2011-04 changes the wording used to describe many of the requirements in GAAP for measuring fair value and for disclosing information about fair value measurements. Consequently, the amendments in this update result in common fair value measurement and disclosure requirements in GAAP and IFRSs (International Financial Reporting Standards). ASU 2011-04 is effective prospectively during interim and annual periods beginning on or after December 15, 2011. The adoption of the standard did not have a significant impact on the Company's consolidated financial statements.

In April 2011, the FASB issued ASU No. 2011-03 "Transfers and Servicing (Topic 860) - Reconsideration of Effective Control for Repurchase Agreement." ASU 2011-03 removes from the assessment of effective control the criterion relating to the transferor's ability to repurchase or redeem financial assets on substantially the agreed terms, even in the event of default by the transferee. ASU 2011-03 is effective for the first interim or annual period beginning on or after December 15, 2011. The guidance should be applied prospectively to transactions or modifications of existing transactions that occur on or after the effective date. The adoption of the standard did not have a significant impact on the Company's consolidated financial statements.

Item 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Information called for by Item 3 is contained in the Liquidity and Interest Rate Sensitivity Management section of the Management's Discussion and Analysis of Financial Condition and Results of Operations.

Item 4. CONTROLS AND PROCEDURES

The Company's management, with the participation of the Company's Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of the design and operation of the Company's disclosure controls and procedures (as defined in Rule 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended). Based upon that evaluation, the Chief Executive Officer and Chief

Financial Officer concluded that, as of September 30, 2012, the Company's disclosure controls and procedures were effective.



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There were no changes made in the Company's internal control over financial reporting that occurred during the Company's most recent fiscal quarter that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1 – LEGAL PROCEEDINGS

The Bank has been named as a defendant in a purported class action lawsuit arising from its assessment and collection of overdraft fees on its checking account customers. The complaint was filed in the Supreme Court of the State of New York, County of Delaware, on September 12, 2011 and alleges that the Bank engaged in certain unfair practices and failed to make adequate disclosure to customers concerning its overdraft fee assessment practices. The complaint seeks certification of a class of national checking account holders who have incurred overdraft fees and a subclass of such customers who reside in New York. In addition, the complaint seeks actual and punitive damages, disgorgement, interest and costs including attorneys' fees. On May 15, 2012, Acting Supreme Court Judge for Delaware County, New York, John F. Lambert, dismissed in its entirety the plaintiff`s case. On June 20, 2012, the plaintiffs filed an appeal to the Appellate Division, Third Department. The Company believes the claims to be without merit and intends to defend the action vigorously.

There are no other material legal proceedings, other than ordinary routine litigation incidental to the business, to which the Company or any of its subsidiaries is a party or of which any of their property is subject.

Item 1A – RISK FACTORS

Management of the Company urges the reader to understand and consider the following updated risk factor in addition to those disclosed in the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2011 filed with the Securities and Exchange Commission on February 29, 2012.

The risks presented by acquisitions could adversely affect our financial condition and result of operations.

The business strategy of the Company has included and may continue to include growth through acquisition from time to time. Any acquisitions, including our recently completed acquisition of Hampshire First and pending acquisition of Alliance, will be accompanied by the risks commonly encountered in acquisitions including, among other things: our ability to realize anticipated cost savings and avoid unanticipated costs relating to the merger, the difficulty of integrating operations and personnel, the potential disruption of our or the acquired company’s ongoing business, the inability of our management to maximize our financial and strategic position, the inability to maintain uniform standards, controls, procedures and policies, and the impairment of relationships with the acquired company’s employees and customers as a result of changes in ownership and management. These risks may prevent the Company from fully realizing the anticipated benefits of an acquisition or cause the realization of such benefits to take longer than expected.

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2 – UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

(a) Not applicable

(b) Not applicable

(c) The table below sets forth the information with respect to purchases made by the Company (as defined in Rule 10b-18(a)(3) under the Securities Exchange Act of 1934), of our common stock during the quarter ended September 30, 2012:

| Period | Total Number of Shares Purchased | Average Price Paid Per Share | Total Number of Shares Purchased as Part of Publicly Announced Plans | Maximum Number of Shares That May Yet be Purchased Under The Plans (1) |
|---|---|---|---|---|
| 1/1/12 - 1/31/12 | - | $ - | - | 1,517,581 |
| 2/1/12 - 2/29/12 | - | - | - | 1,517,581 |
| 3/1/12 - 3/31/12 | - | - | - | 1,517,581 |
| 4/1/12 - 4/30/12 | - | - | - | 1,517,581 |
| 5/1/12 - 5/31/12 | 423,026 | 20.17 | 423,026 | 1,094,555 |
| 6/1/12 - 6/30/12 | 346,542 | 20.08 | 346,542 | 748,013 |
| 7/1/12 - 7/31/12 | - | - | - | 748,013 |
| 8/1/12 - 8/31/12 | - | - | - | 748,013 |
| 9/1/12 - 9/30/12 | - | - | - | 748,013 |
| Total | 769,568 | $ 20.13 | 769,568 | 748,013 |

1. Under previously disclosed stock repurchase plans, the Company purchased 769,568 shares of its common stock during the nine month period ended September 30, 2012, for a total of $15.5 million at an average price of $20.13 per share. At September 30, 2012, there were 748,013 shares available for repurchase under a previously disclosed repurchase plan, which expires on December 31, 2013.

Item 3 – DEFAULTS UPON SENIOR SECURITIES

None

Item 4 – MINE SAFETY DISCLOSURES

None

Item 5 – OTHER INFORMATION

None

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Item 6 – EXHIBITS

2.1 Agreement and Plan of Merger, dated as of October 7, 2012, by and between NBT Bancorp Inc. and Alliance Financial Corporation (filed as Exhibit 2.1 to Registrant’s Current Report on Form 8-K filed on October 9, 2012 and incorporated herein by reference).

3.1 Certificate of Incorporation of NBT Bancorp Inc. as amended through May 2, 2012.

3.2 By-laws of NBT Bancorp Inc. as amended and restated through July 23, 2001 (filed as Exhibit 3.2 to Registrant's Form 10-K for the year ended December 31, 2008, filed on March 2, 2009 and incorporated herein by reference).

3.3 Certificate of Designation of the Series A Junior Participating Preferred Stock (filed as Exhibit A to Exhibit 4.1 of the Registration's Form 8-K, file Number 0-14703, filed on November 18, 2004, and incorporated herein by reference).

4.1 Specimen common stock certificate for NBT's common stock (filed as exhibit 4.3 to the Registrant's Amendment No. 1 to Registration Statement on Form S-4 filed on December 27, 2005 and incorporated herein by reference).

4.2 Rights Agreement, dated as of November 15, 2004, between NBT Bancorp Inc. and Registrar and Transfer Company, as Rights Agent (filed as Exhibit 4.1 to Registrant's Form 8-K, file number 0-14703, filed on November 18, 2004, and incorporated by reference herein).

31.1 Certification of Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

31.2 Certification of Chief Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

32.1 Written Statement of the Chief Executive Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

32.2 Written Statement of the Chief Financial Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

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SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized, this 9th day of November 2012.

NBT BANCORP INC.

By: /s/ Michael J. Chewens
Michael J. Chewens, CPA
Senior Executive Vice President
Chief Financial Officer

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