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Form 10-K
February 26, 2019
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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, 2018**

Commission file number: 1-7945

DELUXE CORPORATION

(Exact name of registrant as specified in its charter)

Minnesota (State or other jurisdiction of incorporation or organization)	**41-0216800** (I.R.S. Employer Identification No.)
3680 Victoria St. N., Shoreview, Minnesota (Address of principal executive offices)	**55126-2966** (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 every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). [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, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer [X] Accelerated filer [ ]
Non-accelerated filer [ ] Smaller reporting company [ ]
Emerging growth company [ ]

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

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 $3,119,184,444 based on the last sales price of the registrant's common stock on the New York Stock Exchange on June 29, 2018. The number of outstanding shares of the registrant's common stock as of February 13, 2019 was 43,677,292.

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, 2018

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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. Over the past several years, we have transformed from a check printing company to a provider of trusted technology-enabled solutions. Our vision is to be the best at helping our customers grow, and we have become a partner to businesses and an integral part of the financial services industry by providing a selection of customer life cycle management solutions that help our customers acquire and engage their customers across multiple channels. Over the past 24 months, our Small Business Services segment has provided products and services to approximately 4.8 million customers and our Direct Checks segment has provided products and services to approximately 4.7 million customers. Through our Financial Services segment, we provide products and services to approximately 4,600 customers.

Our product and service offerings are comprised of the following:

Marketing solutions and other services (MOS) – We offer products and services designed to meet our customers' sales and marketing needs, as well as various other service offerings. During 2018, MOS represented 37.3% of our Small Business Services segment's revenue, 59.0% of our Financial Services segment's revenue and 11.1% of our Direct Checks segment's revenue. Our MOS offerings generally consist of the following:

- Small business marketing solutions – Our marketing products utilize digital printing and web-to-print solutions to provide printed marketing materials and promotional solutions, such as postcards, brochures, retail packaging supplies, apparel, greeting cards and business cards.

- Web services – These service offerings include hosting and domain name services, logo and web design, search engine marketing and optimization, email marketing, payroll services and business incorporation and organization services.

- Data-driven marketing solutions – These Financial Services offerings include outsourced marketing campaign targeting and execution and marketing analytics solutions that help our customers grow revenue through strategic targeting, lead optimization, retention and cross-selling services.

- Treasury management solutions – These Financial Services solutions include remote deposit capture, receivables management, payment processing, and paperless treasury management, as well as software, hardware and digital imaging solutions.

- Fraud, security, risk management and operational services – These service offerings include fraud protection and security services, electronic checks and deposits ("ePayments") and digital engagement solutions, including loyalty and rewards programs and financial management tools.

Checks – We remain one of the largest providers of checks in the United States. During 2018, checks represented 37.1% of our Small Business Services segment's revenue, 38.6% of our Financial Services segment's revenue and 84.0% of our Direct Checks segment's revenue.

Forms, accessories and other products – 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, as well as computer forms compatible with accounting software packages commonly used by small businesses. Small Business Services also offers other customized products, including envelopes, office supplies, ink stamps and labels. Our Financial Services and Direct Checks segments offer deposit tickets, check registers, checkbook covers, labels and ink stamps.

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

	2018	2017	2016	2015	2014
Marketing solutions and other services:					
Small business marketing solutions	14.6 %	13.3 %	13.1 %	11.8 %	10.0 %
Web services	8.1 %	6.7 %	6.3 %	6.3 %	7.2 %
Data-driven marketing solutions	7.4 %	7.7 %	2.7 %	1.2 %	1.1 %
Treasury management solutions	7.4 %	5.5 %	5.0 %	4.2 %	1.0 %
Fraud, security, risk management and operational services	4.5 %	5.2 %	6.3 %	6.5 %	6.2 %
Total MOS	42.0 %	38.4 %	33.4 %	30.0 %	25.5 %
Checks	40.6 %	43.3 %	46.8 %	49.3 %	52.0 %
Forms, accessories and other products	17.4 %	18.3 %	19.8 %	20.7 %	22.5 %
Total revenue	100.0%	100.0%	100.0%	100.0%	100.0%

BUSINESS SEGMENTS

Our business segments are generally organized by the type of customer served and reflect the way we manage the company. Additional information concerning our segments appears under the caption “Note 18: 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®, Safeguard®, PsPrint®, Hostopia®, VerticalResponse®, Digital Pacific®, Inkhead®, LogoMix®, ColoCrossing®, and MyCorporation®, among others. This is our largest segment in terms of revenue and operating income and we are focused on profitably growing this segment. We strive to be a leading supplier to 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 in North America, Australia 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; affiliate relationships; networks of distributors and independent dealers; a direct sales force that focuses on selling to and through enterprise 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 in the United States, Canada and Australia.

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 MOS offerings to offset the secular decline in check and forms usage;
- 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.

Key areas that support our Small Business Services strategies include:

1. 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.
* Accelerate our brand awareness transformation, building a clear linkage between marketing and revenue-generating capabilities.
* Focus on scaling payroll services and continue to evaluate early stage businesses and other operational annuity growth solutions.

2. Payments and marketing solutions:
* Optimize ePayments, with a focus on building opportunities with financial institutions, health care and insurance payment processors, accounting services and software providers, and other document management and payment solution companies.
* 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 enterprise accounts.

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 affiliate partners, telecommunications clients, media partners and enterprise account clients. We invest in our e-commerce and technology platforms to increase opportunities to market and sell online, and we utilize various marketing channels, including internet, direct mail solicitations and television. Our distributor and dealer networks and our enterprise 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 via multiple methods.

We continuously evaluate ways to strengthen our portfolio of products and services through acquisitions and internal development. In recent years, we have acquired a number of businesses that have expanded our MOS offerings, including technology-based solutions such as web services, payroll services, web-to-print capabilities and internet marketing services, and we have developed ePayments solutions, including eChecks and eDeposits. 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 6: Acquisitions” of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. In addition, we track innovations within the marketplace coming from competitors, best-of-breed companies and evolving 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 need for scale, performance, flexibility and security. We also monitor feedback from our customer 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 many of its products, including certain business forms, promotional products and apparel. In conjunction with our cost reduction initiatives, we strive 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 customer requirements. During 2018, we closed an administrative facility in St. Petersburg, Florida. During 2017, we closed a retail packaging sales location in Dallas, Texas and 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. 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, including banks, credit unions and financial services companies. Building on our long-standing reputation in the financial services industry as a leading check provider, we have expanded our offerings to include a growing selection 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. In addition, certain of our service offerings are sold to clients other than financial institutions.

Our Financial Services strategies are as follows:

- expand sales of higher growth MOS offerings that differentiate us from our competition,
- optimize core check revenue streams and acquire new clients, and
- continue to optimize our cost and expense structure.

Key areas that support our Financial Services strategies include:

1. Data-driven marketing solutions:
* Leverage data-driven analytics and marketing capabilities to grow financial institution depository and lending products.
* Assess potential acquisitions in this market space.

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2. Treasury management solutions:
* Profitably scale our treasury management solutions.
* Further integrate previous acquisitions to fully leverage our capabilities.
* Assess potential acquisitions in this market space.

Despite the secular decline in check usage, checks continue to be an important source of revenue. Our check supply contracts usually range in duration from 3 to 6 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. Consumers may also submit their check orders over the phone or internet. All orders are shipped directly to the consumer. 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 our client relationships with relevant growth services, 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:

- Deluxe Marketing Solutions – 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 deposit and lending products across multiple contact channels, including direct mail, email, online and other digital media.
- Deluxe Treasury Management – comprehensive treasury management solutions, including accounts receivable processing and remote deposit capture, available at the customer site and as software-as-a-service and business process outsourced deployment models.
- Deluxe Rewards – a loyalty and rewards platform that offers multiple touch points that enable our clients to have ongoing engagement with their customers.
- 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.
- Banker's Dashboard® – online financial management tools that provide financial institutions with comprehensive daily insights into their financial picture.
- Provent® – a comprehensive suite of identity protection services largely complementary to our check offerings.

