UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

[X] **Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 for the fiscal year ended December 31, 2016**

Commission file number: 1-7945

DELUXE CORPORATION
(Exact name of registrant as specified in its charter)

Minnesota	**41-0216800**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
3680 Victoria St. N., Shoreview, Minnesota	**55126-2966**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: **(651) 483-7111**

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

Common Stock, par value $1.00 per share	**New York Stock Exchange**
(Title of each class)	(Name of each exchange on which registered)

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. [X] Yes [ ] 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 [X] 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. [X] Yes [ ] No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, 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 and post such files). [X] Yes [ ] No

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. [X]

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 the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer [X]	Accelerated filer [ ]
Non-accelerated filer [ ] (Do not check if a smaller reporting company)	Smaller reporting company [ ]

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

The aggregate market value of the voting stock held by non-affiliates of the registrant is $3,198,797,590 based on the last sales price of the registrant's common stock on the New York Stock Exchange on June 30, 2016. The number of outstanding shares of the registrant's common stock as of February 14, 2017 was 48,510,049.

Documents Incorporated by Reference: Portions of our definitive proxy statement to be filed within 120 days after our fiscal year-end are incorporated by reference in Part III.

DELUXE CORPORATION
FORM 10-K
FOR THE YEAR ENDED DECEMBER 31, 2016

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PART I

Item 1. Business.

Deluxe Corporation was founded in 1915 and was incorporated under the laws of the State of Minnesota in 1920. Our principal corporate offices are located at 3680 Victoria Street North, Shoreview, Minnesota 55126-2966. Our main telephone number is (651) 483-7111 and our web address is www.deluxe.com.

COMPANY OVERVIEW

Over 100 years ago, Deluxe Corporation began providing payment solutions. Our longevity is a testament to our innovation and our ability to evolve with our customers. We now provide an increasingly diversified suite of products and services and we have become a trusted partner to small businesses and an integral part of the financial services industry. Our vision is to be the best at helping small businesses and financial institutions grow. We provide a suite of customer life cycle management solutions that help our customers acquire and engage their customers across multiple channels. To promote and sell a wide range of products and services, we use printed and electronic marketing; a direct sales force; referrals from financial institutions, telecommunication clients and other partners; purchased search results from online search engines; and networks of distributors and independent dealers. Over the past 24 months, our Small Business Services segment has provided products and services to approximately 4.4 million small business customers and our Direct Checks segment has provided products and services to more than 5.5 million consumers. Through our Financial Services segment, we provide products and services to approximately 5,600 financial institution clients. Our product and service offerings are comprised of the following:

Checks – We remain one of the largest providers of checks in the United States. During 2016, checks represented 39.1% of our Small Business Services segment's revenue, 53.8% of our Financial Services segment's revenue and 84.1% of our Direct Checks segment's revenue.

Marketing solutions and other services – We offer products and services designed to meet our customers' sales and marketing needs, as well as various other service offerings. Our marketing products utilize digital printing and web-to-print solutions to provide promotional solutions such as postcards, brochures, retail packaging supplies, apparel, greeting cards and business cards. Our web services offerings include logo and web design; hosting and other web services; search engine optimization; and marketing programs, including email, mobile and social media. We also offer fraud protection and security services, online and offline payroll services, and electronic checks ("eChecks"). Our Financial Services segment also offers a suite of financial technology ("FinTech") solutions. These solutions include data-driven marketing solutions, including outsourced marketing campaign targeting and execution; treasury management solutions; and digital enablement solutions, including loyalty and rewards programs.

Forms – Our Small Business Services segment is a leading provider of printed forms to small businesses, including deposit tickets, billing forms, work orders, job proposals, purchase orders, invoices and personnel forms. This segment also offers computer forms compatible with accounting software packages commonly used by small businesses. Forms sold by our Financial Services and Direct Checks segments include deposit tickets and check registers.

Accessories and other products – Small Business Services offers products designed to provide small business owners with the customized documents necessary to efficiently manage their business, including envelopes, office supplies, stamps and labels. Our Financial Services and Direct Checks segments offer checkbook covers and stamps.

Revenue, by product and service category, as a percentage of consolidated revenue for the years ended December 31 was as follows:

	2016	2015	2014	2013	2012
Checks	46.8%	49.3%	52.0%	55.8%	58.8%
Marketing solutions and other services	33.4%	30.0%	25.5%	21.6%	18.8%
Forms	11.6%	12.2%	13.0%	12.7%	13.2%
Accessories and other products	8.2%	8.5%	9.5%	9.9%	9.2%
Total revenue	100.0%	100.0%	100.0%	100.0%	100.0%

BUSINESS SEGMENTS

Our business segments are generally organized by type of customer served and reflect the way we manage the company. Additional information concerning our segments appears under the caption “Note 16: Business segment information” of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

Small Business Services

Small Business Services operates under various brands, including Deluxe®, NEBS®, Safeguard®, PsPrint®, Hostopia®, Aplus.net®, Inkhead®, Payce®, PAYweb®, Logo Mojo® and VerticalResponse®, among others. This is our largest segment in terms of revenue and operating income and we are concentrating on profitably growing this segment. Small Business Services strives to be a leading supplier to small businesses, as well as partners and channels that support small businesses, by providing personalized products and services that help them operate and market their businesses. This segment sells products and services to small businesses in North America and portions of South America and Europe.

Small Business Services' products are distributed through multiple channels. Our primary customer acquisition methods are direct response mail and internet advertising; referrals from financial institutions, telecommunications clients and other partners; networks of distributors and independent dealers; a direct sales force that focuses on selling to and through major accounts; and an outbound telemarketing group. Customer service for initial order support, product reorders and routine service is provided by a network of call center representatives located throughout the United States and Canada.

Our Small Business Services strategies are as follows:

- Effectively acquire and retain customers by optimizing each of our sales channels;
- Expand sales of higher growth and recurring marketing solutions and other service offerings;
- Increase our share of the amount small businesses spend on the types of products and services in our portfolio through increased brand awareness, channel coverage, and improved customer acquisition; and
- Continue to optimize our cost and expense structure.

To support our strategies and to reposition Small Business Services as not just a provider of business checks and printed forms, but also as a provider of higher growth marketing solutions and other services, we have two strategic focus areas:

1. Payments and marketing solutions:
    * Focus on core check retention and acquisition and on developing incremental retail customer acquisition channels.
    * Profitably scale integrated marketing-on-demand solutions, with the largest opportunity in major accounts.
    * Optimize electronic payment solutions with a focus on building opportunities with financial institutions, medical and insurance payments processors, accounting services and software providers, and other document management and payment solution companies.
2. Web services:
    * Improve the digital marketing customer experience and cross-sell across all customers and channels, including through our integrated Deluxe Marketing Suite, while continuing to build partnerships and explore acquisition opportunities.
    * Focus on scaling payroll services and continue to evaluate early stage businesses and other operational annuity growth solutions.
    * Accelerate our brand awareness transformation, showing a clear linkage between marketing and revenue-generating capabilities.

In support of our strategies, we expect to continue identifying opportunities to expand sales to our existing customers and to acquire new customers, including the small business customer referrals we receive through our Deluxe Business Advantage® program. This program provides a fast and simple way for financial institutions to offer expanded personalized service to small businesses. Our relationships with financial institutions are important in helping us more deeply serve unique customer segments such as contractors, retailers and professional services firms. In addition, we expect to continue to acquire customers through our telecommunications clients, media partners and major account clients. We invest in our e-commerce and technology platforms to increase opportunities to market and sell on-line, and we utilize various marketing channels, including internet, direct mail solicitations and television. Our distributor and dealer networks and our major accounts channel increase our distribution reach through dedicated “feet on the street,” resellers and partner operations, and allow us to increase sales to existing customers and acquire new customers in multiple ways.

We continuously evaluate ways to strengthen our portfolio of products and services through acquisitions, partnerships and internal development. In recent years, we have acquired a number of new businesses that have expanded our marketing solutions and other services offerings, including technology-based solutions such as web services, payroll services, web-to-print capabilities, internet marketing services and eChecks. Sales of these higher growth products and services are expected to

represent an increasing portion of our revenue. Additional information concerning our acquisitions appears under the caption “Note 5: Acquisitions” of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. In addition, we continually track innovations within the marketplace coming from competitors, best-of-breed companies and open source technology products and communities. When making decisions regarding the technologies and methodologies to employ within our product and service areas, we incorporate leading new techniques when they meet our fundamental needs for scale, flexibility and security. We also monitor feedback from all of our customer communications channels to ensure we are offering the products and features our customers want.

We continue our efforts within Small Business Services to simplify processes, eliminate complexity and lower costs. Small Business Services outsources the production of some of its products, including certain business forms, promotional products and apparel. In conjunction with our cost reduction initiatives, we continually seek to further enhance our strategic supplier sourcing arrangements. In addition, the expertise we have developed in logistics, productivity and inventory management has allowed us to reduce the number of facilities we operate, while still meeting client requirements. During 2016, we closed a call center located in Los Angeles, California, a warehouse located in Houston, Texas and a facility housing general office space in Burnsville, Minnesota. During 2015, we closed a facility located in American Fork, Utah that housed a call center and administrative functions, as well as a call center located in Charlotte, North Carolina and a sales facility located in Venice, California. The operations of these facilities were integrated into existing Small Business Services operations.

Financial Services

Financial Services' products and services are sold primarily through a direct sales force, which executes product and service supply contracts with our financial institution clients nationwide, including banks, credit unions and financial services companies. Building on our long-standing reputation in the financial services market as a leading check provider, we have expanded our offerings to include a growing suite of software and cloud-based products and services designed to help financial institutions better address the needs of their customers throughout the customer life cycle. Our sales force is selling these life cycle management solutions through our existing financial institution customer channel to existing clients and to new clients.

Our Financial Services strategies are as follows:

- Optimize core check revenue streams and acquire new clients;
- Expand sales of higher growth marketing solutions and other services that differentiate us from the competition; and
- Continue to optimize our cost and expense structure.

We have two focus areas that support our Financial Services strategies:

1. Retail banking, which includes checks and data-driven marketing solutions:
    * Focus on retaining clients and gain market share in our check programs.
    * Leverage First Manhattan Consulting Group, LLC (FMCG Direct) and Datamyx data-driven analytics and marketing capabilities across financial institution depository and lending products.
2. Commercial banking:
    * Profitably scale our treasury management solutions.
    * Integrate acquisitions we have already completed and execute tuck-in acquisitions.

Despite the decline in check usage, checks continue to be an important source of revenue. Our check supply contracts usually range in duration from three to six years. As part of our check programs, we provide enhanced services such as customized reporting, file management, expedited account conversion support, fraud protection services, new account support, trackable delivery and billing services. Consumers typically submit their check order to their financial institution, which then forwards the order to us. However, consumers may also submit their check orders over the phone or internet. We process the order and ship it directly to the consumer. Financial Services produces a wide range of check designs, with many consumers preferring one of the dozens of licensed or cause-related designs we offer. We also continue to leverage our Deluxe Business Advantage program, which is designed to maximize financial institution business check programs. It offers many of the products and services of our Small Business Services segment to the small business customers of financial institutions through a number of service level options. The revenue from the products and services sold through this program is reflected in our Small Business Services segment.

In our ongoing efforts to expand well beyond our legacy check-related products, we offer several solutions designed to help financial institutions operate more effectively and better address the needs of their customers throughout the customer life cycle. All of these offerings build on our reputation as a longstanding and trusted partner of financial institutions, especially when it comes to outsourced solutions and securely managing sensitive customer data. Our service offerings include the following:

- Wausau Financial Systems – a comprehensive suite of treasury management solutions available at the customer site, as well as via software-as-a-service and business process outsourced deployment models, including the offerings of FISC Solutions, which was acquired in December 2015, and Data Support Systems, which was acquired in October 2016.

- Deluxe Rewards – a loyalty and rewards platform that offers multiple touch points that enable our clients to have ongoing engagement with their customers.
- Deluxe Marketing Services – a variety of direct marketing solutions that help financial institutions acquire new customers, deepen existing customer relationships and retain customers. These offerings leverage data and analytics to help our clients execute marketing campaigns for depository and lending products across multiple contact channels, including direct mail, email, online and digital. This suite of offerings was augmented with our October 2015 acquisition of Datamyx®, a software-as-a-service data and analytics platform focused on marketing programs for lending products, and our December 2016 acquisition of FMCG Direct, a provider of data-driven marketing solutions for financial institutions.
- Banker's Dashboard – online financial management tools that provide financial institutions with comprehensive daily insights into their financial picture.
- Deluxe Strategic Sourcing – a comprehensive, outsourced service that enables financial institutions to improve efficiency, financial controls and pricing compared to self-managing multiple supplier relationships.
- Deluxe Detect® – a new account online screening tool.
- Provent® – a comprehensive suite of identity protection services largely complimentary to our check offerings.
- SwitchAgent® – a digital channel onboarding solution enabling consumers to easily set up the online banking aspects of a new account, making it easier for financial institutions to attract and anchor new customers.

We continue to advance our marketing solutions and other services offerings both via acquisitions and internal development. In recent years, we have acquired a number of new businesses that have expanded our marketing solutions and other services offerings, including data and analytics-driven marketing solutions and treasury management solutions. Sales of these higher growth services are expected to represent an increasing portion of our revenue. Additional information concerning our acquisitions appears under the caption “Note 5: Acquisitions” of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. We expect that providing a growing suite of products and services will offset the impacts of the decline in check usage and the continued pricing pressure we are experiencing in our check programs. As such, we continue to focus on accelerating the pace at which we introduce new products and services, utilizing client feedback and market research to identify client needs and gaps. During the past year, we have also invested in extending the Deluxe brand to increase brand awareness and loyalty in the financial services market beyond check-related solutions.

Financial Services continues to simplify processes, eliminate complexity and lower costs. During 2016, we closed a warehouse located in Nashville, Tennessee and during 2015, we closed a call center located in Plymouth, Michigan, as well as a warehouse located in Livonia, Michigan. The operations of these facilities were integrated into existing Financial Services operations.

Direct Checks

Direct Checks is the nation's leading direct-to-consumer check supplier, selling under various brand names, including Checks Unlimited®, Designer Checks®, Checks.com®, Check Gallery®, The Styles Check Company®, and Artistic Checks®, among others.

We use a variety of direct marketing techniques to acquire new customers, including newspaper inserts, in-package advertising, statement stuffers and co-op advertising. We also use search engine marketing and search engine optimization strategies to direct traffic to our websites, which include: checksunlimited.com, designerchecks.com, checks.com, 4checks.com, checkgallery.com, styleschecks.com, and artisticchecks.com, among others.

Direct Checks competes primarily on price and design. We believe that pricing in the direct-to-consumer channel is generally lower than retail prices charged to consumers in the financial institution channel. We compete on design by seeking to offer the most attractive selection of images with high consumer appeal, many of which are licensed from well-known artists and organizations.

Our Direct Checks strategies are as follows:

- Maximize the lifetime value of customers by selling new features, accessories and products;
- Continue to optimize our cost and expense structure; and
- Optimize cash flow.

We continue to actively market our products and services through targeted advertising, including a continued focus on the internet channel. We continue to explore avenues to increase sales to existing customers as we investigate opportunities to provide accessories and other check-related products and services to customers. One such example is the check protection service we offer in partnership with EZShield, Inc., which provides reimbursement to consumers for losses resulting from forged signatures or endorsements and altered checks. We also continue to work on a number of initiatives to create an integrated best-in-class direct-to-consumer check experience. As in our other two business segments, Direct Checks continues to simplify processes, eliminate complexity and lower costs. We continue to identify additional opportunities to lower our cost and expense structure in all functional areas, particularly in the areas of marketing and fulfillment.

MANUFACTURING AND FULFILLMENT/SUSTAINABLE PRACTICES

We continue to focus on improving the customer experience by providing excellent service and quality, reducing costs and increasing productivity. We accomplish this by embedding lean operating principles in all processes, while emphasizing a culture of continuous improvement. Under this approach, employees work together to produce products, rather than working on individual tasks in a linear fashion. Because employees assume more ownership of the end product, we experience improved quality and productivity, as well as lower costs.

We continue to sponsor “sustainability” initiatives that encompass environmentally-friendly practices. We have aligned with suppliers that promote sustainable business practices and we continually seek opportunities to eliminate wasted material, reduce cycle times and use more environmentally-friendly materials. More than 90% of our check and form paper is purchased from Forest Stewardship Council certified supplier mills, most of our vinyl checkbook covers are produced utilizing a minimum of 40% post-industrial recycled material and we use environmentally-friendly janitorial supplies. Our sustainability initiatives have also benefited our results of operations over the past several years as we focus on reducing our consumption of water, electricity and natural gas, and improving our transportation efficiency. We continue efforts to reduce solid waste sent to landfills, and we have been a member of the Environmental Protection Agency's Green Power Leadership Club since 2010. The renewable energy that we purchased during 2016 amounted to approximately 77% of our annual U.S. electricity needs.

The expertise we have developed in logistics, productivity and inventory management has allowed us to reduce the number of production facilities we operate, while still meeting client requirements. During 2016, we moved production out of our Lancaster, California manufacturing facility, during 2015, we closed our Plymouth, Michigan and Burnsville, Minnesota fulfillment operations and during 2014, we closed our Bethlehem, Pennsylvania manufacturing facility. These operations were moved to other existing locations.

We have a shared services approach, which allows our three business segments to leverage shared manufacturing facilities to optimize capacity utilization, enhance operational excellence and foster a culture of continuous improvement. We continue to reduce costs by utilizing our assets and printing technologies more efficiently and by enabling employees to better leverage their capabilities and talents.

INDUSTRY OVERVIEW

Checks

According to the most recent Federal Reserve study released in December 2016, debit card, credit card and ACH payments all exceeded the number of checks written in 2015. Approximately 19.4 billion checks were written in 2015, accounting for approximately 13% of all non-cash payment transactions. This is a reduction from the Federal Reserve Study released in December 2013 when checks accounted for approximately 17% of all non-cash payment transactions. The Federal Reserve estimates that checks written declined approximately 4.8% per year between 2012 and 2015, a slower decline than the 8.8% per year decline documented between 2009 and 2012. In 2017, we anticipate check order declines to range from between 5% and 6%, slightly higher than our 2016 decline rate. We expect that the number of checks written will continue to decline due to the increasing use of alternative payment methods, including credit cards, debit cards, direct deposit, wire and ACH transfers, and internet-based bill paying services, as well as automated teller machines, which make cash a more readily available alternative.

In addition, steps have been taken in the development of a real-time payments system in the United States. The Federal Reserve established the Faster Payments Task Force with the objective of identifying and evaluating approaches for implementing a faster payments system and is encouraging the private sector to create real-time payment solutions. In April 2016, FIS, a FinTech company, and The Clearing House Payments Company, LLC announced plans to run a nation-wide real-time payments system pilot during the first quarter of 2017. Also, a number of financial institutions are members of Early Warning's clearXchange® network and/or Zelle℠, which enable their customers to send or receive real-time person-to-person payments to or from customers of participating network banks, and person-to-person digital wallet services such as Venmo® allow individuals to transfer funds to other users. While we cannot predict the impact real-time payment systems will have on check usage, nor the speed at which such systems will become prevalent in the United States, a related study commissioned by the Federal Reserve from McKinsey & Company concluded that check usage could be reduced by one-third if a real-time payments system were to become widely available in the United States. However, the rate and the extent to which alternative payment methods will achieve acceptance and replace checks, whether as a result of legislative developments, changing payment systems, personal preference or otherwise, cannot be predicted with certainty.

In addition to the shift to electronic payment methods, consumer spending, employment levels, and housing stock and starts also impact the number of checks consumers use. We estimate that the 2016 growth rates for consumer spending and private sector employment most likely had a slightly negative impact on our personal check businesses. An increase in housing stock and starts has a positive impact on the number of checks purchased, as new households typically are in need of new checks. According to statistics released by the U.S. Census Bureau in January 2017, housing units completed during 2016

increased almost 10% as compared to 2015. We cannot predict whether these economic trends will improve, stay the same or worsen in the near future.

Small Business Customers

According to data published by the U.S. Census Bureau, there were approximately 31.4 million small businesses in the United States in 2014, defined as independent businesses having fewer than 500 employees. According to the most recent data published by Innovation, Science and Economic Development Canada and Statistics Canada, as of December 2015, there were approximately 4.0 million small businesses in Canada, defined as employer businesses with fewer than 100 employees.

In recent years, we believe the economy negatively impacted our operating results and/or our growth opportunities in our Small Business Services segment. We believe small businesses are more likely to be significantly affected by economic conditions than larger, more established companies. During a sluggish economy, it may be more difficult for small businesses to obtain credit and small businesses may choose to spend their limited funds on items other than our products and services. The National Federation of Independent Business (NFIB) publishes the results of quarterly surveys which provide an indication of small business owners' view of economic conditions. The index of small business optimism published by the NFIB in December 2016 was 105.8, the highest level since 2004, compared to 95.2 in December 2015. The net percent of small business owners expecting general conditions to be better 6 months from now also showed significant improvement in the fourth quarter of 2016, going from 0% in September 2016 to 50% in December 2016. If this more optimistic trend translates to sustainable economic growth, we should realize positive impacts on our business. However, we cannot predict whether economic trends will improve, stay the same or worsen in the near future.

Sales of business checks and forms have been declining, and we expect this trend to continue. In addition to the decrease in the use of checks due to the availability of alternative payment methods, continual technological improvements have provided small business customers with alternative means to execute and record business transactions. For example, because of the lower price and higher performance capabilities of personal computers, printers and mobile devices, small businesses now have alternate means to print many business forms. Additionally, electronic transaction systems, off-the-shelf business software applications, web-based solutions and mobile applications have been designed to replace pre-printed business forms. It is difficult to predict the pace at which these alternative products and services will achieve widespread acceptance.

Financial Institution Clients

Checks are most commonly ordered through financial institutions, including banks, credit unions and other financial services companies. As such, several developments related to financial institutions have affected the check printing portion of the payments industry.

Financial institutions seek to maintain the profits they have historically generated from their check programs, despite the decline in check usage. This continues to put significant pricing pressure on check printers. In addition, the number of potential financial institution clients in the United States is declining. According to statistics published by the Federal Deposit Insurance Corporation and the Credit Union National Association, the number of financial institutions has been declining for many years. When financial institutions consolidate through mergers and acquisitions, often the newly combined entity seeks to reduce costs by leveraging economies of scale in purchasing, including its check supply contracts. This results in check providers competing intensely on price in order to retain not only their previous business with one of the financial institutions, but also to gain the business of the other financial institution in the merger/acquisition. Financial institution mergers and acquisitions can also impact the duration of our contracts. Normally, the length of our supply contracts with financial institutions ranges from three to six years. However, contracts may be renegotiated or bought out mid-term due to a consolidation of financial institutions. Banks, especially larger ones, may request prepaid product discounts in the form of cash incentives payable at the beginning of a contract. These contract acquisition payments negatively impact check producers' cash flows at the beginning of these contracts. To the extent financial institution failures and consolidations impact large portions of our customer base, this could have a significant impact on our financial institution check programs.

Direct Mail Response Rates

Direct Checks and portions of Small Business Services have, at times, experienced declines in response rates related to direct mail promotional materials. While we believe that media response rates have declined across a wide variety of products and services, we believe that the declines we have experienced are also attributable to the decline in check usage, the gradual obsolescence of standardized forms and the increasing use of e-commerce by both consumers and small businesses. We continually evaluate our marketing techniques in order to utilize the most effective and affordable advertising media.

Competition

The markets for small business services and supplies are highly fragmented and geographically dispersed, with many small local suppliers, large national retailers and internet-based providers. In these markets, the competitive factors influencing a customer's purchase decision are breadth and quality of product and service offerings, ease of use of web and other services, price, speed of delivery, convenience, the responsiveness and quality of customer support, and past experience with the supplier. Our primary competitors include traditional storefront printing companies; office superstores; companies offering website design and hosting and domain name registration; wholesale printers; online printing companies; email and social media marketing services companies; small business products and services resellers; media directory providers; and on-line and off-line suppliers of custom apparel, promotional products and customized gifts. Additionally, the competitive landscape for e-commerce continues to be challenging as new internet businesses are introduced and traditional businesses establish an online presence. We believe we are well-positioned in this competitive landscape through our broad customer base, the breadth of our small business product and service offerings, multiple distribution channels, established relationships with our financial institution and telecommunications clients and other partners, competitive prices, ease of use of our web and other services, high quality and dependable service.

In the check printing portion of the payments industry, we face considerable competition from another large check printer in our traditional financial institution sales channel, from direct mail and internet-based sellers of personal and business checks, from check printing software vendors and from some retailers. We expect competition to remain intense as check usage continues to decline. Moreover, the check product must compete with alternative payment methods, including credit cards, debit cards, direct deposit, wire transfers and internet-based bill paying services, as well as automated teller machines, which make cash a more readily available alternative. The principal factors on which we compete are product and service breadth, price, quality and check merchandising program management. We believe the key items which differentiate us from our competition include our fully automated flat check delivery package, our online performance dashboard and portal analytics tools for financial institution branches, our personalized customer call center experience, and our Deluxe Business Advantage program, which provides a fast and simple way for financial institutions to offer expanded personalized service to small businesses. In addition, Small Business Services offers an electronically-delivered check solution, Deluxe eChecks, to provide our small business customers with an online payment solution.

At times, check suppliers have reduced the prices of their products during the supplier selection process in an attempt to gain greater volume. The corresponding pricing pressure has negatively impacted our profit margins. Pricing pressure will continue to impact our results of operations through lower pricing levels or client losses. Additionally, product discounts in the form of cash incentives payable to financial institutions upon contract execution are a common practice within the industry. Both the number of financial institution clients requesting these payments and the size of the payments has fluctuated in recent years. These up-front payments negatively impact check printers' cash flows at the beginning of the contracts, so we do attempt to minimize the use of up-front product discounts by structuring new contracts with alternative incentives throughout the duration of the contract.

Our Financial Services marketing solutions and other services offerings also face intense competition, including competition from financial institution core banking software providers, advertising agencies, providers of data and analytics marketing solutions, and numerous financial technology services providers offering services such as customer and account acquisition, fraud and security risk management, receivable management and treasury support services, and rewards and loyalty solutions. We expect the intensity of competition to increase from established and emerging financial technology companies. The competitive factors affecting Financial Services marketing solutions and other services offerings include breadth and quality of services, ease of use, price, solution completeness, responsiveness and quality of customer support, as well as the ability to manage end-to-end financial institution processes.

Seasonality

We experience seasonal trends in sales of some of our products. For example, holiday card, retail packaging sales, and rewards and loyalty solutions are typically stronger in the fourth quarter of the year due to the holiday season and FMCG Direct data-driven marketing solutions are usually higher in the fourth quarter of the year due to peak financial institution demand. Sales of tax forms are stronger in the first and fourth quarters of the year, and check sales for our Direct Checks segment have historically been stronger in the first quarter of the year. In addition, as revenue from our marketing solutions offerings continues to increase, we may experience some fluctuations in revenue driven by our clients' marketing campaign cycles.

Materials, Supplies and Service Providers

The principal materials used in producing our main products are paper, plastics, ink, cartons and printing plate material, which we purchase from various sources. We also purchase stock business forms and promotional apparel produced by third parties. We believe that we will be able to obtain an adequate supply of materials from current or alternative suppliers.

We have entered into agreements with third-party providers for information technology services, including telecommunications and network server and transaction processing services. We also rely upon third parties to provide a portion of the data used to maintain our proprietary and non-proprietary databases, including credit and non-credit data from the national

credit bureaus and other data brokers. We believe we would be able to obtain an alternative source of supply if one or more of our service providers failed to perform.

Governmental Regulation

We are subject to numerous international, federal, state and local laws and regulations that affect our business activities in areas including, but not limited to, labor, advertising, taxation, data privacy and security, digital content, consumer reports, consumer protection, online payment services, real estate, e-commerce, intellectual property, health care, environmental matters, and workplace health and safety. The cost of complying with these laws and regulations is significant and regulators may adopt new laws or regulations at any time. We believe that our business is operated in substantial compliance with all applicable laws and regulations. Further information regarding the impact of specific laws and regulations can be found in Item 1A of this report. At this time, we are not aware of any changes in laws or regulations that will have a significant impact on our business during 2017.

Intellectual Property

We rely on a combination of trademark and copyright laws, trade secret and patent protection, and confidentiality and license agreements to protect our trademarks, software and other intellectual property. These protective measures afford only limited protection. Despite our efforts to protect our intellectual property, third parties may infringe or misappropriate our intellectual property or otherwise independently develop substantially equivalent products or services that do not infringe on our intellectual property rights, either of which may adversely impact our results of operations. In addition, we may be the target of aggressive and opportunistic enforcement of patents by third parties, including non-practicing entities. Check designs licensed from third parties account for a portion of our revenue. These license agreements generally average two to three years in duration. There can be no guarantee that such licenses will be available to us indefinitely or under terms that would allow us to continue to sell the licensed products profitably. If we were to lose the rights to a significant portion of our licensed check designs, it may adversely impact our results of operations.

EMPLOYEES

As of December 31, 2016, we employed 5,433 employees in the United States, 574 employees in Canada and 19 employees in Europe. None of our employees are represented by labor unions, and we consider our employee relations to be good.

AVAILABILITY OF COMMISSION FILINGS

We make available through our investor relations website, Deluxe.com/investor, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to these reports filed or furnished pursuant to section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after these items are electronically filed with or furnished to the SEC. These reports can also be accessed via the SEC website, sec.gov, or via the SEC's Public Reference Room located at 100 F Street N.E., Washington, D.C. 20549. Information concerning the operation of the SEC's Public Reference Room can be obtained by calling 1-800-SEC-0330.

A printed copy of this report may be obtained without charge by calling 651-787-1068, by sending a written request to the attention of Investor Relations, Deluxe Corporation, P.O. Box 64235, St. Paul, Minnesota 55164-0235, or by sending an email request to investorrelations@deluxe.com.

Further information about Deluxe Corporation is also available at Deluxe.com, facebook.com/deluxecorp and twitter.com/deluxecorp.

CODE OF ETHICS AND CORPORATE GOVERNANCE GUIDELINES

We have adopted a Code of Ethics and Business Conduct that applies to all of our employees and our board of directors. The Code of Ethics and Business Conduct is available on our investor relations website, Deluxe.com/investor, and also can be obtained free of charge upon written request to the attention of Investor Relations, Deluxe Corporation, P.O. Box 64235, St. Paul, Minnesota 55164-0235. Any changes or waivers of the Code of Ethics and Business Conduct will be disclosed on our website. In addition, our Corporate Governance Guidelines and the charters of the Audit, Compensation, Corporate Governance and Finance Committees of our board of directors are available on our website or upon written request.

One of the policies supporting our Code of Ethics and Business Conduct addresses political contributions. It is not our practice to make political contributions. We permit political contributions only upon written approval by our most senior management in their capacity as the corporate Compliance Committee under our ethics and compliance program. The Compliance Committee has not approved any such contributions. We are a member of various trade groups that represent the

interests of specified industries. However, as a part of those memberships, we have not provided funds designated for political contributions.

EXECUTIVE OFFICERS OF THE REGISTRANT

Our executive officers are elected by the board of directors each year. The following summarizes our executive officers and their positions.

Name	Age	Present Position	Executive Officer Since
Lee Schram	55	Chief Executive Officer	2006
Pete Godich	52	Senior Vice President, Fulfillment	2008
Julie Loosbrock	57	Senior Vice President, Human Resources	2008
Malcolm McRoberts	52	Senior Vice President, Small Business Services	2008
John Filby	54	Senior Vice President, Financial Services	2012
Tracey Engelhardt	52	Vice President, Direct-to-Consumer	2012
Michael Mathews	44	Vice President, Chief Information Officer	2013
Amanda Brinkman	37	Vice President, Chief Brand and Communications Officer	2014
J. Michael Schroeder	49	Senior Vice President, General Counsel and Secretary	2016
Edward Merritt	50	Chief Financial Officer (interim), Treasurer and Vice President of Investor Relations	2016

Lee Schram has served as Chief Executive Officer since joining us in May 2006.

Pete Godich was named Senior Vice President, Fulfillment in March 2011.

Julie Loosbrock was named Senior Vice President, Human Resources in September 2008.

Malcolm McRoberts was named Senior Vice President, Small Business Services in February 2011.

John Filby joined us in April 2012 as Senior Vice President, Financial Services. From May 2008 to April 2012, Mr. Filby served as President of the risk and compliance division of Fiserv, Inc., a global provider of technology solutions to the financial services industry.

Tracey Engelhardt was named Vice President, Direct-to-Consumer in July 2012. From August 2011 to July 2012, Ms. Engelhardt served as Vice President, e-commerce for Small Business Services.

Michael Mathews joined us in May 2013 as Vice President, Chief Information Officer. Prior to joining us, Mr. Mathews served as Senior Vice President, Strategy and Enterprise Programs for UnitedHealth Group from July 2009 to May 2013. UnitedHealth Group is a publicly-traded diversified health and well-being company that provides health care coverage and benefits services and information and technology-enabled health services.

Amanda Brinkman joined us in January 2014 as Vice President, Chief Brand and Communications Officer. Prior to joining us, Ms. Brinkman was self-employed, operating her own brand agency from January 2013 to December 2013. From August 2009 to December 2012, Ms. Brinkman served as Vice President, Brand and Creative Services for Allianz Life Insurance Company of North America.

J. Michael Schroeder has served as Senior Vice President, General Counsel and Secretary since March 2016. Mr. Schroeder joined us in July 2014 as Associate General Counsel and Assistant Secretary. Prior to this, Mr. Schroeder served as Associate General Counsel for Millard Refrigerated Services, Inc., a national warehousing and logistics company, from November 2011 to July 2014.

Edward Merritt was named interim Chief Financial Officer in August 2016. Mr. Merritt joined us in August 2013 as Treasurer and Vice President of Investor Relations. Prior to this, Mr. Merritt served as Vice President of Treasury and Investor Relations for Digital River, Inc. from September 2007 to August 2013. Digital River is a global provider of cloud-based commerce, payments and marketing services.

Item 1A. Risk Factors.

Our business, consolidated results of operations, financial condition and cash flows could be adversely affected by various risks and uncertainties. These risks include, but are not limited to, the principal factors listed below and the other matters set forth in this Annual Report on Form 10-K. We have disclosed all known material risks. Additional risks not presently known to us, or that we currently believe are immaterial, may also adversely affect our business, results of operations, financial condition and/or cash flows. You should carefully consider all of these risks and uncertainties before investing in our common stock or other securities.

The following important factors could cause our actual results to differ materially from the statements we make from time to time regarding our expected future results, including, but not limited to, forecasts regarding revenue, marketing solutions and other services revenue, earnings per share, cash provided by operating activities and expected cost savings. Any forecast reflects various assumptions that are subject to significant uncertainties and, as a matter of course, may prove to be incorrect. Further, the achievement of any forecast depends on numerous factors that are beyond our control. Consequently, we caution investors that forward-looking statements are predictions based on our current expectations about future events and are not guarantees of future performance. The variation of actual results or events from such statements may be material and adverse. You are cautioned not to base your entire analysis of our business and prospects upon isolated statements, and are encouraged to use the entire mix of historical and forward-looking information made available by us, and other information affecting us and our products and services, including the following factors.

We may not be successful at implementing our growth strategies.

We continue to execute strategies intended to drive sustained revenue and earnings growth, including our focus on increasing marketing solutions and other services revenue, which we believe represents our most significant revenue growth opportunity. We have invested and plan to continue investing in several key enablers to achieve our strategies, including strengthening our portfolio of products and services, including technology-based solutions: enhancing brand awareness and positioning; attracting and retaining customers; growing our major accounts and dealer networks; improving the customer experience; and investing in small to medium-sized acquisitions. Our business strategies could fall short of our expectations for many reasons, including, among others:

- our failure to generate profitable revenue growth;
- our failure to acquire new customers, retain our current customers and sell more products and services to current and new customers;
- our failure to effectively operate, integrate or leverage the businesses we acquire;
- the failure of our digital services and products to achieve widespread customer acceptance;
- our inability to promote, strengthen and protect our brand;
- our inability to implement improvements to our technology in a timely manner;
- our failure to effectively manage growth, including enhancements to our operational, financial and management capabilities and controls and our reporting systems and procedures; and
- a continued challenging economic environment.

In addition, we are focused on targeting our suite of financial technology ("FinTech") solutions to larger financial institutions. These FinTech offerings include data-driven marketing solutions, including outsourced marketing campaign targeting and execution; treasury management solutions; and digital enablement solutions, including loyalty and rewards programs. If we are able to increase sales of these services to larger financial institutions, the resulting customer concentration could increase the risk of quarterly fluctuations in our operating results and our sensitivity to any material, adverse developments experienced by our significant customers. In addition, our top customers' purchasing power could, in some cases, give them the ability to make greater demands with regard to pricing and contractual terms in general.

We can provide no assurance that our growth strategies will be successful either in the short-term or in the long-term, that they will generate a positive return on our investment, or that they will not reduce our operating margins. Additionally, if our strategies are not successful, or if there is market perception that our strategies are not successful, our reputation and brand may be damaged and our stock price may decline.

If we are unable to attract customers in a cost effective manner, our business and results of operations would be adversely affected.

We use a variety of methods to promote our products and services, including direct mail advertising, email marketing, purchased search results from online search engines, broadcast media, advertising banners, social media and other online links. The profitability of our Direct Checks segment depends in large part on our ability to secure adequate advertising media placements at acceptable rates. We can provide no assurance regarding the future cost, effectiveness and/or availability of suitable advertising media. Additionally, our Direct Checks segment and portions of our Small Business Services segment have, at times, experienced declines in response rates related to direct mail promotional materials. While we believe that media response rates have declined across a wide variety of products and services, we believe that the declines we have experienced are also attributable to the decline in check usage, the gradual obsolescence of standardized forms products and the increasing

use of e-commerce by both consumers and small businesses. In an attempt to offset these impacts, we continually modify our marketing and sales efforts and continue to shift a greater portion of our advertising investment to the internet. Competitive pressure may inhibit our ability to reflect increased costs in the prices of our products and new marketing strategies may not be successful. We can provide no assurance that we will be able to offset a decline in response rates, even with additional marketing and sales efforts.

In addition to print and email advertising, many customers come to our websites through internet search engines. If the search engines on which we rely modify their algorithms or terminate their relationship with us, fewer customers may be directed to our websites. As we analyze our overall advertising strategy, we may be forced to resort to more costly resources to replace lost internet traffic, which would adversely affect our results of operations. In addition, the cost of purchased search engine listings will likely increase as demand for them continues to grow, and further cost increases could negatively affect our profitability.

We believe we must maintain a relevant, multichannel experience for our customers. Customers expect to be able to order products and services from us however they please, whether that is via the mail, land-line phone, computer, tablet or mobile phone. In particular, the use of smart phones and tablet computing devices has been increasing significantly. The Internet Trends Report published in June 2015 by Kleiner Perkins Caufield and Byers (KPBC) indicated that mobile devices are now used more than desktops and laptops to access the internet. As current and potential customers increase their use of mobile devices, visits to our websites via traditional computers may decline. Designing and purchasing custom products on mobile devices is more difficult than doing so with a traditional computer due to limited screen sizes and bandwidth. Beyond these difficulties, the development of mobile-oriented user interfaces and other technologies is complex and expensive. We are also dependent on the functionality of our systems with web browsers, mobile devices and operating systems that are controlled by third parties. These parties frequently introduce new devices, and from time to time they may introduce new operating systems or modify existing ones. Network carriers may also impact the ability to access specified content on mobile devices. Although we are constantly making investments to update our technology, we cannot predict the success of these investments. Multichannel marketing is rapidly evolving and we must keep pace with the changing expectations of our customers and new developments by our competitors. If we are unable to implement improvements to our customer-facing technology in a timely manner, or if our customer-facing technology does not function as designed, we could find it increasingly difficult to attract new and repeat visitors to our websites and convert these visitors to customers, which would result in decreased revenue.

The check printing and related products portion of the payments industry is mature, and check usage is declining.