We continue to advance our Financial Services' MOS offerings both via acquisitions and internal development. In recent years, we have acquired a number of businesses that have expanded our MOS offerings, including data-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 6: Acquisitions” of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. We expect that providing a growing selection of products and services will offset the impacts of the secular decline in check usage and the continued pricing pressure we are experiencing in our check programs. As such, we 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. 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 2018, we closed administrative facilities located in Livonia, Michigan; Nashville, Tennessee; and Henderson, Kentucky. During 2017, we closed administrative facilities located in Omaha and Lincoln, Nebraska, and during 2016, we closed a warehouse located in Nashville, Tennessee. 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, 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 market our products and services through targeted advertising, with internet advertising being the most cost effective. We continue to explore avenues to expand sales to existing customers through sales of accessories and other check-related products and services, such as the check protection service we offer with EZShield, Inc., which provides reimbursement to consumers for losses resulting from forged signatures or endorsements and altered checks. 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 our manufacturing processes, while emphasizing a culture of continuous improvement. We have a shared services approach, which allows our 3 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.

Our expertise in logistics, productivity and inventory management has allowed us to reduce the number of production facilities we operate, while still meeting customer requirements. During 2018, we closed our Riverside, California and San Antonio, Texas fulfillment operations. During 2017, we closed our Westlake Village, California fulfillment operation, and during 2016, we moved production out of our Lancaster, California manufacturing facility. These operations were moved to other existing locations.

We continue to sponsor “sustainability” initiatives that encompass environmentally-friendly practices. We have aligned with suppliers that promote sustainable business practices and we seek opportunities to eliminate wasted material, reduce cycle times and use more environmentally-friendly materials. More than 90% of our check and forms paper is purchased from Forest Stewardship Council certified supplier mills 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.

CYBERSECURITY

We have a risk-based cybersecurity program dedicated to protecting our data as well as data belonging to our customers and business partners. We utilize a defensive in-depth strategy, with multiple layers of security controls to protect our and our customers' data and solutions. Organizationally, we have a cross-functional Enterprise Risk Council that reviews and advises on standards and policies. We also have an Enterprise Information Risk Management program and Cyber Incident Response teams to ensure compliance with our security policies and protocols. These teams are comprised of experts from across our company, as well as outside experts in some cases, to ensure that we are monitoring the effectiveness of our cybersecurity vulnerability management programs. Additionally, we periodically discuss identified enterprise risks with our board of directors, including cybersecurity risks. For more information on risks related to data security, see Item 1A, "Operational Risks – Security breaches, computer malware or other cyber attacks involving the confidential information of our customers, employees or business partners could substantially harm our reputation and business."

INDUSTRY OVERVIEW

Checks

Check printing continues to be a significant portion of our business. While we believe that there will continue to be a substantial demand for personal and business checks for the foreseeable future, the total number of checks written in the United States has

been in decline since the mid-1990s. In 2019, we anticipate check orders will decline at approximately the same rate as in 2018, and we expect that the number of checks written will continue to decline due to the increasing use of alternative payment methods. Further information regarding the decline in check usage can be found in Item 1A, "Strategic Risks – The use

of checks and forms is declining and we may be unable to offset the decline with other sources of revenue." We cannot predict the rate and the extent to which alternative payment methods will replace checks over the long-term, whether as a result of legislative developments, changing payment systems, personal preferences or otherwise.

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 2018 growth rates for consumer spending and private sector employment most likely had a slightly positive impact on our personal check businesses. An increase in housing stock and starts also 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 United States Census Bureau in December 2018, housing units completed in 2018 through November increased approximately 4% as compared to 2017. 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 United States Census Bureau, there were more than 32 million small businesses in the United States in 2016, defined as independent businesses having fewer than 500 employees. According to data published by Statistics Canada in December 2018, there are approximately 4 million small businesses in Canada, defined as employer businesses with fewer than 100 employees.

Economic conditions have a significant impact on our small business customers, and the trends were mostly positive during 2018. The National Federation of Independent Business (NFIB) completes monthly surveys that indicate small business owners' views of economic conditions. After record readings in the third quarter of 2018, the index of small business optimism published by the NFIB in December 2018 fell to 104.4, down slightly from 104.9 in December 2017. However, the average index was 106.7 for 2018, up from the 104.8 average in 2017. At the same time, the net percent of small business owners expecting general business conditions to be better in 6 months decreased significantly to 16% in December 2018, as compared to 33% in September 2018 and 37% in December 2017. Although these surveys showed optimism from small business owners for most of 2018, the declines in December indicate some uncertainty. We cannot predict whether small business optimism will trend positively for a sustained period of time or whether such a trend would translate into increased revenue for us. 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. If there were a downturn in general economic conditions, the operating results and/or growth opportunities for our Small Business Services segment could be negatively impacted. 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 businesses with alternative means to execute and record business transactions. It is difficult to predict the pace at which these alternative products and services will replace standardized business forms.

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 secular decline in check usage. This continues to put significant pricing pressure on our check revenue. In addition, the number of potential financial institution clients in the United States is declining. According to statistics currently available online from 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 combined entity. Financial institution mergers and acquisitions can also impact the duration of our contracts. Normally, the length of our check supply contracts with financial institutions ranges from 3 to 6 years. However, contracts may be renegotiated or bought out mid-term. Banks, especially larger ones, may request prepaid product discounts in the form of cash incentives payable at the beginning of a contract. These 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.

Competition

Suppliers of small business services and products 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 suppliers of custom apparel, promotional products and customized gifts. Additionally, the competitive landscape for online small business suppliers 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 pricing tiers, ease of use of our web and other services, our high quality and our 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 significant 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, internet-based bill paying services and digital wallet applications. The principal factors on which we compete are product and service breadth, price, quality and check 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, our Small Business Services ePayments offerings provide our small business customers with an alternative online payment and deposit solution.

Our check supplier competitors 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 institutions 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 attempt to minimize them by structuring new contracts with alternative incentives throughout the duration of the contract.

Our Financial Services MOS 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, receivables 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 MOS 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 and retail packaging sales and revenues from rewards and loyalty solutions, as well as search and email marketing, are typically stronger in the fourth quarter of the year due to the holiday season. 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, we may experience some fluctuations in revenue driven by our customers' 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, 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 several 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. For further information, please see Item 1A, "Legal and Compliance Risks – Governmental regulation is continuously evolving and could limit or harm our business." At this time, we are not aware of any changes in laws or regulations that will have a significant impact on our business during 2019. In June 2018, the California Consumer Privacy Act (CCPA) was signed into law and is effective on January 1, 2020. Among other requirements, businesses subject to the CCPA will need to proactively explain privacy notices to consumers when personal information is collected. Further amendments to the CCPA are likely and final regulations are yet to be published. We are currently assessing the impact of this law on our business activities.

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.

EMPLOYEES

As of December 31, 2018, we employed 5,934 employees in the United States, 660 employees in Canada and 107 employees in Australia and 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 Securities Exchange Act of 1934, as amended, 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.

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 Business Ethics that applies to all of our employees and our board of directors. The Code of Business Ethics 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 Business Ethics 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.

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
Pete Godich	54	Senior Vice President, Financial Services	2008
Julie Loosbrock	59	Senior Vice President, Human Resources	2008
Malcolm McRoberts	54	Senior Vice President, Small Business Services	2008
Tracey Engelhardt	54	Senior Vice President, Direct-to-Consumer	2012
Michael Mathews	46	Senior Vice President, Chief Information Officer	2013
Amanda Brinkman	39	Vice President, Chief Brand and Communications Officer	2014
Keith Bush	48	Senior Vice President, Chief Financial Officer	2017
Jeffrey Cotter	51	Chief Administrative Officer, Senior Vice President and General Counsel	2018
Barry McCarthy	55	President and Chief Executive Officer	2018
Amanda Parrilli	40	Vice President, Strategy	2019

Pete Godich was named Senior Vice President, Financial Services in January 2019. From March 2011 to January 2019, Mr. Godich served as Senior Vice President, Fulfillment.

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.

Tracey Engelhardt was named Senior Vice President, Direct-to-Consumer in March 2017. From July 2012 to March 2017, Ms. Engelhardt served as Vice President, Direct-to-Consumer.

Michael Mathews was named Senior Vice President, Chief Information Officer in March 2017. Mr. Mathews joined us in May 2013 as Vice President, Chief Information Officer.