Check printing continues to be an essential part of our business. Revenue generated by the sale of checks was 46.8% of our consolidated revenue in 2016. We sell checks for personal and small business use and believe that there will continue to be a substantial demand for these checks for the foreseeable future, although the total number of checks written in the United States has been in decline since the mid-1990's. According to the most recent Federal Reserve study released in December 2016, the total number of checks written declined 4.8% each year between 2012 and 2015. We believe that the number of checks written will continue to decline due to the increasing use of alternative payment methods, including credit cards, debit cards, direct deposit, wire and ACH transfers, and internet-based bill paying services, as well as automated teller machines, which make cash a more readily available alternative.

In addition, steps have been taken in the development of a real-time payments system in the United States. The Federal Reserve established the Faster Payments Task Force with the objective of identifying and evaluating approaches for implementing a faster payments system and is encouraging the private sector to create real-time payment solutions. In April 2016, FIS, a FinTech company, and The Clearing House Payments Company, LLC announced plans to run a nation-wide real-time payments system pilot during the first quarter of 2017. Also, a number of financial institutions are members of Early Warning's clearXchange® network and/or Zelle℠, which enable their customers to send or receive real-time person-to-person payments to or from customers of participating network banks, and person-to-person digital wallet services such as Venmo® allow individuals to transfer funds to other users. While we cannot predict the impact real-time payment systems will have on check usage, nor the speed at which such systems will become prevalent in the United States, a related study commissioned by the Federal Reserve from McKinsey & Company concluded that check usage could be reduced by one-third if a real-time payments system were to become widely available in the United States.

The rate and the extent to which alternative payment methods will achieve acceptance and replace checks, whether as a result of legislative developments, changing payment systems, personal preference or otherwise, cannot be predicted with certainty. A surge in the popularity of any of these alternative payment methods, or our inability to successfully offset the decline in check usage with other sources of revenue, would have an adverse effect on our business and results of operations.

Small Business Services' standardized business forms and related products face technological obsolescence and changing customer preferences.

Revenue generated by the sale of business forms was 11.6% of our consolidated revenue in 2016. Continual technological improvements have provided small business customers with alternative means to execute and record business transactions. For example, because of the lower price and higher performance capabilities of personal computers, printers and mobile devices, small businesses now have alternate means to print many business forms. Additionally, electronic transaction

systems, off-the-shelf business software applications, web-based solutions and mobile applications have been designed to replace pre-printed business forms. It is difficult to predict the pace at which these alternative products and services will achieve widespread acceptance and replace standardized business forms. If small business preferences change rapidly and we are unable to develop new products and services with comparable operating margins, our results of operations would be adversely affected.

We face intense competition in all areas of our business, and we expect that competition will continue to increase.

Although we are one of the leading check printers in the United States, we face considerable competition. In addition to competition from alternative payment methods, we also face intense competition from another large check printer in our traditional financial institution sales channel, from direct mail and internet-based sellers of personal and business checks, from check printing software vendors and from some retailers. In addition, the markets for small business and financial services products and services are intensely competitive, highly fragmented and geographically dispersed. Current and potential Small Business Services competitors include traditional storefront printing companies; office superstores; companies offering website design and hosting and domain name registration; wholesale printers; online printing companies; email and social media marketing services companies; small business products and services resellers; media directory providers; and offline and online suppliers of custom apparel, promotional products and customized gifts. Additionally, the competitive landscape for e-commerce continues to be challenging as new internet businesses are introduced and traditional businesses establish an online presence. Current and potential competitors for Financial Services service offerings include financial institution core banking software providers, advertising agencies, providers of data and analytics marketing solutions, and numerous financial technology services providers offering services such as customer and account acquisition, fraud and security risk management, receivable management and treasury support services, and rewards and loyalty solutions. In addition, many of our potential financial institution clients have historically developed their key applications in-house and thus, we must compete with their in-house capacities. For financial institutions, switching from one vendor to another is a significant undertaking, with some potential clients perceiving disadvantages such as loss of accustomed functionality, conversion costs and business disruption. Through our ongoing efforts to expand well beyond our legacy check-related products, we strive to overcome this resistance to changing vendors. We offer several solutions designed to help financial institutions operate more effectively and better address the needs of their customers throughout the customer life cycle, building on our reputation as a longstanding and trusted partner of financial institutions.

We can provide no assurance that we will be able to compete effectively against current and future competitors. In recent years, our revenue has benefited from price increases in all three of our business segments. Pricing is becoming more competitive for small business product and service providers, as the internet allows customers to easily compare prices. Pricing also continues to be competitive in our financial institution sales channel, as financial institutions seek to maintain their previous levels of profitability, even as check usage declines. We can provide no assurance that we will be able to increase prices in the future while remaining competitive. Continued competition could result in price reductions, reduced profit margins, loss of customers and brand recognition, and an increase in up-front cash payments to financial institutions upon contract execution or renewal, all of which would have an adverse effect on our results of operations and cash flows.

Security breaches, computer malware or other cyber attacks involving the confidential information of our customers, employees or business partners, or the perception that e-commerce is not secure, could substantially harm our reputation and business.

Information security risks have increased in recent years, in part because of the proliferation of new technologies and increased use of the internet, as well as the increased sophistication and activities of hackers, terrorists and activists, some of which may be linked to hostile foreign governments. We use internet-based channels that collect customers’ account and credit card information, as well as other sensitive information, including intellectual property, proprietary business information and personally identifiable information of our customers, employees and suppliers. We process hundreds of millions of records containing data related to individuals and small businesses. The secure and uninterrupted operation of our networks and systems, and of the processing and maintenance of this information, is critical to our business operations and strategy. We rely on various security procedures and systems to ensure the secure storage and transmission of information, including encryption and authentication technology licensed from third parties. Computer networks and the internet are, by nature, vulnerable to unauthorized access. An accidental or willful security breach could result in unauthorized access and/or use of customer information, including consumers' nonpublic personal information. Our security measures could be breached by third-party action, computer viruses, accidents, or error or malfeasance by an employee or contractor. Because techniques used to obtain unauthorized access, disable or degrade service, or sabotage computer systems change frequently, may be difficult to detect immediately, and generally are not recognized until they are launched against a target, we may be unable to implement adequate preventive measures. Unauthorized parties may also attempt to gain access to our systems or facilities through various means, including hacking into our systems or facilities, fraud, trickery or other means of deceiving employees, contractors and temporary staff. We have encountered threats of this type from time to time, and while to-date, such threats have not materially impacted our business or financial results, we can provide no assurance of a similar result in the future.

Although we continue to invest in a system of information security and controls, a party that is able to circumvent our security measures could misappropriate our or our customers' proprietary information, cause interruption in our operations, damage our computers or those of our users, or otherwise damage our reputation, all of which could deter clients and

consumers from ordering our products and services, and result in the termination of client contracts. Any of these events would adversely affect our business and financial results. In addition, if we were to experience an information security breach, we may be required to expend significant amounts to remedy, protect against, or mitigate the effect of the breach, and we may not be able to remedy the situation in a timely manner, or at all. We could also be exposed to time-consuming and expensive litigation, government inquiries and/or enforcement actions. If we are unsuccessful in defending a lawsuit regarding information security breaches, we may be forced to pay damages, penalties and fines, any of which would have an adverse effect on our financial results.

In addition, there are federal, state and foreign laws requiring companies to notify individuals of information security breaches involving their personal data, the cost of which could negatively affect our financial results. These mandatory disclosures regarding an information security breach often lead to widespread negative publicity. If we were required to make such a disclosure, it may cause our clients and customers to lose confidence in the effectiveness of our information security measures. Likewise, general publicity regarding information security breaches at other companies could lead to the perception among the general public that e-commerce is not secure. This could decrease traffic to our websites, negatively affect our financial results and limit future business opportunities.

Interruptions to our website operations or information technology systems, or failure to maintain our information technology platform, could damage our reputation and harm our business.

The satisfactory performance, reliability and availability of our information technology systems is critical to our reputation and our ability to attract and retain customers. We could experience temporary interruptions in our websites, transaction processing systems, network infrastructure, service technologies, printing production facilities or customer service operations for a variety of reasons, including, among others: human error, software errors, security breaches, power loss, telecommunications failures, equipment failures, vandalism, fire, flood, extreme weather, terrorism, and other events beyond our control. In addition, our technology, infrastructure and processes may contain undetected errors or design faults that may cause our websites or operating systems to fail, and certain of our operating systems are unsupported. Our disaster recovery planning may not account for all eventualities. During 2016, we shifted a large portion of our applications to a private cloud-based environment, with the intention to eventually shift a substantial portion of our applications to this environment. While we maintain redundant systems and backup databases and applications software to ensure continuous access to cloud services, it is possible that access to our software capabilities could be interrupted. The failure of our systems could interfere with the delivery of products and services to our customers, impede our customers' ability to do business and result in the loss or corruption of critical data. In addition to the potential loss of customers, we may be required to incur additional development costs and divert technical and other resources, and we may be the subject of negative publicity and/or liability claims, all of which would adversely affect our reputation and operating results.

In addition, our continued development and implementation of new generation software solutions and information technology infrastructure may take longer than originally expected and require the acquisition of additional personnel and other resources, which may adversely affect our business, results of operations and financial condition. Any inability to deploy new generation information technology throughout our organization would result in our operating multiple platforms, which would increase costs.

We face uncertainty regarding the success of recent and future acquisitions, which could have an adverse impact on our operating results.

We have acquired several companies in recent years, the details of which appear under the caption “Note 5: Acquisitions” of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. We have invested in acquisitions that offer marketing solutions and other services and that extend the range of products and services we offer to financial institutions and small businesses. In addition, over the past several years, we have purchased the operations of several small business distributors with the intention of growing revenue in our major accounts and dealer channels. The integration of any acquisition involves numerous risks, including, among others:

- difficulties and/or delays in assimilating operations, products and services, as well as ensuring that a strong system of information security and controls is in place;
- failure to realize expected synergies and savings;
- diversion of management's attention from other business concerns and risks of managing an increasingly diverse set of products and services across expanded and new industries;
- decisions by our customers or the customers of the acquired business to temporarily or permanently seek alternate suppliers;
- failure to address legacy distributor account protection rights;
- difficulty in maintaining controls, procedures and policies;
- unidentified issues not discovered during our due diligence process, including product or service quality issues, intellectual property issues and tax or legal contingencies; and
- potential loss of key employees.

One or more of these factors could impact our ability to successfully operate, integrate or leverage an acquisition and could negatively affect our results of operations.

We expect to continue to invest in small to medium-sized acquisitions. The time and expense associated with finding suitable businesses, technologies, or services to acquire can be disruptive to our ongoing business and may divert management's attention. We cannot predict whether suitable acquisition candidates can be acquired on acceptable terms or whether any acquired products, technologies or businesses will contribute to our revenue or earnings to any material extent. We may need to seek financing for larger acquisitions, which would increase our debt obligations and may not be available on terms that are favorable to us. Additionally, significant acquisitions typically result in additional contingent liabilities and/or additional amortization expense related to acquired intangible assets, and thus, could adversely affect our business, results of operations and financial condition.

We may not succeed in promoting and strengthening our brand, which could prevent us from acquiring customers and increasing revenue.

The success of Small Business Services depends, in part, on our ability to attract new and repeat customers. For this reason, a component of our business strategy is the promotion and strengthening of the Deluxe brand. We believe that the importance of brand recognition is essential for the success of our service offerings because of the level of competition for these services. Customer awareness of our brand, as well as the perceived value of our brand, will depend largely on the success of our marketing efforts and our ability to provide a consistent, high quality customer experience. To promote our brand, we have incurred, and will continue to incur, expense related to advertising and other marketing efforts. We can provide no assurance that these efforts will be successful. There is also the risk that negative information about Deluxe, even if based on rumor or misunderstanding, could adversely affect our business. During 2015, we entered into a partnership with Robert Herjavec of the television show *Shark Tank*, which offers us the opportunity to provide marketing support to the businesses in which he invests. If Mr. Herjavec were to become the subject of adverse news reports or negative publicity, such events could reduce the effectiveness of our partnership, which in turn, could adversely affect our business and results of operations.

A component of our brand promotion strategy is establishing a relationship of trust with our customers, which we believe can be achieved by providing a high-quality customer experience. We have invested, and will continue to invest, resources in website development, design and technology, and customer service and production operations. Our ability to provide a high-quality customer experience is also dependent on external factors including the reliability and performance of our suppliers, telecommunications providers and third-party carriers. If we are unable to provide a high-quality customer experience for any reason, our reputation may be harmed and our efforts to develop brand loyalty could be adversely impacted. The failure of our brand promotion activities to meet our expectations could adversely affect our ability to attract new customers and maintain customer relationships, adversely harming our business and results of operations.

If we do not adapt to changes in technology in a timely and cost-effective manner, our ability to sustain and grow our business could be adversely affected.

Changes in the nature of technology solutions used by small businesses and their customers may occur rapidly. In addition, the markets for many of the services provided by our Financial Services segment are characterized by constant technological changes. The introduction of competing products and services using new technologies, the evolution of industry standards or the introduction of more attractive products or services could make some or all of our products and services less desirable, or even obsolete. These potential changes are magnified by the intense competition we face. To be successful, our technology-based products and services must keep pace with technological developments and evolving industry standards, address the ever-changing and increasingly sophisticated needs of our customers, and achieve market acceptance. We could lose current and potential customers if we are unable to develop products and services that meet these changing demands in a timely manner. Additionally, our operating results could be adversely affected if we are required to incur substantial costs to keep pace with technological advances.

If third-party providers of certain significant information technology needs are unable to provide services, our business could be disrupted and the cost of such services could increase.

We have entered into agreements with third-party providers for information technology services, including telecommunications, network server and transaction processing services. In addition, we have agreements with companies to provide services such as on-line payment solutions. A service provider's ability to provide services could be disrupted for a variety of reasons, including unauthorized access, computer viruses, accidental or intentional actions, electrical disruptions, or other conditions. In the event that one or more of our service providers is unable to provide adequate or timely information technology services, our ability to deliver products and services to our customers could be adversely affected. Although we believe we have taken adequate steps to protect our business through contractual arrangements with our service providers, we cannot completely eliminate the risk of disruption in service. Any significant disruption could harm our business, including damage to our brand and loss of customers. Additionally, although we believe that information technology services are available from numerous sources, a failure to perform by one or more of our service providers could cause a disruption in our business while we obtain an alternative source of supply. The use of substitute third-party providers could also result in increased expense.

Governmental regulation is continuously evolving and could limit or harm our business.

We are subject to numerous international, federal, state and local laws and regulations that affect our business activities in areas including, but not limited to, labor, advertising, taxation, data privacy and security, digital content, consumer reports, consumer protection, online payment services, real estate, e-commerce, intellectual property, health care, environmental matters, and workplace health and safety. The cost of complying with these laws and regulations is significant. In addition, regulators may adopt new laws or regulations at any time, including triggering enforcement actions, or their interpretation of existing laws may change and/or differ from ours. These various regulatory requirements could impose significant limitations on our business activities, require changes to our business, restrict our use or storage of personal information, or cause changes in our customers' purchasing behavior which may make our business more costly and/or less efficient and may require us to modify our current or future products, services, systems or processes. We cannot quantify or predict with any certainty the likely impact of such changes on our business, prospects, financial condition or results of operations.

Portions of our business are subject to regulations implementing the privacy and information security requirements of the federal financial modernization law known as the Gramm-Leach-Bliley Act, as well as the consumer reporting obligations of the Fair Credit Reporting Act, the Fair and Accurate Credit Transactions Act, the Electronic Communications Privacy Act and other federal, state and foreign laws and regulations regarding the protection of certain consumer information. These laws and regulations require us to develop, implement and maintain policies and procedures to protect the security and confidentiality of consumers' nonpublic personal information. Portions of our business are subject to regulations affecting payments including ACH, remote deposit capture, and lockbox services. These laws and regulations require us to develop, implement, and maintain policies and procedures related to payments processing. We are also subject to additional requirements in certain of our contracts with financial institution clients and communications service providers, which are often more restrictive than the regulations, as well as confidentiality clauses in certain of our contracts related to small businesses' customer information. These regulations and agreements typically limit our ability to use or disclose nonpublic personal information for other than the purposes originally intended, which could limit business opportunities. Proposed cyber security regulations may increase the costs of compliance for the protection of nonpublic personal information. The complexity of compliance with regulations may also increase our cost of doing business. It may also affect our financial institution clients, reducing their discretionary spending and thus, possibly reducing the amount they spend on our products and services.

Due to our increasing use of the internet for sales and marketing, laws specifically governing digital commerce, the internet, mobile applications, search engine optimization, behavioral advertising and email marketing may have an impact on our business. Existing and future laws governing issues such as digital and social marketing, privacy, consumer protection or commercial email may limit our ability to market and provide our products and services. Changing data protection regulations may increase the costs of compliance in servicing international markets for our wholesale and retail business services channels. More restrictive legislation, such as new privacy laws, search engine marketing restrictions, "anti-spam" regulations, or email privacy rules, could decrease marketing opportunities, decrease traffic to our websites, and/or increase the cost of obtaining new customers.

The Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Act") and related guidance from regulators continues to increase the complexity of consumer protection rules for financial institutions and introduces more restrictive selling practices and more stringent regulatory capital requirements for financial institutions. Because of the additional costs, financial institutions may put significant pricing pressure on their suppliers, including their check and service providers. The increase in cost and profit pressure may also lead to further consolidation of financial institutions. Additionally, the Act gave the Consumer Financial Protection Bureau (CFPB) the authority to pursue financial institutions engaged in unfair, deceptive or abusive practices. The CFPB's rule-making and enforcement power may also extend to financial institutions' service providers, based on the type of financial product or service being provided. This has made some financial institutions wary of offering add-on services, such as bundled products, fraud/identity protection, expedited check delivery or rewards programs, to their customers. It would have an adverse impact on our results of operations if we were unable to market such services to consumers or small businesses through our financial institution clients. Additionally, as our product and service offerings become more technologically focused, and with expanded regulatory expectations for supervision of third-party service providers, additional portions of our business could become subject to direct federal regulation and/or examination. This would increase our cost of doing business and could slow our ability to introduce new products and services and otherwise adapt to a rapidly changing business environment.

The Securities and Exchange Commission (SEC) issued final rules mandated by the Act regarding disclosure of the use of tin, tungsten, tantalum and gold, known as conflict minerals, in products manufactured by public companies. These rules require a reasonable country of origin inquiry to determine whether such minerals originated from the Democratic Republic of Congo or an adjoining country. Accordingly, we implemented a reasonable country of origin inquiry program in order to complete the conflict minerals disclosures required in our Form SD filings with the SEC. There are costs associated with complying with these rules and the sourcing, supply and pricing of materials used in our products could be adversely affected. Also, we may face reputational challenges if we determine that certain of our products contain minerals not determined to be conflict-free or if we are unable to sufficiently verify the origin of all conflict minerals used in our products.

We are subject to environmental risks which, if realized, could have an adverse impact on our operating results. Our printing facilities are subject to many federal, state and local regulations designed to protect the environment, including those related to air emissions, wastewater discharge, waste disposal, and remediation of contaminated sites. We have sold former printing facilities to third parties and, in some instances, have agreed to indemnify the buyer of the facility for certain environmental liabilities. Unforeseen conditions at current or former facilities could result in additional liability and expense beyond our insurance coverage. The effects of human activity on global climate change have attracted considerable public and scientific attention, as well as the attention of the United States government. Regulation or some form of legislation aimed at reducing greenhouse gas (GHG) emissions is currently being considered in the United States. Even in the absence of such legislation, the Environmental Protection Agency, spurred by judicial interpretation of the Clean Air Act, may regulate GHG emissions, Government regulation to limit carbon dioxide and other GHG emissions as a result of concern over climate change could result in increased compliance costs and other financial obligations, which would adversely affect our operating results.

Sales and other tax collection requirements could have an adverse effect on our business. We currently collect sales, use and similar taxes in jurisdictions where our legal entities have a physical presence, in accordance with landmark decisions of the U.S. Supreme Court. States and local jurisdictions have begun enacting legislation requiring collection beyond our current practices. This potential increased cost to our customers may discourage them from purchasing our products and services, which would have an adverse effect on our business. Furthermore, if one or more state or local jurisdictions successfully asserts that we should have collected sales or other taxes in the past, but did not, we could incur a substantial liability for uncollected taxes. In addition, federal and state income tax laws and regulations are subject to change and could have an adverse impact on our consolidated results of operations and financial position.

Economic conditions could have an adverse effect on operating results in each of our business segments.

Economic conditions have affected, and will continue to affect, our results of operations and financial position. Current and future economic conditions that affect consumer and business spending, including unemployment levels, the availability of credit, and small business confidence, as well as the financial condition and growth prospects of our customers, may adversely affect our business and results of operations.

A significant portion of our business relies on small business spending. As such, the level of small business confidence and the rate of small business formations and closures impact our business. In recent years, below average small business optimism, as well as declines in small business formations and increases in small business closures, negatively impacted our results of operations and/or our growth opportunities in Small Business Services. We believe small businesses are more likely to be significantly affected by economic downturns than larger, more established companies. During a sluggish economy, it may be more difficult for small businesses to obtain credit and small businesses may choose to spend their limited funds on items other than our products and services. Within our personal check printing businesses, consumer spending, employment levels, and housing stock and starts impact the number of checks consumers use. We estimate that the 2016 growth rates for consumer spending and private sector employment most likely had a slightly negative impact on our personal check businesses. An increase in housing stock and starts has a positive impact on the number of checks purchased, as new households typically are in need of new checks. According to statistics released by the U.S. Census Bureau in January 2017, housing units completed during 2016 increased almost 10% as compared to 2015. We cannot predict whether these economic trends will improve, stay the same or worsen in the near future.

As a result of global economic conditions in recent years, a number of financial institutions sought additional capital, merged with other financial institutions and, in some cases, failed. This turmoil in the financial services industry affected and may continue to affect our results of operations. The failure of one or more of our larger financial institution clients, or large portions of our customer base, could adversely affect our operating results. In addition to the possibility of losing a significant client, the inability to recover contract acquisition payments made to one or more of our larger financial institution clients, or the inability to collect accounts receivable or contractually required contract termination payments, could have a significant negative impact on our results of operations. There may also be an increase in financial institution mergers and acquisitions during periods of economic uncertainty. Such an increase could adversely affect our operating results. Often the newly combined entity seeks to reduce costs by leveraging economies of scale in purchasing, including its check supply contracts. This results in check providers competing intensely on price in order to retain not only their previous business with one of the financial institutions, but also to gain the business of the other party in the merger/acquisition. Although we devote considerable effort toward the development of a competitively-priced, high-quality suite of products and services for the financial services industry, there can be no assurance that significant financial institution clients will be retained or that the impact of the loss of a significant client can be offset through the addition of new clients or by expanded sales to our remaining clients.

A deterioration in financial markets and/or in general business conditions in 2017 would negatively affect our operating results.

The cost and availability of materials, delivery services and energy could adversely affect our operating results.

We are subject to risks associated with the cost and availability of paper, plastics, ink, retail packaging supplies, promotional materials, other raw materials, delivery services and energy. Paper costs represent a significant portion of our materials cost. Paper is a commodity and its price has been subject to volatility due to supply and demand in the marketplace,

as well as volatility in the raw material and other costs incurred by our paper suppliers. There are also relatively few paper suppliers. As such, when our suppliers increase paper prices, we may not be able to obtain better pricing from alternative suppliers. Historically, we have not been negatively impacted by paper shortages because of our relationships with paper suppliers. However, we can provide no assurance that we will be able to purchase sufficient quantities of paper if such a shortage were to occur.

We depend upon third-party providers for delivery services and for outsourced products and services. Events resulting in the inability of these service providers to perform their obligations, such as work slowdowns or extended labor strikes, could adversely impact our results of operations by requiring us to secure alternate providers at higher costs. Postal rates are dependent on the operating efficiency of the United States Postal Service (USPS) and on legislative mandates imposed upon the USPS. Postal rates have increased in recent years and the USPS has incurred significant financial losses. This may result in changes to the breadth and/or frequency of USPS mail delivery services in the future. In addition, fuel costs have fluctuated over the past several years. Increased fuel costs can increase the costs we incur to deliver products to our customers, as well as the price we pay for outsourced products and services. Competitive pressures and/or contractual arrangements may inhibit our ability to reflect increased costs in the price of our products.

The failure to reduce costs could have an adverse impact on our operating results.

Intense competition, declines in the use of checks and business forms, the commoditization of web services, and sluggish economic conditions compel us to continually improve our operating efficiency in order to maintain or improve profitability. We have significantly reduced costs over the past several years, primarily within sales, marketing, service fulfillment and operational support, as well as our shared services functions, including product fulfillment, information technology, real estate, finance and human resources. We realized net cost reductions of approximately $50 million in 2016, as compared to our 2015 results of operations, and we will continue to explore ways to simplify our business processes and reduce our cost and expense structure. Cost reduction initiatives have required and will continue to require up-front expenditures related to items such as redesigning and streamlining processes, consolidating information technology platforms, standardizing technology applications, further enhancing our strategic supplier sourcing arrangements, improving real estate utilization and funding employee severance benefits. We can provide no assurance that we will achieve future cost reductions or that we will do so without incurring unexpected or greater than anticipated expenditures. Moreover, we may find that we are unable to achieve business simplification and/or cost reduction goals without disrupting our business and, as a result, may choose to delay or forgo certain cost reductions as business conditions require. Failure to continue to improve our operating efficiency could adversely affect our business if we are unable to remain competitive.

Asset impairment charges would have a negative impact on our consolidated results of operations.

Goodwill and an indefinite-lived trade name represented 51.5% of our total assets as of December 31, 2016. On at least an annual basis, we assess whether the carrying value of these assets is impaired. This analysis considers factors including, but not limited to, economic, market and industry conditions. For example, if our stock price were to decline for a sustained period, if a downturn in economic conditions were to negatively affect our actual and forecasted operating results, if order volume declines for our Direct Checks segment were to accelerate, or if recent acquisitions were to fail to achieve expected operating results, these situations could indicate a decline in the fair value of one or more of our reporting units. This may require us to record an impairment charge for a portion of goodwill and/or our indefinite-lived trade name. We are also required to assess the carrying value of other long-lived assets, including intangibles and assets held for sale. If we were required to record an asset impairment charge for any reason, our consolidated results of operations would be adversely affected.

We could lose access to data sources which could harm our ability to provide certain of our products and services.

We rely upon data from external sources to maintain our proprietary and non-proprietary databases, including data received from customers, strategic partners and various government and public record sources. This data includes credit and non-credit data from the national credit bureaus and other data brokers. Although we have not experienced material issues in this regard, our data sources could stop providing data, provide untimely data or increase the costs for their data for a variety of reasons, including legislatively or judicially imposed restrictions on use, a perception that our systems are insecure, or for competitive reasons. If a substantial number of data sources or certain key data sources were to withdraw their services, if we were to lose access to data due to government regulation, if we were to lose exclusive right to the use of data, or if the collection of data were to become uneconomical, our ability to provide our products and services could be negatively impacted. We can provide no assurance that we would be able to obtain data from alternative sources if our current sources become unavailable.

Third-party claims could result in costly litigation, and in the event of an unfavorable outcome, could have an adverse effect on our business, financial condition and results of operations.

From time to time, we are involved in claims, litigation and other proceedings relating to the conduct of our business, including purported class action litigation. Such legal proceedings may include claims related to our employment practices, claims alleging breach of contractual obligations, claims asserting deceptive business practices or claims alleging violations of consumer protection-oriented laws. In addition, third parties may assert patent and other intellectual property infringement claims against us and/or our clients, which could include aggressive and opportunistic enforcement of patents by non-practicing entities.

Any such claims could result in litigation against us and could also result in proceedings being brought against us by various federal and state agencies that regulate our business. The number and significance of these claims and proceedings has increased as our businesses have evolved and expanded in scope. These claims, whether successful or not, could divert management's attention, result in costly and time-consuming litigation, or both. Accruals for identified claims or lawsuits are established based on our best estimates of our probable liability. However, we cannot accurately predict the ultimate outcome of any such proceedings due to the inherent uncertainties of litigation and other dispute resolution mechanisms. Any unfavorable outcome of a material claim or material litigation could result in a material adverse effect on our business, financial condition and results of operations.

We are subject to customer payment-related risks, which could adversely affect our business and financial results.

We accept payments for our products and services on our websites by a variety of methods, including credit and debit cards, checks and wire transfers. For debit and credit cards, we pay interchange and other fees that may increase over time. We are also subject to payment card association operating rules and requirements, which have changed over time and could change in the future or be reinterpreted to make it more costly, more difficult or impossible for us to comply. If we fail to comply with these rules and requirements, we may be subject to fines and/or higher transaction fees. Any changes could increase our cost of compliance, which would negatively affect our financial results. We could also lose our ability to accept credit and debit card payments from our customers, which would likely result in the loss of customers and the inability to attract new customers.

In addition, we may be liable for fraudulent transactions conducted on our websites, such as the use of stolen credit card numbers. To date, we have not incurred significant losses from payment-related fraud, but we continue to face the risk of losses from this type of fraud.

If we are unable to attract and retain key personnel and other qualified employees, our business could suffer.

The success of our business depends on the contributions and abilities of key employees, especially in the areas of sales, marketing, product management, data analytics and information technology. If we are unable to retain our existing employees and/or attract qualified personnel, we may not be able to grow and manage our business effectively. We can provide no assurance that we will be successful in attracting and retaining such personnel.

We may be unable to protect our rights in intellectual property, which could harm our business and ability to compete.

We rely on a combination of trademark and copyright laws, trade secret and patent protection, and confidentiality and license agreements to protect our trademarks, software and other intellectual property. These protective measures afford only limited protection. Despite our efforts to protect our intellectual property, third parties may infringe or misappropriate our intellectual property or otherwise independently develop substantially equivalent products or services that do not infringe on our intellectual property rights. We may be required to spend significant resources to protect our trade secrets and to monitor and police our intellectual property rights. The loss of intellectual property protection or the inability to secure or enforce intellectual property protection could harm our business and ability to compete.

We may be unable to maintain our licenses to use third-party intellectual property on favorable terms, which would affect our ability to offer licensed products to our customers, and thus, adversely affect our operating results.

Check designs licensed from third parties account for a portion of our revenue. These license agreements generally average two to three years in duration. There can be no guarantee that such licenses will be available to us indefinitely or under terms that would allow us to continue to sell the licensed products profitably. If we were to lose the rights to a significant portion of our licensed check designs, it may adversely impact our results of operations.

A decline in the value of our postretirement medical plan assets and/or a significant increase in the number of participants in our postretirement medical plan could adversely affect our operating results and cash flows.

The fair value of our postretirement medical plan assets is subject to various risks, including credit, interest and overall market volatility risk. If the equity markets were to experience a significant decline in value, the fair value of our plan assets would decrease. This would affect the funded status of our plan and result in higher postretirement benefit expense in the future. Although our obligation is limited to funding benefits as they become payable, future declines in the fair value of our plan assets could also result in the need to contribute increased amounts of cash to fund benefits payable under the plan.

The number of participants in our postretirement medical plan could increase significantly. For the 2017 plan year, 42% of those eligible to participate in our postretirement medical plan have elected not to participate. If a significant portion of those not participating were to opt-in to our plan, our benefit obligation would increase, which would result in increased expense. Although our plan is currently overfunded, a significant increase in plan participants could also require us to contribute increased amounts of cash to fund benefits payable under the plan.

Our variable-rate indebtedness exposes us to interest rate risk, which could cause our debt service obligations to increase.

Borrowings under our revolving credit facility and our term loan facility are subject to variable rates of interest and expose us to interest rate risk. If interest rates were to increase, our interest expense would increase, negatively affecting earnings and reducing cash flows available for working capital, capital expenditures and acquisitions.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

Our principal executive office is an owned property located in Shoreview, Minnesota. As of December 31, 2016, we occupied 79 facilities throughout the United States, 5 facilities in Canada and 2 facilities in Europe where we conduct printing and fulfillment, call center, data center and administrative functions. Approximately 15% of our facilities are owned, while the remaining 85% are leased. These facilities have a combined floor space of approximately 3 million square feet. We believe that our properties are sufficiently maintained and are adequate and suitable for our business needs as presently conducted.

Item 3. Legal Proceedings.

We record provisions with respect to identified claims or lawsuits when it is probable that a liability has been incurred and the amount of the loss can be reasonably estimated. Claims and lawsuits are reviewed quarterly and provisions are taken or adjusted to reflect the status of a particular matter. We believe the recorded reserves in our consolidated financial statements are adequate in light of the probable and estimable outcomes. Recorded liabilities were not material to our financial position, results of operations or liquidity, and we do not believe that any of the currently identified claims or litigation will materially affect our financial position, results of operations or liquidity upon resolution. However, litigation is subject to inherent uncertainties, and unfavorable rulings could occur. If an unfavorable ruling were to occur, it may cause a material adverse impact on our financial position, results of operations or liquidity in the period in which the ruling occurs or future periods.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Our common stock is traded on the New York Stock Exchange under the symbol DLX. Dividends are declared by our board of directors on a current basis, and therefore, are subject to change in the future. As of December 31, 2016, the number of shareholders of record was 6,642. The table below shows the per share price ranges of our common stock for the past two fiscal years as quoted on the New York Stock Exchange, as well as the quarterly dividend amount for each period.

		Stock price		
	Dividend	High	Low	Close
2016				
Quarter 4	$ 0.30	$ 73.42	$ 59.47	$ 71.61
Quarter 3	0.30	70.26	64.78	66.82
Quarter 2	0.30	67.81	59.83	66.37
Quarter 1	0.30	62.77	49.46	62.49
2015				
Quarter 4	$ 0.30	$ 61.61	$ 53.30	$ 54.54
Quarter 3	0.30	65.00	51.61	55.74
Quarter 2	0.30	69.77	60.69	62.00
Quarter 1	0.30	69.48	58.94	69.28

The following table shows purchases of our own equity securities, based on trade date, which were completed during the fourth quarter of 2016:

Period	Total number of shares purchased	Average price paid per share	Total number of shares purchased as part of publicly announced plans or programs	Maximum number (or approximate dollar value) of shares that may yet be purchased under the plans or programs(1)
October 1, 2016 - October 31, 2016	—	$ —	—	232,994
November 1, 2016 - November 30, 2016	167,700	61.30	167,700	65,294
December 1, 2016 - December 31, 2016	—	—	—	65,294
Total	167,700	$ 61.30	167,700	65,294

(1) Amounts do not include shares which may be purchased under an additional authorization approved by our board of directors in May 2016 for the repurchase of up to $300 million of our common stock.

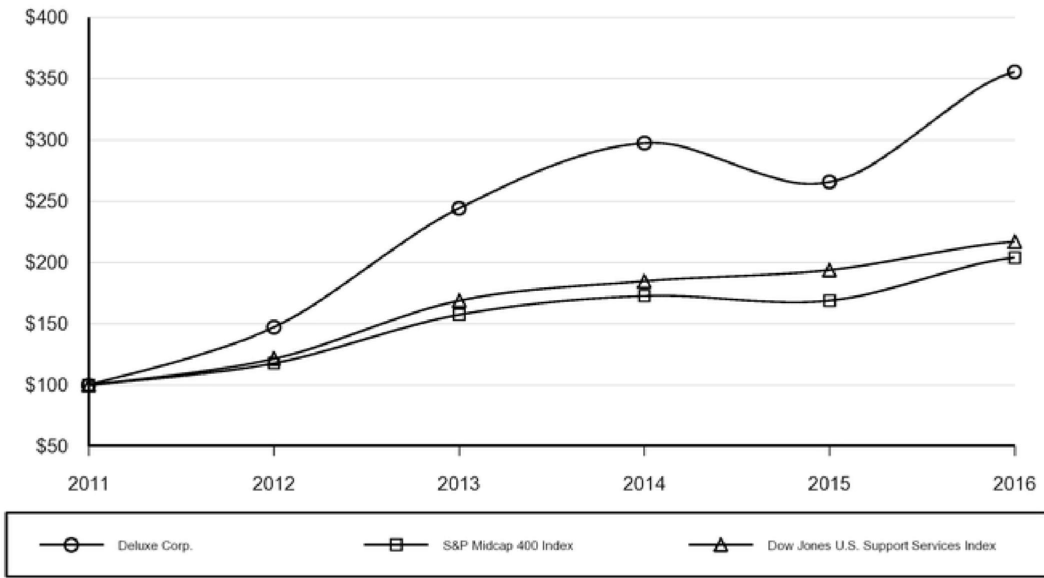
In August 2003, our board of directors approved an authorization to purchase up to 10 million shares of our common stock. This authorization has no expiration date and 65,294 shares remained available for purchase under this authorization as of December 31, 2016. In May 2016, our board of directors approved an additional authorization for the repurchase of up to $300 million of our common stock, effective at the conclusion of our previous authorization. This authorization also has no expiration date.

While not considered repurchases of shares, we do at times withhold shares that would otherwise be issued under equity-based awards to cover the withholding taxes due as a result of the exercise or vesting of such awards. During the fourth quarter of 2016, we withheld 48,975 shares in conjunction with the vesting and exercise of equity-based awards.

There are currently no limitations on the amount of dividends and share repurchases under the terms of our credit facility agreement. However, if our leverage ratio, defined as total debt less unrestricted cash to earnings before interest, taxes, depreciation and amortization (EBITDA), should exceed 2.75 to 1, there would be an annual limitation on the amount of dividends and share repurchases under the terms of our credit facility agreement.

The table below compares the cumulative total shareholder return on our common stock for the last five fiscal years with the cumulative total return of the S&P MidCap 400 Index and the Dow Jones U.S. Support Services (DJUSIS) Index.

Comparison of Five-Year Cumulative Total Return
Assumes Initial Investment of $100
December 2016



The graph assumes that $100 was invested on December 31, 2011 in each of Deluxe common stock, the S&P MidCap 400 Index and the DJUSIS Index, and that all dividends were reinvested.

Item 6. Selected Financial Data.

The following table shows certain selected financial data for the five years ended December 31, 2016. This information should be read in conjunction with *Management's Discussion and Analysis of Financial Condition and Results of Operations* appearing in Item 7 of this report and our consolidated financial statements appearing in Item 8 of this report.

(dollars and orders in thousands, except per share and per order amounts)	2016	2015	2014	2013	2012
Statement of Income Data:					
Total revenue	$ 1,849,062	$ 1,772,817	$ 1,674,082	$ 1,584,824	$ 1,514,917
As a percentage of total revenue:					
Gross profit	63.9%	63.9%	63.8%	64.6%	65.4%
Selling, general and administrative expense	43.6%	43.7%	43.0%	43.6%	44.9%
Operating income	19.9%	20.0%	19.9%	20.1%	19.9%
Operating income	$ 368,727	$ 354,331	$ 332,633	$ 317,914	$ 302,028
Net income:	229,382	218,629	199,794	186,652	170,492
Per share - basic	4.68	4.39	3.99	3.68	3.33
Per share - diluted	4.65	4.36	3.96	3.65	3.32
Cash dividends per share	1.20	1.20	1.15	1.00	1.00
Balance Sheet Data:					
Cash and cash equivalents	$ 76,574	$ 62,427	$ 61,541	$ 121,089	$ 45,435
Return on average assets[1]	11.4%	12.4%	12.3%	12.6%	12.2%
Total assets[1]	$ 2,184,338	$ 1,842,153	$ 1,683,682	$ 1,563,887	$ 1,405,585
Long-term obligations[2]	758,648	629,018	549,603	635,062	645,726
Statement of Cash Flows Data:					
Net cash provided by operating activities[3]	$ 319,312	$ 309,631	$ 285,098	$ 263,729	$ 245,517
Net cash used by investing activities	(310,786)	(251,140)	(136,043)	(101,050)	(68,513)
Net cash provided (used) by financing activities[3]	4,275	(48,387)	(204,048)	(84,524)	(160,950)
Purchases of capital assets	(46,614)	(43,261)	(41,119)	(37,459)	(35,193)
Payments for acquisitions, net of cash acquired	(270,939)	(212,990)	(105,029)	(69,709)	(34,172)
Payments for common shares repurchased	(55,224)	(59,952)	(60,119)	(48,798)	(27,155)
Other Data:					
Orders[4]	52,176	53,138	52,632	52,584	53,216
Revenue per order[4]	$ 35.44	$ 33.36	$ 31.81	$ 30.14	$ 28.47
Number of employees	6,026	5,874	5,830	5,575	5,476
Number of printing facilities[5]	12	11	11	12	13
Number of call center facilities[5]	26	14	16	16	13

(1) Return on average assets is calculated as net income divided by average assets for the period. Total assets for previous periods has been restated for the adoption in 2016 of Accounting Standards Update (ASU) No. 2015-03, *Simplifying the Presentation of Debt Issuance Costs*. Further information can be found under the caption "Note 1: Significant accounting policies" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

(2) Long-term obligations includes the current and long-term portions of our long-term debt obligations, including capital leases. We had no short-term borrowings outstanding as of December 31 for any of the periods presented. As such, these amounts also represent our total debt obligations. Amounts for previous periods have been revised for the adoption in 2016 of ASU No. 2015-03, *Simplifying the Presentation of Debt Issuance Costs,* and for the correction of an error related to the balance sheet presentation of borrowings under our credit facility. Further information can be found under the caption "Note 1: Significant accounting policies" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

(3) Net cash provided by operating activities and net cash provided (used) by financing activities for previous periods have been restated for the adoption in 2016 of ASU No. 2016-09, *Improvements to Employee Share-Based Payment Accounting*. Further information can be found under the caption "Note 1: Significant accounting policies" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

(4) Orders is our company-wide measure of volume and includes both products and services.