Amanda Brinkman joined us in January 2014 as Vice President, Chief Brand and Communications Officer.

Keith Bush joined us in March 2017 as Senior Vice President, Chief Financial Officer. Prior to joining us, Mr. Bush was self-employed as a consultant from July 2016 to March 2017. From June 2009 through July 2016, Mr. Bush served as Senior Vice President, Finance for American Airlines.

Jeffrey Cotter was named Chief Administrative Officer in January 2019. Mr. Cotter joined us in June 2018 as Senior Vice President, General Counsel. Prior to joining us, Mr. Cotter served as Senior Vice President and General Counsel for Tennant Company, a provider of cleaning products and solutions, from September 2017 to June 2018. From June 2008 to April 2017, Mr. Cotter served as Vice President, General Counsel for G&K Services, Inc., a provider of branded uniform and facility services programs.

Barry McCarthy joined us in November 2018 as President and Chief Executive Officer. Prior to joining us, Mr. McCarthy held several positions at First Data Corporation, including Executive Vice President and Head of Network and Security Solutions from November 2014 to November 2018 and Executive Vice President and President of Financial Services from January 2013 to October 2014. First Data Corporation is a global leader in commerce-enabling technology and solutions for merchants, financial institutions and card issuers.

Amanda Parrilli joined us in February 2019 as Vice President, Strategy. Prior to joining us, Ms. Parrilli held several positions at The Home Depot, Inc. from July 2014 to February 2019, including Senior Director, Services Lead Generation; Director, Home Decorators Strategy; and Director, Strategic Business Development. From March 2013 to July 2014, Ms. Parrilli served as Vice President of Strategic Programs, Financial Services for First Data Corporation.

Item 1A. Risk Factors.

Our business, prospects, 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,

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or that we currently believe are immaterial, may also adversely affect us. You should carefully consider all of these risks and uncertainties before investing in our common stock.

STRATEGIC RISKS

We may not be successful at implementing our growth strategies.

We continue to execute strategies intended to drive sustained revenue and earnings growth, despite the continuing secular decline in check and forms usage. We are focused on increasing marketing solutions and other services revenue, particularly treasury management solutions, data-driven marketing solutions and web services, which we believe represent our most significant growth opportunities. We have invested and plan to continue investing in several key enablers to achieve our strategies, including strengthening our portfolio of products and services, particularly technology-based solutions; investing in acquisitions; scaling our service offerings; expanding our data platform capabilities; enhancing brand awareness and positioning; and improving the customer experience. In addition, we are currently evaluating our strategies and our strategic approach to all of our businesses. We can provide no assurance that any changes we may make to our strategies will be successful in the short- or long-term or will provide a positive return on our investment. 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 inability to implement improvements to our technology and other key assets to increase efficiency, enhance our competitive advantage and scale our operations;
- 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 failure to effectively manage the growth, expanding complexity and pace of change of our business and operations;
- our inability to identify suitable acquisition candidates or to complete acquisitions on acceptable terms;
- unanticipated changes in our business, markets, industry or the competitive landscape; and
- general economic conditions.

In addition, we are focused on targeting our financial technology solutions to larger financial institutions. These offerings include data-driven marketing solutions, including outsourced marketing campaign targeting and execution; treasury management solutions; and digital engagement solutions, including loyalty and rewards programs. If we are able to increase sales of these services to larger financial institutions, we may experience fluctuations in revenue driven by our clients' marketing campaign cycles. This may adversely affect our ability to accurately predict the timing of revenues and to meet short-term expectations of operating results. In addition, we utilize pay-for-performance models for certain of our data-driven marketing offerings, meaning that our revenue is based on the success of the marketing campaign that we develop for our clients. Factors beyond our control, such as rising mortgage lending rates, could negatively impact the success of some campaigns and result in lower revenue. Rising mortgage lending rates may also result in less lending activity for our financial institution clients, which may cause them to reduce their marketing spending. In addition, by targeting our offerings to larger financial institutions, the resulting customer concentration could increase our sensitivity to any material, adverse developments affecting our significant customers, and 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, all of which could adversely affect our business, financial condition and results of operations. 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 or effectively develop and operate a multichannel customer experience, 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 secular 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 also rely on referrals from financial institutions, telecommunications clients and other partners. For example, we receive small business customer referrals through our Deluxe Business Advantage® program, which provides a fast and simple way for financial institutions to offer expanded personalized service to small businesses. If these referrals were to decline, we would obtain fewer new customers and our results of operations would be negatively impacted.

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 via the mail, phone or computer. In particular, smart phones and tablet computing devices are increasingly being used as the primary means for accessing the internet and conducting e-commerce. Designing and purchasing custom products on mobile devices is more difficult than doing so with a traditional computer due to limited screen sizes, bandwidth and other variables. 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. With the June 2018 effective date of the repeal of net neutrality rules, network carriers could, at their discretion, negatively impact the speeds of our websites. Network carriers could also institute paid prioritization, under which companies must pay a premium for faster internet speeds. In this situation, any additional fees could negatively affect our profitability.

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.

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 significant retailers. In addition, the suppliers of small business and financial services products and services are intensely competitive, highly fragmented and geographically dispersed. Current and potential competitors for our Small Business Services segment 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 providers of custom apparel, promotional products and customized gifts. Additionally, the competitive landscape for online small business suppliers 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 service providers offering services such as customer and account acquisition, fraud and security risk management, receivables 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. 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 business partner. However, our clients may continue to be reluctant to change suppliers and they may be hesitant to rely on outsourced solutions.

We can provide no assurance that we will be able to compete effectively against current and future competitors. Our competitors may develop superior products or technologies and may be able to adapt more quickly to new or emerging technologies and changes in customer requirements. Consolidation in the financial technology industry could limit our ability to complete acquisitions in this market or could force us to compete against larger companies with more services to bundle. In recent years, our revenue has benefited from price increases in all 3 of our business segments. We can provide no assurance that we will be able to increase

prices in the future while remaining competitive. Pricing is becoming more competitive for product and service providers, as the internet allows customers to easily compare prices, and 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. Several of our large financial institution check supply contracts are scheduled to expire in 2021 and 2022, and the pricing levels included in any contract renewals could be lower than our current pricing levels. Continued competition could result in price reductions, reduced profit margins, loss of customers 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.

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

We have acquired over 25 companies in the last 3 years, the details of which appear under the caption “Note 6: 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, including treasury management, data-driven marketing solutions and web services. In addition, over the past several years, we have purchased the operations of many small business distributors with the intention of growing revenue in our enterprise 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, including effectively scaling revenue and ensuring a strong system of information security and controls is in place;
- failure to realize expected synergies and savings or to achieve projected profitability levels on a sustained basis;
- 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;
- unanticipated integration costs;
- difficulty in maintaining controls, procedures and policies, especially when the acquired business was a non-public company and may not have employed the same rigor in these areas as required for a publicly traded company;
- decisions by our customers or the customers of the acquired business to temporarily or permanently seek alternate suppliers;
- difficulty in assimilating the acquired business into our corporate culture;
- failure to address legacy distributor account protection rights;
- increased compliance and other complexity;
- unidentified issues not discovered during our due diligence process, including product or service quality issues, intellectual property issues and tax or legal contingencies; and
- 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 acquisitions, although we do not plan to complete any acquisitions during the first half of 2019 as we intend to focus on integrating our acquisitions from 2018 and working on scaling our strategy, sales and product efforts. This will temporarily slow our revenue growth, but we believe we will have a stronger and more scalable company going forward and will be better positioned to deliver new organic solutions, as well as more easily integrate future acquisitions to take advantage of our scale.

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 identified or 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, acquisitions may result in additional contingent liabilities, additional amortization expense related to acquired intangible assets and/or non-cash asset impairment charges, and thus, could adversely affect our business, results of operations and financial condition.

The use of checks and forms is declining and we may be unable to offset the decline with other sources of revenue.

Check printing continues to be a significant portion of our business. Revenue generated by the sale of checks was 40.6% of our consolidated revenue in 2018. We sell checks for personal and small business use and believe that there will continue to be 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-1990s. 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, in part, to the increasing use of alternative payment methods, including credit cards, debit cards, direct deposit, wire transfers, internet-based bill paying services and digital wallet applications.

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. In late 2017, The Clearing House Payments Company, LLC implemented a clearing

and settlement system allowing consumers and businesses to send and receive payments in real-time directly from their accounts at financial institutions. The National Automated Clearing House Association adopted Same-Day ACH rules to speed up the processing of ACH payments, and systems such as PayPal®, Zelle®, Venmo®, Apple Pay® and various other mobile applications allow individuals to transfer funds to other users. In addition, cryptocurrencies have been gaining acceptance in the marketplace.

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. Increased use of any of these alternative payment methods, or our inability to successfully offset the secular decline in check usage with other sources of revenue, would have an adverse effect on our business and results of operations.

The use of business forms sold by our Small Business Services segment has also been declining. Continual technological improvements, including the lower price and higher performance capabilities of personal computers, printers and mobile devices, have provided small business customers with alternative means to execute and record business transactions. 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. Greater acceptance of electronic signatures also has contributed to the overall secular decline in printed products. It is difficult to predict the pace at which these alternative products and services will 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 may not succeed in promoting and strengthening our brand, which could prevent us from acquiring customers and increasing revenue.

The success of our businesses 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 or that our revenue will increase at a level commensurate with our marketing expenditures. There is also the risk that negative information about Deluxe, even if based on rumor or misunderstanding, could adversely affect our business. In early 2018, we entered into a partnership with television personality Ty Pennington, who appears in our online series, *Small Business Revolution – Main Street*. Previously, we had a partnership with Robert Herjavec of the television show *Shark Tank,* and his episodes of the *Small Business Revolution* series remain available online. If these or other business partners or key employees are the subject of adverse news reports or negative publicity, our reputation may be tarnished and our results of operations could be adversely affected.

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 change. 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. Additionally, we must differentiate our service offerings from the in-house capabilities of our customers and from those of our competitors. We could lose current and potential customers if we are unable to develop products and services that meet changing demands in a timely manner. Additionally, we must continue to develop our skills, tools and capabilities to capitalize on existing and emerging technologies, and this requires us to incur substantial costs. Any of the foregoing risks could result in harm to our business and results of operations.

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Our cost reduction initiatives may not be successful.

Intense competition, secular declines in the use of checks and business forms, the commoditization of web services and external factors affecting our data-driven marketing business compel us to continually improve our operating efficiency in order to maintain or improve profitability. 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 or negatively impacting efforts to grow our business. As a result, we 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.

OPERATIONAL RISKS

Security breaches, computer malware or other cyber attacks involving the confidential information of our customers, employees or business partners 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 proprietary business information and personally identifiable information of our customers, employees, contractors, suppliers and business partners. 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' personally identifiable information. Our security measures could be breached by third-party action, computer viruses, accidents, employee or contractor error, or malfeasance by rogue employees. In addition, we depend on a number of third parties, including vendors, developers and partners that are critical to our business and to which we may grant access to our customer or employee data. While we conduct due diligence on these third parties with respect to their security and business controls, individuals or third parties may be able to circumvent these controls and/or exploit vulnerabilities that may exist, resulting in the disclosure or misuse of sensitive business and personal customer or employee information and data.

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 and contractors. We have experienced distributed denial of service attacks by hackers aimed at disrupting internet traffic and/or attempting to place illegal or abusive content on our or our customers' websites. Additionally, our customers and employees have been and will continue to be targeted by parties using fraudulent "phishing" emails to misappropriate personal information or to introduce viruses or other malware through "trojan horse" programs to our users' computers. To-date, these various threats have not materially impacted our business or financial results. However, we can provide no assurance of a similar result in the future.

Despite our significant cybersecurity efforts, a party that is able to circumvent our security measures could misappropriate our or our customers' personal and 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. Additionally, it is possible that there could be vulnerabilities that could impact large segments of mobile, computer or server architecture. Any of these events would adversely affect our business, financial condition and results of operations.

In addition, if we were to experience an information security breach, we may be required to expend significant amounts of management time and financial resources 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. Furthermore, under payment card association rules and our contracts with debit and credit card processors, if there is a breach of payment card information that we store or that is stored by third parties with which we do business, we could be liable to the payment card issuing banks for their cost of issuing new cards and other related

expenses. 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. We could also be exposed to time-consuming and expensive litigation, government inquiries and/or enforcement actions. If we are unsuccessful in defending a claim regarding information security breaches, we may be forced to pay damages, penalties and fines, and our insurance coverage may not be

adequate to compensate us fully for any losses that may occur. Contractual provisions with third parties, including cloud service providers, may limit our ability to recover losses resulting from the security breach of a business partner.

In addition, there are federal, state and international 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.

Furthermore, as we focus resources on our growth strategies, we have reduced our investment in the development of the legacy systems that support our check and forms businesses, with a focus on sustaining and maintaining such systems. These legacy systems operate with minimal or no vendor support, contain hardware and software that we are not able to update and are difficult to maintain, yet any interruption caused by a failure or breach of these systems could create disruption in these core businesses. In addition, our technology, infrastructure and processes may contain undetected errors or design faults that may cause our websites or operating systems to fail.

Over the past 3 years, we shifted a substantial portion of our applications to a private cloud-based 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 and our disaster recovery planning may not account for all eventualities. 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. Our business interruption insurance coverage may not be adequate to compensate us fully for any losses that may occur.

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 operating multiple platforms, which would increase costs.

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, cloud computing and transaction processing services. In addition, we have agreements with companies to provide services such as online 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, labor issues, 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 reasonable 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 material disruption in our business while we obtain an alternative service provider. The use of substitute third-party providers could also result in increased expense.

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

The success of our business depends on the contributions and abilities of key employees, especially in our digital services businesses and specifically in 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.

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 and these suppliers are under financial pressure as paper use declines. 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. Any of the foregoing risks could result in harm to our business and results of operations.

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

We rely on 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, they could provide untimely data, or they could fail to adhere to our quality control standards, causing us to incur additional expense to appropriately utilize the data. In addition, our data sources could increase the cost of 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. Any increase in the cost of obtaining data would negatively impact our profitability.

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 or have our usage of data curtailed 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 certain of our products and services could be negatively impacted. We can provide no assurance that we would be able to identify and contract with suitable alternative data suppliers and integrate these data sources into our product and service offerings, which would adversely affect our business and results of operations.

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

We may be liable for fraudulent transactions conducted on our websites, such as the use of stolen credit card numbers. While we do have safeguards in place, we cannot prevent all fraudulent transactions. To date, we have not incurred significant losses from payment-related fraud. However, such transactions negatively impact our results of operations and could subject us to penalties from payment card associations for inadequate fraud protection.

LEGAL AND COMPLIANCE RISKS

Third-party claims could result in costly and distracting 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, unfair or illegal business practices; claims alleging violations of consumer protection-oriented laws; claims related to legacy distributor account protection rights; or claims related to environmental matters. 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 businesses. 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 the 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 require the payment of monetary damages or fines, attorneys' fees or costly and undesirable changes to our products, features or business practices, which would result in a material adverse effect on our business, financial condition and/or results of operations.

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 several 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. For example, in June 2018, the California Consumer Privacy Act (CCPA) was signed into law and is effective on January 1, 2020. Among other requirements, businesses subject to the CCPA will need to proactively explain privacy notices to consumers when personal information is collected. Further amendments to the CCPA are likely and final regulations are yet to be published. We are currently assessing the impact of this law on our business activities.

The various regulatory requirements to which we are subject 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 operate within highly regulated industries and our business results could be significantly affected by the laws and regulations to which we are subject. For example, federal, state and international laws and regulations regarding the protection of certain consumer information 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 payment processing, including ACH, remote deposit capture, and lockbox services. These laws and regulations require us to develop, implement, and maintain certain policies and procedures related to payment 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 privacy and cyber security regulations may also increase the cost of compliance for the protection of collected data. The complexity of compliance with these various regulations may increase our cost of doing business and may affect our clients, reducing their discretionary spending and thus, reducing their capacity to purchase 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, privacy 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 cost of compliance in servicing domestic and 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.