(5) As of December 31, 2016, we had 2 facilities that contain both printing and call center functions and thus, are included in both captions. We had 50 additional facilities which house small customer fulfillment operations and general office space.

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations.

Our Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A) includes the following sections:

- Executive Overview that discusses what we do, our operating results at a high level and our financial outlook for the upcoming year.
- Consolidated Results of Operations, Restructuring Costs and Segment Results that includes a more detailed discussion of our revenue and expenses.
- Cash Flows and Liquidity, Capital Resources and Other Financial Position Information that discusses key aspects of our cash flows, capital structure and financial position.
- Off-Balance Sheet Arrangements, Guarantees and Contractual Obligations that discusses our financial commitments.
- Critical Accounting Policies that we believe are important to understanding the assumptions and judgments underlying our financial statements.

You should note that this MD&A discussion contains forward-looking statements that involve risks and uncertainties. Please see the introduction included in Item 1A of this report for important information to consider when evaluating our forward-looking statements. The Private Securities Litigation Reform Act of 1995 (the Reform Act) provides a “safe harbor” for forward-looking statements to encourage companies to provide prospective information. We are filing this cautionary statement in connection with the Reform Act. When we use the words or phrases “should result,” “believe,” “intend,” “plan,” “are expected to,” “targeted,” “will continue,” “will approximate,” “is anticipated,” “estimate,” “project,” “outlook,” "forecast" or similar expressions in this Annual Report on Form 10-K, in future filings with the Securities and Exchange Commission, in our press releases and in oral statements made by our representatives, they indicate forward-looking statements within the meaning of the Reform Act.

Certain amounts included in our consolidated balance sheet as of December 31, 2015 and our consolidated statements of cash flows for 2015 and 2014 have been revised to correct the presentation of borrowings under our revolving credit facility and the related asset for debt issuance costs. Our consolidated statements of cash flows for 2015 and 2014 have also been revised to reflect the 2016 adoption of Accounting Standards Update (ASU) No. 2016-09, *Improvements to Employee Share-Based Payment Accounting*. Further information regarding these revisions can be found under the caption "Note 1: Significant accounting policies" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

EXECUTIVE OVERVIEW

We provide solutions that help our customers acquire and engage their customers across multiple channels, as well as operate their businesses efficiently and effectively. To promote and sell a wide range of products and services, we use printed and electronic marketing; a direct sales force; referrals from financial institutions, telecommunication clients and other partners; purchased search results from online search engines; and networks of distributors and independent dealers. Over the past 24 months, our Small Business Services segment has provided products and services to approximately 4.4 million small business customers and our Direct Checks segment has provided products and services to more than 5.5 million consumers. Through our Financial Services segment, we provide products and services to approximately 5,600 financial institution clients. We operate primarily in the United States. Small Business Services also has operations in Canada and portions of Europe. Our product and service offerings are comprised of the following:

Checks – We remain one of the largest providers of checks in the United States. During 2016, checks represented 39.1% of our Small Business Services segment's revenue, 53.8% of our Financial Services segment's revenue and 84.1% of our Direct Checks segment's revenue.

Marketing solutions and other services – We offer products and services designed to meet our customers’ sales and marketing needs, as well as various other service offerings. Our marketing products utilize digital printing and web-to-print solutions to provide promotional solutions such as postcards, brochures, retail packaging supplies, apparel, greeting cards and business cards. Our web services offerings include logo and web design; hosting and other web services; search engine optimization; and marketing programs, including email, mobile and social media. We also offer fraud protection and security services, online and offline payroll services, and electronic checks ("eChecks"). Our Financial Services segment also offers a suite of financial technology ("FinTech") solutions. These solutions include data-driven marketing solutions, including outsourced marketing campaign targeting and execution; treasury management solutions; and digital enablement solutions, including loyalty and rewards programs.

Forms – Our Small Business Services segment is a leading provider of printed forms to small businesses, including deposit tickets, billing forms, work orders, job proposals, purchase orders, invoices and personnel forms. This segment also offers computer forms compatible with accounting software packages commonly used by small businesses. Forms sold by our Financial Services and Direct Checks segments include deposit tickets and check registers.

Accessories and other products – Small Business Services offers products designed to provide small business owners with the customized documents necessary to efficiently manage their business including envelopes, office supplies, stamps and labels. Our Financial Services and Direct Checks segments offer checkbook covers and stamps.

Throughout the past several years, we have focused on opportunities to increase revenue and operating income, while maintaining strong operating margins, despite the continuing decline in check and forms usage. These opportunities have included new product and service offerings, brand awareness and positioning initiatives, investing in technology for our service offerings, enhancing our information technology capabilities and infrastructure, improving customer segmentation, extending our sales channel reach, and reducing costs. In addition, we invested in various acquisitions that extend the range of products and services we offer to our customers, primarily marketing solutions and other services offerings. Information about our acquisitions can be found under the captions "Note 5: Acquisitions" and "Note 17: Subsequent event" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. During 2017, we plan to continue our focus in these areas, with an emphasis on profitable revenue growth and increasing the mix of marketing solutions and other services revenue. We also plan to continue to assess small to medium-sized acquisitions that complement our large customer bases, with a focus on marketing solutions and other services. A more detailed discussion of our business strategies can be found under the caption "Business Segments" appearing in Item 1 of this report.

Earnings for 2016, as compared to 2015, benefited from price increases, continuing initiatives to reduce our cost structure, primarily within our sales, marketing and fulfillment organizations, and reduced performance-based compensation. These increases in earnings were partially offset by volume reductions for both personal and business checks due primarily to the continuing decline in check usage, as well as investments in various revenue growth opportunities, volume reductions for business forms, and increased medical costs.

Business Challenges/Market Risks

Our business, consolidated results of operations, financial condition and cash flows could be adversely affected by various risks and uncertainties. We have disclosed all known material risks in Item 1A of this report, including discussion of the declining market for checks and business forms, competition, factors affecting our financial institution clients, data security risks, risks related to acquisitions and the impact of economic conditions. All of these factors could cause our actual results to differ materially from the statements we make from time to time regarding our expected future results, including, but not limited to, forecasts regarding estimated revenue, marketing solutions and other services revenue, earnings per share, cash provided by operating activities and expected cost savings.

Cost Reduction Initiatives

For several years, we have been pursuing cost reduction and business simplification initiatives, including: reducing shared services infrastructure costs; streamlining our call center and fulfillment activities; eliminating system and work stream redundancies; and strengthening our ability to quickly develop new products and services and bring them to market. We have also standardized products and services and improved the sourcing of third-party goods and services. As a result of all of these efforts, we realized net cost savings of approximately $50 million during 2016, as compared to our 2015 results of operations, generated primarily by our sales, marketing and fulfillment organizations. Approximately 70% of these savings impacted selling, general and administrative (SG&A) expense, with the remaining 30% affecting total cost of revenue. We anticipate that we will realize additional net cost reductions of approximately $50 million in 2017, as compared to our 2016 results of operations, which will also be generated primarily by our sales, marketing and fulfillment organizations. In sales and marketing, we plan to continue our focus on sales channel optimization, platform and tool consolidation, and leveraging sales and marketing efficiencies, including integrating recent acquisitions. In fulfillment, we expect to continue our lean, direct and indirect spend reductions, further consolidate our manufacturing technology platforms, drive delivery technology and process efficiencies, reduce spoilage, further enhance our strategic supplier sourcing arrangements, and continue with other supply chain improvements and efficiencies. We also expect to continue to reduce our information technology costs. Approximately 70% of our 2017 savings are expected to impact SG&A expense, with the remaining 30% affecting total cost of revenue.

Outlook for 2017

We anticipate that consolidated revenue will be between $1.935 billion and $1.975 billion for 2017, compared to $1.849 billion for 2016. We have included the pending acquisition of RDM Corporation in our outlook. Further information regarding this pending acquisition can be found under the caption "Note 17: Subsequent event" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. In Small Business Services, we expect revenue to increase between 3% and 5% compared to 2016 revenue of $1.196 billion. Volume declines in core business products, our strategic decision to eliminate low margin business and the negative impact of foreign currency exchange rates are expected to be more than offset by growth in our online, dealer and major accounts channels, price increases, increased revenue from our marketing solutions and other services offerings and continued small to medium-sized tuck-in acquisitions. In Financial Services, we expect revenue to increase between 13% and 16% compared to 2016 revenue of $500.0 million. We expect increased revenue from marketing solutions and other services, including data-driven marketing solutions and treasury management solutions, as well as continued small to medium-sized tuck-in acquisitions. Revenue from the December 2016 acquisition of First Manhattan Consulting Group, LLC (FMCG Direct) is expected to be between $80.0 million and $85.0 million in 2017. We expect these revenue increases to be

partially offset by year-over-year secular check order declines of between 5% and 6%, an expected loss of approximately $10.0 million in Deluxe Rewards revenue, primarily due to the loss of Verizon Communications Inc. as a customer, as well as the impact of some pricing pressure. In Direct Checks, we expect revenue to decline between 9% and 10% compared to 2016 revenue of $153.3 million, driven primarily by secular check order volume declines resulting from reduced check usage.

We expect that 2017 diluted earnings per share will be between $5.10 and $5.30, compared to $4.65 for 2016, which included total charges of $0.32 per share related to the loss on early debt extinguishment in the fourth quarter of 2016, as well as restructuring costs and transaction costs related to acquisitions. We expect that the benefits of additional cost reduction activities will be partially offset by increases in medical expenses, material costs and delivery rates, as well as continued investments in revenue growth opportunities, including brand awareness, marketing solutions and other services offers, and enhanced e-commerce capabilities. The FMCG Direct acquisition is expected to be $0.05 per share dilutive to 2017 earnings per share. We estimate that our effective tax rate for 2017 will be approximately 33%, compared to 32.6% for 2016.

We anticipate that net cash provided by operating activities will be between $335 million and $355 million in 2017, compared to $319 million in 2016, driven by stronger operating performance and lower interest payments, partially offset by higher income tax payments. We anticipate contract acquisition payments of approximately $23 million in 2017, and we estimate that capital spending will be approximately $45 million in 2017 as we continue to invest in key revenue growth initiatives and order fulfillment and information technology infrastructure.

We believe that cash generated by operating activities, along with availability under our credit facility, will be sufficient to support our operations in 2017, including dividend payments, capital expenditures, required debt principal and interest payments, and periodic share repurchases, as well as possible small-to-medium-sized acquisitions. We expect to maintain a disciplined approach to capital deployment that focuses on our need to continue investing in initiatives to drive revenue growth, including small-to-medium-sized acquisitions. We anticipate that our board of directors will maintain our current dividend level. However, dividends are approved by the board of directors on a quarterly basis, and thus are subject to change. As of December 31, 2016, $86.1 million was available for borrowing under our revolving credit facility. To the extent we generate excess cash, we plan to reduce the amount outstanding under our credit facility agreement.

CONSOLIDATED RESULTS OF OPERATIONS

Consolidated Revenue

				Change	
(in thousands, except per order amounts)	**2016**	**2015**	**2014**	**2016 vs. 2015**	**2015 vs. 2014**
Total revenue	$ 1,849,062	$ 1,772,817	$ 1,674,082	4.3%	5.9%
Orders	52,176	53,138	52,632	(1.8%)	1.0%
Revenue per order	$ 35.44	$ 33.36	$ 31.81	6.2%	4.9%

The increase in total revenue for 2016, as compared to 2015, was driven by incremental revenue of approximately $114 million from acquired businesses. Information regarding our acquisitions can be found under the caption "Note 5: Acquisitions" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. In addition, revenue benefited from previous price increases in our Small Business Services and Financial Services segments. These increases in revenue were partially offset by lower order volume for both personal and business checks, as well as forms and accessories sold by Small Business Services. In addition, revenue declined due to continued pricing allowances within Financial Services.

The increase in total revenue for 2015, as compared to 2014, was driven by incremental revenue of approximately $144 million from acquired businesses. Further information regarding our acquisitions can be found under the caption "Note 5: Acquisitions" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. In addition, revenue benefited from price increases in all three segments. These increases in revenue were partially offset by lower order volume for both personal and business checks, as well as forms and accessories sold by Small Business Services. In addition, revenue declined due to continued pricing allowances within Financial Services, lower search engine marketing/optimization revenue of approximately $12 million due primarily to our decision in the third quarter of 2014 to reduce the revenue base of this business, and an unfavorable currency exchange rate impact of $11 million.

Service revenue represented 20.3% of total revenue in 2016, 18.1% in 2015 and 15.7% in 2014. As such, the majority of our revenue is generated by product sales. We do not manage our business based on product versus service revenue. Instead, we analyze our products and services based on the following categories:

				Change	
	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
Checks	46.8%	49.3%	52.0%	(2.5) pt.	(2.7) pt.
Marketing solutions and other services	33.4%	30.0%	25.5%	3.4 pt.	4.5 pt.
Forms	11.6%	12.2%	13.0%	(0.6) pt.	(0.8) pt.
Accessories and other products	8.2%	8.5%	9.5%	(0.3) pt.	(1.0) pt.
Total revenue	100.0%	100.0%	100.0%	—	—

The number of orders decreased in 2016 as compared to 2015 driven by the impact of the continuing decline in check and forms usage, partially offset by growth in marketing solutions and other services, including the impact of acquisitions. The number of orders increased in 2015 as compared to 2014 as growth in marketing solutions and other services, including the impact of acquisitions, more than offset the impact of the continuing decline in check and forms usage. Revenue per order increased in each of the past two years primarily due to the benefit of price increases and favorable product and service mix, partially offset by the impact of Financial Services continued pricing allowances.

Consolidated Cost of Revenue

				Change	
(in thousands)	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
Total cost of revenue	$ 667,241	$ 639,209	$ 606,278	4.4%	5.4%
Total cost of revenue as a percentage of total revenue	36.1%	36.1%	36.2%	—	(0.1) pt.

Cost of revenue consists primarily of raw materials used to manufacture our products, shipping and handling costs, third-party costs for outsourced products and services, payroll and related expenses, information technology costs, depreciation and amortization of assets used in the production process and in support of digital service offerings, and related overhead.

The increase in total cost of revenue for 2016, as compared to 2015, was primarily attributable to our increase in revenue, including incremental costs of approximately $61 million for acquired businesses. In addition, delivery rates and material costs increased in 2016. Partially offsetting these increases in total cost of revenue was the impact of lower order volume for both personal and business checks, as well as forms and accessories sold by Small Business Services. In addition, total cost of revenue decreased approximately $15 million during 2016 due to manufacturing efficiencies and other benefits resulting from our continued cost reduction initiatives.

The increase in total cost of revenue for 2015, as compared to 2014, was primarily attributable to our increase in revenue, including incremental costs of approximately $71 for acquired businesses. In addition, delivery rates and material costs increased in 2015. Partially offsetting these increases in total cost of revenue were manufacturing efficiencies and other benefits resulting from our continued cost reduction initiatives of approximately $20 million, as well as the impact of lower order volume for both personal and business checks, and forms and accessories sold by Small Business Services.

Consolidated Selling, General & Administrative Expense

				Change	
(in thousands)	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
SG&A expense	$ 805,970	$ 774,859	$ 719,192	4.0%	7.7%
SG&A expense as a percentage of total revenue	43.6%	43.7%	43.0%	(0.1) pt.	0.7 pt.

The increase in SG&A expense for 2016, as compared to 2015, was driven primarily by incremental operating expenses of $51 million for acquired businesses, as well as investments in various revenue growth opportunities, and an increase in medical costs of approximately $3 million. These increases were partially offset by various expense reduction initiatives of approximately $35 million, primarily within our sales and marketing organizations, as well as a decrease of approximately $6 million in incentive compensation expense.

The increase in SG&A expense for 2015, as compared to 2014, was driven primarily by incremental operating expenses of $72 million for acquired businesses, as well as investments in revenue growth opportunities, including our brand awareness

initiatives. In addition, Small Business Services commission expense increased due primarily to increased sales volume for our distributor channel, as well as higher commission rates. These increases were partially offset by various expense reduction initiatives of approximately $30 million, primarily within our sales and marketing organizations.

Net Restructuring Charges

(in thousands)	2016	2015	2014	Change 2016 vs. 2015	Change 2015 vs. 2014
Net restructuring charges	$ 7,124	$ 4,418	$ 8,776	$ 2,706	$ (4,358)

We recorded restructuring charges and reversals related to the cost reduction initiatives discussed under *Executive Overview*. The net charges for each period primarily relate to costs of our restructuring activities such as employee severance benefits, information technology costs, employee and equipment moves, training and travel. In addition to the restructuring charges shown here, restructuring charges of $0.6 million in 2016, $1.8 million in 2015 and $0.9 million in 2014 were included within total cost of revenue in our consolidated statements of income. Further information can be found under *Restructuring Costs*.

Asset Impairment Charges

(in thousands)	2016	2015	2014	Change 2016 vs. 2015	Change 2015 vs. 2014
Asset impairment charges	$ —	$ —	$ 6,468	$ —	$ (6,468)

During the third quarter of 2014, we performed an impairment analysis related to our Small Business Services search engine marketing and optimization business. Revenue and the related cash flows from this business had been lower than previously projected, and as a result of our annual planning process completed during the third quarter of 2014, we decided to reduce the revenue base of this business in order to improve its financial performance. As such, we revised our estimates of future revenues and cash flows to reflect these decisions during the third quarter of 2014. We calculated the estimated fair values of the assets as the net present value of estimated future cash flows. Our analysis resulted in a non-cash, pre-tax impairment charge of $6.5 million during 2014, which reflects writing down the net book value of the related intangible assets to zero.

Loss on Early Debt Extinguishment

(in thousands)	2016	2015	2014	Change 2016 vs. 2015	Change 2015 vs. 2014
Loss on early debt extinguishment	$ 7,858	$ 8,917	$ —	$ (1,059)	$ 8,917

During the fourth quarter of 2016, we retired all $200.0 million of our 6.0% senior notes due in November 2020, realizing a pre-tax loss of $7.9 million, consisting of a contractual call premium and the write-off of related debt issuance costs. To fund the retirement, we amended the credit agreement governing our credit facility to include a new term loan facility. Further information regarding the term loan facility can be found under the caption "Note 13: Debt and lease obligations" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

During the first quarter of 2015, we retired all $200.0 million of our 7.0% senior notes due in March 2019, realizing a pre-tax loss of $8.9 million, consisting of a contractual call premium and the write-off of related debt issuance costs. We funded the retirement utilizing our revolving credit facility and a short-term bank loan that we repaid in December 2015.

Interest Expense

(in thousands)	2016	2015	2014	Change 2016 vs. 2015	Change 2015 vs. 2014
Interest expense	$ 22,302	$ 20,299	$ 36,529	9.9%	(44.4%)
Weighted-average debt outstanding	620,357	560,070	635,560	10.8%	(11.9%)
Weighted-average interest rate	2.85%	3.22%	5.15%	(0.37) pt.	(1.93) pt.

The increase in interest expense for 2016, as compared to 2015, was attributable to interest expense of $2.8 million resulting from the write-off of the fair value adjustment to hedged long-term debt when the debt was retired during 2016. In

addition, our weighted-average debt outstanding increased during 2016. Partially offsetting these increases in interest expense was the decrease in our weighted-average interest rate as compared to 2015, primarily driven by the March 2015 retirement of long-term debt with an interest rate of 7.0%. This debt was replaced with borrowings under our revolving credit facility, which had a weighted-average interest rate of 1.9% during 2016.

The decrease in interest expense for 2015, as compared to 2014, was driven by changes in our debt structure and the decrease in our weighted-average debt outstanding. In October 2014, long-term notes of $253.5 million matured. These notes had a weighted-average interest rate of 4.3% during 2014, including the impact of hedging activities. We utilized cash on hand and an initial borrowing of $135.0 million under our revolving credit facility to meet this debt obligation. In addition, in March 2015, we retired $200.0 million of long-term debt with an interest rate of 7.0%. We utilized our credit facility and a short-term bank loan to fund this redemption. Amounts outstanding under these borrowings carried a weighted-average interest rate of 1.7% during 2015.

Income Tax Provision

				Change	
(in thousands)	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
Income tax provision	$ 111,004	$ 109,318	$ 97,387	1.5%	12.3%
Effective tax rate	32.6%	33.3%	32.8%	(0.7) pt.	0.5 pt.

The decrease in our effective tax rate for 2016, as compared to 2015, was primarily due to the adoption of ASU No. 2016-09, *Improvements to Employee Share-Based Payment Accounting,* which reduced income tax expense $4.0 million for 2016. This resulted in a reduction in our effective income tax rate of 1.2 points for 2016. Further information regarding the adoption of this accounting standard can be found under the caption "Note 1: Significant accounting policies" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. In addition, our effective tax rate for 2016 included the benefit of the reversal of a foreign valuation allowance of $0.5 million. Partially offsetting these decreases in our effective income tax rate for 2016 was a lower production activities deduction and a higher state income tax rate in 2016, as well as a higher benefit in 2015 related to company-owned life insurance policies. Our effective tax rate excluding discrete items was 34.1% for 2016, 33.6% for 2015 and 33.7% for 2014. We expect that our effective tax rate for 2017 will be approximately 33%.

The increase in our effective tax rate for 2015, as compared to 2014, was primarily due to a number of minor discrete credits to income tax expense in 2014, which collectively decreased our 2014 effective tax rate 0.9 points and which related primarily to state income tax credits. Partially offsetting this increase in our effective tax rate relative to 2014 were a number of minor discrete credits to income tax expense in 2015, which collectively decreased our 2015 effective tax rate 0.3 points.

RESTRUCTURING COSTS

We have recorded expenses related to our restructuring activities, including accruals consisting primarily of employee severance benefits, as well as costs that are expensed when incurred, including information technology costs, employee and equipment moves, training and travel. Our restructuring activities are driven by our cost reduction initiatives and include employee reductions in various functional areas, as well as the closing of facilities. During 2016, we closed a printing facility, a call center, 2 warehouses and a facility housing general office space. During 2015, we closed 2 call centers, a sales office, a warehouse, a fulfillment facility and a facility that contained both fulfillment and call center functions, and during 2014, we closed a printing facility. Restructuring costs have been reduced by the reversal of severance accruals when fewer employees receive severance benefits than originally estimated.

Net restructuring charges for the years ended December 31 were as follows:

(dollars in thousands)	2016	2015	2014
Severance accruals	$ 7,217	$ 5,891	$ 8,411
Severance reversals	(864)	(1,197)	(1,513)
Operating lease obligations	59	338	—
Net restructuring accruals	6,412	5,032	6,898
Other costs	1,359	1,202	2,757
Net restructuring charges	$ 7,771	$ 6,234	$ 9,655
Number of employees included in severance accruals	265	290	260

The majority of the employee reductions included in our restructuring accruals are expected to be completed by mid-2017, and we expect most of the related severance payments to be paid by the third quarter of 2017, utilizing cash from operations.

As a result of our employee reductions and facility closings, we realized cost savings of approximately $3 million in total cost of revenue and $11 million in SG&A expense in 2016, in comparison to our 2015 results of operations, which represents a portion of the approximately $50 million of total net cost reductions we realized in 2016. In 2017, we expect to realize cost savings of approximately $2 million in total cost of revenue and $13 million in SG&A expense, in comparison to our 2016 results of operations, which represents a portion of the estimated $50 million of total net cost reductions we expect to realize in 2017. Expense reductions consist primarily of labor and facility costs. Information about the other initiatives driving our cost savings can be found in *Executive Overview*.

Further information regarding our restructuring charges can be found under the caption “Note 8: Restructuring charges” of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

SEGMENT RESULTS

Additional financial information regarding our business segments appears under the caption “Note 16: Business segment information” of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

Small Business Services

This segment's products and services are promoted through direct response mail and internet advertising; referrals from financial institutions, telecommunications clients and other partners; networks of distributors and independent dealers; a direct sales force that focuses on selling to and through major accounts; and an outbound telemarketing group. Results for this segment were as follows:

				Change	
(in thousands)	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
Total revenue	$ 1,195,743	$ 1,151,916	$ 1,106,505	3.8%	4.1%
Operating income	208,789	203,933	187,226	2.4%	8.9%
Operating margin	17.5%	17.7%	16.9%	(0.2) pt.	0.8 pt.

The increase in total revenue for 2016, as compared to 2015, was driven by incremental revenue of approximately $75 million from acquired businesses, as well as the benefit of price increases. Further information about our acquisitions can be found under the caption “Note 5: Acquisitions” of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. These increases in revenue were partially offset by lower order volume, primarily related to business checks, forms and accessories, as check and forms usage continues to decline. In addition, revenue declined due to an unfavorable currency exchange rate impact of approximately $3 million.

The increase in operating income for 2016, as compared to 2015, was primarily due to price increases, benefits of our cost reduction initiatives and lower performance-based compensation. Partially offsetting these increases in operating income were increased delivery rates and material costs in 2016, higher medical costs and and an increase in commission expense of approximately $2 million due primarily to increased financial institution commission rates. While the impact of acquired businesses was slightly positive to operating income for 2016, operating margin decreased 1.1 points for 2016 due to acquired businesses.

The increase in total revenue for 2015, as compared to 2014, was driven by incremental revenue of approximately $76 million from acquired businesses, as well as the benefit of price increases. Further information regarding our acquisitions can be found under the caption "Note 5: Acquisitions" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. These increases in revenue were partially offset by lower order volume for business checks, forms and accessories, as well as lower search engine marketing/optimization revenue of approximately $12 million due primarily to our decision in the third quarter of 2014 to reduce the revenue base of this business. In addition, revenue declined due to an unfavorable currency exchange rate impact of $11 million.

The increase in operating income and operating margin for 2015, as compared to 2014, was primarily due to price increases and benefits of our cost reduction initiatives. Additionally, 2014 results included an asset impairment charge of $6.5 million, which reduced operating margin for 2014 by 0.6 points, and restructuring costs were $1.5 million lower in 2015. Further information regarding the asset impairment charge can be found under *Consolidated Results of Operations* and further information regarding the restructuring costs can be found under *Restructuring Costs*. Partially offsetting these increases in operating income and operating margin were increased investments in revenue growth opportunities, including planned brand awareness initiatives. In addition, commission expense increased approximately $6 million due to increased sales volume for our

distributor channel, as well as higher commission rates, and delivery rates and material costs also increased in 2015. While the impact of acquired businesses was slightly positive to operating income for 2015, operating margin decreased 1.2 points for 2015 due to acquired businesses.

Financial Services

Financial Services' products and services are sold primarily through a direct sales force, which executes product and service supply contracts with our financial institution clients nationwide, including banks, credit unions and financial services companies. In the case of check supply contracts, once the financial institution relationship is established, consumers may submit their check orders through their financial institution or over the phone or internet. Results for this segment were as follows:

				Change	
(in thousands)	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
Total revenue	$ 499,976	$ 455,390	$ 391,129	9.8%	16.4%
Operating income	106,820	91,539	87,908	16.7%	4.1%
Operating margin	21.4%	20.1%	22.5%	1.3 pt.	(2.4) pt.

The increase in revenue for 2016, as compared to 2015, was driven by growth in marketing solutions and other services of approximately $48 million for 2016, including incremental revenue from acquired businesses of approximately $39 million, as well as growth of approximately $8 million in revenue from treasury management solutions. Further information about our acquisitions can be found under the caption “Note 5: Acquisitions” of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. In addition, revenue benefited from previous price increases. Partially offsetting these revenue increases was lower check order volume due to the continued decline in check usage, as well as the impact of continued pricing allowances.

The increase in operating income and operating margin for 2016, as compared to 2015, was primarily due to previous price increases, the benefit of our continuing cost reduction initiatives, compensation expense in 2015 of approximately $4 million for an earn-out agreement related to a 2013 acquisition and lower performance-based compensation. Partially offsetting these increases in operating income was the impact of lower check order volume, continued pricing allowances, investments in revenue growth opportunities and increased delivery, material and medical costs in 2016. Additionally, transaction costs related to acquisitions increased approximately $3 million for 2016 due to costs associated with the acquisition of FMCG Direct in December 2016, and restructuring costs increased approximately $1 million. Further information regarding restructuring costs can be found under *Restructuring Costs.* While the impact of acquired businesses was slightly positive to operating income for 2016, including acquisition-related amortization, operating margin decreased 1.5 points for 2016 due to acquired businesses.

The increase in revenue for 2015, as compared to 2014, was due to growth in marketing solutions and other services of approximately $73 million, including incremental revenue of approximately $68 million from acquired businesses, as well as growth in our Deluxe Rewards and Deluxe Strategic Sourcing product and service offerings. Further information regarding our acquisitions can be found under the caption "Note 5: Acquisitions" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. Additionally, revenue benefited from price increases. Partially offsetting these revenue increases was lower check order volume due to the continued decline in check usage, as well as the impact of continued pricing allowances.

Operating income increased for 2015, as compared to 2014, primarily due to price increases, the benefit of our continuing cost reduction initiatives and positive operating income generated by the Wausau acquisition. In addition, restructuring costs were $1.6 million lower in 2015. Further information regarding restructuring costs can be found under *Restructuring Costs*. Partially offsetting these increases in operating income was the impact of lower check order volume, pricing allowances and increased delivery and material costs in 2015. Operating margin decreased for 2015, as compared to 2014, primarily driven by the full year operating results of our acquisitions, as well as pricing allowances and increased delivery and material costs in 2015. The operating results of our acquisitions, including acquisition-related amortization, reduced Financial Services' operating margin 3.4 points in 2015. These decreases in operating margin were partially offset by price increases, the benefit of our continuing cost reduction initiatives and the decrease in restructuring costs.

Direct Checks

Direct Checks sells products and services directly to consumers using direct marketing, including print advertising and search engine marketing and optimization strategies. Direct Checks sells under various brand names, including Checks Unlimited®, Designer Checks®, Checks.com®, Check Gallery®, The Styles Check Company®, and Artistic Checks®, among others. Results for this segment were as follows:

(in thousands)	2016	2015	2014	Change 2016 vs. 2015	Change 2015 vs. 2014
Total revenue	$ 153,343	$ 165,511	$ 176,448	(7.4%)	(6.2%)
Operating income	53,118	58,859	57,499	(9.8%)	2.4%
Operating margin	34.6%	35.6%	32.6%	(1.0) pt.	3.0 pt.

The decrease in revenue for 2016, as compared to 2015, was primarily due to a reduction in orders stemming from the continued decline in check usage. Partially offsetting the volume decline was higher revenue per order, primarily driven by an improved call center incentive plan.

The decrease in operating income and operating margin for 2016, as compared to 2015, was due primarily to lower order volume and increased delivery rates and material costs in 2016. These decreases in operating income were partially offset by the benefits from our cost reduction initiatives, including lower advertising expense, as well as higher revenue per order.

The decrease in revenue for 2015, as compared to 2014, was due to a reduction in orders stemming from the continued decline in check usage, as well as eliminating marketing expenditures that no longer met our return criteria. Partially offsetting the volume decline was higher revenue per order, driven by better email marketing conversion rates and an improved call center incentive plan, as well as price increases.

The increase in operating income and operating margin for 2015, as compared to 2014, was due primarily to benefits from our cost reduction initiatives, higher revenue per order, and a pre-tax loss of $0.7 million in 2014 from the sale-leaseback of a facility. These increases in operating income and operating margin were partially offset by lower order volume and increased delivery rates and material costs in 2015.

CASH FLOWS AND LIQUIDITY

As of December 31, 2016, we held cash and cash equivalents of $76.6 million. The following table shows our cash flow activity for the last three years, and should be read in conjunction with the consolidated statements of cash flows appearing in Item 8 of this report.

(in thousands)	2016	2015	2014	Change 2016 vs. 2015	Change 2015 vs. 2014
Net cash provided by operating activities	$ 319,312	$ 309,631	$ 285,098	$ 9,681	$ 24,533
Net cash used by investing activities	(310,786)	(251,140)	(136,043)	(59,646)	(115,097)
Net cash provided (used) by financing activities	4,275	(48,387)	(204,048)	52,662	155,661
Effect of exchange rate change on cash	1,346	(9,218)	(4,555)	10,564	(4,663)
Net change in cash and cash equivalents	$ 14,147	$ 886	$ (59,548)	$ 13,261	$ 60,434

The $9.7 million increase in net cash provided by operating activities for 2016, as compared to 2015, was primarily due to stronger operating performance and a $13.7 million decrease in income tax payments These increases in net cash provided by operating activities were partially offset by a $10.3 million increase in contract acquisition payments, a $7.5 million increase in medical benefit payments and the payment in 2016 of a $5.4 million incentive related to a 2013 acquisition. The increase in medical benefit payments was due to increased medical costs in 2016, as well as the use in 2015 of the remaining assets of the trust we used to fund medical benefits, which was discontinued effective December 31, 2015.

The $24.5 million increase in net cash provided by operating activities for 2015, as compared to 2014, was primarily due to stronger operating performance and a $15.7 million decrease in interest payments due primarily to the maturity of long-term notes in October 2014 and the retirement of long-term notes in March 2015, as well as a $3.8 million decrease in contract acquisition payments and a $3.0 million decrease in severance payments related to our restructuring activities. These increases in net cash provided by operating activities were partially offset by a $12.3 million increase in the funding of medical benefits, a $10.4 million increase in income tax payments and a $6.0 million increase in performance-based compensation payments

related to our 2014 performance. The increase in the funding of medical benefits was due to the decision in 2014 to no longer pre-fund the trust used to pay medical benefits. As such, our funding was lower in 2014 as we used the majority of the assets of the trust to pay benefits. In addition, overall medical costs increased in 2015, as compared to 2014.

Included in net cash provided by operating activities were the following operating cash outflows:

				Change	
(in thousands)	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
Income tax payments	$ 97,309	$ 110,999	$ 100,639	$ (13,690)	$ 10,360
Medical benefit payments[1]	35,217	27,764	15,444	7,453	12,320
Performance-based compensation payments[2]	32,792	31,046	25,050	1,746	5,996
Contract acquisition payments	23,068	12,806	16,567	10,262	(3,761)
Interest payments	20,975	24,286	39,946	(3,311)	(15,660)
Severance payments	5,938	5,172	8,142	766	(2,970)
Incentive payment related to previous acquisition	5,434	—	—	5,434	—

[1] For 2015 and 2014, this amount represents payments made to fund our voluntary employee beneficiary association (VEBA) trust used to pay medical benefits, as well as retiree medical benefits paid from company funds. The VEBA trust was discontinued effective December 31, 2015. For 2016, this amount represents cash payments made directly to medical service providers for employee medical benefits, as well as retiree medical benefits paid from company funds.

[2] Amounts reflect payments based on company performance.

Net cash used by investing activities in 2016 was $59.6 million higher than 2015, driven primarily by an increase in payments for acquisitions of $57.9 million. In 2016, we made aggregate payments for acquisitions of $270.9 million, net of cash acquired, compared to aggregate payments for acquisitions of $213.0 million in 2015, net of cash acquired. Information regarding our acquisitions can be found under the caption “Note 5: Acquisitions” of the Notes to Consolidated Financial Statements appearing in the Item 8 of this report.

Net cash used by investing activities in 2015 was $115.1 million higher than 2014, driven primarily by an increase in payments for acquisitions of $108.0 million. In 2015, we made aggregate payments for acquisitions of $213.0 million, net of cash acquired, compared to aggregate payments for acquisitions in 2014 of $105.0 million, net of cash acquired. Information regarding our acquisitions can be found under the caption “Note 5: Acquisitions” of the Notes to Consolidated Financial Statements appearing in the Item 8 of this report. In addition, we received proceeds of $8.5 million in 2014 from the sale of a facility. Partially offsetting these increases in cash used by investing activities was an increase of $3.1 million in proceeds from company-owned life insurance policies in 2015.

Net cash provided by financing activities in 2016 was $52.7 million higher than 2015, due primarily to an increase in net borrowings of $50.9 million, which were used primarily for acquisitions and share repurchases. In addition, payments for share repurchases were $4.7 million less for 2016.

Net cash used by financing activities in 2015 was $155.7 million lower than 2014, due primarily to net borrowings of $65.9 million in 2015, which were used primarily for acquisitions and share repurchases. This compares to net payments on debt of $94.4 million in 2014. Partially offsetting these decreases in net cash used by financing activities was a $3.3 million decrease in proceeds from issuing shares under employee plans, as fewer stock options were exercised in 2015, and dividend payments increased $2.2 million, as we increased our per share dividend amount in the second quarter of 2014.

Significant cash inflows, excluding those related to operating activities, for each period were as follows:

				Change	
(in thousands)	2016	2015	2014	2016 vs. 2015	2015 vs. 2014
Net change in debt	$ 116,811	$ 65,938	$ —	$ 50,873	$ 65,938
Proceeds from issuing shares under employee plans	9,114	5,895	9,148	3,219	(3,253)
Proceeds from sale of facility	—	—	8,451	—	(8,451)

Significant cash outflows, excluding those related to operating activities, for each period were as follows:

(in thousands)	2016	2015	2014	Change 2016 vs. 2015	Change 2015 vs. 2014
Payments for acquisitions, net of cash acquired	$ 270,939	$ 212,990	$ 105,029	$ 57,949	$ 107,961
Net change in debt	—	—	94,403	—	(94,403)
Cash dividends paid to shareholders	58,720	59,755	57,603	(1,035)	2,152
Payments for common shares repurchased	55,224	59,952	60,119	(4,728)	(167)
Purchases of capital assets	46,614	43,261	41,119	3,353	2,142

We anticipate that net cash provided by operating activities will be between $335 million and $355 million in 2017, compared to $319 million in 2016, driven by stronger operating performance and lower interest payments, partially offset by higher income tax payments. We anticipate that net cash generated by operating activities in 2017 will be utilized for dividend payments, capital expenditures of approximately $45 million, periodic share repurchases and possible small-to-medium-sized acquisitions. We intend to focus our capital spending on key revenue growth initiatives and investments in order fulfillment and information technology infrastructure. As of December 31, 2016, $86.1 million was available for borrowing under our revolving credit facility. To the extent we generate excess cash, we plan to reduce the amount outstanding under our credit facility agreement.

As of December 31, 2016, our subsidiaries located in Canada held cash and cash equivalents of $66.6 million. Deferred income taxes have not been recognized on unremitted earnings of our foreign subsidiaries, as these amounts are intended to be reinvested indefinitely in the operations of those subsidiaries. If we were to repatriate all of the Canadian cash and cash equivalents into the United States at one time, we would incur a federal tax liability of approximately $7 million, based on current federal tax law.

We believe that cash generated by operating activities, along with availability under our credit facility, will be sufficient to support our operations in 2017, including dividend payments, capital expenditures, required debt principal and interest payments, and periodic share repurchases, as well as possible small-to-medium-sized acquisitions.