Because of additional regulatory 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, some financial institutions do not permit offers of 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 the majority of 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.

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.

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 or economic presence, in accordance with landmark decisions of the United States Supreme Court and the requirements of state and local jurisdictions. In many cases, we expand the collection requirements of our acquired businesses as compared to their practices prior to acquisition, potentially increasing the cost to our customers. This 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 impact our consolidated results of operations and financial position.

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. Policing unauthorized use of our intellectual property is difficult. 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.

Activities of our customers or the content of their websites could damage our reputation and/or adversely affect our financial results.

As a provider of domain name registration, web hosting services and customized business products, we may be subject to potential liability for the activities of our customers on or in connection with their domain names or websites, for the data they store on our servers, including information accessible through the "dark web," or for images or content that we produce on their behalf. Customers may also launch distributed denial of service attacks or malicious executables, such as viruses, worms or trojan horses, from our servers. Although our agreements with our customers prohibit illegal use of our products and services and permit us to take appropriate action for such use, customers may nonetheless engage in prohibited activities or upload or store content with us in violation of applicable law. Our reputation may be negatively impacted by the actions of customers that are deemed to be hostile, offensive or inappropriate, or that infringe the copyright or trademark of another party. We do not proactively monitor or review the appropriateness of customers' use of our products and services, and we do not have control over customer activities. While we have safeguards in place, these mechanisms may not be sufficient to avoid harm to our reputation.

Laws relating to the liability of online services companies for information, such as online content disseminated through their services, are subject to frequent challenges. In spite of settled law in the United States, claims are made against online services companies by parties who disagree with the content. Where our online content is accessed on the internet outside of the United States, challenges may be brought under foreign laws that do not provide the same protections for online services companies as in the United States. These challenges in either United States or foreign jurisdictions may give rise to legal claims alleging defamation, libel, invasion of privacy, negligence, or copyright or trademark infringement, based on the nature and content of the materials disseminated through our services. Certain of our products and services include content generated by users of our online services. Although this content is not generated by us, claims of defamation or other injury may be made against us for that content. If such claims are successful, our financial results would be adversely affected. Even if the claims do not result in litigation or are resolved in our favor, the time and resources necessary to resolve them could divert management's attention and adversely affect our business and financial results.

FINANCIAL RISKS

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

Goodwill represented 50% of our total assets as of December 31, 2018. On at least an annual basis, we assess whether the carrying value of goodwill is impaired. This analysis considers several factors, including economic, market and industry conditions. Circumstances that could indicate a decline in the fair value of one or more of our reporting units include, but are not limited to, the following:

- changes in our business strategies and/or the allocation of resources;
- the failure of our acquisitions to achieve expected operating results;
- changes in market conditions;
- a decline in our stock price for a sustained period;

- a downturn in economic conditions that negatively affects our actual and forecasted operating results; or
- a material acceleration of order volume declines for checks and forms.

Such situations may require us to record an impairment charge for a portion of goodwill. We are also required to assess the carrying value of other long-lived assets, including intangible assets and assets held for sale. Information regarding our 2018 impairment analyses can be found under the caption "Note 8: Fair value measurements" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. If we are required to record additional asset impairment charges for any reason, our consolidated results of operations would be adversely affected.

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

Certain 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. 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. The National Federation of Independent Business (NFIB) publishes the results of monthly surveys that provide an indication of small business owners' view of economic conditions. After record readings in the third quarter of 2018, the index of small business optimism published by the NFIB in December 2018 fell to 104.4, down slightly from 104.9 in December 2017. However, the average index was 106.7 for 2018, up from the 104.8 average in 2017. At the same time, the net percent of small business owners expecting general business conditions to be better in 6 months decreased significantly to 16% in December 2018, as compared to 33% in September 2018 and 37% in December 2017. Although these surveys showed optimism from small business owners for most of 2018, the declines in December indicate some uncertainty. We cannot predict whether small business optimism will trend positively for a sustained period of time or whether such a trend would translate into increased revenue for us.

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 2018 growth rates for consumer spending and private sector employment most likely had a slightly positive 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 United States Census Bureau in December 2018, housing units completed in 2018 through November increased approximately 4% as compared to 2017. We cannot predict whether these economic trends will improve, stay the same or worsen in the near future.

Mergers and acquisitions in the financial services industry may affect our results of operations. As a result of global economic conditions in past years, a number of financial institutions sought additional capital, merged with other financial institutions and, in some cases, failed. 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 prepaid product discount 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 or as a result of other factors affecting the financial services industry. 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 and business services contracts. This results in 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 combined entity. In addition, we are focused on targeting our financial technology solutions to larger financial institutions. The resulting customer concentration could increase our sensitivity to any material, adverse developments affecting our significant customers, including adverse economic conditions. Although we devote considerable effort toward the development of a competitively-priced, high-quality selection 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 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 2019 plan year, 45% 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 require us to contribute increased amounts of cash to fund benefits payable under the plan, which would adversely affect our liquidity.

Our variable-rate indebtedness exposes us to interest rate risk.

Borrowings under our credit 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, 2018, we occupied 70 facilities throughout the United States, 7 facilities in Canada, 2 facilities in Europe and 2 facilities in Australia, where we conduct printing and fulfillment, call center, data center and administrative functions. Because of our shared services approach to most of our business functions, many of our facilities are utilized for the benefit of more than one of our business segments. Approximately 15% of our facilities are owned, while the remaining 85% are leased. These facilities have a combined floor space of approximately 3.0 million square feet. None of our owned properties are mortgaged or are held subject to any significant encumbrance. We believe that existing leases will be renegotiated as they expire or that suitable alternative properties will be leased on acceptable terms. We also 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 quarterly basis, and therefore, are subject to change. As of December 31, 2018, the number of shareholders of record was 6,533.

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The following table shows purchases of our own common stock, based on trade date, which were completed during the fourth quarter of 2018:

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 approximate dollar value of shares that may yet be purchased under the plans or programs
October 1, 2018 - October 31, 2018	—	$	——	$500,000,000
November 1, 2018 - November 30, 2018	1,219,252	49.21	1,219,252	439,999,983
December 1, 2018 - December 31, 2018	445,786	44.86	445,786	419,999,995
Total	1,665,038	48.05	1,665,038	419,999,995

In May 2016, our board of directors approved an authorization for the repurchase of up to $300.0 million of our common stock. In October 2018, our board of directors increased our share repurchase authorization to $500.0 million, inclusive of the remaining amount outstanding under the prior authorization. This authorization has no expiration date and $420.0 million remained available for purchase as of December 31, 2018.

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 2018, we withheld 182 shares in conjunction with the vesting and exercise of equity-based awards.

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 2018

The graph assumes that $100 was invested on December 31, 2013 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, 2018. 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. These items include discussion of various factors that affect the comparability of the selected financial data, including the Tax Cuts and Jobs Act of 2017, asset impairment charges and business acquisitions. Historical results are not necessarily indicative of future results. Statement of income data for prior periods has been revised to reflect the adoption of Accounting Standards Update (ASU) No. 2017-07, *Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*, and statement of cash flows data for prior periods has been revised to reflect the adoption of ASU No, 2016-18, *Restricted Cash*. Further information regarding these standards can be found under the caption "Note 2: New accounting pronouncements" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

(dollars and orders in thousands, except per share and per order amounts)	2018	2017	2016	2015	2014
Statement of Income Data:					
Total revenue	$1,998,025	$1,965,556	$1,849,062	$1,772,817	$1,674,082
As a percentage of total revenue:					
Gross profit	60.4 %	62.2 %	63.9 %	63.9 %	63.7 %
Selling, general and administrative expense	42.7 %	42.2 %	43.7 %	43.8 %	43.0 %
Operating income	11.6 %	16.7 %	19.8 %	19.8 %	19.7 %
Operating income	$231,221	$329,176	$366,887	$351,634	$330,449
Net income:	149,630	230,155	229,382	218,629	199,794
Per share - basic	3.18	4.75	4.68	4.39	3.99
Per share - diluted	3.16	4.72	4.65	4.36	3.96
Balance Sheet Data:					
Cash and cash equivalents	$59,740	$59,240	$76,574	$62,427	$61,541
Return on average assets[1]	6.6 %	10.5 %	11.4 %	12.4 %	12.3 %
Total assets	$2,305,096	$2,208,827	$2,184,338	$1,842,153	$1,683,682
Long-term obligations[2]	911,864	709,300	758,648	629,018	549,603
Statement of Cash Flows Data:					
Net cash provided by operating activities	$339,315	$338,431	$319,312	$309,631	$285,098
Net cash used by investing activities	(275,414)	(180,891)	(279,511)	(251,140)	(139,949)
Net cash (used) provided by financing activities	(39,825)	(182,956)	5,998	(30,237)	(199,290)
Purchases of capital assets	(62,238)	(47,450)	(46,614)	(43,261)	(41,119)
Payments for acquisitions, net of cash acquired	(214,258)	(139,223)	(239,664)	(212,990)	(105,029)
Payments for common shares repurchased	(200,000)	(65,000)	(55,224)	(59,952)	(60,119)
Other Data:					
Cash dividends per share	$1.20	$1.20	$1.20	$1.20	$1.15
Orders[3]	47,534	49,981	52,176	53,138	52,632
Revenue per order[3]	$42.03	$39.33	$35.44	$33.36	$31.81
Number of employees	6,701	5,886	6,026	5,874	5,830
Number of printing facilities[4]	11	11	12	11	11
Number of call center facilities[4]	27	26	26	14	16

[1] Return on average assets is calculated as net income divided by average assets for the period.

[2] Long-term obligations includes the current and long-term portions of our 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.

[3] Orders is our company-wide measure of volume and includes both products and services.

(4) As of December 31, 2018, we had 2 facilities that contain both printing and call center functions and thus, are included in both captions. We had 45 additional facilities which house small customer fulfillment operations, data centers and general office space. This information excludes facilities associated with businesses held for sale as of each date. Further information regarding assets held for sale can be found under the caption "Note 3: Supplemental balance sheet and cash flow information" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

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 and Integration Expense, CEO Transition 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; and
- Critical Accounting Policies that discusses the policies we believe are important to understanding the assumptions and judgments underlying our financial statements.

Please note that this MD&A discussion contains forward-looking statements that involve risks and uncertainties. Item 1A of this report outlines known material risks and 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," 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, investor presentations and in oral statements made by our representatives, they indicate forward-looking statements within the meaning of the Reform Act.

Our consolidated statements of income for 2017 and 2016 have been revised to reflect the adoption of Accounting Standards Update (ASU) No. 2017-07, *Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*. In accordance with this standard, we reclassified the entire amount of our net periodic benefit income from cost of revenue and selling, general and administrative (SG&A) expense to other income in our consolidated statements of income. This revision had no impact on net income. Our consolidated statements of cash flows for 2017 and 2016 have been revised to reflect the adoption of ASU No, 2016-18, *Restricted Cash*. Further information regarding these standards can be found under the caption "Note 2: New accounting pronouncements" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

EXECUTIVE OVERVIEW

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. Further information regarding our segments and our product and service offerings can be found under the caption "Note 18: Business segment information" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

Throughout the past several years, we have focused on opportunities to increase revenue and operating income despite the continuing secular 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 the reach of our sales channel, 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 (MOS) offerings. Information about our acquisitions can be found under the caption "Note 6: Acquisitions" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. During 2019, we plan to expand our selling and sales capabilities to accelerate profitable organic revenue growth. We also plan to expand our strategy, product management and innovation capabilities to ensure we are competing effectively in growth markets and to give the sales organization new and better solutions to sell, and we will continue to optimize our cost and expense structure. 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 2018 included non-cash, pre-tax asset impairment charges of $101.3 million, as compared to non-cash, pre-tax asset impairment charges of $54.9 million during 2017. Further information regarding these charges can be found under the caption "Note 8: Fair value measurements" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report and in the Critical Accounting Policies section of this MD&A. Compared to our 2017 results, earnings were also negatively impacted by volume reductions in personal and business checks and forms due primarily to the continuing secular decline in check and forms usage, higher restructuring and integration costs, lower Deluxe Rewards revenue, driven primarily by the loss of Verizon Communications Inc. as a customer in late 2017, Small Business Services legal costs primarily related to certain litigation matters

resolved after the end of the year, a higher average Small Business Services commission rate, Chief Executive Officer (CEO) transition costs of $7.2 million in 2018, and continued check pricing allowances within Financial Services. In

addition, our effective income tax rate was higher in 2018, as compared to 2017, driven primarily by the tax impact of the higher goodwill impairment charge in 2018. Partially offsetting these decreases in earnings were continuing initiatives to reduce our cost structure, primarily within our sales, marketing and fulfillment organizations, the benefit of previous prices increases in Small Business Services and lower medical and incentive compensation expense in 2018. In addition, we recognized gains from sales of businesses and customer lists within Small Business Services of $15.6 million in 2018, compared to gains recognized in 2017 of $8.7 million.

Cost Reduction Initiatives

For several years, we have been pursuing cost reduction and business simplification initiatives, including reducing shared services infrastructure costs, optimizing our sales channels, consolidating our sales platform and tools, and leveraging sales and marketing efficiencies. Within our fulfillment organization, we implemented lean initiatives, reduced direct and indirect spend, and drove delivery technology and process efficiencies. As a result of all of these efforts, we realized net cost savings of approximately $50.0 million during 2018, as compared to our 2017 results of operations, generated primarily by our sales, marketing and fulfillment organizations. Approximately 70% of these savings impacted SG&A expense, with the remaining 30% affecting total cost of revenue. We anticipate that we will realize additional cost reductions in 2019, as we continue to optimize our cost and expense structure.

Outlook for 2019

We anticipate that consolidated revenue will increase in the low single digits from our 2018 revenue of $1.998 billion. This estimate includes incremental revenue from acquisitions we completed in 2018, but excludes any additional acquisitions. We expect continued secular declines in personal and business checks and forms and continued check pricing allowances in Financial Services. Treasury management revenue is expected to increase, as strong order volume in late 2018 is expected to continue in 2019. We do not plan to complete any acquisitions during the first half of 2019 as we intend to focus on integrating our acquisitions from 2018 and working on scaling our strategy, sales and product efforts. This will temporarily slow our revenue growth, but we believe we will have a stronger and more scalable company going forward and will be better positioned to deliver new organic solutions, as well as more easily integrate future acquisitions to take advantage of our scale.

Earnings per share for 2018 of $3.16 included total net charges of $2.40 per share, primarily for asset impairment charges, restructuring and integration costs, CEO transition costs and transaction costs related to acquisitions, partially offset by a benefit from the one-time impacts of accounting for federal tax reform under the Tax Cuts and Jobs Act of 2017 (the "2017 Tax Act"). Earnings per share for 2018 also included gains from sales of Small Business Services assets of approximately $0.25 per share. We anticipate that 2019 earnings per share will increase, as compared to 2018, and that it will also slightly increase as compared to 2018 earnings per share excluding the charges of $2.40 per share and the gains from asset sales. This 2019 outlook excludes the impact of incremental investments we are evaluating to accelerate growth and also does not include any gains from future asset sales. We anticipate that the impact of any incremental investments will be more than offset by our continued focus on cost management. We expect earnings per share will continue to be negatively impacted by the continuing secular decline in check and forms usage, modest internal investments in sales and product innovation, and higher material costs, delivery rates and interest expense in 2019. Our 2018 effective tax rate of 29.6% includes a 7.1 point increase due to the goodwill impairment charge in 2018. We anticipate that our annual effective tax rate for 2019 will be slightly higher than our 2018 tax rate excluding the impact of the goodwill impairment charge.

We believe that cash generated by operating activities, along with availability under our revolving credit facility, will be sufficient to support our operations for the next 12 months, including dividend payments, capital expenditures, required interest payments, and periodic share repurchases, as well as possible acquisitions in the second half of 2019. As of December 31, 2018, $29.8 million was available for borrowing under our revolving credit facility, and in January 2019, we increased the credit facility by $200.0 million, bringing the total facility commitment to $1.15 billion. We expect to maintain a disciplined approach to capital deployment that focuses on our need to continue investing in initiatives to drive revenue growth, both organically and through 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. To the extent we generate excess cash, we currently plan to opportunistically repurchase common shares and/or reduce the amount outstanding under our credit facility.