CAPITAL RESOURCES

Our total debt was $758.6 million as of December 31, 2016, an increase of $129.6 million from December 31, 2015. Further information concerning our outstanding debt and related interest rate swaps can be found under the captions "Note 6: Derivative financial instruments" and "Note 13: Debt and lease obligations" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. Information regarding our debt service obligations can be found under *Off-Balance Sheet Arrangements, Guarantees and Contractual Obligations*.

Our capital structure for each period was as follows:

(in thousands)	December 31, 2016 Amount	December 31, 2016 Weighted-average interest rate	December 31, 2015 Amount	December 31, 2015 Weighted-average interest rate	Change
Fixed interest rate	$ 1,685	2.0%	$ 2,109	2.0%	$ (424)
Floating interest rate	756,963	2.2%	626,909	2.9%	130,054
Total debt	758,648	2.2%	629,018	2.9%	129,630
Shareholders' equity	880,970		745,069		135,901
Total capital	$ 1,639,618		$ 1,374,087		$ 265,531

We have an outstanding authorization from our board of directors to purchase up to 10 million shares of our common stock. This authorization has no expiration date, and 0.1 million shares remained available for purchase under this authorization as of December 31, 2016. During 2016, we purchased 0.9 million shares for $55.2 million. In May 2016, our board of directors approved an additional authorization for the repurchase of up to $300.0 million of our common stock, effective at the conclusion of our previous authorization. The additional authorization also has no expiration date. Information regarding changes in shareholders' equity can be found in the consolidated statements of shareholders' equity appearing in Item 8 of this report.

As of December 31, 2016, we had a $525.0 million revolving credit facility that matures in February 2019. Our commitment fee ranges from 0.20% to 0.40% based on our leverage ratio. During the third and fourth quarters of 2016, we amended the credit agreement governing our credit facility to include a new variable rate term loan facility in the aggregate amount of $330.0 million. We borrowed the full amount during the fourth quarter, using the proceeds to retire our senior notes due in 2020 and to partially fund the acquisition of FMCG Direct in December 2016. The term loan facility also matures in February 2019 and requires periodic principal payments throughout the term of the loan. Interest is paid weekly and we may prepay the term loan facility in full or in part at our discretion. Amounts repaid may not be reborrowed.

Borrowings under the credit facility agreement are collateralized by substantially all of our personal and intangible property. The credit agreement governing the credit facility contains customary covenants regarding limits on levels of subsidiary indebtedness and capital expenditures, liens, investments, acquisitions, certain mergers, certain asset sales outside the ordinary course of business, and change in control as defined in the agreement. The agreement also contains financial covenants regarding our leverage ratio, interest coverage and liquidity. We were in compliance with all debt covenants as of December 31, 2016, and we expect to remain in compliance with all debt covenants throughout 2017.

As of December 31, 2016, amounts were available for borrowing under our revolving credit facility as follows:

(in thousands)	Total available
Revolving credit facility commitment	$ 525,000
Amount drawn on revolving credit facility	(428,000)
Outstanding letters of credit[1]	(10,865)
Net available for borrowing as of December 31, 2016	$ 86,135

[1] We use standby letters of credit primarily to collateralize certain obligations related to our self-insured workers' compensation claims, as well as claims for environmental matters, as required by certain states. These letters of credit reduce the amount available for borrowing under our revolving credit facility.

OTHER FINANCIAL POSITION INFORMATION

Information concerning items comprising selected captions on our consolidated balance sheets can be found under the caption "Note 2: Supplemental balance sheet and cash flow information" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

Acquisitions – The impact of acquisitions on our consolidated balance sheets can be found under the caption "Note 5: Acquisitions" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

Contract acquisition costs – Other non-current assets include contract acquisition costs of our Financial Services segment. These costs, which are essentially pre-paid product discounts, are recorded as non-current assets upon contract execution and are amortized, generally on the straight-line basis, as reductions of revenue over the related contract term. Changes in contract acquisition costs during the past three years can be found under the caption "Note 2: Supplemental balance sheet and cash flow information" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. Cash payments made for contract acquisition costs were $23.1 million for 2016, $12.8 million for 2015 and $16.6 million for 2014. We anticipate cash payments of approximately $23 million in 2017.

The number of checks being written has been declining, which has contributed to increased competitive pressure when attempting to retain or acquire clients. Both the number of financial institution clients requesting contract acquisition payments and the amount of the payments has fluctuated from year to year. Although we anticipate that we will selectively continue to make contract acquisition payments, we cannot quantify future amounts with certainty. The amount paid depends on numerous factors, including the number and timing of contract executions and renewals, competitors' actions, overall product discount levels and the structure of up-front product discount payments versus providing higher discount levels throughout the term of the contract.

Liabilities for contract acquisition payments are recorded upon contract execution. These obligations are monitored for each contract and are adjusted as payments are made. Contract acquisition payments due within the next year are included in accrued liabilities in our consolidated balance sheets. These accruals were $12.4 million as of December 31, 2016 and $9.0 million as of December 31, 2015. Accruals for contract acquisition payments included in other non-current liabilities in our consolidated balance sheets were $29.9 million as of December 31, 2016 and $29.2 million as of December 31, 2015.

OFF-BALANCE SHEET ARRANGEMENTS, GUARANTEES AND CONTRACTUAL OBLIGATIONS

It is not our general business practice to enter into off-balance sheet arrangements or to guarantee the performance of third parties. In the normal course of business we periodically enter into agreements that incorporate general indemnification language. These indemnifications encompass third-party claims arising from our products and services, including service

failures, breach of security, intellectual property rights, governmental regulations and/or employment-related matters. Performance under these indemnities would generally be triggered by our breach of the terms of the contract. In disposing of assets or businesses, we often provide representations, warranties and/or indemnities to cover various risks, including, for example, unknown damage to the assets, environmental risks involved in the sale of real estate, liability to investigate and remediate environmental contamination at waste disposal sites and manufacturing facilities, and unidentified tax liabilities and legal fees related to periods prior to disposition. We do not have the ability to estimate the potential liability from such indemnities because they relate to unknown conditions. However, we do not believe that any liability under these indemnities would have a material adverse effect on our financial position, annual results of operations or annual cash flows. We have recorded liabilities for known indemnifications related to environmental matters. Further information regarding our environmental liabilities, as well as liabilities related to self-insurance and litigation, can be found under the caption “Note 14: Other commitments and contingencies” of the Notes to Consolidated Financial Statements appearing in the Item 8 of this report.

We are not engaged in any transactions, arrangements or other relationships with unconsolidated entities or other third parties that are reasonably likely to have a material effect on our liquidity or on our access to, or requirements for, capital resources. We have not established any special purpose entities nor have we entered into any material related party transactions during the past three years.

As of December 31, 2016, our contractual obligations were as follows:

(in thousands)	Total	2017	2018 and 2019	2020 and 2021	2022 and thereafter
Long-term debt	$ 758,000	$ 35,063	$ 722,937	$ —	$ —
Lease obligations	42,306	14,046	21,636	5,539	1,085
Purchase obligations	67,109	29,649	32,229	5,163	68
Other non-current liabilities[(1)]	89,909	29,693	41,794	15,569	2,853
Total contractual obligations	$ 957,324	$ 108,451	$ 818,596	$ 26,271	$ 4,006

(1) Includes interest of $2.2 million related primarily to accrued contingent consideration which is recorded in the consolidated balance sheets at estimated fair value. This interest will be accrued in future periods as accretion expense.

Purchase obligations include amounts due under contracts with third-party service providers. These contracts are primarily for Direct Checks direct mail advertising agreements, information technology services and amounts due under Direct Checks and Financial Services royalty agreements. We routinely issue purchase orders to numerous vendors for the purchase of inventory and other supplies. These purchase orders are not included in the purchase obligations presented here, as our business partners typically allow us to cancel these purchase orders as necessary to accommodate business needs. Of the purchase obligations included in the table above, $6.6 million allow for early termination upon the payment of early termination fees. If we were to terminate these agreements, we would have incurred early termination fees of $6.4 million as of December 31, 2016.

Of the $79.7 million reported as other non-current liabilities in our consolidated balance sheet as of December 31, 2016, $21.7 million is excluded from the obligations shown in the table above. The excluded amounts, including the current portion of each liability, are comprised primarily of the following:

- Payments for uncertain tax positions – Due to the nature of the underlying liabilities and the extended time frame often needed to resolve income tax uncertainties, we cannot make reliable estimates of the amount or timing of cash payments that may be required to settle these liabilities. Our liability for uncertain tax positions, including accrued interest and penalties, was $8.7 million as of December 31, 2016, excluding tax benefits of deductible interest and the federal benefit of deductible state income tax.
- Deferred income taxes of business held for sale – As of December 31, 2016, other non-current liabilities included $5.7 million of deferred income taxes related to a small business distributor held for sale. Further information regarding net assets held for sale can be found under the caption "Note 2: Supplemental balance sheet and cash flow information" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.
- A portion of the amount due under our deferred compensation plan – Under this plan, some employees may begin receiving payments upon the termination of employment or disability, and we cannot predict when these events will occur. As such, $3.4 million of our deferred compensation liability as of December 31, 2016 is excluded from the obligations shown in the table above.

The table of contractual obligations does not include the following:

- Benefit payments for our postretirement benefit plan – We have the option of paying benefits from the accumulated assets of the plan or from the general funds of the company. Additionally, we expect the plan assets to earn income over time. As such, we cannot predict when or if payments from our general funds will be required. We anticipate that we will utilize plan assets to pay a majority of our benefits during 2017. Our postretirement benefit plan was overfunded $23.9 million as of December 31, 2016.
- Income tax payments, which are dependent upon our taxable income.

CRITICAL ACCOUNTING POLICIES

Our critical accounting policies are those that are most important to the portrayal of our financial condition and results of operations, or which place the most significant demands on management's judgment about the effect of matters that are inherently uncertain, and the impact of different estimates or assumptions could be material to our financial condition or results of operations.

Management's discussion and analysis of our financial condition and results of operations is based upon our consolidated financial statements, which have been prepared in accordance with generally accepted accounting principles (GAAP) in the United States. Our accounting policies are discussed under the caption "Note 1: Significant accounting policies" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. We review the accounting policies used in reporting our financial results on a regular basis. The preparation of our financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses and the related disclosure of contingent assets and liabilities. We base our estimates on historical experience and on various other factors and assumptions that we believe are reasonable under the circumstances, the result of which forms the basis for making judgments about the carrying values of assets and liabilities. In some instances, we reasonably could have used different accounting estimates and, in other instances, changes in the accounting estimates are reasonably likely to occur from period to period. Accordingly, actual results may differ from our estimates. Significant estimates and judgments utilized are reviewed by management on an ongoing basis and by the audit committee of our board of directors at the end of each quarter prior to the public release of our financial results.

Income Taxes

When preparing our consolidated financial statements, we are required to estimate our income taxes in each of the jurisdictions in which we operate. This process involves estimating our actual current tax expense based on expected taxable income, statutory tax rates, tax credits allowed in the various jurisdictions in which we operate, and risks associated with uncertain tax positions, together with assessing temporary and permanent differences resulting from the differing treatment of certain items between income tax return and financial reporting requirements. In interim reporting periods, we use an estimate of our annual effective tax rate based on the facts available at the time. Changes in the jurisdictional mix or the estimated amount of annual pre-tax income could impact our estimated effective tax rate in interim periods. The actual effective income tax rate is calculated at the end of the year.

We recognize deferred tax assets and liabilities for temporary differences using the enacted tax rates and laws that will be in effect when we expect the temporary differences to reverse. We must assess the likelihood that our deferred tax assets will be realized through future taxable income, and to the extent we believe that realization is not likely, we must establish a valuation allowance against those deferred tax assets. Significant judgment is required in evaluating our tax positions, and in determining our provision for income taxes, our deferred tax assets and liabilities and any valuation allowance recorded against our net deferred tax assets. We had net deferred tax liabilities of $83.6 million as of December 31, 2016, including valuation allowances of $2.5 million. The valuation allowances related primarily to capital loss carryforwards in Canada and net operating loss carryforwards in various state jurisdictions that we do not currently expect to fully realize.

We are subject to tax audits in numerous domestic and foreign tax jurisdictions. Tax audits are often complex and can require several years to complete. In the normal course of business, we are subject to challenges from the Internal Revenue Service (IRS) and other tax authorities regarding the amount of taxes due. These challenges may alter the timing or amount of taxable income or deductions, or the allocation of income among tax jurisdictions. We recognize the benefits of tax return positions in the financial statements when they are more-likely-than-not to be sustained by the taxing authorities based solely on the technical merits of the position. If the recognition threshold is met, the tax benefit is measured and recognized as the largest amount of tax benefit that, in our judgment, is greater than 50% likely to be realized. As of December 31, 2016, our liability for uncertain tax positions, including accrued interest and penalties, was $8.7 million, excluding tax benefits of deductible interest and the federal benefit of deductible state income tax. Further information regarding our unrecognized tax benefits can be found under the caption "Note 9: Income tax provision" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. The ultimate outcome of tax matters may differ from our estimates and assumptions. Unfavorable settlement of any particular issue would require the use of cash and could result in increased income tax expense. Favorable resolution would result in reduced income tax expense.

A one-percentage-point change in our effective income tax rate, excluding discrete items, would have resulted in a $3.4 million change in income tax expense for 2016. The determination of our provision for income taxes, deferred income taxes and unrecognized tax positions requires significant judgment, the use of estimates, and the interpretation and application of complex tax laws. As such, the amounts reflected in our consolidated financial statements may require adjustment in the future as additional facts become known or circumstances change. If actual results differ from estimated amounts, our effective income tax rate and related tax balances would be affected.

As of December 31, 2016, our subsidiaries located in Canada held cash and cash equivalents of $66.6 million. Deferred income taxes have not been recognized on unremitted earnings of our foreign subsidiaries, as these amounts are intended to be reinvested indefinitely in the operations of those subsidiaries. If we were to repatriate all of the Canadian cash and cash equivalents into the United States at one time, we would incur a federal tax liability of approximately $7 million, based on current federal tax law.

Business Combinations

We allocate the purchase price of acquired businesses to the estimated fair values of the assets acquired and liabilities assumed as of the date of the acquisition. The calculations used to determine the fair value of the long-lived assets acquired, primarily intangible assets, can be complex and require significant judgment. We weigh many factors when completing these estimates including, but not limited to, the nature of the acquired company’s business; its competitive position, strengths, and challenges; its historical financial position and performance; estimated customer retention rates; discount rates; and future plans for the combined entity. We may also engage independent valuation specialists, when necessary, to assist in the fair value calculations for significant acquired long-lived assets.

We generally estimate the fair value of acquired customer lists using the multi-period excess earnings method. This valuation model estimates revenues and cash flows derived from the asset and then deducts portions of the cash flow that can be attributed to supporting assets, such as a brand name or fixed assets, that contributed to the generation of the cash flows. The resulting cash flow, which is attributable solely to the customer list asset, is then discounted at a rate of return commensurate with the risk of the asset to calculate a present value. The fair value of acquired customer lists may also be estimated by discounting the estimated cash flows expected to be generated by the assets. Assumptions used in these calculations include same-customer revenue growth rates and estimated customer retention rates based on the acquirees' historical information. The fair value of acquired technology is estimated, at times, using the relief from royalty method, which calculates the cost savings associated with owning rather than licensing the technology. Assumed royalty rates are applied to the projected revenues for the remaining useful life of the technology to estimate the royalty savings. The fair value of acquired technology may also be estimated using the cost of reproduction method under which the primary components of the technology are identified and the estimated cost to reproduce the technology is calculated based on historical data provided by the acquirees. We estimate the fair value of liabilities for contingent consideration by discounting to present value the probability-weighted contingent payments expected to be made. Assumptions used in these calculations include discount rates, projected financial results of the acquired businesses based on our most recent internal forecasts, and factors indicating the probability of achieving the forecasted results. The excess of the purchase price over the estimated fair value of the net assets acquired is recorded as goodwill. Goodwill is not amortized, but is subject to impairment testing on at least an annual basis.

We are also required to estimate the useful lives of the acquired intangible assets, which determines the amount of acquisition-related amortization expense we will record in future periods. Each reporting period, we evaluate the remaining useful lives of our amortizable intangibles to determine whether events or circumstances warrant a revision to the remaining period of amortization.

While we use our best estimates and assumptions, our fair value estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, we may record adjustments to the assets acquired and liabilities assumed, with the corresponding offset to goodwill. Any adjustments required after the measurement period are recorded in the consolidated statements of income.

The judgments required in determining the estimated fair values and expected useful lives assigned to each class of assets and liabilities acquired can significantly affect net income. For example, different classes of assets will have useful lives that differ. Consequently, to the extent a longer-lived asset is ascribed greater value than a shorter-lived asset, net income in a given period may be higher. Additionally, assigning a lower value to amortizable intangibles would result in a higher amount assigned to goodwill. As goodwill is not amortized, this would benefit net income in a given period, although goodwill is subject to annual impairment analysis.

Revenue Recognition

In general, revenue is recognized when (1) persuasive evidence of an arrangement exists, (2) delivery has occurred or services have been rendered, (3) the sales price is fixed or determinable, and (4) collectibility is reasonably assured. Revenue is presented in our consolidated statements of income net of rebates, discounts, amortization of contract acquisition costs and sales tax.

Product revenue – The majority of our revenues are generated from the sale of products for which revenue is recognized upon shipment or customer receipt, based upon the transfer of title. Product revenue includes amounts billed to customers for shipping and handling and pass-through costs, such as marketing materials for which our financial institution clients reimburse us. Costs incurred for shipping and handling and pass-through costs are reflected in cost of products. For sales with a right of return, we record a reserve for estimated sales returns based on significant historical experience.

We enter into contractual agreements with financial institution clients for rebates on certain products we sell. We record these amounts as reductions of revenue in the consolidated statements of income and as accrued liabilities in the consolidated balance sheets when the related revenue is recorded. At times we may also sell products at discounted prices or provide free products to customers when they purchase a specified product. Discounts are recorded as reductions of revenue when the related revenue is recorded. The cost of free products is recorded as cost of products when the revenue for the related order is recorded.

Service revenue – Our services consist primarily of web design, hosting and other web services; fraud prevention; marketing services, including email, mobile, social media and other self-service marketing solutions, as well as data-driven marketing solutions; financial technology solutions; financial institution customer acquisition and loyalty programs; payroll services; and logo design. We recognize the majority of these service revenues as the services are provided. In some situations, our web hosting and applications services are billed on a quarterly, semi-annual or annual basis. When a customer pays in advance for services, we defer the revenue and recognize it as the services are performed. Up-front set-up fees related to our web hosting, applications services and outsourcing services are deferred and recognized as revenue on the straight-line basis over the term of the customer relationship. Deferred revenue is included in accrued liabilities and other non-current liabilities in the consolidated balance sheets.

Service revenue, percentage-of-completion method – A portion of our financial technology solutions revenue results from the sale of bundled arrangements that may include hardware, software and professional services. As these arrangements involve customization and modification of the software, we recognize revenues from these contracts using the percentage-of-completion method of accounting, which involves calculating the percentage of services provided during the reporting period compared with the total estimated services to be provided over the duration of the contract. Estimates of total contract revenues and costs are continuously monitored during the term of the contract, and recorded revenues and estimated costs are subject to revision as the contract progresses. Such revisions may result in increases or decreases in revenues and expenses and are reflected in the consolidated statements of income in the periods in which they are first identified. Revisions to these estimates during 2016 were not significant to our consolidated results of operations. If our estimates indicate that a contract loss will occur, a loss provision is recorded in the period in which the loss first becomes probable and reasonably estimable. Contract losses are determined to be the amount by which the estimated total direct and indirect costs of the contract exceed the estimated total revenues that will be generated by the contract. Estimated annual revenues from bundled arrangements accounted for using the percentage-of-completion method of accounting totaled approximately $20.0 million for 2016.

Contract termination payments – At times, a financial institution client may terminate its contract with us prior to the end of the contract term. In substantially all of these cases, the financial institution is contractually required to remit a contract termination payment. Such payments are recorded as revenue when the termination agreement is executed, provided that we have no further service or contractual obligations, and collection of the funds is assured. If we have a continuing service obligation following the execution of a contract termination agreement, we record the related revenue over the remaining service period.

Gross vs. net revenue recognition – Certain revenue streams require judgment to determine if revenue should be recorded on a gross basis or net of related costs. Reported revenue for our Financial Services segment does not reflect the full retail price paid by end-consumers to their financial institutions. Instead, revenue reflects the amounts paid to us by our financial institution clients. Revenue generated by our Safeguard® distributors within the Small Business Services segment is generally recorded on a gross basis, with commissions paid to our distributors included in SG&A expense. As part of our rewards, incentive and loyalty programs, we receive payments from consumers or our clients for the products and services we provide, including hotel stays, gift cards and merchandise such as apparel, electronics, and clothing. This revenue is recorded net of the related fulfillment costs.

Postretirement Benefit Plan

Detailed information regarding our postretirement benefit plan, including a description of the plan, its related future cash flows, plan assets and the actuarial assumptions used in accounting for the plan, can be found under the caption “Note 12: Postretirement benefits” of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

We recorded net postretirement benefit income of $1.8 million for 2016, $2.7 million for 2015 and $2.2 million for 2014. Our business segments record postretirement benefit income in cost of revenue and in SG&A expense, based on the composition of their workforces. Our postretirement benefit income and obligation are calculated utilizing various actuarial assumptions and methodologies. These assumptions include, but are not limited to, the discount rate, the expected long-term rate of return on plan assets, the expected health care cost trend rate and the average remaining life expectancy of plan participants. We analyze the assumptions used each year when we complete our actuarial valuation of the plan. The effects of

changes to our assumptions are recognized immediately on the consolidated balance sheets, but are generally amortized into earnings over future periods, with the deferred amount recorded in accumulated other comprehensive loss. If the assumptions utilized in determining our postretirement benefit income and obligation differ from actual events, our results of operations for future periods are impacted.

Discount rate – The discount rate is used to reflect the time value of money. It is the assumed rate at which future postretirement benefits could be effectively settled. The discount rate assumption is based on the rates of return on high-quality, fixed-income instruments currently available whose cash flows approximate the timing and amount of expected benefit payments. Effective December 31, 2015, we changed the method we use to determine the discount rate used in calculating the interest component of net periodic benefit income. Instead of using a single weighted-average discount rate, we elected to utilize a full yield curve approach by applying separate discount rates to each future projected benefit payment based on time until payment. We made this change to provide a more precise measurement of interest costs by improving the correlation between projected cash flows and the corresponding yield curve rates. This change does not affect the measurement of our total benefit obligation, but reduced the interest component of net periodic benefit income $0.9 million for 2016. This is a change in accounting estimate, and accordingly, we accounted for it on a prospective basis.

Our accumulated postretirement benefit obligation as of December 31, 2016, was $94.2 million. In measuring this obligation, we assumed a discount rate of 3.81%. A 0.25 point change in the discount rate would increase or decrease our postretirement benefit obligation by approximately $2.0 million.

Expected long-term rate of return on plan assets – The long-term rate of return on plan assets reflects the average rate of earnings expected on the funds invested or to be invested to provide for expected benefit payments. In determining this rate, we utilize our historical returns and then adjust these returns for estimated inflation and projected market returns. Our inflation assumption is primarily based on analysis of historical inflation data. As of December 31, 2016, the fair value of our plan assets was $118.1 million. In measuring net postretirement benefit income for 2016, we assumed an expected long-term rate of return on plan assets of 6.50%. A 0.25 point change in this assumption would increase or decrease our annual postretirement benefit income by approximately $0.3 million.

Expected health care cost trend rate – The health care cost trend rate represents the expected annual rate of change in the cost of health care benefits currently provided due to factors other than changes in the demographics of plan participants. In measuring the accumulated postretirement benefit obligation as of December 31, 2016, our initial health care inflation rate for 2017 was assumed to be 7.50% for participants under the age of 65 and 8.75% for participants age 65 and older. Our ultimate health care inflation rate was assumed to be 4.5% in 2025 and beyond for all participants. A one-percentage-point change in the health care cost trend rates would have the following effects:

(in thousands)	**One-percentage-point increase**	**One-percentage-point decrease**
Effect on total of service and interest cost	$ 61	$ (57)
Effect on benefit obligation	1,507	(1,413)

Average remaining life expectancy of plan participants – In determining the average remaining life expectancy of plan participants, our actuaries use a mortality table that includes estimated death rates for each age. We are currently using the RP-2014 mortality table with mortality improvement Scale MP-2016.

When actual events differ from our assumptions or when we change the assumptions used, an unrecognized actuarial gain or loss results. The gain or loss is recognized immediately in the consolidated balance sheets within accumulated comprehensive loss and is amortized into postretirement benefit income over the average remaining life expectancy of inactive plan participants, as a large percentage of our plan participants are classified as inactive. This amortization period was 15.5 years as of December 31, 2016.

The fair value of our postretirement benefit plan assets is subject to various risks, including credit, interest and overall market volatility risks. If the equity markets were to experience a significant decline in value, the fair value of our plan assets would decrease. This would affect the funded status of our plan and result in higher postretirement benefit expense in the future. Although our obligation is limited to funding benefits as they become payable, future declines in the fair value of our plan assets could also result in the need to contribute increased amounts of cash to fund benefits payable under the plan. We utilized plan assets to pay a significant portion of benefits during 2016, and we anticipate that we will utilize plan assets to pay a significant portion of our benefits during 2017.

Impairment of Goodwill and Indefinite-Lived Trade Name

Goodwill and our indefinite-lived trade name totaled $1,125.1 million as of December 31, 2016, which represented 51.5% of total assets. These assets are tested for impairment on an annual basis as of July 31, or more frequently if events occur or circumstances change that could indicate a possible impairment. In addition to the required impairment analyses, we regularly evaluate the remaining useful life of our indefinite-lived trade name to determine whether events and circumstances continue to

support an indefinite useful life. If we would determine that this asset has a finite useful life, we would test the asset for impairment and then amortize the asset's remaining carrying value over its estimated remaining useful life.

To analyze goodwill for impairment, we must assign our goodwill to individual reporting units. Identification of reporting units includes an analysis of the components that comprise each of our operating segments, which considers, among other things, the manner in which we operate our business and the availability of discrete financial information. Components of an operating segment are aggregated to form one reporting unit if the components have similar economic characteristics. We periodically review our reporting units to ensure that they continue to reflect the manner in which we operate our business.

2016 and 2015 goodwill impairment analyses – In completing the 2016 and 2015 annual goodwill impairment analyses, we elected to perform a qualitative assessment for all of our reporting units to which goodwill was assigned, with one exception. We elected to perform a quantitative analysis for our Financial Services Commercial reporting unit. This reporting unit was acquired subsequent to our 2014 annual impairment analysis and the quantitative analysis completed as of July 31, 2015 indicated that the estimated fair value of this reporting unit exceeded its carrying value by approximately 13%. This relatively small percentage was primarily due to the fact that the reporting unit had been recently acquired in October 2014.

In completing the quantitative analyses for our Financial Services Commercial reporting unit, we first compared the carrying value of the reporting unit, including goodwill, to its estimated fair value. Carrying value is based on the assets and liabilities associated with the operations of the reporting unit, which often requires the allocation of shared or corporate items among reporting units. In calculating the estimated fair value, we used the income approach. The income approach is a valuation technique under which we estimated future cash flows using the reporting unit's financial forecast from the perspective of an unrelated market participant. Using historical trending and internal forecasting techniques, we projected revenue and applied our fixed and variable cost experience rates to the projected revenue to arrive at the future cash flows. A terminal value was then applied to the projected cash flow stream. Future estimated cash flows were discounted to their present value to calculate the estimated fair value. The discount rate used was the value-weighted average of our estimated cost of capital derived using both known and estimated customary market metrics. In determining the estimated fair value of a reporting unit, we were required to estimate a number of factors, including projected operating results, terminal growth rates, economic conditions, anticipated future cash flows, the discount rate and the allocation of shared or corporate items. The quantitative assessment completed for this reporting unit as of July 31, 2016 indicated that its estimated fair value exceeded its carrying value by approximately 49%. Total goodwill for this reporting unit was approximately $45.0 million as of the date of our 2016 assessment. This impairment assessment is sensitive to changes in forecasted cash flows, as well as our selected discount rate of 10%. Changes in the reporting unit's results, forecast assumptions and estimates could materially affect the estimation of the fair value of this reporting unit.

The qualitative analyses for our other reporting units completed during 2016 and 2015 evaluated factors including, but not limited to, economic, market and industry conditions, cost factors and the overall financial performance of the reporting units. We also considered the quantitative analysis we completed as of July 31, 2014 in which the estimated fair values of our reporting units' net assets exceeded their carrying values by approximate amounts between $74.0 million and $1.13 billion, or by amounts between 47% and 482% above the carrying values of their net assets. In completing these assessments, we noted no changes in events or circumstances which indicated that is was more likely than not that the fair value of any reporting unit was less than its carrying amount.

2014 goodwill impairment analysis – In completing our 2014 annual goodwill impairment analysis, we elected to perform a quantitative assessment for all of our reporting units, as our previous quantitative analysis was completed during 2010. In determining the fair values of our reporting units, we utilized the income approach, as previously described in relation to the 2016 and 2015 analyses of our Financial Services Commercial reporting unit. Because our 2014 quantitative analysis included all of our reporting units, the summation of our reporting units' fair values was compared to our consolidated fair value, as indicated by our market capitalization, to evaluate the reasonableness of our calculations. If the carrying amount of a reporting unit's net assets exceeds its estimated fair value, the second step of the goodwill impairment analysis requires us to measure the amount of the impairment loss. An impairment loss is calculated by comparing the implied fair value of the goodwill to its carrying amount. To calculate the implied fair value of goodwill, the fair value of the reporting unit's assets and liabilities, excluding goodwill, is estimated. The excess of the fair value of the reporting unit over the amount assigned to its assets and liabilities, excluding goodwill, is the implied fair value of the reporting unit's goodwill. We were not required to complete the second step of the goodwill impairment analysis for any of our reporting units in 2014.

Indefinite-lived trade name – The estimate of fair value for our indefinite-lived trade name is based on the relief from royalty method, which calculates the cost savings associated with owning rather than licensing the trade name. An assumed royalty rate is applied to forecasted revenue and the resulting cash flows are discounted. If the estimated fair value is less than the carrying value of the asset, an impairment loss would be recognized for the difference. The annual impairment analysis completed during 2016 indicated that the estimated fair value of our indefinite-lived trade name exceeded its carrying value of $19.1 million by approximately $32.0 million. In this analysis, we assumed a discount rate of 10.0% and a royalty rate of 1.5%. A one-half percentage point increase in the discount rate would reduce the indicated fair value of the asset by approximately $3.0 million and a one-half percentage point decrease in the royalty rate would reduce the indicated fair value of the asset by approximately $17.0 million.

Evaluations of asset impairment require us to make assumptions about future events, market conditions, and financial performance over the life of the asset being evaluated. These assumptions require significant judgment and actual results may differ from our assumptions. For example, if our stock price were to decline for a sustained period, if a downturn in economic conditions were to negatively affect our actual and forecasted operating results, if order volume declines for our Direct Checks segment were to accelerate, or if recent acquisitions were to fail to achieve expected operating results, these situations could indicate a decline in the fair value of one or more of our reporting units. This may require us to record an impairment charge for a portion of goodwill and/or our indefinite-lived trade name or other assets.

New Accounting Pronouncements

Information regarding the accounting policies adopted during 2016 and those not yet adopted can be found under the caption “Note 1: Significant accounting policies” of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

We are exposed to changes in interest rates primarily as a result of the borrowing activities used to support our capital structure, maintain liquidity and fund business operations. We do not enter into financial instruments for speculative or trading purposes. The nature and amount of debt outstanding can be expected to vary as a result of future business requirements, market conditions and other factors. As of December 31, 2016, our total debt was comprised of the following:

(in thousands)	Carrying amount	Fair value[1]	Weighted-average interest rate
Amount drawn on revolving credit facility	$ 428,000	$ 428,000	2.2%
Amount outstanding under term loan facility	328,963	330,000	2.3%
Capital lease obligations	1,685	1,685	2.0%
Total debt	$ 758,648	$ 759,685	2.2%

[1] The carrying amounts reported in the consolidated balance sheets for amounts drawn under our revolving credit facility and our term loan facility, excluding unamortized debt issuance costs, approximate fair value because our interest rates are variable and reflect current market rates. Capital lease obligations are presented at their carrying amount.

Amounts drawn on our revolving credit facility and our term loan facility mature in February 2019. Our capital lease obligations are due through September 2020.

Based on the daily average amount of outstanding variable rate debt in our portfolio, a one percentage point change in our weighted-average interest rates would have resulted in a $6.2 million change in interest expense for 2016.

We are exposed to changes in foreign currency exchange rates. Investments in, loans and advances to foreign subsidiaries and branches, as well as the operations of these businesses, are denominated in foreign currencies, primarily the Canadian dollar. The effect of exchange rate changes is expected to have a minimal impact on our earnings and cash flows, as our foreign operations represent a relatively small portion of our business. We have not entered into hedges against changes in foreign currency exchange rates.

Item 8. Financial Statements and Supplementary Data.

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors of Deluxe Corporation:

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of income, comprehensive income, shareholders' equity and cash flows present fairly, in all material respects, the financial position of Deluxe Corporation and its subsidiaries at December 31, 2016 and December 31, 2015, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 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 December 31, 2016, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). 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 Management's Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on these financial statements and on the Company's internal control over financial reporting based on our integrated audits. 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 audits 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 examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. 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.

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 (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) 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 (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

/s/ PricewaterhouseCoopers LLP
Minneapolis, Minnesota
February 24, 2017

DELUXE CORPORATION
CONSOLIDATED BALANCE SHEETS
(in thousands, except share par value)

	December 31, 2016	December 31, 2015
ASSETS		
Current assets:		
Cash and cash equivalents	$ 76,574	$ 62,427
Trade accounts receivable, net of allowances for uncollectible accounts	152,649	123,654
Inventories and supplies	40,182	41,956
Funds held for customers	87,823	53,343
Other current assets	41,002	42,605
Total current assets	398,230	323,985
Deferred income taxes	1,605	1,238
Long-term investments (including $1,877 and $2,091 of investments at fair value, respectively)	42,240	41,691
Property, plant and equipment, net of accumulated depreciation	86,896	85,732
Assets held for sale	14,568	13,969
Intangibles, net of accumulated amortization	409,781	285,311
Goodwill	1,105,956	976,415
Other non-current assets	125,062	113,812
Total assets	$ 2,184,338	$ 1,842,153
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 106,793	$ 87,575
Accrued liabilities	273,049	228,423
Long-term debt due within one year	35,842	1,045
Total current liabilities	415,684	317,043
Long-term debt	722,806	627,973
Deferred income taxes	85,172	81,076
Other non-current liabilities	79,706	70,992
Commitments and contingencies (Notes 9, 13 and 14)		
Shareholders' equity:		
Common shares $1 par value (authorized: 500,000 shares; outstanding: December 31, 2016 – 48,546; December 31, 2015 – 49,019)	48,546	49,019
Retained earnings	882,795	751,253
Accumulated other comprehensive loss	(50,371)	(55,203)
Total shareholders' equity	880,970	745,069
Total liabilities and shareholders' equity	$ 2,184,338	$ 1,842,153

See Notes to Consolidated Financial Statements

DELUXE CORPORATION
CONSOLIDATED STATEMENTS OF INCOME
(in thousands, except per share amounts)

	Year Ended December 31,		
	2016	2015	2014
Product revenue	$ 1,472,882	$ 1,451,994	$ 1,410,858
Service revenue	376,180	320,823	263,224
Total revenue	1,849,062	1,772,817	1,674,082
Cost of products	(534,390)	(526,307)	(501,871)
Cost of services	(132,851)	(112,902)	(104,407)
Total cost of revenue	(667,241)	(639,209)	(606,278)
Gross profit	1,181,821	1,133,608	1,067,804
Selling, general and administrative expense	(805,970)	(774,859)	(719,192)
Net restructuring charges	(7,124)	(4,418)	(8,776)
Asset impairment charges	—	—	(6,468)
Net loss on sale of facility	—	—	(735)
Operating income	368,727	354,331	332,633
Loss on early debt extinguishment	(7,858)	(8,917)	—
Interest expense	(22,302)	(20,299)	(36,529)
Other income	1,819	2,832	1,077
Income before income taxes	340,386	327,947	297,181
Income tax provision	(111,004)	(109,318)	(97,387)
Net income	$ 229,382	$ 218,629	$ 199,794
Basic earnings per share	$ 4.68	$ 4.39	$ 3.99
Diluted earnings per share	4.65	4.36	3.96
Cash dividends per share	1.20	1.20	1.15

See Notes to Consolidated Financial Statements

DELUXE CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(in thousands)

	Year Ended December 31,		
	2016	2015	2014
Net income	$ 229,382	$ 218,629	$ 199,794
Other comprehensive income (loss), net of tax:			
Reclassification of loss on derivative instruments from other comprehensive loss to net income	—	—	781
Postretirement benefit plans:			
Net actuarial gain (loss) arising during the year	1,486	(7,666)	1,133
Less reclassification of amounts from other comprehensive loss to net income:			
Amortization of prior service credit	(866)	(867)	(866)
Amortization of net actuarial loss	2,518	2,116	2,202
Postretirement benefit plans	3,138	(6,417)	2,469
Unrealized holding (losses) gains on securities arising during the year	(99)	11	151
Unrealized foreign currency translation adjustment	1,793	(12,459)	(6,315)
Other comprehensive income (loss)	4,832	(18,865)	(2,914)
Comprehensive income	$ 234,214	$ 199,764	$ 196,880
Income tax (expense) benefit of other comprehensive income (loss) included in above amounts:			
Reclassification of loss on derivative instruments from other comprehensive loss to net income	$ —	$ —	$ (501)
Postretirement benefit plans:			
Net actuarial gain (loss) arising during the year	(952)	4,906	(726)
Less reclassification of amounts from other comprehensive loss to net income:			
Amortization of prior service credit	555	554	555
Amortization of net actuarial loss	(1,279)	(1,004)	(1,216)
Postretirement benefit plans	(1,676)	4,456	(1,387)
Unrealized holding (losses) gains on securities arising during the year	35	(4)	(53)
Total net tax (expense) benefit included in other comprehensive income (loss)	$ (1,641)	$ 4,452	$ (1,941)

See Notes to Consolidated Financial Statements

DELUXE CORPORATION
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY
(in thousands)

	Common shares	Common shares par value	Additional paid-in capital	Retained earnings	Accumulated other comprehensive loss	Total
Balance, December 31, 2013	50,344	$ 50,344	$ 22,596	$ 510,941	$ (33,424)	$ 550,457
Net income	—	—	—	199,794	—	199,794
Cash dividends	—	—	—	(57,603)	—	(57,603)
Common shares issued	720	720	14,581	—	—	15,301
Tax impact of share-based awards	—	—	4,398	—	—	4,398
Common shares repurchased	(1,133)	(1,133)	(35,585)	(23,401)	—	(60,119)
Other common shares retired	(189)	(189)	(10,064)	(396)	—	(10,649)
Fair value of share-based compensation	—	—	8,832	—	—	8,832
Other comprehensive loss	—	—	—	—	(2,914)	(2,914)
Balance, December 31, 2014	49,742	49,742	4,758	629,335	(36,338)	647,497
Net income	—	—	—	218,629	—	218,629
Cash dividends	—	—	—	(59,755)	—	(59,755)
Common shares issued	324	324	7,663	—	—	7,987
Tax impact of share-based awards	—	—	2,021	—	—	2,021
Common shares repurchased	(996)	(996)	(22,000)	(36,956)	—	(59,952)
Other common shares retired	(51)	(51)	(3,174)	—	—	(3,225)
Fair value of share-based compensation	—	—	10,732	—	—	10,732
Other comprehensive loss	—	—	—	—	(18,865)	(18,865)
Balance, December 31, 2015	49,019	49,019	—	751,253	(55,203)	745,069
Net income	—	—	—	229,382	—	229,382
Cash dividends	—	—	—	(58,720)	—	(58,720)
Common shares issued	641	641	17,144	—	—	17,785
Common shares repurchased	(901)	(901)	(15,203)	(39,120)	—	(55,224)
Other common shares retired	(213)	(213)	(13,427)	—	—	(13,640)
Fair value of share-based compensation	—	—	11,486	—	—	11,486
Other comprehensive income	—	—	—	—	4,832	4,832
Balance, December 31, 2016	48,546	$ 48,546	$ —	$ 882,795	$ (50,371)	$ 880,970

See Notes to Consolidated Financial Statements

DELUXE CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended December 31,		
	2016	**2015**	**2014**
Cash flows from operating activities:			
Net income	$ 229,382	$ 218,629	$ 199,794
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation	14,498	16,000	16,767
Amortization of intangibles	77,085	60,700	49,075
Asset impairment charges	—	—	6,468
Amortization of contract acquisition costs	20,185	18,741	18,105
Deferred income taxes	1,886	(3,256)	(7,413)
Employee share-based compensation expense	12,459	11,894	9,776
Loss on early debt extinguishment	7,858	8,917	—
Other non-cash items, net	7,267	2,454	11,162
Changes in assets and liabilities, net of effect of acquisitions:			
Trade accounts receivable	(23,414)	(4,525)	(21,095)
Inventories and supplies	2,244	(339)	(4,353)
Other current assets	49	8,629	(8,199)
Non-current assets	(5,054)	(2,532)	(4,153)
Accounts payable	15,888	(4,528)	12,218
Contract acquisition payments	(23,068)	(12,806)	(16,567)
Other accrued and non-current liabilities	(17,953)	(8,347)	23,513
Net cash provided by operating activities	319,312	309,631	285,098
Cash flows from investing activities:			
Purchases of capital assets	(46,614)	(43,261)	(41,119)
Payments for acquisitions, net of cash acquired	(270,939)	(212,990)	(105,029)
Proceeds from company-owned life insurance policies	4,123	3,973	897
Proceeds from sale of facility	—	—	8,451
Other	2,644	1,138	757
Net cash used by investing activities	(310,786)	(251,140)	(136,043)
Cash flows from financing activities:			
Proceeds from issuing long-term debt	559,000	505,750	246,500
Payments on long-term debt, including costs of debt reacquisition	(442,189)	(439,812)	(340,903)
Proceeds from issuing shares under employee plans	9,114	5,895	9,148
Excess tax benefit from share-based employee awards	—	2,244	4,992
Employee taxes paid for shares withheld	(5,589)	(1,698)	(4,703)
Payments for common shares repurchased	(55,224)	(59,952)	(60,119)
Cash dividends paid to shareholders	(58,720)	(59,755)	(57,603)
Other	(2,117)	(1,059)	(1,360)
Net cash provided (used) by financing activities	4,275	(48,387)	(204,048)
Effect of exchange rate change on cash	1,346	(9,218)	(4,555)
Net change in cash and cash equivalents	14,147	886	(59,548)
Cash and cash equivalents, beginning of year	62,427	61,541	121,089
Cash and cash equivalents, end of year	$ 76,574	$ 62,427	$ 61,541

See Notes to Consolidated Financial Statements

Note 1: Significant accounting policies

Nature of operations – We employ a multi-channel strategy to provide a suite of customer life cycle management solutions to our customers. We offer a wide range of services and products to small businesses, including website development and hosting, email marketing, social media, search engine optimization and logo design, in addition to our checks and forms offerings. For financial institutions, we offer a portfolio of financial technology solutions including receivables management and data-driven marketing, as well as customer acquisition and loyalty programs, fraud prevention and profitability services and our check program solutions. We are also a leading printer of checks and accessories sold directly to consumers.