CONSOLIDATED RESULTS OF OPERATIONS

Consolidated Revenue

(in thousands, except per order amounts)	2018	2017	2016	Change 2018 vs. 2017	2017 vs. 2016
Total revenue	$ 1,998,025	$ 1,965,556	$ 1,849,062	1.7%	6.3%
Orders	47,534	49,981	52,176	(4.9%)	(4.2%)
Revenue per order	$ 42.03	$ 39.33	$ 35.44	6.9%	11.0%

The increase in total revenue for 2018, as compared to 2017, was driven by incremental revenue from acquired businesses of approximately $86.7 million, as well as previous Small Business Services price increases. Information regarding our acquisitions can be found under the caption "Note 6: 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 both personal and business checks, as well as forms and accessories sold by Small Business Services. In addition, Financial Services Deluxe Rewards revenue decreased approximately $11.0 million due to the loss of Verizon Communications Inc. as a customer in late 2017, Small Business Services search and email marketing volume decreased approximately $6.0 million due to the loss of a customer, and revenue was negatively impacted by continued check pricing allowances within Financial Services.

The increase in total revenue for 2017, as compared to 2016, was driven by incremental revenue from acquired businesses of approximately $173.0 million, as well as price increases in all of our 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 check pricing allowances within Financial Services.

Service revenue represented 27.3% of total revenue in 2018, 25.2% in 2017 and 20.3% in 2016. 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	
	2018	**2017**	**2016**	**2018 vs. 2017**	**2017 vs. 2016**
Marketing solutions and other services:					
Small business marketing solutions	14.6 %	13.3 %	13.1 %	1.3 pt.	0.2 pt.
Web services	8.1 %	6.7 %	6.3 %	1.4 pt.	0.4 pt.
Data-driven marketing solutions	7.4 %	7.7 %	2.7 %	(0.3) pt.	5.0 pt.
Treasury management solutions	7.4 %	5.5 %	5.0 %	1.9 pt.	0.5 pt.
Fraud, security, risk management and operational services	4.5 %	5.2 %	6.3 %	(0.7) pt.	(1.1) pt.
Total MOS	42.0 %	38.4 %	33.4 %	3.6 pt.	5.0 pt.
Checks	40.6 %	43.3 %	46.8 %	(2.7) pt.	(3.5) pt.
Forms, accessories and other products	17.4 %	18.3 %	19.8 %	(0.9) pt.	(1.5) pt.
Total revenue	100.0%	100.0%	100.0%	—	—

The number of orders decreased in each of the past 2 years, driven by the impact of the continuing secular decline in check and forms usage, partially offset by growth in MOS, including the impact of MOS-related acquisitions. Revenue per order increased in each of the past 2 years, primarily due to the benefit of price increases and favorable product and service mix, partially offset by the impact of continued check pricing allowances in Financial Services.

Consolidated Cost of Revenue

				Change	
(in thousands)	**2018**	**2017**	**2016**	**2018 vs. 2017**	**2017 vs. 2016**
Total cost of revenue	$791,748	$742,707	$667,813	6.6%	11.2%
Total cost of revenue as a percentage of total revenue	39.6 %	37.8 %	36.1 %	1.8 pt.	1.7 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 2018, as compared to 2017, was primarily attributable to the increase in revenue, including incremental costs of acquired businesses of $40.5 million, as well as unfavorable product mix and increased delivery rates and material costs in 2018. 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 due to manufacturing efficiencies and other benefits resulting from our continued cost reduction initiatives of approximately $15.0 million. Total cost of revenue as a percentage of total revenue increased in 2018, as compared to 2017, due in large part to the impact of acquisitions, as well as the increase in service revenue.

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The increase in total cost of revenue for 2017, as compared to 2016, was primarily attributable to the increase in revenue, including incremental costs of acquired businesses of approximately $101.0 million. In addition, delivery rates and material costs increased in 2017. 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, and favorable product mix. In addition, total cost of revenue decreased approximately $11.0 million due to manufacturing efficiencies and other benefits resulting from our continued cost reduction initiatives.

Consolidated Selling, General & Administrative Expense

				Change	
(in thousands)	**2018**	**2017**	**2016**	**2018 vs. 2017**	**2017 vs. 2016**
SG&A expense	$854,000	$830,231	$807,238	2.9%	2.8%
SG&A expense as a percentage of total revenue	42.7 %	42.2 %	43.7 %	0.5 pt.	(1.5) pt.

The increase in SG&A expense for 2018, as compared to 2017, was driven by incremental costs of acquired businesses of approximately $39.4 million, innovation investments, Small Business Services legal costs of $10.5 million primarily related to certain litigation matters resolved after the end of the year, a higher average Small Business Services commission rate and CEO transition costs of $7.2 million. These increases in SG&A expense were partially offset by various expense reduction initiatives of approximately $35.0 million, primarily within our sales and marketing organizations, and decreases in incentive compensation and medical costs of approximately $5.0 million each. Also, during 2018, we recognized gains from sales of businesses and customer lists within Small Business Services of $15.6 million, compared to gains recognized in 2017 of $8.7 million. Further information regarding these asset sales can be found under the caption "Note 3: Supplemental balance sheet and cash flow information" in the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

The increase in SG&A expense for 2017, as compared to 2016, was driven primarily by incremental operating expenses of acquired businesses of approximately $63.0 million, as well as an increase in incentive compensation expense of approximately $5.0 million and investments in various revenue growth opportunities, including marketing investments and higher financial institution commission rates. These increases were partially offset by various expense reduction initiatives of approximately $34.0 million, primarily within our sales and marketing organizations, an $8.7 million gain from the sale of businesses within our Small Business Services segment and lower legal costs.

Restructuring and Integration Expense

				Change	
(in thousands)	**2018**	**2017**	**2016**	**2018 vs. 2017**	**2017 vs. 2016**
Restructuring and integration expense	$19,737	$8,562	$7,124	$11,175	$1,438

We recorded expense related to the cost reduction initiatives discussed under *Executive Overview,* as well as initiatives related to the integration of acquired businesses and the consolidation of information technology systems. The increase in expense for 2018, as compared to 2017, was driven by our integration and consolidation activities. The expense for each period primarily included information technology costs, employee severance benefits, employee and equipment moves, training and travel. In addition to the expense shown here, restructuring and integration expense of $1.5 million in 2018 and $0.6 million in 2017 and 2016 was included within total cost of revenue in our consolidated statements of income. Further information can be found under *Restructuring and Integration Expense*.

Asset Impairment Charges

				Change	
(in thousands)	**2018**	**2017**	**2016**	**2018 vs. 2017**	**2017 vs. 2016**
Asset impairment charges	$101,319	$54,880	$ —	$46,439	$54,880

During the third quarter of 2018, we recorded pre-tax asset impairment charges of $99.2 million related to Small Business Services goodwill and an indefinite-lived trade name, as well as customer list intangible assets within Financial Services related to 2 distributors we acquired in 2015. During the first quarter of 2018, we recorded a pre-tax asset impairment charge of $2.1 million related to a Small Business Services customer list intangible asset. Further information regarding these charges can be found

under the caption "Note 8: Fair value measurements" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

During the third quarter of 2017, we recorded pre-tax asset impairment charges of $46.6 million within Small Business Services related to goodwill, the discontinued NEBS trade name and other non-current assets, primarily internal-use software.

Further information regarding these charges can be found under the caption "Note 8: Fair value measurements" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. Also during 2017, we recorded pre-tax asset impairment charges of $8.3 million related to a small business distributor that was sold during the second quarter of 2017. Further information regarding these charges can be found in the discussion of assets held for sale under the caption "Note 3: Supplemental balance sheet and cash flow information" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

Loss on Early Debt Extinguishment

				Change	
(in thousands)	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Loss on early debt extinguishment	$—	$—	$7,858	$—	$(7,858)

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 15: Debt and lease obligations" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

Interest Expense

				Change	
(in thousands)	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Interest expense	$27,112	$21,359	$22,302	26.9%	(4.2%)
Weighted-average debt outstanding	796,667	754,289	620,357	5.6%	21.6%
Weighted-average interest rate	3.21 %	2.55 %	2.85 %	0.66 pt.	(0.30) pt.