Consolidation – The consolidated financial statements include the accounts of Deluxe Corporation and its wholly-owned subsidiaries. All intercompany accounts, transactions and profits have been eliminated.

Revision of previously issued financial statements – During the quarter ended June 30, 2016, we identified an error in the balance sheet presentation of borrowings under our revolving credit facility and the related asset for debt issuance costs. These amounts were previously presented as current items in our consolidated balance sheets and we determined that they should have been presented as non-current due to the February 2019 maturity date for amounts borrowed under our revolving credit facility. This change also corrects the presentation of cash flows associated with these borrowings. Previously, these cash flows were presented on a net basis. The change in balance sheet presentation requires that they be presented on a gross basis.

We assessed the materiality of this error on prior periods' financial statements in accordance with the Securities and Exchange Commission (SEC) Staff Accounting Bulletin No. 99, *Materiality*, codified in Accounting Standards Codification (ASC) 250, *Presentation of Financial Statements*. We concluded that the error was not material to any prior annual or interim period and therefore, amendments of previously filed reports are not required. In accordance with ASC 250, we have corrected the error for all prior periods presented by revising the consolidated financial statements appearing herein. Periods not presented herein will be revised, as applicable, in future filings. The revisions had no impact on total assets, total liabilities, shareholders' equity, net income or net cash used by financing activities.

The impact of this revision on our consolidated balance sheet as of December 31, 2015 was as follows:

	December 31, 2015		
(in thousands)	As previously reported	Adjustment	As revised
Other current assets	$ 44,608	$ (2,003)	$ 42,605
Total current assets	325,988	(2,003)	323,985
Other non-current assets	111,809	2,003	113,812
Short-term borrowings	434,000	(434,000)	—
Total current liabilities	751,043	(434,000)	317,043
Long-term debt	193,973	434,000	627,973

The impact of this revision on our consolidated statements of cash flows for the years ended December 31, 2015 and 2014 was as follows:

(in thousands)	As previously reported	Adjustment	As revised
2015:			
Net proceeds from short-term borrowings	$ 274,000	$ (274,000)	$ —
Proceeds from issuing long-term debt	—	505,750	505,750
Payments on long-term debt, including costs of debt reacquisition	(208,062)	(231,750)	(439,812)
2014:			
Net proceeds from short-term borrowings[1]	159,875	(160,000)	(125)
Proceeds from issuing long-term debt	—	246,500	246,500
Payments on long-term debt, including costs of debt reacquisition	(254,403)	(86,500)	(340,903)

[1] The As revised amount is included in other cash flows from financing activities in our consolidated statement of cash flows.

Use of estimates – We have prepared the accompanying consolidated financial statements in conformity with generally accepted accounting principles (GAAP) in the United States. In this process, it is necessary for us to make certain assumptions and estimates affecting the amounts reported in the consolidated financial statements and related notes. These estimates and assumptions are developed based upon all available information. However, actual results can differ from assumed and estimated amounts.

Foreign currency translation – The financial statements of our foreign subsidiaries are measured in the respective subsidiaries' functional currencies, primarily Canadian dollars, and are translated into U.S. dollars. Assets and liabilities are translated using the exchange rates in effect at the balance sheet date. Revenue and expenses are translated at the average exchange rates during the year. The resulting translation gains and losses are reflected in accumulated other comprehensive loss in the shareholders' equity section of the consolidated balance sheets. Foreign currency transaction gains and losses are recorded in other income in the consolidated statements of income.

Cash and cash equivalents – We consider all cash on hand and other highly liquid investments with original maturities of 3 months or less to be cash and cash equivalents. The carrying amounts reported in the consolidated balance sheets for cash and cash equivalents approximate fair value. Checks issued by us but not presented to the banks for payment may create negative book cash balances. These book overdrafts are included in accounts payable on the consolidated balance sheets and totaled $7,764 as of December 31, 2016 and $2,166 as of December 31, 2015.

Marketable securities – Marketable securities as of December 31, 2015 consisted of a Canadian money market fund that was sold during 2016. The investment was classified as available-for-sale and was carried at fair value within other current assets in the consolidated balance sheet. Because of the short-term nature of the underlying investments, the cost of these securities approximated their fair value.

Trade accounts receivable – Trade accounts receivable are initially recorded at the invoiced amount upon the sale of goods or services to customers, and they do not bear interest. They are stated net of allowances for uncollectible accounts, which represent estimated losses resulting from the inability of customers to make the required payments. When determining the allowances for uncollectible accounts, we take several factors into consideration, including the overall composition of accounts receivable aging, our prior history of accounts receivable write-offs, the type of customer and our day-to-day knowledge of specific customers. Changes in the allowances for uncollectible accounts are included in selling, general and administrative (SG&A) expense in our consolidated statements of income. The point at which uncollected accounts are written off varies by type of customer, but generally does not exceed 1 year from the due date of the receivable.

Inventories and supplies – Effective January 1, 2016, we adopted Accounting Standards Update (ASU) No. 2015-11, *Simplifying the Measurement of Inventory,* applying the new standard on a prospective basis. This standard requires that inventory be measured at the lower of cost or net realizable value. As of December 31, 2015, inventories were stated at the lower of average cost or market. Cost is calculated on a first-in, first-out basis. Application of the new standard did not have a significant impact on our results of operations or financial position. Supplies consist of items not used directly in the production of goods, such as maintenance and other supplies utilized in the production area.

Funds held for customers – Our payroll services businesses collect funds from clients to pay their payroll and related taxes. We hold these funds temporarily until payments are remitted to the clients' employees and the appropriate taxing authorities. In addition, our cash receipt processing business remits a portion of cash receipts to our clients the business day following receipt. These funds, consisting of cash and available-for-sale marketable securities, are reported as funds held for customers in the consolidated balance sheets. The corresponding liability for these obligations is included in accrued liabilities in the consolidated balance sheets. The available-for-sale marketable securities are carried at fair value, with unrealized gains and losses included in accumulated other comprehensive loss in the consolidated balance sheets. Realized gains and losses are included in revenue in our consolidated statements of income. Realized gains recognized during the past three years were not significant.

Long-term investments – Long-term investments consist primarily of cash surrender values of company-owned life insurance policies. Certain of these policies fund amounts due under our deferred compensation plan and our inactive supplemental executive retirement plan. Further information regarding these plans can be found in Note 11 and Note 12. Additionally, long-term investments include investments in domestic mutual funds with a fair value of $1,877 as of December 31, 2016 and $2,091 as of December 31, 2015. We have elected to account for these investments under the fair value option for financial assets and financial liabilities. The fair value option provides companies an irrevocable option to measure many financial assets and liabilities at fair value with changes in fair value recognized in earnings. Realized and unrealized gains and losses, as well as dividends earned by the mutual fund investments are included in SG&A expense in the consolidated statements of income. These investments correspond to a liability under an officers' deferred compensation plan that is not available to new participants and is fully funded by the mutual fund investments. The liability under the plan equals the fair value of the mutual fund investments. Thus, as the value of the investments changes, the value of the liability changes accordingly. As changes in the liability are reflected within SG&A expense in the consolidated statements of income, the fair value option of

accounting for the mutual fund investments allows us to net changes in the investments and the related liability in the consolidated statements of income. The cost of securities sold is determined using the average cost method.

Property, plant and equipment – Property, plant and equipment, including leasehold and other improvements that extend an asset's useful life or productive capabilities, are stated at historical cost less accumulated depreciation. Buildings have been assigned useful lives of 40 years and machinery and equipment are generally assigned useful lives ranging from 1 year to 11 years, with a weighted-average useful life of 7 years as of December 31, 2016. Buildings are depreciated using the 150% declining balance method, and machinery and equipment are depreciated using the sum-of-the-years' digits method. Leasehold and building improvements are depreciated on the straight-line basis over the estimated useful life of the property or the life of the lease, whichever is shorter. Maintenance and repairs are expensed as incurred.

Fully depreciated assets are retained in property, plant and equipment until disposal. Any gains or losses resulting from the disposition of property, plant and equipment are included in SG&A expense in the consolidated statements of income, with the exception of building sales. Such gains and losses are reported separately in the consolidated statements of income, if significant.

Assets held for sale – We record assets held for sale at the lower of their carrying value or fair value less costs to sell. Assets are classified as held for sale in our consolidated balance sheets when the following conditions are met: (1) management has the authority and commits to a plan to sell the assets; (2) the assets are available for immediate sale in their present condition; (3) there is an active program to locate a buyer and the plan to sell the assets has been initiated; (4) the sale of the assets is probable within one year; (5) the assets are being actively marketed at a reasonable sales price relative to their current fair value; and (6) it is unlikely that the plan to sell will be withdrawn or that significant changes to the plan will be made. Information regarding assets held for sale can be found in Note 2.

Intangibles – Intangible assets are stated at historical cost less accumulated amortization. Amortization expense is generally determined on the straight-line basis over periods ranging from 1 year to 20 years, with a weighted-average useful life of 7 years as of December 31, 2016. Customer lists are generally amortized using accelerated methods that reflect the pattern in which we receive the economic benefit of the asset. Each reporting period, we evaluate the remaining useful lives of our amortizable intangibles to determine whether events or circumstances warrant a revision to the remaining period of amortization. If our estimate of an asset's remaining useful life is revised, the remaining carrying amount of the asset is amortized prospectively over the revised remaining useful life. As of December 31, 2016, we held a trade name asset that has been assigned an indefinite useful life. As such, this asset is not amortized, but is subject to impairment testing on at least an annual basis. Any gains or losses resulting from the disposition of intangibles are included in SG&A expense in the consolidated statements of income.

We capitalize costs of software developed or obtained for internal use, including website development costs, once the preliminary project stage has been completed, management commits to funding the project and it is probable that the project will be completed and the software will be used to perform the function intended. Capitalized costs include only (1) external direct costs of materials and services consumed in developing or obtaining internal-use software, (2) payroll and payroll-related costs for employees who are directly associated with and who devote time to the internal-use software project, and (3) interest costs incurred, when significant, while developing internal-use software. Costs incurred in populating websites with information about the company or products are expensed as incurred. Capitalization of costs ceases when the project is substantially complete and ready for its intended use. The carrying value of internal-use software is reviewed in accordance with our policy on impairment of long-lived assets and amortizable intangibles.

We incur costs in connection with the development of certain software products that we sell to our customers. Costs for the development of software products to be sold are expensed as incurred until technological feasibility is established, at which time, such costs are capitalized until the product is available for general release to customers.

Impairment of long-lived assets and amortizable intangibles – We evaluate the recoverability of property, plant, equipment and amortizable intangibles not held for sale whenever events or changes in circumstances indicate that an asset's carrying amount may not be recoverable. Such circumstances could include, but are not limited to, (1) a significant decrease in the market value of an asset, (2) a significant adverse change in the extent or manner in which an asset is used or in its physical condition, or (3) an accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of an asset. We compare the carrying amount of the asset to the estimated undiscounted future cash flows associated with it. If the sum of the expected future net cash flows is less than the carrying value of the asset being evaluated, an impairment loss would be recognized. The impairment loss would be calculated as the amount by which the carrying value of the asset exceeds the fair value of the asset. As quoted market prices are not available for the majority of our assets, the estimate of fair value is based on various valuation techniques, including the discounted value of estimated future cash flows. During 2014, we recorded asset impairment charges related to Small Business Services intangible assets. Further information regarding the impairment charges can be found in Note 7.

We evaluate the recoverability of property, plant, equipment and intangibles held for sale by comparing the asset's carrying amount with its estimated fair value less costs to sell. Should the estimated fair value less costs to sell be less than the

carrying value of the long-lived asset, an impairment loss would be recognized. The impairment loss would be calculated as the amount by which the carrying value of the asset exceeds the estimated fair value of the asset less costs to sell.

The evaluation of asset impairment requires us to make assumptions about future cash flows over the life of the asset being evaluated. These assumptions require significant judgment and actual results may differ from assumed and estimated amounts.

Impairment of indefinite-lived intangibles and goodwill – We evaluate the carrying value of indefinite-lived intangibles and goodwill on July 31st of each year and between annual evaluations if events occur or circumstances change that would indicate a possible impairment. Such circumstances could include, but are not limited to, (1) a significant adverse change in legal factors or in business climate, (2) unanticipated competition, (3) an adverse action or assessment by a regulator, or (4) an adverse change in market conditions that are indicative of a decline in the fair value of the assets. Further information regarding our impairment analyses can be found in Note 7.

In completing the annual impairment analysis of our indefinite-lived trade name in each of the past three years, we elected to perform a quantitative assessment. This assessment compares the carrying amount of the asset to its estimated fair value. The estimate of fair value is based on the relief from royalty method, which calculates the cost savings associated with owning rather than licensing the trade name. An assumed royalty rate is applied to forecasted revenue and the resulting cash flows are discounted. If the estimated fair value is less than the carrying value of the asset, an impairment loss would be recognized for the difference. The impairment analysis completed in each of the past three years indicated no impairment of our indefinite-lived trade name. In addition to the required impairment analysis, we regularly evaluate the remaining useful life of this asset to determine whether events and circumstances continue to support an indefinite useful life. If we were to determine that the asset has a finite useful life, we would test it for impairment and then amortize its remaining carrying value over its estimated remaining useful life.

To analyze goodwill for impairment, we must assign our goodwill to individual reporting units. Identification of reporting units includes an analysis of the components that comprise each of our operating segments, which considers, among other things, the manner in which we operate our business and the availability of discrete financial information. Components of an operating segment are aggregated to form one reporting unit if the components have similar economic characteristics. We periodically review our reporting units to ensure that they continue to reflect the manner in which we operate our business.

When completing our annual goodwill impairment analysis, we have the option to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If, after this qualitative assessment, we determine it is not more likely than not that the fair value of a reporting unit is less than its carrying amount, then performing the two-step, quantitative impairment test is unnecessary. During 2016 and 2015, we elected to perform a qualitative assessment for all of our reporting units to which goodwill was assigned, with one exception. We elected to perform a quantitative analysis of our Financial Services Commercial reporting unit in 2016 as the previous quantitative analysis completed as of July 31, 2015 indicated that the estimated fair value of this reporting unit exceeded its carrying value by approximately 13%. This relatively small percentage was primarily due to the fact that the reporting unit had been recently acquired in October 2014. In completing the 2016 and 2015 qualitative analyses, we noted no changes in events or circumstances which would have required us to complete the two-step quantitative goodwill impairment analysis for any of the reporting units analyzed. In addition, the quantitative analyses completed for the Financial Services Commercial reporting unit in 2016 and 2015 indicated no impairment. As such, no goodwill impairment charges were recorded as a result of our 2016 or 2015 annual goodwill impairment analyses.

In completing the 2016 and 2015 quantitative analyses for our Financial Services Commercial reporting unit and the 2014 quantitative analysis for all of our reporting units, we first calculated the estimated fair value of each reporting unit to which goodwill was assigned and compared this estimated fair value to the carrying amount of the reporting unit's net assets. In calculating the estimated fair value, we used the income approach. The income approach is a valuation technique under which we estimated future cash flows using the reporting unit's financial forecast from the perspective of an unrelated market participant. Using historical trending and internal forecasting techniques, we projected revenue and applied our fixed and variable cost experience rates to the projected revenue to arrive at the future cash flows. A terminal value was then applied to the projected cash flow stream. Future estimated cash flows were discounted to their present value to calculate the estimated fair value. The discount rate used was the value-weighted average of our estimated cost of capital derived using both known and estimated customary market metrics. In determining the estimated fair values of our reporting units, we were required to estimate a number of factors, including projected operating results, terminal growth rates, economic conditions, anticipated future cash flows, the discount rate and the allocation of shared or corporate items. Because our 2014 quantitative analysis included all of our reporting units, the summation of our reporting units' fair values was compared to our consolidated fair value, as indicated by our market capitalization, to evaluate the reasonableness of our calculations. If the carrying amount of a reporting unit's net assets exceeds its estimated fair value, the second step of the goodwill impairment analysis requires us to measure the amount of the impairment loss. An impairment loss is calculated by comparing the implied fair value of the goodwill to its carrying amount. To calculate the implied fair value of goodwill, the fair value of the reporting unit's assets and liabilities, excluding goodwill, is estimated. The excess of the fair value of the reporting unit over the amount assigned to its assets and liabilities,

excluding goodwill, is the implied fair value of the reporting unit's goodwill. We were not required to complete the second step of the goodwill impairment analysis for any of our reporting units, and no goodwill impairment charges were recorded during 2014.

Contract acquisition costs – We record contract acquisition costs when we sign or renew certain contracts with our financial institution clients. These costs, which are essentially pre-paid product discounts, consist of cash payments or accruals related to amounts owed to financial institution clients by our Financial Services segment. Contract acquisition costs are amortized as reductions of revenue over the related contract term, generally on the straight-line basis. Currently, these amounts are being amortized over periods ranging from 1 year to 10 years, with a weighted-average life of 6 years as of December 31, 2016. Whenever events or changes occur that impact the related contract, including significant declines in the anticipated profitability, we evaluate the carrying value of the contract acquisition costs to determine if impairment has occurred. Should a financial institution cancel a contract prior to the agreement's termination date, or should the volume of orders realized through a financial institution fall below contractually-specified minimums, we generally have a contractual right to a refund of the remaining unamortized contract acquisition costs. These costs are included in other non-current assets in the consolidated balance sheets.

Advertising costs – Deferred advertising costs include materials, printing, labor and postage costs related to direct response advertising programs of our Direct Checks and Small Business Services segments. These costs are amortized as SG&A expense over periods (not exceeding 18 months) that correspond to the estimated revenue streams of the individual advertisements. The actual revenue streams are analyzed at least annually to monitor the propriety of the amortization periods. Judgment is required in estimating the future revenue streams, especially with regard to check re-orders, which can span an extended period of time. Significant changes in the actual revenue streams would require the amortization periods to be modified, thus impacting our results of operations during the period in which the change occurred and in subsequent periods. Within our Direct Checks segment, approximately 87% of the costs of individual advertisements is expensed within 6 months of the advertisement. The deferred advertising costs of our Small Business Services segment are fully amortized within 6 months of the advertisement. Deferred advertising costs are included in other current assets and other non-current assets in the consolidated balance sheets.

Non-direct response advertising projects are expensed as incurred. Catalogs provided to financial institution clients of our Financial Services segment are accounted for as prepaid assets until they are shipped to financial institutions. The total amount of advertising expense was $85,141 in 2016, $87,396 in 2015 and $91,937 in 2014.

Loans and notes receivable from distributors – We have, at times, provided loans to certain of our Safeguard® distributors to allow them to purchase the operations of other small business distributors. We have also sold the operations of distributors that we own in exchange for notes receivable. These loans and notes receivable are included in other current assets and other non-current assets in the consolidated balance sheets. Interest is accrued at market interest rates as earned. We generally withhold commissions payable to the distributors to settle the monthly payments due on the receivables. On a monthly basis, we evaluate the collectibility of the receivables based on the commissions earned by the distributors and their reported financial results. As of December 31, 2016 and December 31, 2015, past due amounts, allowances for credit losses and receivables placed on non-accrual status were not significant. The determination to place receivables on non-accrual status is completed on a case-by-case basis, evaluating the specifics of each situation.

Restructuring charges – Over the past several years, we have recorded restructuring charges as a result of various cost management efforts, including facility closings, the relocation of business activities, and fundamental changes in the manner in which certain business functions are conducted. These charges have consisted primarily of accruals for employee termination benefits payable under our ongoing severance benefit plan. We record accruals for employee termination benefits when it is probable that a liability has been incurred and the amount of the liability is reasonably estimable. As such, judgment is involved in determining when it is appropriate to record restructuring accruals. Additionally, we are required to make estimates and assumptions in calculating the restructuring accruals as, on some occasions, employees choose to voluntarily leave the company prior to their termination date or they secure another position within the company. In these situations, the employees do not receive termination benefits. To the extent our assumptions and estimates differ from our actual costs, subsequent adjustments to restructuring accruals have been and will be required. Restructuring accruals are included in accrued liabilities in our consolidated balance sheets. In addition to employee termination benefits, we also typically incur other costs related to restructuring activities including, but not limited to, information technology costs, employee and equipment moves, training and travel. These costs are expensed as incurred.

Litigation – We are party to legal actions and claims arising in the ordinary course of business. We record accruals for legal matters when the expected outcome of these matters is either known or considered probable and can be reasonably estimated. Our accruals do not include related legal and other costs expected to be incurred in defense of legal actions. Further information regarding litigation can be found in Note 14.

Income taxes – Deferred income taxes result from temporary differences between the financial reporting basis of assets and liabilities and their respective tax reporting bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences reverse. Net deferred tax assets are recognized to the extent that realization of such benefits is more likely than not.

We are subject to tax audits in numerous domestic and foreign tax jurisdictions. Tax audits are often complex and can require several years to complete. In the normal course of business, we are subject to challenges from the Internal Revenue Service and other tax authorities regarding the amount of taxes due. These challenges may alter the timing or amount of taxable income or deductions, or the allocation of income among tax jurisdictions. We recognize the benefits of tax return positions in the financial statements when they are more-likely-than-not to be sustained by the taxing authorities based solely on the technical merits of the position. If the recognition threshold is met, the tax benefit is measured and recognized as the largest amount of tax benefit that, in our judgment, is greater than 50% likely to be realized. Accrued interest and penalties related to unrecognized tax positions are included in our provision for income taxes in the consolidated statements of income.

Derivative financial instruments – Information regarding our derivative financial instruments is included in Note 6. As of December 31, 2016, we did not have any derivative instruments outstanding as we settled all of our interest rate swaps during 2016. These derivative financial instruments were included in other non-current liabilities in the consolidated balance sheet as of December 31, 2015.

We do not use derivative financial instruments for speculative or trading purposes. Our policy is that all derivative transactions must be linked to an existing balance sheet item or firm commitment, and the notional amount cannot exceed the value of the exposure being hedged.

We recognize all derivative financial instruments in the consolidated financial statements at fair value regardless of the purpose or intent for holding the instrument. Changes in the fair value of derivative financial instruments are recognized periodically either in income or in shareholders' equity as a component of accumulated other comprehensive loss, depending on whether the derivative financial instrument qualifies for hedge accounting, and if so, whether it qualifies as a fair value hedge or a cash flow hedge and whether the hedge is effective. Generally, changes in fair values of derivatives accounted for as fair value hedges are recorded in income along with the portion of the change in the fair value of the hedged items that relate to the hedged risk. Changes in fair values of derivatives accounted for as cash flow hedges, to the extent they are effective as hedges, are recorded in accumulated other comprehensive loss, net of tax. We classify the cash flows from derivative instruments that have been designated as fair value or cash flow hedges in the same category as the cash flows from the items being hedged. Changes in fair values of derivatives not qualifying as hedges and the ineffective portion of hedges are reported in income.

Revenue recognition – In general, revenue is recognized when (1) persuasive evidence of an arrangement exists, (2) delivery has occurred or services have been rendered, (3) the sales price is fixed or determinable, and (4) collectibility is reasonably assured. Revenue is presented in the consolidated statements of income net of rebates, discounts, amortization of contract acquisition costs, and sales tax.

The majority of our revenues are generated from the sale of products for which revenue is recognized upon shipment or customer receipt, based upon the transfer of title. Product revenue includes amounts billed to customers for shipping and handling and pass-through costs, such as marketing materials for which our financial institution clients reimburse us. Costs incurred for shipping and handling and pass-through costs are reflected in cost of products. For sales with a right of return, we record a reserve for estimated sales returns based on significant historical experience.

We enter into contractual agreements with financial institution clients for rebates on certain products we sell. We record these amounts as reductions of revenue in the consolidated statements of income and as accrued liabilities in the consolidated balance sheets when the related revenue is recorded. At times, we may also sell products at discounted prices or provide free products to customers when they purchase a specified product. Discounts are recorded as reductions of revenue when the related revenue is recorded. The cost of free products is recorded as cost of products when the revenue for the related order is recorded. Reported revenue for our Financial Services segment does not reflect the full retail price paid by end-consumers to their financial institutions. Instead, revenue reflects the amounts paid to us by our financial institution clients.

Our services consist primarily of web design, hosting and other web services; fraud prevention; marketing services, including email, mobile, social media and other self-service marketing solutions, as well as data-driven marketing solutions; financial technology solutions; financial institution customer acquisition and loyalty programs; payroll services; and logo design. We recognize the majority of these service revenues as the services are provided. In some situations, our web hosting and applications services are billed on a quarterly, semi-annual or annual basis. When a customer pays in advance for services, we defer the revenue and recognize it as the services are performed. Up-front set-up fees related to our web hosting, applications services and outsourcing services are deferred and recognized as revenue on the straight-line basis over the term of the customer relationship. Deferred revenue is included in accrued liabilities and other non-current liabilities in the consolidated balance sheets.

A portion of our financial technology solutions revenue results from the sale of bundled arrangements that may include hardware, software and professional services. As these arrangements involve customization and modification of the software, we recognize revenues from these contracts using the percentage-of-completion method of accounting, which involves calculating the percentage of services provided during the reporting period compared with the total estimated services to be provided over the duration of the contract. We record costs and earnings in excess of billings on uncompleted contracts within other current assets and billings in excess of costs and earnings on uncompleted contracts within other current liabilities in the consolidated

balance sheets. The amount included in other current assets related to these contracts was $6,729 as of December 31, 2016 and $7,471 as of December 31, 2015. The amount included in other current liabilities related to these contracts was $1,266 as of December 31, 2016 and $569 as of December 31, 2015.

At times, a financial institution client may terminate its contract with us prior to the end of the contract term. In substantially all of these cases, the financial institution is contractually required to remit a contract termination payment. Such payments are recorded as revenue when the termination agreement is executed, provided that we have no further service or contractual obligations, and collection of the funds is assured. If we have a continuing service obligation following the execution of a contract termination agreement, we record the related revenue over the remaining service period.

Employee share-based compensation – Our share-based compensation consists of non-qualified stock options, restricted stock units, restricted stock, performance share awards and an employee stock purchase plan. Employee share-based compensation expense is included in total cost of revenue and in SG&A expense in our consolidated statements of income, based on the functional areas of the employees receiving the awards, and is recognized as follows:

- The fair value of stock options is measured on the grant date using the Black-Scholes option pricing model. The related compensation expense is recognized on the straight-line basis, net of estimated forfeitures, over the options' vesting periods.
- The fair value of restricted stock and a portion of our restricted stock unit awards is measured on the grant date based on the market value of our common stock. The related compensation expense, net of estimated forfeitures, is recognized over the applicable service period.
- Certain of our restricted stock unit awards may be settled in cash if an employee voluntarily chooses to leave the company. These awards are included in accrued liabilities and other non-current liabilities in the consolidated balance sheets and are re-measured at fair value as of each balance sheet date.
- Compensation expense resulting from the 15% discount provided under our employee stock purchase plan is recognized over the purchase period of 6 months.
- The performance share awards specify certain performance/market-based conditions that must be achieved in order for the awards to vest. For the portion of the awards based on a performance condition, the performance target is not considered in determining the fair value of the awards and thus, fair value is measured on the grant date based on the market value of our common stock. The related compensation expense for this type of award is recognized, net of estimated forfeitures, over the related service period. The amount of compensation expense is dependent on our periodic assessment of the probability of the targets being achieved and our estimate, which may vary over time, of the number of shares that ultimately will be issued. For the portion of the awards based on a market condition, fair value is calculated on the grant date using the Monte Carlo simulation model. All compensation cost for these awards is recognized, net of estimated forfeitures, over the related service period, even if the market condition is never satisfied.

Earnings per share – We calculate earnings per share using the two-class method as we have unvested share-based payment awards that contain nonforfeitable rights to dividends or dividend equivalent payments. The two-class method is an earnings allocation formula that determines earnings per share for each class of common stock and participating security according to dividends declared and participation rights in undistributed earnings. Basic earnings per share is based on the weighted-average number of common shares outstanding during the year. Diluted earnings per share is based on the weighted-average number of common shares outstanding during the year, adjusted to give effect to potential common shares such as stock options and shares to be issued under our employee stock purchase plan.

Comprehensive income – Comprehensive income includes charges and credits to shareholders' equity that are not the result of transactions with shareholders. Our total comprehensive income consists of net income, amortization of gains and losses on derivative instruments, changes in the funded status and amortization of amounts related to our postretirement benefit plans, unrealized gains and losses on available-for-sale marketable securities, and foreign currency translation adjustments. The items of comprehensive income, with the exception of net income, are included in accumulated other comprehensive loss in the consolidated balance sheets and statements of shareholders' equity.

Recently adopted accounting pronouncements – In June 2014, the Financial Accounting Standards Board (FASB) issued ASU No. 2014-12, *Accounting for Share-Based Payments When the Terms of an Award Provide That a Performance Target Could Be Achieved after the Requisite Service Period*. The standard requires that a performance target that affects vesting and that could be achieved after the requisite service period should be treated as a performance condition. As such, the performance target should not be reflected in estimating the grant-date fair value of the award. We adopted this standard on January 1, 2016. As our accounting treatment for these awards was in compliance with the new guidance, adoption of this standard had no impact on our consolidated financial statements.

In April 2015, the FASB issued ASU No. 2015-03, *Simplifying the Presentation of Debt Issuance Costs*. The standard requires that debt issuance costs related to a recognized debt liability be presented in the consolidated balance sheets as a direct reduction from the carrying amount of the debt liability. We adopted this standard on January 1, 2016, applying it retrospectively. The consolidated balance sheet as of December 31, 2015 reflects the reclassification of debt issuance costs of $2,249 from other non-current assets to long-term debt. The amount of debt issuance costs included in long-term debt as of

December 31, 2016 was $1,037. In August 2015, the FASB issued ASU No. 2015-15, *Presentation and Subsequent Measurement of Debt Issuance Costs Associated with Line-of-Credit Arrangements – Amendments to SEC Paragraphs Pursuant to Staff Announcement at June 18, 2015 EITF Meeting*. This standard adds SEC paragraphs pursuant to the SEC Staff announcement at the June 18, 2015 Emerging Issues Task Force (EITF) meeting about the presentation and subsequent measurement of debt issuance costs associated with line-of-credit arrangements. Under this guidance, the SEC Staff would not object to presenting such costs as an asset and subsequently amortizing the deferred costs ratably over the term of the line-of-credit arrangement, regardless of whether there are any outstanding borrowings under the arrangement. Debt issuance costs of $1,370 as of December 31, 2016 and $2,003 as of December 31, 2015 related to our revolving line-of-credit arrangement. We continue to include these costs within other non-current assets, amortizing them over the term of the arrangement.

In April 2015, the FASB issued ASU No. 2015-05, *Customer's Accounting for Fees Paid in a Cloud Computing Arrangement*. The standard provides guidance to customers about whether a cloud computing arrangement includes a software license. If the arrangement does include a software license, the software license element of the arrangement should be accounted for in the same manner as the acquisition of other software licenses. We adopted this standard on January 1, 2016, applying it prospectively to all arrangements entered into or materially modified on or after January 1, 2016. Adoption of this standard did not have a significant impact on our results of operations or financial position.

In May 2015, the FASB issued ASU No. 2015-07, *Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or its Equivalent)*. Under the standard, investments measured at net asset value (NAV) as a practical expedient for fair value are excluded from the fair value hierarchy. As such, they are not assigned a fair value measurement level in financial statement disclosures of fair value. This standard was effective for us on January 1, 2016. We have reflected the new guidance in our disclosures regarding the plan assets of our postretirement benefit plan presented in Note 12, applying the guidance retrospectively to all periods presented.

In July 2015, the FASB issued ASU No. 2015-11, *Simplifying the Measurement of Inventory*. The standard requires that inventory within the scope of the guidance be measured at the lower of cost or net realizable value. Previously, inventory was measured at the lower of cost or market. We elected to early adopt this standard on January 1, 2016, applying it prospectively. Application of this standard did not have a significant impact on our results of operations or financial position.

In September 2015, the FASB issued ASU No. 2015-16, *Simplifying the Accounting for Measurement-Period Adjustments.* When recording the purchase price allocation for a business combination in the financial statements, an acquirer may record preliminary amounts when measurements are incomplete as of the end of a reporting period. When the required information is received to finalize the purchase price allocation, the preliminary amounts are adjusted. These adjustments are referred to as measurement-period adjustments. This standard eliminates the requirement to restate prior period financial statements for measurement-period adjustments. Instead, it requires that the cumulative impact of a measurement-period adjustment be recognized in the reporting period in which the adjustment is identified. We adopted this standard on January 1, 2016, applying it prospectively. Application of this standard did not have a significant impact on our results of operations or financial position.

In March 2016, the FASB issued ASU No. 2016-09, *Improvements to Employee Share-Based Payment Accounting*. The standard is intended to simplify various aspects of the accounting and presentation of share-based payments. We elected to early adopt this standard as of January 1, 2016. Adoption of this standard had the following impacts on our consolidated financial statements:

- *Consolidated statements of income* – The new standard requires that the tax effects of share-based compensation be recognized in the income tax provision. Previously, these amounts were recognized in additional paid-in capital. Net tax benefits related to share-based compensation awards of $4,008 were recognized as reductions of income tax expense in the 2016 consolidated statement of income. These tax benefits reduced our 2016 effective income tax rate 1.2 points. In addition, in calculating potential common shares used to determine diluted earnings per share, GAAP requires us to use the treasury stock method. The new standard requires that assumed proceeds under the treasury stock method be modified to exclude the amount of excess tax benefits that would have been recognized in additional paid-in capital. These changes were applied on a prospective basis and resulted in an increase of $0.08 per share in basic earnings per share and $0.07 per share in diluted earnings per share during 2016.

  In recording share-based compensation expense, the standard allows companies to make a policy election as to whether they will include an estimate of awards expected to be forfeited or whether they will account for forfeitures as they occur. We have elected to include an estimate of forfeitures in the computation of our share-based compensation expense. As this treatment is consistent with previous guidance, this election had no impact on our consolidated financial statements.

- *Consolidated statements of cash flows* – The standard requires that excess tax benefits from share-based employee awards be reported as operating activities in the consolidated statements of cash flows. Previously, these cash flows were included in financing activities. We elected to apply this change on a prospective basis, resulting in an increase in net cash provided by operating activities and a decrease in net cash provided by financing activities of $4,651 for 2016.

The standard requires that employee taxes paid when an employer withholds shares for tax-withholding purposes be reported as financing activities in the consolidated statements of cash flows. Previously, these cash flows were included in operating activities. This change was required to be applied on a retrospective basis. As such, the consolidated statement of cash flows for prior periods was revised, resulting in an increase in net cash provided by operating activities and in net cash used by financing activities of $1,698 for 2015 and $4,703 for 2014, compared to previously reported amounts. The amount of employee taxes paid for shares withheld was $5,589 for 2016.

In August 2016, the FASB issued ASU No. 2016-15, *Classification of Certain Cash Receipts and Cash Payments*. The standard is intended to reduce diversity in practice in how certain transactions are classified in the statement of cash flows. We elected to early adopt this standard as of July 1, 2016. As our consolidated statement of cash flows presentation was in compliance with the new guidance, adoption of this standard had no impact on our consolidated financial statements.

Accounting pronouncements not yet adopted – In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers*. The standard provides revenue recognition guidance for any entity that enters into contracts with customers to transfer goods or services or enters into contracts for the transfer of non-financial assets, unless those contracts are within the scope of other accounting standards. The standard also expands the required financial statement disclosures regarding revenue recognition. In addition, in March 2016, the FASB issued ASU No. 2016-08, *Principal versus Agent Considerations (Reporting Revenue Gross versus Net)*, in April 2016, the FASB issued ASU No. 2016-10, *Identifying Performance Obligations and Licensing*, and in May 2016, the FASB issued ASU No. 2016-12, *Narrow-Scope Improvements and Practical Expedients*. These standards are intended to clarify aspects of ASU No. 2014-09 and are effective for us upon adoption of ASU No. 2014-09. The new guidance is effective for us on January 1, 2018 and we will not be early adopting these standards. We have identified over 100 revenue streams and we are currently in the process of analyzing each of these in accordance with the new guidance. We have completed the evaluation of our Direct Checks segment's revenue streams and we do not expect the application of this standard to those revenue streams to have a significant impact on our results of operations or financial position. When our evaluation is completed, we will determine the method of transition that we will use in adopting the new standards.

In January 2016, the FASB issued ASU No. 2016-01, *Recognition and Measurement of Financial Assets and Financial Liabilities*. The standard is intended to improve the recognition, measurement, presentation and disclosure of financial instruments. The guidance is effective for us on January 1, 2018. We do not expect the application of this standard to have a significant impact on our results of operations or financial position.

In February 2016, the FASB issued ASU No. 2016-02, *Leasing*. The standard is intended to increase transparency and comparability among organizations by requiring the recognition of lease assets and lease liabilities for virtually all leases and by requiring the disclosure of key information about leasing arrangements. The guidance is effective for us on January 1, 2019, and requires adoption using a modified retrospective approach. We are currently assessing the impact of this standard on our consolidated financial statements.

In June 2016, the FASB issued ASU No. 2016-13, *Measurement of Credit Losses on Financial Instruments*. The standard introduces new guidance for the accounting for credit losses on instruments within its scope, including trade and loans receivable and available-for-sale debt securities. The guidance is effective for us on January 1, 2020, and requires adoption using a modified retrospective approach. We do not expect the application of this standard to have a significant impact on our results of operations or financial position.

In October 2016, the FASB issued ASU No. 2016-16, *Intra-Entity Transfers of Assets Other Than Inventory*. The standard requires recognition of the tax effects resulting from the intercompany sale of an asset when the transfer occurs. Previously, the tax effects were deferred until the transferred asset was sold to a third party. The guidance is effective for us on January 1, 2018 and requires adoption using a modified retrospective approach. We are currently assessing the impact of this standard on our consolidated financial statements.

In January 2017, the FASB issued ASU No. 2017-01, *Clarifying the Definition of a Business*. The standard revises the definition of a business, which affects many areas of accounting such as business combinations and disposals and goodwill impairment. The revised definition of a business will likely result in more acquisitions being accounted for as asset acquisitions, as opposed to business combinations. The guidance is effective for us on January 1, 2018 and is required to be applied prospectively to transactions occurring on or after the effective date.

In January 2017, the FASB issued ASU No. 2017-04, *Simplifying the Test for Goodwill Impairment*. The standard removes Step 2 of the goodwill impairment test, which requires a company to perform procedures to determine the fair value of a reporting unit's assets and liabilities following the procedure that would be required in determining the fair value of assets acquired and liabilities assumed in a business combination. Instead, a goodwill impairment charge will now be measured as the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. We elected to early adopt this standard on January 1, 2017. As we have not been required to complete Step 2 of the goodwill impairment test for several years, we do not anticipate that this standard will have an impact on our consolidated financial statements.

Note 2: Supplemental balance sheet and cash flow information

Trade accounts receivable – Net trade accounts receivable was comprised of the following at December 31:

(in thousands)	2016	2015
Trade accounts receivable – gross	$ 155,477	$ 128,470
Allowances for uncollectible accounts	(2,828)	(4,816)
Trade accounts receivable – net	$ 152,649	$ 123,654

Changes in the allowances for uncollectible accounts for the years ended December 31 were as follows:

(in thousands)	2016	2015	2014
Balance, beginning of year	$ 4,816	$ 4,335	$ 3,861
Bad debt expense	2,539	4,858	3,994
Write-offs, net of recoveries	(4,527)	(4,377)	(3,520)
Balance, end of year	$ 2,828	$ 4,816	$ 4,335

Inventories and supplies – Inventories and supplies were comprised of the following at December 31:

(in thousands)	2016	2015
Raw materials	$ 5,861	$ 5,719
Semi-finished goods	7,990	8,208
Finished goods	23,235	24,955
Supplies	3,096	3,074
Inventories and supplies	$ 40,182	$ 41,956

Available-for-sale securities – Available-for-sale marketable securities included within funds held for customers and other current assets were comprised of the following:

	December 31, 2016			
(in thousands)	Cost	Gross unrealized gains	Gross unrealized losses	Fair value
Funds held for customers:[1]				
Domestic money market fund	$ 6,002	$ —	$ —	$ 6,002
Canadian and provincial government securities	8,320	—	(228)	8,092
Canadian guaranteed investment certificates	7,440	—	—	7,440
Available-for-sale securities	$ 21,762	$ —	$ (228)	$ 21,534

[1] Funds held for customers, as reported on the consolidated balance sheet as of December 31, 2016, also included cash of $66,289. This cash included amounts related to FISC Solutions, which was acquired in December 2015. This business provides cash receipt processing services. A portion of the cash receipts are remitted to our clients the business day following receipt. As such, the amounts on-hand are reported as funds held for customers in the consolidated balance sheets, with a corresponding liability included in accrued liabilities. The FISC Solutions asset and liability of $18,743 were recorded as acquisition measurement-period balance sheet adjustments during 2016. In addition, this cash included $12,287 related to Payce, Inc., a payroll services business acquired during 2016 (Note 5).

	December 31, 2015			
(in thousands)	Cost	Gross unrealized gains	Gross unrealized losses	Fair value
Canadian and provincial government securities	$ 7,932	$ —	$ (91)	$ 7,841
Canadian guaranteed investment certificates	7,226	—	—	7,226
Available-for-sale securities (funds held for customers)[1]	15,158	—	(91)	15,067
Canadian money market fund (other current assets)	1,616	—	—	1,616
Available-for-sale securities	$ 16,774	$ —	$ (91)	$ 16,683

[1] Funds held for customers, as reported on the consolidated balance sheet as of December 31, 2015, also included cash of $38,276.

Expected maturities of available-for-sale securities as of December 31, 2016 were as follows:

(in thousands)	Fair value
Due in one year or less	$ 13,620
Due in two to five years	5,066
Due in six to ten years	2,848
Available-for-sale securities	$ 21,534

Further information regarding the fair value of available-for-sale marketable securities can be found in Note 7.

Property, plant and equipment – Property, plant and equipment was comprised of the following at December 31:

	2016			2015		
(in thousands)	Gross carrying amount	Accumulated depreciation	Net carrying amount	Gross carrying amount	Accumulated depreciation	Net carrying amount
Land and improvements	$ 28,129	$ (7,951)	$ 20,178	$ 28,118	$ (7,836)	$ 20,282
Buildings and improvements	113,976	(76,562)	37,414	110,100	(73,052)	37,048
Machinery and equipment	294,040	(264,736)	29,304	292,299	(263,897)	28,402
Property, plant and equipment	$ 436,145	$ (349,249)	$ 86,896	$ 430,517	$ (344,785)	$ 85,732

Assets held for sale/facility sale – Assets held for sale as of December 31, 2016 included the operations of a small business distributor and a provider of printed and promotional products that we previously acquired. Assets held for sale as of December 31, 2015 included the operations of the same small business distributor. These businesses were included in the Small Business Services segment and the assets consisted primarily of customer list intangible assets. We are actively marketing these businesses and expect the selling prices will exceed their carrying values. Net assets held for sale consisted of the following at December 31:

(in thousands)	2016	2015	Balance sheet caption
Current assets	$ 3	$ 3	Other current assets
Intangibles	14,135	13,533	Assets held for sale
Other non-current assets	433	436	Assets held for sale
Accrued liabilities	(146)	(366)	Accrued liabilities
Non-current deferred income tax liabilities	(5,697)	(5,777)	Other non-current liabilities
Net assets held for sale	$ 8,728	$ 7,829	

During 2014, we sold our Colorado Springs, Colorado facility and entered into an operating lease on a portion of the facility. We received cash proceeds of $8,451 from the sale and recognized the full amount of the net pre-tax loss on the sale of $735.

Intangibles – Intangibles were comprised of the following at December 31:

(in thousands)	2016 Gross carrying amount	2016 Accumulated amortization	2016 Net carrying amount	2015 Gross carrying amount	2015 Accumulated amortization	2015 Net carrying amount
Indefinite-lived:						
Trade name	$ 19,100	$ —	$ 19,100	$ 19,100	$ —	$ 19,100
Amortizable intangibles:						
Internal-use software	385,293	(310,195)	75,098	375,037	(310,665)	64,372
Customer lists/relationships	308,375	(76,276)	232,099	202,682	(54,990)	147,692
Trade names	68,261	(40,857)	27,404	64,881	(36,325)	28,556
Software to be sold	34,700	(7,050)	27,650	28,500	(3,765)	24,735
Technology-based intangible	28,000	—	28,000	—	—	—
Other	1,808	(1,378)	430	2,858	(2,002)	856
Amortizable intangibles	826,437	(435,756)	390,681	673,958	(407,747)	266,211
Intangibles	$ 845,537	$ (435,756)	$ 409,781	$ 693,058	$ (407,747)	$ 285,311

Amortization expense related to intangibles was as follows for the years ended December 31:

(in thousands)	2016	2015	2014
Internal-use software	$ 35,217	$ 31,752	$ 34,282
Software to be sold	3,285	3,164	601
Other amortizable intangibles	38,583	25,784	14,192
Amortization of intangibles	$ 77,085	$ 60,700	$ 49,075

Based on the intangibles in service as of December 31, 2016, estimated amortization expense for each of the next five years ending December 31 is as follows:

(in thousands)	Estimated amortization expense
2017	$ 89,000
2018	73,124
2019	56,410
2020	46,787
2021	39,043

In the normal course of business, we acquire internal-use software. In conjunction with acquisitions, we also acquire internal-use software and other amortizable intangible assets. The following intangible assets were acquired during the years ended December 31:

	2016		2015		2014	
(in thousands)	Amount	Weighted-average amortization period (in years)	Amount	Weighted-average amortization period (in years)	Amount	Weighted-average amortization period (in years)
Internal-use software	$ 45,780	4	$ 35,945	4	$ 33,867	4
Customer lists/relationships[(1)]	118,415	8	101,867	8	45,869	9
Technology-based intangible	28,000	5	—	—	—	—
Software to be sold	6,200	10	—	—	28,500	9
Trade names	3,800	4	1,400	2	2,000	3
Other	—	—	—	—	50	2
Acquired intangibles	$ 202,195	6	$ 139,212	7	$ 110,286	7

[(1)] Acquired customer lists/relationships for 2014 includes a $2,200 increase in the estimated fair value of customer lists for the 2013 acquisition of Destination Rewards, as purchase accounting for this acquisition was finalized during 2014. Acquired customer lists/relationships for 2014 does not include intangible assets acquired in 2014 via the acquisition of small business distributors that were classified as held for sale upon purchase. Further information regarding acquisitions can be found in Note 5.

Goodwill – Changes in goodwill by reportable segment and in total were as follows:

(in thousands)	Small Business Services	Financial Services	Direct Checks	Total
Balance, December 31, 2014:				
Goodwill, gross	$ 654,007	$ 85,863	$ 148,506	$ 888,376
Accumulated impairment charges	(20,000)	—	—	(20,000)
Goodwill, net of accumulated impairment charges	634,007	85,863	148,506	868,376
Measurement-period adjustment for acquisition of Wausau Financial Systems, Inc.	—	(714)	—	(714)
Goodwill resulting from acquisitions	17,563	91,465	—	109,028
Currency translation adjustment	(275)	—	—	(275)
Balance, December 31, 2015:				
Goodwill, gross	671,295	176,614	148,506	996,415
Accumulated impairment charges	(20,000)	—	—	(20,000)
Goodwill, net of accumulated impairment charges	651,295	176,614	148,506	976,415
Measurement-period adjustment for acquisition of Datamyx, LLC	—	172	—	172
Goodwill resulting from acquisitions	12,923	116,403	—	129,326
Currency translation adjustment	43	—	—	43
Balance, December 31, 2016:				
Goodwill, gross	684,261	293,189	148,506	1,125,956
Accumulated impairment charges	(20,000)	—	—	(20,000)
Goodwill, net of accumulated impairment charges	$ 664,261	$ 293,189	$ 148,506	$ 1,105,956

Information regarding the businesses acquired can be found in Note 5.

Other non-current assets – Other non-current assets were comprised of the following at December 31:

(in thousands)	2016	2015
Contract acquisition costs	$ 65,792	$ 58,792
Postretirement benefit plan asset (Note 12)	23,940	16,250
Loans and notes receivable from distributors	21,313	23,957
Deferred advertising costs	7,309	7,500
Other	6,708	7,313
Other non-current assets	$ 125,062	$ 113,812

Changes in contract acquisition costs were as follows for the years ended December 31:

(in thousands)	2016	2015	2014
Balance, beginning of year	$ 58,792	$ 74,101	$ 35,421
Additions[1]	27,506	6,999	57,225
Amortization	(20,185)	(18,741)	(18,105)
Other	(321)	(3,567)	(440)
Balance, end of year	$ 65,792	$ 58,792	$ 74,101

[1] Contract acquisition costs are accrued upon contract execution. Cash payments made for contract acquisition costs were $23,068 for 2016, $12,806 for 2015 and $16,567 for 2014.

Accrued liabilities – Accrued liabilities were comprised of the following at December 31:

(in thousands)	2016	2015
Funds held for customers	$ 86,799	$ 52,366
Deferred revenue	48,049	48,119
Employee profit sharing/cash bonus	27,760	40,683
Income tax	19,708	6,573
Customer rebates	16,281	18,900
Acquisition-related liabilities[1]	12,763	2,670
Contract acquisition costs due within one year	12,426	9,045
Restructuring due within one year (Note 8)	4,181	3,864
Other	45,082	46,203
Accrued liabilities	$ 273,049	$ 228,423

[1] Consists of holdback payments due at future dates and liabilities for contingent consideration. Further information regarding liabilities for contingent consideration can be found in Note 7.

Other non-current liabilities – Other non-current liabilities were comprised of the following at December 31:

(in thousands)	2016	2015
Contract acquisition costs	$ 29,855	$ 29,206
Acquisition-related liabilities[1]	19,390	5,211
Other	30,461	36,575
Other non-current liabilities	$ 79,706	$ 70,992

[1] Consists of holdback payments due at future dates and liabilities for contingent consideration. Further information regarding liabilities for contingent consideration can be found in Note 7.

Supplemental cash flow information – Supplemental cash flow information was as follows for the years ended December 31:

(in thousands)	2016	2015	2014
Income taxes paid	$ 97,309	$ 110,999	$ 100,639
Interest paid	20,975	24,286	39,946
Non-cash investing activities:			
Acquisition-related liabilities[1]	28,299	7,450	1,600

[1] Consists of holdback payments due at future dates and liabilities for contingent consideration. Further information regarding liabilities for contingent consideration can be found in Note 7.

Note 3: Earnings per share

The following table reflects the calculation of basic and diluted earnings per share. During each period, certain stock options, as noted below, were excluded from the calculation of diluted earnings per share because their effect would have been antidilutive.

(dollars, shares and options in thousands, except per share amounts)	2016	2015	2014
Earnings per share – basic:			
Net income	$ 229,382	$ 218,629	$ 199,794
Income allocated to participating securities	(1,870)	(1,460)	(1,075)
Income available to common shareholders	$ 227,512	$ 217,169	$ 198,719
Weighted-average shares outstanding	48,562	49,445	49,827
Earnings per share – basic	$ 4.68	$ 4.39	$ 3.99
Earnings per share – diluted:			
Net income	$ 229,382	$ 218,629	$ 199,794
Income allocated to participating securities	(1,858)	(1,453)	(1,068)
Re-measurement of share-based awards classified as liabilities	296	(89)	183
Income available to common shareholders	$ 227,820	$ 217,087	$ 198,909
Weighted-average shares outstanding	48,562	49,445	49,827
Dilutive impact of potential common shares	413	380	435
Weighted-average shares and potential common shares outstanding	48,975	49,825	50,262
Earnings per share – diluted	$ 4.65	$ 4.36	$ 3.96
Antidilutive options excluded from calculation	214	354	7

Note 4: Other comprehensive income

Reclassification adjustments – Information regarding amounts reclassified from accumulated other comprehensive loss to net income was as follows:

Accumulated other comprehensive loss component	Amounts reclassified from accumulated other comprehensive loss			Affected line item in consolidated statements of income
(in thousands)	2016	2015	2014	
Amortization of loss on interest rate locks[1]	$ —	$ —	$ (1,282)	Interest expense
Tax benefit	—	—	501	Income tax provision
Amortization of loss on interest rate locks, net of tax	—	—	(781)	Net income
Amortization of postretirement benefit plan items:				
Prior service credit	1,421	1,421	1,421	[2]
Net actuarial loss	(3,797)	(3,120)	(3,418)	[2]
Total amortization	(2,376)	(1,699)	(1,997)	[2]
Tax benefit	724	450	661	[2]
Amortization of postretirement benefit plan items, net of tax	(1,652)	(1,249)	(1,336)	[2]
Total reclassifications, net of tax	$ (1,652)	$ (1,249)	$ (2,117)	

[1] Relates to interest rate locks executed in 2004. Further information regarding these financial instruments can be found in Note 6.

[2] Amortization of postretirement benefit plan items is included in the computation of net periodic benefit income as presented in Note 12. Net periodic benefit income is included in cost of revenue and in SG&A expense in the consolidated statements of income, based on the composition of our workforce. A portion of net periodic benefit income is capitalized as a component of labor costs and is included in inventories and intangibles in our consolidated balance sheets.

Accumulated other comprehensive loss – The components of accumulated other comprehensive loss at December 31 were as follows:

(in thousands)	Postretirement benefit plans, net of tax	Loss on derivatives, net of tax[(1)]	Net unrealized (loss) gain on marketable securities, net of tax	Currency translation adjustment	Accumulated other comprehensive loss
Balance, December 31, 2013	$ (34,874)	$ (781)	$ (276)	$ 2,507	$ (33,424)
Other comprehensive income (loss) before reclassifications	1,133	—	151	(6,315)	(5,031)
Amounts reclassified from accumulated other comprehensive loss	1,336	781	—	—	2,117
Net current-period other comprehensive income (loss)	2,469	781	151	(6,315)	(2,914)
Balance, December 31, 2014	(32,405)	—	(125)	(3,808)	(36,338)
Other comprehensive (loss) income before reclassifications	(7,666)	—	11	(12,459)	(20,114)
Amounts reclassified from accumulated other comprehensive loss	1,249	—	—	—	1,249
Net current-period other comprehensive (loss) income	(6,417)	—	11	(12,459)	(18,865)
Balance, December 31, 2015	(38,822)	—	(114)	(16,267)	(55,203)
Other comprehensive income (loss) before reclassifications	1,486	—	(99)	1,793	3,180
Amounts reclassified from accumulated other comprehensive loss	1,652	—	—	—	1,652
Net current-period other comprehensive income (loss)	3,138	—	(99)	1,793	4,832
Balance, December 31, 2016	$ (35,684)	$ —	$ (213)	$ (14,474)	$ (50,371)

(1) Relates to interest rate locks executed in 2004. Further information regarding these financial instruments can be found in Note 6.

Note 5: Acquisitions

We periodically complete business combinations that align with our business strategy. The assets and liabilities acquired are recorded at their estimated fair values and the results of operations of each acquired business are included in our consolidated statements of income from their acquisition dates. Transaction costs related to acquisitions are expensed as incurred and are included in SG&A expense in the consolidated statements of income. Transaction costs totaled $4,944 in 2016, $2,210 in 2015 and $1,329 in 2014. All of the acquisitions completed during the past 3 years were cash transactions, funded by net cash provided by operating activities and/or use of our credit facility. We completed these acquisitions to increase our mix of marketing solutions and other services revenue, to improve our product and service offerings and to reach new customers.

2016 acquisitions – During 2016, we completed the following acquisitions which are included within our Small Business Services segment and for which the allocation of the purchase price to the assets acquired and liabilities assumed has been finalized:

- In February 2016, we acquired selected assets of Category 99, Inc., doing business as MacHighway®, a web hosting and domain registration service provider.
- In March 2016, we acquired selected assets of New England Art Publishers, Inc., doing business as Birchcraft Studios, a supplier of personalized invitations, holiday cards, all-occasion cards and social announcements.
- In June 2016, we acquired selected assets of L.A.M. Enterprises, Inc., a provider of printed and promotional products.

- In June 2016, we acquired selected assets of National Document Solutions, LLC, a provider of printing, promotional products, office products, scanning and document management solutions.
- In June 2016, we acquired selected assets of Liquid Web, LLC, a web hosting services provider.
- In July 2016, we acquired selected assets of Inkhead, Inc., a provider of customized promotional products. The allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in tax-deductible goodwill of $4,421. The acquisition resulted in goodwill as the acquisition enables us to diversify our promotional product offerings and bring these offerings to our customer base.

During 2016, we completed several acquisitions which are included within our Small Business Services segment and for which we expect to finalize the allocation of the purchase price by mid-2017. Valuations for certain property, plant and equipment, intangible assets and goodwill remain subject to change, as does the estimated useful lives of the acquired long-lived assets. These acquisitions were as follows:

- In April 2016, we acquired selected assets of 180 Fusion LLC, a digital marketing services provider. The preliminary allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in tax-deductible goodwill of $800. The acquisition resulted in goodwill as we expect it will enhance our Small Business Services product set by providing valuable marketing tools to our customers, thus, enhancing customer acquisition and loyalty.
- In August 2016, we acquired selected assets of BNBS, Inc., doing business as B&B Solutions, a provider of printing, promotional and office products and services. The preliminary allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in tax-deductible goodwill of $850. The acquisition resulted in goodwill as the acquisition enables us to diversify our product offerings and bring these offerings to our customer base.
- In September 2016, we acquired all of the outstanding capital stock of Payce, Inc., a provider of payroll processing, payroll tax filing and related payroll services. The preliminary allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in tax-deductible goodwill of $6,852. The acquisition resulted in goodwill as we expect Payce's expertise, customer mix and operational strength to enhance our existing portfolio of small business services.
- In October 2016, we acquired selected assets of Excel Graphic Services, Inc., a provider of printing, promotional products and document management services.
- In October 2016, we acquired selected assets of PTM Document Systems, Inc., the exclusive source of the Print to Mail™ systems used in schools, hospitals and businesses.
- In December 2016, we acquired selected assets of Digihost Ltd., a web services provider located in Ireland.
- During 2016, we acquired the operations of several small business distributors. The assets acquired consisted primarily of customer list intangible assets. As these distributors were previously part of our Safeguard distributor network, our revenue was not impacted by these acquisitions and the impact to our costs was not significant.

During 2016, we completed two acquisitions which are included within our Financial Services segment and for which we expect to finalize the allocation of the purchase price by the third quarter of 2017 when our valuation of several of the acquired assets and liabilities is completed, as well as the determination of the estimated useful lives of the acquired intangibles. These acquisitions were as follows:

- In October 2016, we acquired selected assets of Data Support Systems, Inc., a provider of image-based software for payment-related back-office case management. The preliminary allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in tax-deductible goodwill of $4,108. The acquisition resulted in goodwill as Data Support Systems' solutions are complementary to those of our Wausau Financial Services business which creates significant cross-sell opportunities.
- In December 2016, we acquired all of the equity of First Manhattan Consulting Group, LLC (FMCG Direct), a provider of data-driven marketing solutions for financial institutions. The preliminary allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in tax-deductible goodwill of $112,295. The acquisition resulted in goodwill as we expect revenue synergies with our Datamyx business and to bring FMCG Direct's solutions to our clients. We also expect some cost synergies, for example leveraging common data sources.

The preliminary allocation of the purchase price to the assets acquired and liabilities assumed for the FMCG Direct acquisition was as follows:

(in thousands)	FMCG Direct
Net tangible assets acquired and liabilities assumed[1]	$ 4,205
Identifiable intangible assets:	
Customer list/relationships	55,000
Technology-based intangible	28,000
Trade name	3,000
Total intangible assets[2]	86,000
Goodwill	112,295
Total aggregate purchase price	202,500
Liability for holdback payments	(18,500)
Payment for acquisition, net of cash acquired	$ 184,000

[1] Net tangible assets acquired consisted primarily of accounts receivable outstanding as of the date of acquisition.

[2] The preliminary useful lives of the acquired intangible assets were as follows: customer list/relationships – 7 years; technology-based intangible – 5 years; and trade name – 4 years.

2015 acquisitions – During 2015, we completed the following acquisitions which are included within our Small Business Services segment and for which the allocation of the purchase price to the assets acquired and liabilities assumed was finalized during 2015:

- In January 2015, we acquired selected assets of Range, Inc., a marketing services provider.
- In February 2015, we acquired selected assets of Verify Valid LLC, a provider of electronic check payment services. The allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in tax-deductible goodwill of $5,650. This acquisition resulted in goodwill as the acquired technology enabled us to diversify our payment product and service offerings and bring these offerings to our customer base.
- In August 2015, we acquired selected assets of Tech Assets, Inc., a provider of shared hosting websites to small businesses using cPanel web hosting technology. The allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in tax-deductible goodwill of $2,628. This acquisition resulted in goodwill as we expected to accelerate revenue growth by combining our capabilities with Tech Asset's tools and hosting technology.
- In September 2015, we acquired selected assets of FMC Resource Management Corporation, a marketing services provider.

During 2015, we completed two acquisitions which are included within our Financial Services segment and for which we finalized the allocation of the purchase price during 2016. These acquisitions were as follows:

- In October 2015, we acquired all of the equity of Datamyx LLC, a provider of risk-based, date-driven marketing solutions. The allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in tax-deductible goodwill of $91,637. This acquisition resulted in goodwill as it enhances our Financial Services product set by providing valuable marketing tools and other analytical services our customers use to help them market their businesses.
- In December 2015, we acquired substantially all of the assets of FISC Solutions, a provider of back-office treasury management and outsourcing solutions.

The allocation of the purchase price to the assets acquired and liabilities assumed for the Datamyx LLC acquisition was as follows:

(in thousands)		Datamyx LLC
Net tangible assets acquired and liabilities assumed[1]	$	4,392
Identifiable intangible assets:		
Customer list/relationships		61,000
Internal-use software		2,000
Trade name		1,000
Total intangible assets[2]		64,000
Goodwill		91,637
Payment for acquisition, net of cash acquired	$	160,029

[1] Net tangible assets acquired consisted primarily of accounts receivable outstanding as of the date of acquisition.

[2] The useful lives of the acquired intangible assets were as follows: customer list/relationships – 8 years; internal-use software – 5 years; and trade name – 2 years.

During 2015, we also acquired the operations of 8 small business distributors, 6 of which are included within our Small Business Services segment and 2 of which are included in our Financial Services segment, as their customers consist primarily of financial institutions. The assets acquired consisted primarily of customer list intangible assets. The acquired Financial Services distributors and all but 2 of the acquired Small Business Services distributors were previously part of our distributor network. The allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in tax-deductible goodwill of $9,285 related to one of the Small Business Services distributors. This acquisition resulted in goodwill as we expected to accelerate revenue growth in business and marketing communications solutions by adding an established customer base that gives us a larger presence in the western United States.

2014 acquisitions – During 2014, we completed the following acquisitions which are included within our Small Business Services segment:

- In January 2014, we acquired all of the outstanding capital stock of NetClime, Inc., a provider of website development software. The allocation of the purchase price based upon the estimated fair value of the assets acquired and liabilities assumed resulted in goodwill of $1,615. The acquisition resulted in goodwill as we expected to drive future revenue as we incorporated NetClime's software solution into our technology platform and the marketing solutions services we offer our customers.
- In May 2014, we acquired selected assets of Gift Box Corporation of America (GBCA), a supplier of retail packaging solutions, including gift boxes, bags, bows, ribbons and wraps. We are operating this business under the name WholeStyle Packaging™.
- During 2014, we acquired the operations of several small business distributors, 1 of which was classified as held for sale upon acquisition. Further information regarding net assets held for sale can be found in Note 2.

During 2014, we completed the following acquisition which is included within our Financial Services segment:

- In October 2014, we acquired all of the outstanding capital stock of Wausau Financial Systems, Inc. (Wausau), a provider of software-based solutions for receivables management, lockbox processing, remote deposit capture and paperless branch solutions to financial institutions, utilities, government agencies and telecommunications companies. The allocation of the purchase price based upon the estimated fair value of the assets acquired and liabilities assumed resulted in goodwill of $44,807. This acquisition resulted in goodwill as Wausau provides new access into the commercial and treasury side of financial institutions through a strong software-as-a-service (SaaS) technology offering.

Aggregate information – Information regarding the useful lives of acquired intangibles and goodwill by reportable business segment can be found in Note 2. As our acquisitions were immaterial to our reported operating results both individually and in the aggregate, pro forma results of operations are not provided. The following illustrates the allocation of the aggregate purchase price for the above acquisitions to the assets acquired and liabilities assumed, reduced for any cash or cash equivalents acquired with the acquisitions.

(in thousands)	2016 acquisitions[(1)]	2015 acquisitions[(2)]	2014 acquisitions[(3)]
Net tangible assets acquired and liabilities assumed	$ 3,533	$ 4,124	$ (17,091)
Identifiable intangible assets:			
Customer lists/relationships	118,415	101,946	45,022
Technology-based intangible	28,000	—	—
Internal-use software	10,450	4,902	1,300
Software to be sold	6,200	—	28,500
Trade names	3,800	1,400	2,000
Other	—	—	50
Total intangible assets	166,865	108,248	76,872
Goodwill	129,326	109,200	46,422
Total aggregate purchase price	299,724	221,572	106,203
Liabilities for holdback payments and contingent consideration[(4)]	(28,299)	(7,450)	(1,600)
Non-cash consideration[(5)]	(2,020)	(5,419)	(371)
Net cash paid for current year acquisitions	269,405	208,703	104,232
Holdback payments for prior year acquisitions	1,534	4,287	797
Payments for acquisitions, net of cash acquired	$ 270,939	$ 212,990	$ 105,029

(1) Net tangible assets acquired and liabilities assumed for 2016 included funds held for customers of $12,532 and the corresponding liability for the same amount related to the acquisition of Payce, Inc.

(2) Includes adjustments recorded in 2016 for the finalization of purchase accounting for the Datamyx and FISC Solutions acquisitions. These adjustments increased Datamyx goodwill $172 from the preliminary amount recorded as of December 31, 2015, with the offset to to various assets and liabilities, primarily property, plant and equipment and other current assets. Acquisition measurement-period adjustments recorded in 2016 for the acquisition of FISC Solutions consisted of recording an asset for funds held for customers of $18,743 and the corresponding liability for the same amount, as well as an increase of $79 in the value of the acquired customer list.

(3) Includes adjustments recorded in 2015 for the finalization of purchase accounting for the Wausau acquisition. These adjustments decreased goodwill $714 from the preliminary amount recorded as of December 31, 2014, with the offset to certain income and sales tax accounts. Net tangible assets acquired and liabilities assumed for the 2014 acquisitions consisted primarily of a liability for deferred revenue of $14,200 related to the Wausau acquisition. Further information regarding the calculation of the estimated fair value of this liability can be found in Note 7. The amount of intangible assets acquired includes assets classified as held for sale upon acquisition of $1,353.

(4) Consists of holdback payments due at future dates and liabilities for contingent consideration. Further information regarding liabilities for contingent consideration can be found in Note 7.

(5) Consists of pre-acquisition amounts owed to us by certain of the acquired businesses.

Note 6: Derivative financial instruments

Fair value hedges – During 2011 and 2012, we entered into interest rate swaps, which we designated as fair value hedges, to hedge against changes in the fair value of a portion of our long-term debt. At the time we entered into these swaps, we were targeting a mix of fixed and variable rate debt, where we received a fixed rate and paid a variable rate based on the London Interbank Offered Rate (LIBOR). As of December 31, 2015, we had interest rate swaps with a notional amount of $200,000 that related to our long-term debt due in 2020. This debt was retired during 2016 (Note 13) and we concurrently settled the interest rate swaps, resulting in a cash payment of $2,842. These swaps met the criteria for using the short-cut method for a fair value hedge based on the structure of the hedging relationship. As such, changes in the fair value of the derivatives and the related long-term debt were equal. The fair value of these interest rate swaps was $4,842 as of December 31, 2015 and was included in other non-current liabilities in the consolidated balance sheet. As the short-cut method was being used to account for these hedges, the decrease in long-term debt due to fair value adjustments was also $4,842 as of December 31, 2015.

During 2014, we also held interest rate swaps with a notional amount of $198,000 related to our long-term debt that matured in October 2014. The short-cut method was not used for these interest rate swaps. As such, changes in the fair value of the interest rate swaps and the related long-term debt were not equal (i.e., hedge ineffectiveness) and were included in interest expense in the consolidated statements of income. Information regarding hedge ineffectiveness during 2014 is presented in Note 7.

Cash flow hedges – During 2004, we entered into forward starting interest rate swaps to hedge, or lock-in, the interest rate on a portion of our long-term debt that matured in October 2014. The termination of the lock agreements in 2004 yielded a deferred pre-tax loss of $17,877. This loss was reflected, net of tax, in accumulated other comprehensive loss in the consolidated balance sheet and was reclassified ratably to the statements of income as an increase to interest expense through the related debt's maturity date of October 2014.

Note 7: Fair value measurements

Annual asset impairment analyses – We evaluate the carrying value of goodwill and our indefinite-lived trade name as of July 31 of each year and between annual evaluations if events occur or circumstances change that would indicate a possible impairment. Our policy on impairment of indefinite-lived intangibles and goodwill, which is included in Note 1, explains our methodology for assessing impairment of these assets.

In completing the 2016 and 2015 annual goodwill impairment analyses, we elected to perform a qualitative assessment for all of our reporting units to which goodwill is assigned, with one exception. We elected to perform a quantitative analysis for our Financial Services Commercial reporting unit. This reporting unit was acquired subsequent to our 2014 annual impairment analysis and the quantitative analysis completed as of July 31, 2015 indicated that the estimated fair value of this reporting unit exceeded its carrying value by approximately 13%. The quantitative assessment completed for this reporting unit as of July 31, 2016 indicated that its estimated fair value exceeded its carrying value by approximately 49%. Total goodwill for this reporting unit was approximately $45,000 as of the date of our 2016 assessment.

Our qualitative analyses completed during 2016 and 2015 evaluated factors including, but not limited to, economic, market and industry conditions, cost factors and the overall financial performance of the reporting units. We also considered the quantitative analysis we completed as of July 31, 2014. In completing these assessments, we noted no changes in events or circumstances which indicated that it was more likely than not that the fair value of any reporting unit was less than its carrying amount. In completing the 2016 annual impairment analysis of our indefinite-lived trade name, we elected to perform a quantitative assessment which indicated that the calculated fair value of the asset exceeded its carrying value of $19,100 by approximately $32,000 as of July 31, 2016. Based on the results of our annual impairment analyses, we recorded no impairment charges during 2016 or 2015.

In completing the 2014 annual goodwill impairment analysis, we elected to perform a quantitative assessment for all of our reporting units to which goodwill was assigned, as our previous quantitative analysis was completed during 2010. Our 2014 analysis indicated that the estimated fair values of our reporting units' net assets exceeded their carrying values by approximate amounts between $74,000 and $1,128,000, or by amounts between 47% and 482% above the carrying values of their net assets. We recorded no impairment charges during 2014 as a result of our annual impairment analyses.

Non-recurring asset impairment analyses – During the third quarter of 2014, we performed an impairment analysis related to our Small Business Services search engine marketing and optimization business. Revenue and the related cash flows from this business had been lower than previously projected, and as a result of our annual planning process completed during the third quarter of 2014, we decided to reduce the revenue base of this business in order to improve its financial performance. As such, we revised our estimates of future revenues and cash flows to reflect these decisions during the third quarter of 2014. We calculated the estimated fair values of the assets as the net present value of estimated future cash flows (level 3 fair value measurement). Our analysis resulted in an impairment charge of $6,468 during 2014, which reflects writing down the net book value of the related intangible assets to zero.

Information regarding this nonrecurring fair value measurement completed during 2014 was as follows:

		Fair value measurements using			
(in thousands)	Fair value as of measurement date	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Asset impairment charge
Internal-use software	$ —	$ —	$ —	$ —	$ 4,036
Customer relationships	—	—	—	—	1,952
Trade name	—	—	—	—	480
Total impairment charge					$ 6,468

Acquisitions – For all acquisitions, we are required to measure the fair value of the net identifiable tangible and intangible assets and liabilities acquired. Information regarding our acquisitions can be found in Note 5 and information regarding the useful lives of acquired intangibles can be found in Note 2. The identifiable net assets acquired during the past 3 years were comprised primarily of customer list intangible assets and software, as well as a technology-based intangible asset acquired during 2016. The estimated fair value of the more significant of our acquired customer lists was estimated using the multi-period excess earnings method. This valuation model estimates revenues and cash flows derived from the asset and then deducts portions of the cash flow that can be attributed to supporting assets, such as a brand name or fixed assets, that contributed to the generation of the cash flows. The resulting cash flow, which is attributable solely to the customer list asset, is then discounted at a rate of return commensurate with the risk of the asset to calculate a present value. The estimated fair value for the reminder of our acquired customer lists was estimated by discounting the estimated cash flows expected to be generated by the assets. Assumptions used in these calculations included same-customer revenue growth rates and estimated customer retention rates based on the acquirees' historical information.

The estimated fair value of a portion of the acquired software, as well as the technology-based intangible acquired during 2016, was estimated using the the relief from royalty method, which calculates the cost savings associated with owning rather than licensing the technology. Assumed royalty rates were applied to projected revenue for the remaining useful life of the technology to estimate the royalty savings. The fair value of the remainder of the acquired software was estimated using the cost of reproduction method. The primary components of the software were identified and the estimated cost to reproduce the software was calculated based on historical data provided by the acquirees.

During 2014, we acquired a liability for deferred revenue of $14,200 related to the Wausau acquisition. The fair value of this liability was estimated as the direct and incremental costs to provide the services required plus an estimated profit margin.

We determined the fair value of liabilities for contingent consideration as of the acquisition dates by discounting to present value the probability-weighted contingent payments expected to be made. Assumptions used in these calculations included the discount rate; projected revenue, gross profit or operating income, as appropriate, based on our most recent internal forecast; and factors indicating the probability of achieving the forecasted revenue, gross profit or operating income. We recorded liabilities for contingent consideration related to certain of our acquisitions, primarily the acquisitions of Verify Valid and a small business distributor during 2015 and the acquisition of Data Support Systems during 2016. Under the Verify Valid and Data Support Systems agreements, there are no maximum amounts of contingent payments specified, although payments are based on a percentage of the revenue or operating income generated by the business.

Recurring fair value measurements – Funds held for customers included cash equivalents and available-for-sale marketable securities (Note 2). The cash equivalents consisted of a money market fund investment which is traded in an active market. Because of the short-term nature of the underlying investments, the cost of this investment approximates its fair value. Available-for-sale securities consisted of a mutual fund investment that invests in Canadian and provincial government securities and investments in Canadian guaranteed investment certificates (GIC's) with maturities of 1 year or less. The mutual fund is not traded in an active market and its fair value is determined by obtaining quoted prices in active markets for the underlying securities held by the fund. The fair value of the GIC's approximated cost due to their relatively short duration. Unrealized gains and losses, net of tax, are included in accumulated other comprehensive loss in the consolidated balance sheets. The cost of securities sold is determined using the average cost method. Realized gains and losses are included in revenue in the consolidated statements of income and were not significant during the past three years.

Other current assets as of December 31, 2015 included available-for-sale marketable securities (Note 2). These securities were sold during the first quarter of 2016 and consisted of a Canadian money market fund that was not traded in an active market. As such, the fair value of this investment was determined by obtaining quoted prices in active markets for the underlying securities held by the fund. Because of the short-term nature of the underlying investments, the cost of these securities approximated their fair value.

We have elected to account for long-term investments in domestic mutual funds under the fair value option for financial assets and financial liabilities. The fair value option provides companies an irrevocable option to measure many financial assets and liabilities at fair value with changes in fair value recognized in earnings. The investments are included in long-term investments in the consolidated balance sheets. Information regarding the accounting for these investments is provided in our long-term investments policy in Note 1. The fair value of the mutual fund investments is determined by obtaining quoted prices in active markets for the mutual funds. Realized gains recognized during the past three years were not significant, nor were unrealized losses recognized during 2014. We recognized net unrealized losses on the mutual fund investments of $168 during 2016 and $281 during 2015.

The fair value of accrued contingent consideration is remeasured each reporting period. Increases or decreases in projected revenue, gross profit or operating income, as appropriate, and the related probabilities of achieving the forecasted results, may result in a higher or lower fair value measurement. Changes in fair value resulting from changes in the timing, amount of, or likelihood of contingent payments are included in SG&A expense in the consolidated statements of income. Changes in fair value resulting from accretion for the passage of time are included in interest expense in the consolidated statements of income.

Changes in accrued contingent consideration were as follows:

(in thousands)	Accrued contingent consideration
Balance, December 31, 2014	$ 409
Acquisition date fair value	5,575
Change in fair value	187
Payments	(310)
Balance, December 31, 2015	5,861
Acquisition date fair value	1,132
Change in fair value	(1,174)
Payments	(1,137)
Balance, December 31, 2016	$ 4,682

The fair value of interest rate swaps (Note 6) was determined at each reporting date by means of a pricing model utilizing readily observable market interest rates. The change in fair value was determined as the change in the present value of estimated future cash flows discounted using the LIBOR rate. The interest rate swaps related to our long-term debt due in 2020, which we settled during the fourth quarter of 2016, met the criteria for using the short-cut method for a fair value hedge based on the structure of the hedging relationship. As such, the changes in the fair value of the derivative and the related long-term debt were equal. The short-cut method was not being used for our other interest rate swaps, which terminated with the maturity of the related long-term debt in October 2014. Changes in the fair value of the interest rate swaps, as well as changes in the fair value of the hedged debt, are included in interest expense in the consolidated statements of income and were as follows:

(in thousands)	2016	2015	2014
Gain from derivatives	$ 1,200	$ 3,225	$ 6,014
Loss from change in fair value of hedged debt	(1,200)	(3,225)	(6,603)
Net increase in interest expense	$ —	$ —	$ (589)

Information regarding recurring fair value measurements completed during each period was as follows:

		Fair value measurements using		
(in thousands)	Fair value as of December 31, 2016	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Cash equivalents (funds held for customers)	$ 6,002	$ 6,002	$ —	$ —
Available-for-sale marketable securities (funds held for customers)	15,532	—	15,532	—
Long-term investments in mutual funds	1,877	1,877	—	—
Accrued contingent consideration	(4,682)	—	—	(4,682)

		Fair value measurements using		
(in thousands)	Fair value as of December 31, 2015	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Available-for-sale marketable securities (funds held for customers)	$ 15,067	$ —	$ 15,067	$ —
Available-for-sale marketable securities (other current assets)	1,616	—	1,616	—
Long-term investments in mutual funds	2,091	2,091	—	—
Accrued contingent consideration	(5,861)	—	—	(5,861)
Derivative liabilities	(4,842)	—	(4,842)	—

Our policy is to recognize transfers between fair value levels as of the end of the reporting period in which the transfer occurred. There were no transfers between fair value levels during 2016 or 2015.

Fair value measurements of other financial instruments – The following methods and assumptions were used to estimate the fair value of each class of financial instrument for which it is practicable to estimate fair value.

Cash and cash included within funds held for customers – The carrying amounts reported in the consolidated balance sheets approximate fair value because of the short-term nature of these items.

Loans and notes receivable from distributors – We have receivables for loans made to certain of our Safeguard distributors. In addition, we have acquired the operations of several small business distributors which we then sold to our Safeguard distributors. In most cases, we entered into notes receivable upon the sale of the assets to the distributors. The fair value of these loans and notes receivables is calculated as the present value of expected future cash flows, discounted using an estimated interest rate based on published bond yields for companies of similar risk.

Long-term debt – Information regarding the composition of our long-term debt can be found in Note 13. The carrying amounts reported in the consolidated balance sheets for amounts drawn under our revolving credit facility and our term loan facility, excluding unamortized debt issuance costs, approximate fair value because our interest rates are variable and reflect current market rates. The fair value of our long-term notes due in 2020, which were retired during 2016, was based on significant observable market inputs other than quoted prices in active markets and does not reflect the impact of hedging activity.

The estimated fair values of these financial instruments were as follows:

	December 31, 2016		Fair value measurements using		
			Quoted prices in active markets for identical assets	Significant other observable inputs	Significant unobservable inputs
(in thousands)	Carrying value	Fair value	(Level 1)	(Level 2)	(Level 3)
Cash	$ 76,574	$ 76,574	$ 76,574	$ —	$ —
Cash (funds held for customers)	66,289	66,289	66,289	—	—
Loans and notes receivable from distributors	23,278	21,145	—	—	21,145
Long-term debt[1]	756,963	758,000	—	758,000	—

[1] Amounts exclude capital lease obligations.

	December 31, 2015		Fair value measurements using		
			Quoted prices in active markets for identical assets	Significant other observable inputs	Significant unobservable inputs
(in thousands)	Carrying value	Fair value	(Level 1)	(Level 2)	(Level 3)
Cash	$ 62,427	$ 62,427	$ 62,427	$ —	$ —
Cash (funds held for customers)	38,276	38,276	38,276	—	—
Loans and notes receivable from distributors	25,745	23,383	—	—	23,383
Long-term debt[1]	626,909	641,000	—	641,000	—

[1] Amounts exclude capital lease obligations.

Note 8: Restructuring charges

Net restructuring charges for the years ended December 31 consisted of the following components:

(in thousands)	2016	2015	2014
Severance accruals	$ 7,217	$ 5,891	$ 8,411
Severance reversals	(864)	(1,197)	(1,513)
Operating lease obligations	59	338	—
Net restructuring accruals	6,412	5,032	6,898
Other costs	1,359	1,202	2,757
Net restructuring charges	$ 7,771	$ 6,234	$ 9,655
Number of employees included in severance accruals	265	290	260

The net restructuring charges for the years ended December 31 are reflected in the consolidated statements of income as follows:

(in thousands)	2016	2015	2014
Total cost of revenue	$ 647	$ 1,816	$ 879
Operating expenses	7,124	4,418	8,776
Net restructuring charges	$ 7,771	$ 6,234	$ 9,655

In each of the past three years, the net restructuring accruals included severance charges related to employee reductions across functional areas as we continued to reduce costs, primarily within our sales and marketing, information technology and fulfillment functions. These charges were reduced by the reversal of restructuring accruals, as fewer employees received severance benefits than originally estimated. Other restructuring costs, which were expensed as incurred, included items such as information technology costs, employee and equipment moves, training and travel related to our restructuring activities.

Restructuring accruals of $4,181 as of December 31, 2016 and $3,864 as of December 31, 2015 are reflected in the consolidated balance sheets as accrued liabilities. The majority of the employee reductions are expected to be completed by mid-2017, and we expect most of the related severance payments to be paid by the third quarter of 2017, utilizing cash from operations. As of December 31, 2016, approximately 55 employees had not yet started to receive severance benefits.

Accruals for our restructuring initiatives, summarized by year, were as follows:

(in thousands)	2012/2013 initiatives	2014 initiatives	2015 initiatives	2016 initiatives	Total
Balance, December 31, 2013	$ 5,638	$ —	$ —	$ —	$ 5,638
Restructuring charges	271	8,140	—	—	8,411
Restructuring reversals	(871)	(642)	—	—	(1,513)
Payments	(4,878)	(3,382)	—	—	(8,260)
Balance, December 31, 2014	160	4,116	—	—	4,276
Restructuring charges	—	102	6,127	—	6,229
Restructuring reversals	(48)	(691)	(458)	—	(1,197)
Payments	(112)	(3,351)	(1,981)	—	(5,444)
Balance, December 31, 2015	—	176	3,688	—	3,864
Restructuring charges	—	—	78	7,198	7,276
Restructuring reversals	—	(111)	(472)	(281)	(864)
Payments	—	(65)	(3,214)	(2,816)	(6,095)
Balance, December 31, 2016	$ —	$ —	$ 80	$ 4,101	$ 4,181
Cumulative amounts:					
Restructuring charges	$ 15,641	$ 8,242	$ 6,205	$ 7,198	$ 37,286
Restructuring reversals	(2,407)	(1,444)	(930)	(281)	(5,062)
Payments	(13,234)	(6,798)	(5,195)	(2,816)	(28,043)
Balance, December 31, 2016	$ —	$ —	$ 80	$ 4,101	$ 4,181

The components of our restructuring accruals, by segment, were as follows:

(in thousands)	Employee severance benefits				Operating lease obligations			
	Small Business Services	Financial Services	Direct Checks	Corporate[1]	Small Business Services	Financial Services	Direct Checks	Total
Balance, December 31, 2013	$ 1,624	$ 1,991	$ 365	$ 1,508	$ 150	$ —	$ —	$ 5,638
Restructuring charges	3,566	2,897	36	1,912	—	—	—	8,411
Restructuring reversals	(858)	(306)	(37)	(312)	—	—	—	(1,513)
Payments	(2,920)	(2,734)	(364)	(2,124)	(118)	—	—	(8,260)
Balance, December 31, 2014	1,412	1,848	—	984	32	—	—	4,276
Restructuring charges	2,254	1,451	—	2,186	285	53	—	6,229
Restructuring reversals	(684)	(235)	—	(278)	—	—	—	(1,197)
Inter-segment transfer	41	(14)	—	(27)	—	—	—	—
Payments	(2,000)	(2,166)	—	(1,006)	(261)	(11)	—	(5,444)
Balance, December 31, 2015	1,023	884	—	1,859	56	42	—	3,864
Restructuring charges	2,634	1,937	143	2,503	59	—	—	7,276
Restructuring reversals	(369)	(64)	(2)	(429)	—	—	—	(864)
Payments	(2,105)	(1,416)	(134)	(2,283)	(115)	(42)	—	(6,095)
Balance, December 31, 2016	$ 1,183	$ 1,341	$ 7	$ 1,650	$ —	$ —	$ —	$ 4,181
Cumulative amounts[2]:								
Restructuring charges	$ 13,331	$ 10,173	$ 728	$ 12,045	$ 786	$ 53	$ 170	$ 37,286
Restructuring reversals	(2,352)	(874)	(61)	(1,618)	(157)	—	—	(5,062)
Inter-segment transfer	41	(14)	(25)	(2)	—	—	—	—
Payments	(9,837)	(7,944)	(635)	(8,775)	(629)	(53)	(170)	(28,043)
Balance, December 31, 2016	$ 1,183	$ 1,341	$ 7	$ 1,650	$ —	$ —	$ —	$ 4,181

[1] As discussed in Note 16, corporate costs are allocated to our business segments. As such, the net corporate restructuring charges are reflected in the business segment operating income presented in Note 16 in accordance with our allocation methodology.

[2] Includes accruals related to our cost reduction initiatives for 2012 through 2016.

Note 9: Income tax provision

Income before income taxes was comprised of the following for the years ended December 31:

(in thousands)	2016	2015	2014
United States	$ 325,396	$ 312,157	$ 279,326
Foreign	14,990	15,790	17,855
Income before income taxes	$ 340,386	$ 327,947	$ 297,181

The components of the income tax provision were as follows for the years ended December 31:

(in thousands)	2016	2015	2014
Current tax provision:			
Federal	$ 93,261	$ 98,000	$ 91,630
State	12,006	10,632	8,674
Foreign	3,851	3,942	4,496
Total current tax provision	109,118	112,574	104,800
Deferred tax provision:			
Federal	1,752	(3,591)	(6,165)
State	462	354	(1,491)
Foreign	(328)	(19)	243
Total deferred tax provision	1,886	(3,256)	(7,413)
Income tax provision	$ 111,004	$ 109,318	$ 97,387

The effective tax rate on pre-tax income reconciles to the U.S. federal statutory tax rate of 35% for the years ended December 31 as follows:

	2016	2015	2014
Income tax at federal statutory rate	35.0%	35.0%	35.0%
State income tax expense, net of federal income tax benefit	2.4%	2.3%	2.3%
Qualified production activities deduction	(2.8%)	(2.9%)	(2.8%)
Adoption of ASU No. 2016-09 (Note 1)	(1.2%)	—	—
Other	(0.8%)	(1.1%)	(1.7%)
Effective tax rate	32.6%	33.3%	32.8%

A reconciliation of the beginning and ending amount of unrecognized tax benefits, excluding accrued interest and penalties and the federal benefit of deductible state income tax, is as follows:

(in thousands)	Unrecognized tax benefits
Balance, December 31, 2013	$ 6,005
Additions for tax positions of current year	487
Additions for tax positions of prior years	500
Fair value of acquired tax positions	65
Reductions for tax positions of prior years	(902)
Lapse of statutes of limitations	(214)
Adoption of ASU No. 2013-11[(1)]	(669)
Balance, December 31, 2014	5,272
Additions for tax positions of current year	625
Additions for tax positions of prior years	802
Reductions for tax positions of prior years	(225)
Settlements	(541)
Lapse of statutes of limitations	(190)
Balance, December 31, 2015	5,743
Additions for tax positions of current year	521
Additions for tax positions of prior years	1,428
Reductions for tax positions of prior years	(177)
Lapse of statutes of limitations	(142)
Balance, December 31, 2016	$ 7,373

[(1)] On January 1, 2014, we adopted ASU No. 2013-11, *Presentation of Unrecognized Tax Benefit When a Net Operating Loss Carryforward, a Similar Tax Loss, or a Tax Credit Carryforward Exists*. Adoption of this standard resulted in an increase in non-current deferred income tax liabilities and a corresponding decrease in other non-current liabilities.

If the unrecognized tax benefits as of December 31, 2016 were recognized in our consolidated financial statements, income tax expense would decrease $7,373. Accruals for interest and penalties, excluding the tax benefits of deductible interest, were $1,330 as of December 31, 2016 and $1,151 as of December 31, 2015. Our income tax provision included expense for interest and penalties of $179 in 2016, $177 in 2015 and $7 in 2014. Within the next 12 months, it is reasonably possible that our unrecognized tax benefits will change in the range of a decrease of $4,100 to an increase of $1,300 as we attempt to resolve certain federal and state tax matters or as federal and state statutes of limitations expire. Due to the nature of the underlying liabilities and the extended time frame often needed to resolve income tax uncertainties, we cannot provide reliable estimates of the amount or timing of cash payments that may be required to settle these liabilities.

The statute of limitations for federal tax assessments for 2012 and prior years has expired. The audit of our 2013 federal income tax return by the Internal Revenue Service (IRS) was previously completed, and the audit of our 2014 and 2015 returns was completed in February 2017. Our 2016 return, when filed, will be subject to IRS examination. In general, income tax returns for the years 2012 through 2016 remain subject to examination by foreign, state and city tax jurisdictions. In the event that we have determined not to file income tax returns with a particular state or city, all years remain subject to examination by the tax jurisdiction.

The ultimate outcome of tax matters may differ from our estimates and assumptions. Unfavorable settlement of any particular issue would require the use of cash and could result in increased income tax expense. Favorable resolution would result in reduced income tax expense.

Tax-effected temporary differences that gave rise to deferred tax assets and liabilities as of December 31 were as follows:

	2016		2015	
(in thousands)	Deferred tax assets	Deferred tax liabilities	Deferred tax assets	Deferred tax liabilities
Goodwill	$ —	$ 66,905	$ —	$ 60,506
Intangible assets	—	30,983	—	37,842
Prepaid assets	—	4,692	—	4,285
Deferred advertising costs	—	3,461	—	3,786
Early extinguishment of debt	—	1,563	—	2,342
Employee benefit plans	9,677	—	14,279	—
Reserves and accruals	7,964	—	8,305	—
Net operating loss and capital loss carryforwards	5,152	—	5,793	—
Inventories	3,151	—	3,100	—
Federal benefit of state uncertain tax positions	2,677	—	2,201	—
All other	3,916	5,955	3,184	5,143
Total deferred taxes	32,537	113,559	36,862	113,904
Valuation allowances	(2,545)	—	(2,796)	—
Net deferred taxes	$ 29,992	$ 113,559	$ 34,066	$ 113,904

The valuation allowances as of December 31, 2016 and December 31, 2015 related primarily to capital loss carryforwards in Canada and net operating loss carryforwards in various state jurisdictions that we do not currently expect to fully realize. The provision for income taxes included benefits of $302 for 2016 and $37 for 2014 and charges of $140 for 2015 related to changes in the valuation allowances. The remainder of the change in the valuation allowances was attributable to foreign currency translation.

As of December 31, 2016, undistributed earnings of our Canadian subsidiary companies totaled approximately $101,000. We intend to indefinitely reinvest these undistributed earnings outside of the U.S. and, therefore, no U.S. deferred income taxes have been recognized on these earnings. We would only repatriate these earnings if it were tax efficient to do so. If all or a portion of these earnings were to be distributed by dividend or loan, or upon sale of Canadian subsidiary company stock to a third party, our related U.S. income tax liability may be reduced by Canadian income taxes paid on those earnings. Our ability to reduce the related U.S. income tax liability using foreign tax credits is hampered by a tax attribute acquired with New England Business Service, Inc. in 2004. Determination of the amount of the unrecognized U.S. deferred income tax liability related to book-tax basis differences, primarily these undistributed foreign earnings, is not practical as the assumed timing of any distribution impacts the amount of the liability. As of December 31, 2016, the amount of cash and cash equivalents held by our Canadian subsidiaries was $66,597.

As of December 31, 2016, we had the following net operating loss and capital loss carryforwards:

- State net operating loss carryforwards of $63,723, which expire at various dates up to 2036;
- Capital loss carryforwards of $4,787 in Canada which do not expire;
- Federal net operating loss carryforwards of $2,221, which expire at various dates between 2025 and 2029; and
- Net operating loss carryforwards of $3,549 in Ireland which do not expire.

Note 10: Share-based compensation plans

Our employee share-based compensation plans consist of our employee stock purchase plan and our long-term incentive plan. Effective May 2, 2012, our shareholders approved the Deluxe Corporation 2012 Long-Term Incentive Plan, simultaneously terminating our previous plan. Under this plan, 5,000 shares of common stock plus any shares released as a result of the forfeiture or termination of awards issued under our prior plans are reserved for issuance, with 1,880 shares remaining available for issuance as of December 31, 2016. Full value awards such as restricted stock, restricted stock units and share-based performance awards reduce the number of shares available for issuance by a factor of 2.23, or if such an award were forfeited or terminated without delivery of the shares, the number of shares that again become eligible for issuance would be multiplied by a factor of 2.23. During the past three years, we had non-qualified stock options, restricted stock units and restricted share awards outstanding under our current and previous plans. Additionally, we began granting performance share awards during 2014. See the employee share-based compensation policy in Note 1 for our policies regarding the recognition of compensation expense for employee share-based awards.

The following amounts were recognized in our consolidated statements of income for share-based compensation awards for the years ended December 31:

(in thousands)	2016	2015	2014
Stock options	$ 3,401	$ 3,964	$ 4,305
Restricted shares and restricted stock units	5,786	5,407	4,111
Performance share awards	2,806	2,115	966
Employee stock purchase plan	466	408	394
Total share-based compensation expense	$ 12,459	$ 11,894	$ 9,776
Income tax benefit	$ (4,063)	$ (3,965)	$ (3,204)

As of December 31, 2016, the total compensation expense for unvested awards not yet recognized in our consolidated statements of income was $12,336, net of the effect of estimated forfeitures. This amount is expected to be recognized over a weighted-average period of 1.7 years.

Non-qualified stock options – All options allow for the purchase of shares of common stock at prices equal to the stock's market value at the date of grant. Options become exercisable beginning 1 year after the grant date, with one-third vesting each year over 3 years. Options may be exercised up to 7 years following the date of grant. Beginning 1 year after the grant date, in the case of qualified retirement, death or disability, options vest immediately and the period over which the options can be exercised is shortened. Beginning 1 year after the grant date, in the case of involuntary termination without cause, a pro-rata portion of the options vest immediately and the period over which the options can be exercised is shortened. For options granted prior to 2013, in the case of involuntary termination without cause, all options vest immediately and the period over which the options can be exercised is shortened. Employees forfeit unvested options when they voluntarily terminate their employment with the company, and they have up to 3 months to exercise vested options before they are canceled. In the case of involuntary termination with cause, the entire unexercised portion of the award is canceled. All options may vest immediately upon a change of control, as defined in the award agreement. The following weighted-average assumptions were used in the Black-Scholes option pricing model in determining the fair value of stock options granted:

	2016	2015	2014
Risk-free interest rate	1.1%	1.3%	1.2%
Dividend yield	2.2%	1.8%	2.0%
Expected volatility	25.5%	31.7%	36.1%
Weighted-average option life (in years)	4.0	4.0	4.3

The risk-free interest rate for periods within the expected option life is based on the U.S. Treasury yield curve in effect at the grant date. The dividend yield is estimated over the expected life of the option based on historical dividends paid. Expected volatility is based on the historical volatility of our stock over the most recent historical period equivalent to the expected life of the option. The expected life is the average length of time over which we expect the employee groups will exercise their options, based on historical experience with similar grants.

Each option is convertible into 1 share of common stock upon exercise. Information regarding options issued under the current and all previous plans was as follows:

	Number of options (in thousands)	Weighted-average exercise price per option	Aggregate intrinsic value	Weighted-average remaining contractual term (in years)
Outstanding, December 31, 2013	1,640	$ 27.22		
Granted	290	50.48		
Exercised	(552)	23.81		
Forfeited or expired	(66)	37.53		
Outstanding, December 31, 2014	1,312	33.28		
Granted	268	67.02		
Exercised	(186)	27.36		
Forfeited or expired	(40)	55.13		
Outstanding, December 31, 2015	1,354	40.11		
Granted	458	54.44		
Exercised	(476)	30.80		
Forfeited or expired	(85)	58.06		
Outstanding, December 31, 2016	1,251	47.68	$ 29,934	4.4
Exercisable at December 31, 2014	645	$ 25.76		
Exercisable at December 31, 2015	820	29.99		
Exercisable at December 31, 2016	624	38.50	$ 20,672	3.0

The weighted-average grant-date fair value of options granted was $9.16 per option for 2016, $14.97 per option for 2015 and $12.97 per option for 2014. The intrinsic value of a stock award is the amount by which the fair value of the underlying stock exceeds the exercise price of the award. The total intrinsic value of options exercised was $16,043 for 2016, $6,882 for 2015 and $17,074 for 2014.

Restricted stock units – Certain management employees have the option to receive a portion of their bonus payment in the form of restricted stock units. When employees elect this payment method, we provide an additional matching amount of restricted stock units equal to 50% of the restricted stock units earned under the bonus plan. These awards vest 2 years from the date of grant. In the case of approved retirement, death, disability or change of control, the units vest immediately. In the case of involuntary termination without cause or voluntary termination, employees receive a cash payment for the units earned under the bonus plan, but forfeit the company-provided matching amount.

In addition to awards granted to employees, non-employee members of our board of directors can elect to receive all or a portion of their fees in the form of restricted stock units. Directors are issued shares in exchange for the units upon the earlier of the tenth anniversary of February 1st of the year following the year in which the non-employee director ceases to serve on the board or such other objectively determinable date pre-elected by the director.

Each restricted stock unit is convertible into 1 share of common stock upon completion of the vesting period. Information regarding our restricted stock units was as follows:

	Number of units (in thousands)	Weighted-average grant date fair value per unit	Weighted-average remaining contractual term (in years)
Outstanding at December 31, 2013	150	$ 27.11	
Granted	30	53.64	
Vested	(13)	23.42	
Forfeited	(1)	34.08	
Outstanding at December 31, 2014	166	30.51	
Granted	34	63.28	
Vested	(30)	25.05	
Forfeited	(3)	58.04	
Outstanding at December 31, 2015	167	34.74	
Granted	38	55.39	
Vested	(46)	40.15	
Forfeited	(20)	58.69	
Outstanding at December 31, 2016	139	37.99	4.2

Of the awards outstanding as of December 31, 2016, 24 restricted stock units with a value of $1,695 were included in accrued liabilities and other non-current liabilities in our consolidated balance sheet. As of December 31, 2016, these units had a fair value of $71.61 per unit and a weighted-average remaining contractual term of 8 months.

The total fair value of restricted stock units that vested was $2,805 for 2016, $1,970 for 2015 and $654 for 2014. We made cash payments of $140 during 2016, $120 during 2015 and $25 during 2014 to settle share-based liabilities.

Restricted shares – Our restricted share awards have a set vesting period at which time the restrictions on the shares lapse. The vesting period on these awards currently ranges from 1 year to 3 years. The restrictions lapse immediately in the case of qualified retirement, death or disability. In the case of involuntary termination without cause or a change of control, restrictions on a pro-rata portion of the shares lapse based on how much of the vesting period has passed. In the case of voluntary termination of employment or termination with cause, the unvested restricted shares are forfeited.

Information regarding unvested restricted shares was as follows:

	Number of shares (in thousands)	Weighted-average grant date fair value per share	Weighted-average remaining contractual term (in years)
Unvested at December 31, 2013	21	$ 35.24	
Granted	121	51.08	
Vested	(11)	37.06	
Forfeited	(11)	48.14	
Unvested at December 31, 2014	120	49.96	
Granted	72	66.99	
Vested	(14)	50.72	
Forfeited	(8)	58.58	
Unvested at December 31, 2015	170	56.35	
Granted	97	56.22	
Vested	(22)	56.63	
Forfeited	(25)	56.86	
Unvested at December 31, 2016	220	56.43	1.1

The total fair value of restricted shares that vested was $1,398 for 2016, $925 for 2015 and $624 for 2014.

Performance share awards – Our performance share awards have a 3-year vesting period and shares will be issued at the end of the vesting period if performance targets relating to revenue and total shareholder return are achieved. If employment is terminated for any reason prior to the 1-year anniversary of the commencement of the performance period, the award is forfeited. On or after the 1-year anniversary of the commencement of the performance period, a pro-rata portion of the shares awarded at the end of the performance period would be issued in the case of qualified retirement, death, disability, involuntary termination without cause or resignation for good reason, as defined in the agreement. The following weighted-average assumptions were used in the Monte Carlo simulation model in determining the fair value of market-based performance shares granted:

	2016	2015	2014
Risk-free interest rate	0.9%	1.0%	0.7%
Dividend yield	2.3%	1.9%	2.4%
Expected volatility	22.7%	22.7%	30.5%

The risk-free interest rate for periods within the expected award life is based on the U.S. Treasury yield curve in effect at the grant date. The dividend yield is estimated over the expected life of the award based on historical dividends paid. Expected volatility is based on the historical volatility of our stock.

The performance share information presented in the table below represents the target amount of awards granted. The actual number of shares awarded upon vesting may be higher or lower depending upon our execution relative to the performance targets as of the end of the performance period.

	Performance shares (in thousands)	Weighted-average grant date fair value per share	Weighted-average remaining contractual term (in years)
Unvested at December 31, 2013	—	$ —	
Granted	74	50.14	
Forfeited	(5)	50.14	
Unvested at December 31, 2014	69	50.14	
Granted	62	67.09	
Forfeited	(9)	58.28	
Unvested at December 31, 2015	122	58.13	
Granted	153	52.75	
Forfeited	(39)	55.04	
Unvested at December 31, 2016	236	55.15	1.5

Employee stock purchase plan – During 2016, 48 shares were issued under this plan at prices of $47.52 and $57.45. During 2015, 43 shares were issued under this plan at prices of $55.19 and $54.77. During 2014, 44 shares were issued under this plan at prices of $41.27 and $46.76.

Note 11: Employee benefit plans

Profit sharing/401(k) plan – We maintain a profit sharing/401(k) plan to provide retirement benefits for certain employees. The plan covers a majority of our full-time employees, as well as some part-time employees. Employees are eligible to participate in the plan on the first day of the quarter following their first full year of service.

Profit sharing contributions are made solely by Deluxe and are remitted to the plan's trustee. These contributions vary based on the company's performance. 401(k) contributions are made by both employees and Deluxe. Employees under the age of 50 could contribute up to the lesser of $18 or 50% of eligible wages during 2016. Employees 50 years of age or older could make contributions of up to $24 during 2016. For the majority of employees, we match 100% of the first 1% of wages contributed by employees and 50% of the next 5% of wages contributed, beginning on the first day of the quarter following an employee's first full year of service. All employee and employer contributions are remitted to the plan's trustee. Benefits provided by the plan are paid from accumulated funds of the trust.

Employees are provided a broad range of investment options to choose from when investing their profit sharing/401(k) plan funds. Investing in our common stock is not one of these options, although funds selected by employees may at times hold our common stock.

Cash bonus programs – We provide short-term cash bonus programs under which employees may receive cash bonus payments based on our performance for a given fiscal year. Payments earned are paid directly to employees shortly after the end of the year. Previously, we also provided a long-term cash bonus program where employees received payments based on specified performance criteria over a 3-year period. We stopped using the long-term cash bonus program in 2014 when it was replaced with the performance share awards discussed in Note 10. Payments earned under the long-term program were paid directly to employees shortly after the end of each 3-year period, with the last payment occurring during 2016.

Expense recognized in the consolidated statements of income for these plans was as follows for the years ended December 31:

(in thousands)	2016	2015	2014
Performance-based compensation plans[1]	$ 19,730	$ 27,456	$ 29,629
401(k) expense	8,309	7,628	7,209

[1] Includes expense for profit sharing contributions, as they vary based on our performance. Excludes expense for stock-based compensation, which is discussed in Note 10.

Deferred compensation plan – We have a non-qualified deferred compensation plan that allows eligible employees to defer a portion of their compensation. Participants can elect to defer up to 100% of their base salary plus up to 50% of their bonus for the year. The compensation deferred under this plan is credited with earnings or losses measured by the mirrored rate of return on phantom investments elected by plan participants, which are similar to the investments available for funds invested under our profit sharing/401(k) plan. Each participant is fully vested in all deferred compensation and earnings. A participant may elect to receive deferred amounts in a lump-sum payment or in monthly installments upon termination of employment or disability. Our total liability under this plan was $3,669 as of December 31, 2016 and $3,126 as of December 31, 2015. These amounts are reflected in accrued liabilities and other non-current liabilities in the consolidated balance sheets. We hold investments in an irrevocable rabbi trust for our deferred compensation plan. These assets consist of investments in company-owned life insurance policies, which are included in long-term investments in the consolidated balance sheets, and totaled $11,270 as of December 31, 2016 and $13,397 as of December 31, 2015.

Note 12: Postretirement benefits

We have historically provided certain health care benefits for a large number of retired U.S. employees. Employees hired prior to January 1, 2002 become eligible for benefits if they attain the appropriate years of service and age prior to retirement. Employees hired on January 1, 2002 or later are not eligible to participate in our retiree health care plan. In addition to our retiree health care plan, we also have a supplemental executive retirement plan (SERP) in the United States. The SERP is no longer an active plan. It is not adding new participants and all of the current participants are retired. The SERP has no plan assets, but our obligation is fully funded by investments in company-owned life insurance policies.

Obligations and funded status – The following tables summarize the change in benefit obligation, plan assets and funded status during 2016 and 2015:

(in thousands)	Postretirement benefit plan	Pension plan
Change in benefit obligation:		
Benefit obligation, December 31, 2014	$ 100,432	$ 3,864
Interest cost	3,309	128
Net actuarial loss (gain)	5,258	(130)
Benefits paid from plan assets and company funds	(10,122)	(324)
Pharmacy rebates and Medicare Part D reimbursements	2,007	—
Benefit obligation, December 31, 2015	100,884	3,538
Interest cost	3,012	106
Net actuarial (gain) loss	(2,184)	127
Benefits paid from plan assets and company funds	(7,524)	(324)
Benefit obligation, December 31, 2016	$ 94,188	$ 3,447
Change in plan assets:		
Fair value of plan assets, December 31, 2014	$ 124,675	$ —
Return on plan assets	391	—
Benefits paid	(7,932)	—
Fair value of plan assets, December 31, 2015	117,134	—
Return on plan assets	7,717	—
Benefits paid	(6,723)	—
Fair value of plan assets, December 31, 2016	$ 118,128	$ —
Funded status, December 31, 2015	$ 16,250	$ (3,538)
Funded status, December 31, 2016	$ 23,940	$ (3,447)

As of December 31, 2016 and 2015, the accumulated benefit obligation for the SERP equaled its projected benefit obligation.

The funded status of our plans was recognized in the consolidated balance sheets as of December 31 as follows:

	Postretirement benefit plan		Pension plan	
(in thousands)	2016	2015	2016	2015
Other non-current assets	$ 23,940	$ 16,250	$ —	$ —
Accrued liabilities	—	—	324	324
Other non-current liabilities	—	—	3,123	3,214

Amounts included in accumulated other comprehensive loss as of December 31 that have not been recognized as components of postretirement benefit income were as follows:

(in thousands)	2016	2015
Unrecognized prior service credit	$ 17,021	$ 18,442
Unrecognized net actuarial loss	(68,288)	(74,524)
Tax effect	15,583	17,260
Amount recognized in accumulated other comprehensive loss, net of tax	$ (35,684)	$ (38,822)

The unrecognized prior service credit relates to our postretirement benefit plan and is a result of previous plan amendments that reduced the accumulated postretirement benefit obligation. A reduction is first used to reduce any existing unrecognized prior service cost, then to reduce any remaining unrecognized transition obligation. The excess is the unrecognized prior service credit. The prior service credit is being amortized on the straight-line basis over a weighted-average period of 21 years. The amortization period for the prior service credit is the average remaining life expectancy of plan participants at the time of the plan amendment.

The unrecognized net actuarial loss resulted from experience different from that assumed and from changes in assumptions. Unrecognized actuarial gains and losses for our postretirement benefit plan are being amortized over the average remaining life expectancy of inactive plan participants, as a large percentage of the plan participants are classified as inactive. This amortization period is currently 15.5 years.

Amounts included in accumulated other comprehensive loss as of December 31, 2016 that we expect to recognize in postretirement benefit income during 2017 are as follows:

(in thousands)	Amounts expected to be recognized
Prior service credit	$ (1,421)
Net actuarial loss	3,637
Total	$ 2,216

Postretirement benefit income – Postretirement benefit income for the years ended December 31 consisted of the following components:

(in thousands)	2016	2015	2014
Interest cost	$ 3,118	$ 3,437	$ 4,553
Expected return on plan assets	(7,335)	(7,833)	(8,734)
Amortization of prior service credit	(1,421)	(1,421)	(1,421)
Amortization of net actuarial losses	3,797	3,120	3,418
Net periodic benefit income	$ (1,841)	$ (2,697)	$ (2,184)

Actuarial assumptions – In measuring benefit obligations as of December 31, the following discount rate assumptions were used:

	Postretirement benefit plan		Pension plan	
	2016	2015	2016	2015
Discount rate	3.81%	4.02%	3.66%	3.88%

In measuring net periodic benefit income for the years ended December 31, the following assumptions were used:

	Postretirement benefit plan			Pension plan		
	2016	2015	2014	2016	2015	2014
Discount rate	4.02%	3.45%	4.25%	3.88%	3.45%	4.25%
Expected return on plan assets	6.50%	6.50%	6.75%	—	—	—

The discount rate assumption is based on the rates of return on high-quality, fixed-income instruments currently available whose cash flows approximate the timing and amount of expected benefit payments. Effective December 31, 2015, we changed the method we use to determine the discount rate used in calculating the interest component of net periodic benefit income. Instead of using a single weighted-average discount rate, we elected to utilize a full yield curve approach by applying separate discount rates to each future projected benefit payment based on time until payment. We made this change to provide a more precise measurement of interest costs by improving the correlation between projected cash flows and the corresponding yield curve rates. This change does not affect the measurement of our total benefit obligation, but did reduce the interest component of net periodic benefit income $881 in 2016. This is a change in accounting estimate, and accordingly, we accounted for it on a prospective basis. In determining the discount rate used in measuring net periodic benefit income, we utilized the Aon Hewitt AA Above Median Curve to discount each cash flow stream at an interest rate specifically applicable to the timing of each respective cash flow. In 2015 and 2014, the present value of each cash flow stream was aggregated and used to impute a weighted-average discount rate.

In determining the expected long-term rate of return on plan assets, we utilize our historical returns and then adjust these returns for estimated inflation and projected market returns. Our inflation assumption is primarily based on analysis of historical inflation data.

In measuring benefit obligations as of December 31 for our postretirement benefit plan, the following assumptions for health care cost trend rates were used:

	2016		2015		2014	
	Participants under age 65	Participants age 65 and older	Participants under age 65	Participants age 65 and older	Participants under age 65	Participants age 65 and older
Health care cost trend rate assumed for next year	7.50%	8.75%	7.25%	6.75%	7.50%	7.00%
Rate to which the cost trend rate is assumed to decline (the ultimate trend rate)	4.50%	4.50%	5.00%	5.00%	5.00%	5.00%
Year that the rate reaches the ultimate trend rate	2025	2025	2026	2024	2021	2020

Assumed health care cost trend rates have an effect on the amounts reported for health care plans. A one-percentage-point change in assumed health care cost trend rates would have the following effects:

(in thousands)	One percentage point increase	One percentage point decrease
Effect on total of service and interest cost	$ 61	$ (57)
Effect on benefit obligation	1,507	(1,413)

Plan assets – The allocation of plan assets by asset category as of December 31 was as follows:

	Postretirement benefit plan	
	2016	2015
U.S. large capitalization equity securities	33%	33%
International equity securities	18%	18%
Mortgage-backed securities	16%	17%
U.S. corporate debt securities	13%	15%
Government debt securities	13%	10%
U.S. small and mid-capitalization equity securities	7%	7%
Total	100%	100%

Our postretirement benefit plan has assets that are intended to meet long-term obligations. In order to meet these obligations, we employ a total return investment approach that considers cash flow needs and balances long-term projected returns against expected asset risk, as measured using projected standard deviations. Risk tolerance is established through consideration of projected plan liabilities, the plan's funded status, projected liquidity needs and current corporate financial condition.

The target asset allocation percentages for our postretirement benefit plan are based on our liability and asset projections. The targeted allocation of plan assets is 33% large capitalization equity securities, 42% fixed income securities, 18% international equity securities and 7% small and mid-capitalization equity securities.

Information regarding fair value measurements of plan assets was as follows:

	Fair value measurements using				
(in thousands)	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Investments measured at net asset value	Fair value as of December 31, 2016
U.S. large capitalization equity securities	$ —	$ —	$ —	$ 38,731	$ 38,731
International equity securities	20,768	500	—	—	21,268
Mortgage-backed securities	—	15,542	—	3,245	18,787
U.S. corporate debt securities	—	14,753	—	802	15,555
Government debt securities	—	15,104	—	—	15,104
U.S. small and mid-capitalization equity securities	5,691	120	—	2,280	8,091
Other debt securities	—	592	—	—	592
Plan assets	$ 26,459	$ 46,611	$ —	$ 45,058	$ 118,128

	Fair value measurements using				
(in thousands)	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Investments measured at net asset value	Fair value as of December 31, 2015
U.S. large capitalization equity securities	$ —	$ —	$ —	$ 38,629	$ 38,629
International equity securities	20,520	689	—	—	21,209
Mortgage-backed securities	—	15,716	—	4,441	20,157
U.S. corporate debt securities	—	16,285	—	689	16,974
Government debt securities	—	11,808	—	—	11,808
U.S. small and mid-capitalization equity securities	6,799	85	—	1,211	8,095
Other debt securities	149	113	—	—	262
Plan assets	$ 27,468	$ 44,696	$ —	$ 44,970	$ 117,134

Plan asset information for 2015 has been revised to reflect the adoption of ASU No. 2015-07, *Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or its Equivalent)*. In accordance with this guidance, investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. The fair value amounts for these investments are presented to permit reconciliation of the fair value hierarchy to the amounts presented in the consolidated balance sheets.

The fair value of Level 2 mortgage-backed securities is estimated using pricing models with inputs derived principally from observable market data. The fair value of our other Level 2 debt securities is typically estimated using pricing models, quoted prices of securities with similar characteristics or discounted cash flow calculations that maximize observable inputs, such as current yields for similar instruments adjusted for trades and other pertinent market information. Our policy is to recognize transfers between fair value levels as of the end of the reporting period in which the transfer occurred.

Cash flows – We made no contributions to plan assets during the past three years.

We have fully funded the United States SERP obligation with investments in company-owned life insurance policies. The cash surrender value of these policies is included in long-term investments in the consolidated balance sheets and totaled $6,362 as of December 31, 2016 and $7,573 as of December 31, 2015.

The following benefit payments are expected to be paid during the years indicated:

(in thousands)	Postretirement benefit plan	Pension plan
2017	$ 9,037	$ 320
2018	9,379	320
2019	9,166	310
2020	8,696	310
2021	8,210	300
2022 - 2026	33,410	1,390

Note 13: Debt and lease obligations

Debt outstanding was comprised of the following at December 31:

(in thousands)	2016	2015
6.0% senior notes due November 15, 2020	$ —	$ 200,000
Amount outstanding under term loan facility	330,000	—
Amount drawn on revolving credit facility	428,000	434,000
Capital lease obligations	1,685	2,109
Long-term debt, principal amount	759,685	636,109
Cumulative change in fair value of hedged debt (Note 6)	—	(4,842)
Less unamortized debt issuance costs	(927)	(2,249)
Less current portion of long-term debt	(35,952)	(1,045)
Long-term debt	722,806	627,973
Current portion of amount drawn under term loan facility	35,063	—
Current portion of capital lease obligations	889	1,045
Long-term debt due within one year, principal amount	35,952	1,045
Less unamortized debt issuance costs	(110)	—
Long-term debt due within one year	35,842	1,045
Total debt	$ 758,648	$ 629,018

There are currently no limitations on the amount of dividends and share repurchases under the terms of our credit facility agreement. However, if our leverage ratio, defined as total debt less unrestricted cash to EBITDA, should exceed 2.75 to 1, there would be an annual limitation on the amount of dividends and share repurchases under the terms of this agreement.

Senior notes – In November 2012, we issued $200,000 of 6.0% senior notes maturing on November 15, 2020. The notes were issued via a private placement under Rule 144A of the Securities Act of 1933. These notes were subsequently registered with the SEC via a registration statement that became effective on April 3, 2013. Proceeds from the offering, net of offering costs, were $196,340. These proceeds were used to retire our senior notes that were due in June 2015. In November 2016, we retired all of these notes, realizing a loss on early debt extinguishment of $7,858 during 2016, consisting of a contractual call premium and the write-off of related debt issuance costs. This retirement was funded utilizing a new term loan facility established under our credit facility agreement. As discussed in Note 6, we previously entered into interest rate swaps to hedge these notes. The swaps were terminated in November 2016 at the time of the debt redemption. The cumulative decrease in the fair value of hedged debt as of the date of the termination of $2,842 was recorded as interest expense in the 2016 consolidated statement of income.

In March 2011, we issued $200,000 of 7.0% senior notes that were scheduled to mature on March 15, 2019. The notes were issued via a private placement under Rule 144A of the Securities Act of 1933. These notes were subsequently registered with the SEC via a registration statement that became effective on January 10, 2012. Proceeds from the offering, net of offering costs, were $196,195. These proceeds were used to retire a portion of our senior, unsecured notes due in 2012. In March 2015, we retired all of these notes, realizing a loss on early debt extinguishment of $8,917 during 2015, consisting of a contractual call premium and the write-off of related debt issuance costs. This retirement was funded utilizing our credit facility and a short-term bank loan that we have since repaid.

Credit facility – As of December 31, 2016, we had a $525,000 revolving credit facility that matures in February 2019. Our quarterly commitment fee ranges from 0.20% to 0.40% based on our leverage ratio. As of December 31, 2016, $428,000 was drawn on our revolving credit facility at a weighted-average interest rate of 2.22%. As of December 31, 2015, $434,000 was drawn on our revolving credit facility at a weighted-average interest rate of 1.89%.

During the third and fourth quarters of 2016, we amended the credit agreement governing our credit facility to include a new variable rate term loan facility in the aggregate amount of $330,000. We borrowed the full amount during the fourth quarter, using the proceeds to retire our senior notes due in 2020 and to partially fund the acquisition of FMCG Direct in December 2016 (Note 5). The term loan facility matures in February 2019 and requires periodic principal payments throughout the term of the loan. Interest is paid weekly and we may prepay the term loan facility in full or in part at our discretion. Amounts repaid may not be reborrowed. As of December 31, 2016, $330,000 was outstanding under the term loan facility at a weighted-average interest rate of 2.27%.

Borrowings under the credit facility agreement are collateralized by substantially all of our personal and intangible property. The credit agreement governing our credit facility contains customary covenants regarding limits on levels of subsidiary indebtedness and capital expenditures, liens, investments, acquisitions, certain mergers, certain asset sales outside the ordinary course of business, and change in control as defined in the agreement. The agreement also contains financial covenants regarding our leverage ratio, interest coverage and liquidity.

Daily average amounts outstanding under our credit facility were as follows for the years ended December 31:

(in thousands)	2016	2015	2014
Revolving credit facility:			
Daily average amount outstanding	$ 417,219	$ 270,063	$ 43,675
Weighted-average interest rate	1.93%	1.66%	1.63%
Term loan facility:			
Daily average amount outstanding	$ 52,381	$ —	$ —
Weighted-average interest rate	1.52%	—	—

As of December 31, 2016, amounts were available for borrowing under our revolving credit facility as follows:

(in thousands)	Total available
Revolving credit facility commitment	$ 525,000
Amount drawn on revolving credit facility	(428,000)
Outstanding letters of credit[1]	(10,865)
Net available for borrowing as of December 31, 2016	$ 86,135

[1] We use standby letters of credit primarily to collateralize certain obligations related to our self-insured workers' compensation claims, as well as claims for environmental matters, as required by certain states. These letters of credit reduce the amount available for borrowing under our revolving credit facility.

Long-term debt maturities – Our aggregate debt maturities based on the principal amount outstanding as of December 31, 2016 were as follows, excluding capital leases:

(in thousands)	Debt maturities
2017	$ 35,063
2018	43,313
2019	679,624
Total	$ 758,000

Short-term borrowings – In March 2015, we entered into a $75,000 short-term variable rate bank loan. Proceeds from this loan, net of related costs, were $74,880 and were used, along with a draw on our revolving credit facility, to retire all $200,000 of our 7.0% senior notes that were scheduled to mature on March 15, 2019. During December 2015, we elected to repay this loan in full. The weighted-average interest rate on amounts outstanding under this loan during 2015 was 1.59%.

Lease obligations – We had capital lease obligations of $1,685 as of December 31, 2016 and $2,109 as of December 31, 2015 related to information technology hardware. The lease obligations will be paid through September 2020. The related assets are included in property, plant and equipment in the consolidated balance sheets. Depreciation of the leased assets is included in depreciation expense in the consolidated statements of cash flows. A portion of the leased assets have not yet been placed in service. The balance of those leased assets placed in service as of December 31 was as follows:

(in thousands)	2016	2015
Machinery and equipment	$ 4,434	$ 4,193
Accumulated depreciation	(3,058)	(1,942)
Net assets under capital leases	$ 1,376	$ 2,251

In addition to capital leases, we also have operating leases on certain facilities and equipment. Rental expense was $16,454 for 2016, $15,372 for 2015 and $13,099 for 2014. As of December 31, 2016, future minimum lease payments under our capital lease obligations and noncancelable operating leases with terms in excess of one year were as follows:

(in thousands)	Capital lease obligations	Operating lease obligations
2017	$ 914	$ 13,132
2018	493	12,613
2019	240	8,290
2020	79	4,001
2021	—	1,459
Thereafter	—	1,085
Total minimum lease payments	1,726	$ 40,580
Less portion representing interest	(41)	
Present value of minimum lease payments	$ 1,685	

Note 14: Other commitments and contingencies

Indemnifications – In the normal course of business, we periodically enter into agreements that incorporate general indemnification language. These indemnifications encompass third-party claims arising from our products and services, including service failures, breach of security, intellectual property rights, governmental regulations and/or employment-related matters. Performance under these indemnities would generally be triggered by our breach of the terms of the contract. In disposing of assets or businesses, we often provide representations, warranties and/or indemnities to cover various risks including, for example, unknown damage to the assets, environmental risks involved in the sale of real estate, liability to investigate and remediate environmental contamination at waste disposal sites and manufacturing facilities, and unidentified tax liabilities and legal fees related to periods prior to disposition. We do not have the ability to estimate the potential liability from such indemnities because they relate to unknown conditions. However, we do not believe that any liability under these indemnities would have a material adverse effect on our financial position, annual results of operations or annual cash flows. We have recorded liabilities for known indemnifications related to environmental matters.

Environmental matters – We are currently involved in environmental compliance, investigation and remediation activities at some of our current and former sites, primarily printing facilities of our Financial Services and Small Business Services segments that have been sold. Remediation costs are accrued on an undiscounted basis when the obligations are either known or considered probable and can be reasonably estimated. Remediation or testing costs that result directly from the sale of an asset and which we would not have otherwise incurred are considered direct costs of the sale of the asset. As such, they are included in our measurement of the carrying value of the asset sold.

Accruals for environmental matters were $3,206 as of December 31, 2016 and $5,952 as of December 31, 2015, primarily related to facilities that have been sold. These accruals are included in accrued liabilities and other non-current liabilities in the consolidated balance sheets. Accrued costs consist of direct costs of the remediation activities, primarily fees that will be paid to outside engineering and consulting firms. Although recorded accruals include our best estimates, our total costs cannot be predicted with certainty due to various factors such as the extent of corrective action that may be required, evolving environmental laws and regulations and advances in environmental technology. Where the available information is sufficient to estimate the amount of the liability, that estimate is used. Where the information is only sufficient to establish a range of probable liability and no point within the range is more likely than any other, the lower end of the range is recorded. We do not believe that the range of possible outcomes could have a material effect on our financial condition, results of operations or liquidity. The 2016 consolidated statement of income includes a net benefit from environmental matters of $1,692. During the second quarter of 2016, we reversed a portion of the liability for one of our sold facilities as we determined that it was no longer probable that a portion of the estimated environmental remediation costs for this location would be incurred. Expense reflected in our consolidated statements of income for environmental matters was $1,142 for 2015 and $1,079 for 2014.

We purchased an insurance policy during 2002 that covers up to $10,000 of third-party pollution claims through 2032 at certain owned, leased and divested sites, We also purchased an insurance policy during 2009 that covers up to $15,000 of third-party pollution claims through April 2019. This policy covers liability for claims of bodily injury or property damage arising from pollution events at the covered facility. The policy also provides remediation coverage should we be required by a governing authority to perform remediation activities at the covered sites. No accruals have been recorded in our consolidated financial

statements for any of the events contemplated in these insurance policies. We do not anticipate significant net cash outlays for environmental matters within the next 5 years.

Self-insurance – We are self-insured for certain costs, primarily workers' compensation claims and medical and dental benefits for active employees and those employees on long-term disability. The liabilities associated with these items represent our best estimate of the ultimate obligations for reported claims plus those incurred, but not reported, and totaled $6,999 as of December 31, 2016 and $6,457 as of December 31, 2015. Our workers' compensation liability is accounted for on a present value basis. The difference between the discounted and undiscounted liability was not significant as of December 31, 2016 or December 31, 2015.

Our self-insurance liabilities are estimated, in part, by considering historical claims experience, demographic factors and other actuarial assumptions. The estimated accruals for these liabilities could be significantly affected if future events and claims differ from these assumptions and historical trends.

Litigation – On September 2, 2014, one of our suppliers filed a petition for binding arbitration under the Commercial Rules of the American Arbitration Association, alleging that it was entitled to additional payment from us under our reseller agreement and seeking damages of up to approximately $43,000. We did not record a liability for damages in connection with this matter in our consolidated balance sheets. In March 2016, the arbitrator rejected all of the supplier's claims and ruled in our favor.

Recorded liabilities for legal matters were not material to our financial position, results of operations or liquidity, and we do not believe that any of the currently identified claims or litigation will materially affect our financial position, results of operations or liquidity upon resolution. However, litigation is subject to inherent uncertainties, and unfavorable rulings could occur. If an unfavorable ruling were to occur, it may cause a material adverse impact on our financial position, results of operations or liquidity for the period in which the ruling occurs or future periods.

Note 15: Shareholders’ equity

We have an outstanding authorization from our board of directors to purchase up to 10,000 shares of our common stock. This authorization has no expiration date, and 65 shares remained available for purchase under this authorization as of December 31, 2016. During 2016, we repurchased 901 shares for $55,224, during 2015 we repurchased 996 shares for $59,952 and during 2014 we repurchased 1,133 shares for $60,119.

In May 2016, our board of directors approved an additional authorization for the repurchase of up to $300,000 of our common stock, effective at the conclusion of the previous authorization. The additional authorization also has no expiration date.

Note 16: Business segment information

We operate 3 reportable business segments: Small Business Services, Financial Services and Direct Checks. Our business segments are generally organized by type of customer served and reflect the way we manage the company. Small Business Services promotes and sells products and services to small businesses via direct response mail and internet advertising; referrals from financial institutions, telecommunications clients and other partners; networks of distributors and independent dealers; a direct sales force that focuses on selling to and through major accounts; and an outbound telemarketing group. Financial Services' products and services are sold primarily through a direct sales force, which executes product and service supply contracts with our financial institution clients nationwide, including banks, credit unions and financial services companies. In the case of check supply contracts, once the financial institution relationship is established, consumers may submit their check orders through their financial institution or over the phone or internet. Direct Checks sells products and services directly to consumers using direct marketing, including print advertising and search engine marketing and optimization strategies. All 3 segments operate primarily in the United States. Small Business Services also has operations in Canada and portions of Europe. No single customer accounted for more than 10% of revenue during the past three years.

Our product and service offerings are comprised of the following:

Checks – We remain one of the largest providers of checks in the United States. During 2016, checks represented 39.1% of our Small Business Services segment's revenue, 53.8% of our Financial Services segment's revenue and 84.1% of our Direct Checks segment's revenue.

Marketing solutions and other services – We offer products and services designed to meet our customers’ sales and marketing needs, as well as various other service offerings. Our marketing products utilize digital printing and web-to-print solutions to provide promotional solutions such as postcards, brochures, retail packaging supplies, apparel, greeting cards and business cards. Our web services offerings include logo and web design; hosting and other web services; search engine optimization; and marketing programs, including email, mobile and social media. We also offer fraud protection and security services, online and offline payroll services, and electronic checks ("eChecks"). Our Financial Services segment also offers a

suite of financial technology (“FinTech”) solutions. These solutions include data-driven marketing solutions, including outsourced marketing campaign targeting and execution; treasury management solutions; and digital enablement solutions, including loyalty and rewards programs.

Forms – Our Small Business Services segment provides printed forms to small businesses, including deposit tickets, billing forms, work orders, job proposals, purchase orders, invoices and personnel forms. This segment also offers computer forms compatible with accounting software packages commonly used by small businesses. Forms sold by our Financial Services and Direct Checks segments include deposit tickets and check registers.

Accessories and other products – Small Business Services offers products designed to provide small business owners with the customized documents necessary to efficiently manage their business, including envelopes, office supplies, stamps and labels. Our Financial Services and Direct Checks segments offer checkbook covers and stamps.

The accounting policies of the segments are the same as those described in Note 1. We allocate corporate costs for our shared services functions to our business segments, including costs of our executive management, human resources, supply chain, finance, information technology and legal functions. Generally, where costs incurred are directly attributable to a business segment, primarily within the areas of information technology, supply chain and finance, those costs are charged directly to that segment. Because we use a shared services approach for many of our functions, certain costs are not directly attributable to a business segment. These costs are allocated to our business segments based on segment revenue, as revenue is a measure of the relative size and magnitude of each segment and indicates the level of corporate shared services consumed by each segment. Corporate assets are not allocated to the segments and consist primarily of property, plant and equipment; internal-use software; and inventories and supplies related to our corporate shared services functions of manufacturing, information technology and real estate, as well as long-term investments. Depreciation and amortization expense related to corporate assets, which was allocated to the segments, was $32,785 in 2016, $32,505 in 2015 and $34,801 in 2014.

We are an integrated enterprise, characterized by substantial intersegment cooperation, cost allocations and the sharing of assets. Therefore, we do not represent that these segments, if operated independently, would report the operating income and other financial information shown.

The following is our segment information as of and for the years ended December 31:

(in thousands)		Reportable Business Segments				
		Small Business Services	**Financial Services**	**Direct Checks**	**Corporate**	**Consolidated**
Total revenue from external customers:	2016	$ 1,195,743	$ 499,976	$ 153,343	$ —	$ 1,849,062
	2015	1,151,916	455,390	165,511	—	1,772,817
	2014	1,106,505	391,129	176,448	—	1,674,082
Operating income:	2016	208,789	106,820	53,118	—	368,727
	2015	203,933	91,539	58,859	—	354,331
	2014	187,226	87,908	57,499	—	332,633
Depreciation and amortization expense:	2016	52,195	35,850	3,538	—	91,583
	2015	45,513	26,807	4,380	—	76,700
	2014	44,418	14,675	6,749	—	65,842
Asset impairment charges:	2016	—	—	—	—	—
	2015	—	—	—	—	—
	2014	6,468	—	—	—	6,468
Total assets:	2016	1,086,500	631,353	161,039	305,446	2,184,338
	2015	995,445	435,632	161,987	249,089	1,842,153
	2014	949,521	274,086	164,171	295,904	1,683,682
Capital asset purchases:	2016	—	—	—	46,614	46,614
	2015	—	—	—	43,261	43,261
	2014	—	—	—	41,119	41,119

Revenue by product and service category for the years ended December 31 was as follows:

(in thousands)	2016	2015	2014
Checks	$ 865,285	$ 873,298	$ 870,910
Marketing solutions and other services	616,917	532,465	427,098
Forms	215,784	215,663	216,842
Accessories and other products	151,076	151,391	159,232
Total revenue	$ 1,849,062	$ 1,772,817	$ 1,674,082

The following information for the years ended December 31 is based on the geographic locations of our subsidiaries:

(in thousands)	2016	2015	2014
Total revenue from external customers:			
United States	$ 1,776,701	$ 1,701,566	$ 1,593,898
Foreign, primarily Canada	72,361	71,251	80,184
Total revenue	$ 1,849,062	$ 1,772,817	$ 1,674,082

Substantially all of our long-lived assets reside in the United States. Long-lived assets of our foreign subsidiaries are located primarily in Canada and are not significant to our consolidated financial position.

Note 17: Subsequent event

In February 2017, we announced that we have entered into a definitive agreement to acquire all of the stock of RDM Corporation (RDM) of Canada for approximately $70,000, net of cash acquired. RDM is a provider of remote deposit capture software and digital imaging solutions for financial institutions and corporate clients and would become part of our growing suite of treasury management solutions. The closing of the transaction is subject to customary conditions in Canada, including court, regulatory and RDM shareholder approval. The purchase price would be financed using cash on hand and our existing revolving credit facility, and the results of RDM would be included in our Financial Services segment.

DELUXE CORPORATION

SUMMARIZED QUARTERLY FINANCIAL DATA (Unaudited)
(in thousands, except per share amounts)

	2016 Quarter Ended			
	March 31	June 30	September 30	December 31
Total revenue	$ 459,298	$ 450,642	$ 458,920	$ 480,202
Gross profit	294,993	290,810	292,650	303,368
Net income	58,102	58,389	58,663	54,228
Earnings per share:				
Basic	1.18	1.19	1.20	1.11
Diluted	1.18	1.18	1.19	1.11
Cash dividends per share	0.30	0.30	0.30	0.30

	2015 Quarter Ended			
	March 31	June 30	September 30	December 31
Total revenue	$ 433,617	$ 435,874	$ 439,816	$ 463,510
Gross profit	280,936	279,936	280,514	292,222
Net income	45,940	56,063	56,917	59,709
Earnings per share:				
Basic	0.92	1.12	1.14	1.21
Diluted	0.91	1.11	1.13	1.20
Cash dividends per share	0.30	0.30	0.30	0.30

Significant items affecting the comparability of quarterly results were as follows:

- *Second quarter 2016* – net pre-tax restructuring charges of $1,217 related to our cost reduction initiatives and a reduction of $1,513 in income tax expense for discrete items, primarily the tax effects of share-based compensation.
- *Third quarter 2016* – net pre-tax restructuring charges of $2,058 related to our cost reduction initiatives.
- *Fourth quarter 2016* – pre-tax loss on early extinguishment of debt of $7,858, net pre-tax restructuring charges of $3,628 related to our cost reduction initiatives and a reduction of $2,854 in income tax expense for discrete items, primarily the tax effects of share-based compensation.

- *First quarter 2015* – pre-tax loss on early extinguishment of debt of $8,917.
- *Second quarter 2015* – net pre-tax restructuring charges of $1,154 related to our cost reduction initiatives.
- *Third quarter 2015* – net pre-tax restructuring charges of $1,738 related to our cost reduction initiatives.
- *Fourth quarter 2015* – net pre-tax restructuring charges of $3,078 related to our cost reduction initiatives and a reduction of $1,160 in income tax expense for discrete items, primarily prior year state income tax credits.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Disclosure Controls and Procedures – As of the end of the period covered by this report, December 31, 2016 (the "Evaluation Date"), we carried out an evaluation, under the supervision and with the participation of management, including the Chief Executive Officer and the Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rule 13a-15(e) of the Securities Exchange Act of 1934, as amended (the 1934 Act)). Based upon that evaluation, the Chief Executive Officer and the Chief Financial Officer concluded that, as of the Evaluation Date, our disclosure controls and procedures were effective to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is (i) recorded, processed, summarized and reported within the time periods specified in applicable rules and forms, and (ii) accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, to allow timely decisions regarding required disclosure.

Internal Control Over Financial Reporting – There were no changes in our internal control over financial reporting identified in connection with our evaluation during the quarter ended December 31, 2016 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control over Financial Reporting – Management of Deluxe Corporation is responsible for establishing and maintaining adequate internal control over financial reporting. 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 in the United States.

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

Management assessed the effectiveness of our internal control over financial reporting as of December 31, 2016. In making this assessment, it used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control - Integrated Framework* (2013). Based on this assessment, we have concluded that, as of December 31, 2016, our internal control over financial reporting was effective based on those criteria. The attestation report on our internal control over financial reporting issued by PricewaterhouseCoopers LLP appears in Item 8 of this report.

Item 9B. Other Information.

None.

PART III

Except where otherwise noted, the information required by Items 10 through 14 is incorporated by reference from our definitive proxy statement, to be filed with the Securities and Exchange Commission within 120 days of our fiscal year-end, with the exception of the executive officers section of Item 10, which is included in Part I, Item 1 of this report.

Item 10. Directors, Executive Officers and Corporate Governance.

See Part I, Item 1 of this report “Executive Officers of the Registrant.” The sections of the proxy statement entitled “Item 1: Election of Directors,” “Board Structure and Governance-Audit Committee Expertise; Complaint-Handling Procedures,” “Board Structure and Governance-Meetings and Committees of the Board of Directors-Audit Committee,” “Stock Ownership and Reporting-Section 16(a) Beneficial Ownership Reporting Compliance” and “Board Structure and Governance-Code of Ethics and Business Conduct” are incorporated by reference into this report.

The full text of our Code of Ethics and Business Conduct (Code of Ethics) is posted on our investor relations website, Deluxe.com/investor, under the “Investor Relations-Corporate Governance” caption. We intend to satisfy the disclosure requirement under Item 5.05 of Form 8-K regarding an amendment to, or waiver from, a provision of the Code of Ethics that applies to our principal executive officer, principal financial officer, principal accounting officer or controller or persons performing similar functions by posting such information on our website at the address and location specified above.

Item 11. Executive Compensation.

The sections of the proxy statement entitled “Executive Compensation-Compensation Committee Report,” “Executive Compensation,” “Board Structure and Governance-Non-Employee Director Compensation” and “Board Structure and Governance-Compensation Committee Interlocks and Insider Participation” are incorporated by reference into this report.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The section of the proxy statement entitled “Stock Ownership and Reporting-Security Ownership of Certain Beneficial Owners and Management” is incorporated by reference into this report.

The following table provides information concerning all of our equity compensation plans as of December 31, 2016:

Equity Compensation Plan Information

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in the first column)
Equity compensation plans approved by shareholders	1,625,823 [1]	$ 47.68 [1]	5,454,755 [2]
Equity compensation plans not approved by shareholders	—	—	—
Total	1,625,823	$ 47.68	5,454,755

[1] Includes awards granted under our 2012 Long-Term Incentive Plan and our previous stock incentive plans. The number of securities to be issued upon exercise of outstanding options, warrants and rights includes outstanding stock options of 1,250,625, restricted stock unit awards of 139,439 and 235,759 shares subject to outstanding performance share awards. The number of performance shares reflects the target amount for awards outstanding as of December 31, 2016. The actual number of shares issued under our performance share awards will range between 0% and 200% of the target amount based on our performance relative to the applicable performance goals as determined by our Compensation Committee following the end of the performance period. The performance share and restricted stock unit awards are not included in the weighted-average exercise price of outstanding options, warrants and rights because they require no consideration upon vesting.

[2] Includes 3,575,090 shares reserved for issuance under our Amended and Restated 2000 Employee Stock Purchase Plan and 1,879,665 shares available for issuance under our 2012 Long-Term Incentive Plan. Under the 2012 Long-Term Incentive Plan, full value awards such as restricted stock, restricted stock units and share-based performance awards reduce the number of shares available for issuance by a factor of 2.23, or if such an award were forfeited or terminated without delivery of the shares, the number of shares that again become eligible for issuance would be multiplied by a factor of 2.23.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

The sections of the proxy entitled “Board Structure and Governance-Board Oversight and Director Independence” and “Board Structure and Governance-Related Party Transaction Policy and Procedures” are incorporated by reference into this report.

Item 14. Principal Accounting Fees and Services.

The sections of the proxy statement entitled “Fiscal Year 2016 Audit and Independent Registered Public Accounting Firm-Fees Paid to Independent Registered Public Accounting Firm” and “Fiscal Year 2016 Audit and Independent Registered Public Accounting Firm-Policy on Audit Committee Pre-Approval of Accounting Firm Fees and Services” are incorporated by reference into this report.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(a) Financial Statements and Schedules

The financial statements are set forth under Item 8 of the Annual Report on Form 10-K. Financial statement schedules have been omitted since they are either not required or are not applicable, or the required information is shown in the consolidated financial statements or notes.

(b) Exhibit Listing

The following exhibits are filed as part of or are incorporated into this report by reference:

Exhibit Number	Description	Method of Filing
3.1	Amended and Restated Articles of Incorporation (incorporated by reference to Exhibit 3.1 to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2010)	*
3.2	Bylaws (incorporated by reference to Exhibit 3.2 to the Current Report on Form 8-K filed with the Commission on October 23, 2008)	*
4.1	Amended and Restated Rights Agreement, dated as of December 20, 2006, by and between us and Wells Fargo Bank, National Association, as Rights Agent, which includes as Exhibit A thereto, the Form of Rights Certificate (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K filed with the Commission on December 21, 2006)	*
4.2	Indenture, dated as of April 30, 2003, by and between us and Wells Fargo Bank Minnesota, N.A., as trustee (incorporated by reference to Exhibit 4.8 to the Registration Statement on Form S-3 (Registration No. 333-104858) filed with the Commission on April 30, 2003)	*
4.3	Indenture, dated as of November 27, 2012, by and among us, the guarantors listed on the signature pages thereto and U.S. Bank National Association, as trustee (including form of 6.000% Senior Notes due 2020) (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K filed with the Commission on November 27, 2012)	*
4.4	Supplemental Indenture, dated as of June 28, 2013, among us, VerticalResponse, Inc., the guarantors listed on the signature pages thereto and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.14 to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2013)	*
4.5	Second Supplemental Indenture, dated as of September 25, 2013, among us, ChecksByDeluxe.com, LLC, Direct Checks Unlimited, LLC, Direct Checks Unlimited Sales, Inc., Safeguard Acquisitions, Inc., Safeguard Franchise Systems, Inc., the guarantors listed on the signature pages thereto and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.15 to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2013)	*
4.6	Third Supplemental Indenture, dated as of December 17, 2014, among us, Safeguard Franchise Sales, Inc., Wausau Financial Systems, Inc., the guarantors listed on the signature pages thereto and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.13 to the Annual Report on Form 10-K for the year ended December 31, 2014)	*
4.7	Fourth Supplemental Indenture, dated as of March 4, 2015, among us, AccuSource Solutions Corporation, SyncSuite, LLC, the guarantors listed on the signature pages thereto and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.13 to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2015)	*
4.8	Fifth Supplemental Indenture, dated as of June 15, 2015, among us, Image Distribution Services, the guarantors listed on the signature pages thereto and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.14 to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2015)	*

Exhibit Number	Description	Method of Filing
4.9	Sixth Supplemental Indenture, dated as of December 4, 2015, among us, Datamyx LLC, the guarantors listed on the signature pages thereto and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.15 to the Annual Report on Form 10-K for the year ended December 31, 2015)	*
10.1	Deluxe Corporation 2012 Annual Incentive Plan (incorporated by reference to Appendix A of our definitive proxy statement filed with the Commission on March 12, 2012)**	*
10.2	Deluxe Corporation 2012 Long-Term Incentive Plan (incorporated by reference to Appendix B of our definitive proxy statement filed with the Commission on March 12, 2012)**	*
10.3	Amended and Restated 2000 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.18 to the Annual Report on Form 10-K for the year ended December 31, 2001)**	*
10.4	Deluxe Corporation Deferred Compensation Plan (2011 Restatement) (incorporated by reference to Exhibit 10.7 to the Annual Report on Form 10-K for the year ended December 31, 2010)**	*
10.5	Deluxe Corporation Deferred Compensation Plan Trust (incorporated by reference to Exhibit 4.3 to the Form S-8 filed with the Commission on January 7, 2002)**	*
10.6	Deluxe Corporation Executive Deferred Compensation Plan for Employee Retention and Other Eligible Arrangements (incorporated by reference to Exhibit 10.24 to the Quarterly Report on Form 10-Q for the quarter ended June 30, 2000)**	*
10.7	Form of Severance Agreement entered into between us and the following executive officers: Pete Godich, Julie Loosbrock, Malcolm McRoberts, John Filby, Tracey Engelhardt, Michael Mathews, Amanda Brinkman and J. Michael Schroeder (incorporated by reference to Exhibit 10.17 to the Annual Report on Form 10-K for the year ended December 31, 2000)**	*
10.8	Employment Agreement dated as of April 10, 2006, between us and Lee Schram (incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K filed with the Commission on April 17, 2006)**	*
10.9	Form of Executive Retention Agreement entered into between us and Lee Schram (incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K filed with the Commission on August 10, 2007)**	*
10.10	Form of Executive Retention Agreement entered into between us and Senior Vice Presidents appointed prior to 2010 (incorporated by reference to Exhibit 99.2 to the Current Report on Form 8-K filed with the Commission on August 10, 2007)**	*
10.11	Form of Executive Retention Agreement entered into between us and each Vice President designated as an executive officer prior to 2010 (incorporated by reference to Exhibit 99.3 to the Current Report on Form 8-K filed with the Commission on August 10, 2007)**	*
10.12	Form of Addendum to Executive Retention and Severance Agreements Relating to Section 409A of the Internal Revenue Code (incorporated by reference to Exhibit 10.18 to the Annual Report on Form 10-K for the year ended December 31, 2008)**	*
10.13	Form of Agreement for Awards Payable in Restricted Stock Units (revised 10/12) (incorporated by reference to Exhibit 10.16 to the Annual Report on Form 10-K for the year ended December 31, 2012)**	*
10.14	Form of Employee Restricted Stock Award Agreement (version 2/14) (incorporated by reference to Exhibit 10.24 to the Annual Report on Form 10-K for the year ended December 31, 2013)**	*

Exhibit Number	Description	Method of Filing
10.15	Form of Non-Qualified Stock Option Agreement (version 2/09) (incorporated by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2009)**	*
10.16	Form of Non-Qualified Stock Option Agreement (version 10/12) (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2013)**	*
10.17	Form of Cash Performance Award Agreement (version 2/10) (incorporated by reference to Exhibit 10.30 to the Annual Report on Form 10-K for the year ended December 31, 2009)**	*
10.18	Form of Performance Share Award Agreement (version 2/14) (incorporated by reference to Exhibit 10.23 to the Annual Report on Form 10-K for year ended December 31, 2013)**	*
10.19	Description of modification to the Deluxe Corporation Non-Employee Director Retirement and Deferred Compensation Plan (incorporated by reference to Exhibit 10.10 to the Annual Report on Form 10-K for the year ended December 31, 1997)**	*
10.20	First Amendment to Deluxe Corporation Non-employee Director Stock and Deferral Plan (incorporated by reference to Exhibit 10.3 to the Annual Report on Form 10-K for the year ended December 31, 2008)**	*
10.21	Form of Non-Employee Director Restricted Stock Award Agreement (version 4/07) (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2007)**	*
10.22	Omnibus Amendment No. 3 to Credit Agreement, Amendment No. 2 to Pledge and Security Agreement and Waiver, dated as of September 21, 2016, by and among us, our subsidiaries signatory thereto as guarantors, the institutions from time to time parties thereto as lenders, and JPMorgan Chase Bank, N.A. in its capacity as Administrative Agent for itself and the other lenders, including Exhibit A-2 to Omnibus Amendment (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2016)	*
10.23	Amendment No. 4 to Credit Agreement, dated as of December 30, 2016, by and among us, the financial institutions signatory thereto and JPMorgan Chase Bank, N.A., in its capacity as Administrative Agent for itself and the other lenders (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed with the Commission on January 6, 2017)	*
21.1	Subsidiaries of the Registrant	Filed herewith
23.1	Consent of Independent Registered Public Accounting Firm	Filed herewith
24.1	Power of Attorney	Filed herewith
31.1	CEO Certification of Periodic Report pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	Filed herewith
31.2	CFO Certification of Periodic Report pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	Filed herewith
32.1	CEO and CFO Certification of Periodic Report pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	Furnished herewith

Exhibit Number	Description	Method of Filing
101	Interactive data files pursuant to Rule 405 of Regulation S-T: (i) Consolidated Balance Sheets as of December 31, 2016 and December 31, 2015, (ii) Consolidated Statements of Income for the years ended December 31, 2016, 2015 and 2014, (iii) Consolidated Statements of Comprehensive Income for the years ended December 31, 2016, 2015 and 2014, (iv) Consolidated Statements of Shareholders' Equity for the years ended December 31, 2016, 2015 and 2014 (v) Consolidated Statements of Cash Flows for the years ended December 31, 2016, 2015 and 2014, and (vi) Notes to Consolidated Financial Statements	Filed herewith

* Incorporated by reference
** Denotes compensatory plan or management contract

Note to recipients of Form 10-K: Copies of exhibits will be furnished upon written request and payment of reasonable expenses in furnishing such copies.

Item 16. Form 10-K Summary.

Not applicable.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) 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.

	DELUXE CORPORATION
Date: February 24, 2017	By: /s/ Lee Schram
	Lee Schram, Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities indicated on February 24, 2017.

Signature	Title
By: /s/ Lee Schram Lee Schram	Chief Executive Officer (Principal Executive Officer)
By: /s/ Edward A. Merritt Edward A. Merritt	Chief Financial Officer, Treasurer and Vice President of Investor Relations (Principal Financial Officer and Principal Accounting Officer)
* Ronald C. Baldwin	Director
* Charles A. Haggerty	Director
* Don J. McGrath	Director
* Cheryl Mayberry McKissack	Director
* Neil J. Metviner	Director
* Stephen P. Nachtsheim	Director
* Thomas J. Reddin	Director
* Martyn R. Redgrave	Director
* John L. Stauch	Director

* By: /s/ Lee Schram
Lee Schram, Attorney-in-Fact

INDEX TO EXHIBITS

Exhibit No.	Description
21.1	Subsidiaries of the Registrant
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31.2	CFO Certification of Periodic Report pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
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Exhibit 21.1

DELUXE CORPORATION SUBSIDIARIES

1st Manhattan Solutions, LLC (Delaware)
ChecksByDeluxe.com, LLC (Minnesota)
Datamyx, LLC (Delaware)
Direct Checks Unlimited, LLC (Colorado)
Direct Checks Unlimited Sales, Inc. (Colorado)
Deluxe Business Operations, Inc. (Delaware)
Deluxe Enterprise Operations, LLC (Minnesota)
Deluxe Financial Services, LLC (Minnesota)
Deluxe Manufacturing Operations, LLC (Minnesota)
Deluxe Small Business Sales, Inc. (Minnesota)
Deluxe Strategic Sourcing, Inc. (Texas)
First Manhattan Consulting Group, LLC (Delaware)
FMCG Holdings, LLC (Delaware)
Hostopia Bulgaria EOOD (Bulgaria)
Hostopia Canada, Corp. (Canada)
Hostopia Ireland Limited (Ireland)
Innovative Print & Media Group, Inc. (Pennsylvania)
Internet Names for Business Inc. (Canada)
Image Distribution Services (California)
NEBS Business Products Limited (Canada)
Payce, Inc. (Maryland)
Safeguard Acquisitions, Inc. (Texas)
Safeguard Business Systems, Inc. (Delaware)
Safeguard Business Systems Limited (Canada)
Safeguard Franchise Sales, Inc. (Texas)
Safeguard Franchise Systems, Inc. (Texas)
Safeguard Holdings, Inc. (Texas)
SyncSuite, LLC (Minnesota)
Wausau Financial Systems, Inc. (Wisconsin)

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (No. 33-53585, 333-03265, 333-95739, 333-52452, 333-52454, 333-89532, 333-150674 and 333-181435) of Deluxe Corporation of our report dated February 24, 2017 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
Minneapolis, Minnesota
February 24, 2017

Exhibit 24.1

POWER OF ATTORNEY

Each of the undersigned directors and officers of DELUXE CORPORATION, a Minnesota corporation, hereby constitutes and appoints Lee Schram and Edward A. Merritt their true and lawful attorneys-in-fact, and each of them, with full power to act without the other, to sign the Company's annual report on Form 10-K for the year ended December 31, 2016, and any and all amendments to such report, and to file the same and any such amendment, with any exhibits, and any other documents required in connection with such filing, with the Securities and Exchange Commission under the provisions of the Securities Exchange Act of 1934.

	Date
/s/ Lee Schram Lee Schram, Chief Executive Officer and Director (principal executive officer)	2/22/2017
/s/ Edward A. Merritt Edward A. Merritt, Chief Financial Officer (principal financial officer and principal accounting officer)	2/22/2017
/s/ Ronald C. Baldwin Ronald C. Baldwin, Director	2/22/2017
/s/ Charles A. Haggerty Charles A. Haggerty, Director	2/22/2017
/s/ Don J. McGrath Don J. McGrath, Director	2/22/2017
/s/ Cheryl Mayberry McKissack Cheryl Mayberry McKissack, Director	2/22/2017
/s/ Neil J. Metviner Neil J. Metviner, Director	2/22/2017
/s/ Stephen P. Nachtsheim Stephen P. Nachtsheim, Director	2/22/2017
/s/ Thomas J. Reddin Thomas J. Reddin, Director	2/22/2017
/s/ Martyn R. Redgrave Martyn R. Redgrave, Director	2/22/2017
/s/ John L. Stauch John L. Stauch, Director	2/22/2017

Exhibit 31.1

CEO CERTIFICATION OF PERIODIC REPORT UNDER SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Lee Schram, Chief Executive Officer of Deluxe Corporation, certify that:

1. I have reviewed this annual report on Form 10-K of Deluxe Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

(c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 24, 2017

/s/ Lee Schram

Lee Schram
Chief Executive Officer

Exhibit 31.2

CFO CERTIFICATION OF PERIODIC REPORT UNDER SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Edward A. Merritt, Chief Financial Officer of Deluxe Corporation, certify that:

1. I have reviewed this annual report on Form 10-K of Deluxe Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

(c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 24, 2017

/s/ Edward A. Merritt

Edward A. Merritt
Chief Financial Officer, Treasurer and Vice President of Investor Relations

Exhibit 32.1

CEO AND CFO CERTIFICATION OF PERIODIC REPORT

We, Lee Schram, Chief Executive Officer of Deluxe Corporation (the “Company”), and Edward A. Merritt, Chief Financial Officer of the Company, certify, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that:

(1) the Annual Report on Form 10-K of the Company for the year ended December 31, 2016 (the “Report”) fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)); and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 24, 2017

/s/ Lee Schram

Lee Schram
Chief Executive Officer

/s/ Edward A. Merritt

Edward A. Merritt
Chief Financial Officer, Treasurer and Vice President of Investor Relations