The increase in interest expense for 2018, as compared to 2017, was primarily driven by our higher weighted-average interest rate during 2018, as well as the higher weighted-average debt level used to fund share repurchases and acquisitions.

The decrease in interest expense for 2017, as compared to 2016, was primarily driven by our lower weighted-average interest rate in 2017 resulting from the fourth quarter 2016 retirement of long-term debt that carried a higher interest rate. In addition, 2016 included a charge 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 the fourth quarter of 2016. Partially offsetting this decrease in interest expense was our higher weighted-average debt level during 2017.

Income Tax Provision

				Change	
(in thousands)	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Income tax provision	$63,001	$82,672	$111,004	(23.8%)	(25.5%)
Effective tax rate	29.6 %	26.4 %	32.6 %	3.2 pt.	(6.2) pt.

Federal tax reform under the 2017 Tax Act lowered the federal statutory tax rate by 14.0 points, effective January 1, 2018. Despite this decrease in the statutory tax rate, our effective tax rate increased for 2018, as compared to 2017, for several reasons, including the one-time impact of the 2017 Tax Act in 2017, which lowered our 2017 effective tax rate 6.6 points; the impact of the larger non-deductible goodwill impairment charge in 2018, which increased our tax rate 5.6 points as compared to 2017; the elimination of the qualified production activities deduction for 2018; favorable adjustments in 2017 related to the tax basis in a small business distributor that was sold; a lower federal benefit of state income taxes due to a lower federal tax rate; and a lower benefit from the tax effects of share-based compensation. A comparison of our effective tax rate for 2018, as compared to 2017, can be found under the caption "Note 11: Income tax provision" in the Notes to Consolidated Financial Statements appearing in Item 8 of this report. We anticipate that our annual effective tax rate for 2019 will be slightly higher than our 2018 tax rate excluding the impact of the goodwill impairment charge in 2018.

The decrease in our effective tax rate for 2017, as compared to 2016, was driven primarily by the impact of federal tax reform under the 2017 Tax Act, which reduced income tax expense $20.5 million and reduced our effective tax rate 6.6 points. Further information regarding the impact of this legislation can be found under the caption "Note 11: Income tax provision" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. Also reducing our effective tax rate in 2017 were favorable adjustments in 2017 related to the tax basis in a small business distributor that was sold, and we reversed tax reserves

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upon the completion of audit activity during 2017. Partially offsetting these decreases in our effective tax rate was the impact of the non-deductible goodwill impairment charge in 2017, which increased our effective tax rate 1.5 points.

RESTRUCTURING AND INTEGRATION EXPENSE

We have recorded expenses related to our restructuring and integration 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, including employee reductions in various functional areas and the closing of facilities, as well the integration of acquired businesses and the consolidation of information technology systems. Further information regarding restructuring and integration expense can be found under the caption “Note 9: Restructuring and integration expense” of the Notes to Consolidated Financial Statements appearing in Item 8 of this report. The majority of the employee reductions included in our restructuring and integration accruals are expected to be completed by mid-2019, and we expect most of the related severance payments to be paid by the third quarter of 2019, utilizing cash from operations.

As a result of our employee reductions and facility closings, we realized cost savings of approximately $14.0 million in SG&A expense and $3.0 million in total cost of revenue in 2018, in comparison to our 2017 results of operations, which represents a portion of the total net cost reductions we realized in 2018. In 2019, we expect to realize cost savings of approximately $8.0 million in SG&A expense and $1.0 million in total cost of revenue, in comparison to our 2018 results of operations, which represents a portion of the total net cost reductions we expect to realize in 2019. Information about the other initiatives driving our cost savings can be found in *Executive Overview*.

CEO TRANSITION COSTS

In April 2018, we announced the retirement of Lee Schram, our former CEO. Mr. Schram will remain employed under the terms of a transition agreement through March 1, 2019. Under the terms of the transition agreement, if Mr. Schram remains employed through March 1, 2019, assists with the CEO transition, and complies with certain covenants, we will provide to Mr. Schram certain benefits, including a transition bonus in the amount of $2.0 million. In addition, modifications were made to certain of his share-based payment awards. In conjunction with the CEO transition, we also offered retention agreements to certain members of our management team under which each employee will be entitled to receive a cash bonus equal to his or her annual base salary or up to 1.5 times his or her annual base salary if he or she remains employed during the retention period, generally from July 1, 2018 to December 31, 2019, and complies with certain covenants. In addition, we incurred certain other costs related to the CEO transition process, such as executive search, legal, travel and board of directors fees. CEO transition costs are included in SG&A expense in our consolidated statement of income and were $7.2 million for 2018. We estimate that CEO transition costs of approximately $8.0 million will be recorded in 2019, including consulting fees related to the evaluation of our strategic plan. We expect Mr. Schram's transition bonus will be paid in the first quarter of 2019 and the majority of the management retention bonuses will be paid in the first quarter of 2020, utilizing cash from operations. Accruals for CEO transition costs were $2.0 million within accrued liabilities and $1.8 million within other non-current liabilities on the consolidated balance sheet as of December 31, 2018.

SEGMENT RESULTS

Additional financial information regarding our business segments appears under the caption “Note 18: Business segment information” of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

Small Business Services

Results for our Small Business Services segment were as follows:

				Change	
(in thousands)	**2018**	**2017**	**2016**	**2018 vs. 2017**	**2017 vs. 2016**
Total revenue	$1,283,620	$1,239,739	$1,195,743	3.5%	3.7%
Operating income	119,808	181,528	207,581	(34.0%)	(12.6%)
Operating margin	9.3 %	14.6 %	17.4 %	(5.3) pt.	(2.8) pt.

The increase in total revenue for the 2018, as compared to 2017, was driven by incremental revenue from acquired businesses of approximately $53.5 million, as well as the benefit of previous price increases. Information about our acquisitions can be found under the caption “Note 6: Acquisitions” in 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 checks, forms and

accessories, as secular check and forms usage continues to decline. Search and email marketing volume also decreased approximately $6.0 million due to the loss of a customer.

The decreases in operating income and operating margin for 2018, as compared to 2017, were primarily driven by an increase in non-cash, pre-tax asset impairment charges of $44.6 million. The higher charges resulted in a 3.3 point reduction in operating margin in 2018, compared to 2017. Further information regarding the asset impairment charges can be found under the caption "Note 8: Fair value measurements" in the Notes to Consolidated Financial Statements appearing in Item 8 of this report. In addition, operating income decreased due to lower order volume for checks, forms and accessories, driven by the continuing secular decline in check and forms usage, as well as higher average commission, material and delivery rates in 2018, innovation investments, legal costs of $10.5 million primarily related to certain litigation matters resolved after the end of the year, and a $5.5 million increase in restructuring and integration expense. Also, $4.0 million of our CEO transition costs were allocated to this segment in 2018. Partially offsetting these decreases in operating income were previous price increases, benefits of our cost reduction initiatives, and lower incentive compensation and medical costs. In addition, we recognized gains from sales of businesses and customer lists in 2018 of $15.6 million, compared to gains of $8.7 million in 2017. Further information regarding these asset sales can be found under the caption "Note 3: Supplemental balance sheet and cash flow information" in the Notes to Consolidated Financial Statements appearing in Item 8 of this report. The results of acquired businesses contributed operating income of $3.6 million for 2018, including acquisition-related amortization, but resulted in a 0.5 point decrease in operating margin.

The increase in total revenue for 2017, as compared to 2016, was driven by incremental revenue from acquired businesses of approximately $56.0 million, as well as the benefit of price increases. These increases in revenue were partially offset by lower order volume, primarily related to checks, forms and accessories, as check and forms usage continues to decline, as well as the strategic decision to eliminate low margin business.

The decreases in operating income and operating margin for 2017, as compared to 2016, were primarily due to non-cash, pre-tax asset impairment charges of $54.9 million related to goodwill, the discontinued NEBS trade name, a small business distributor that was sold during the second quarter of 2017, and other non-current assets, primarily internal-use software. These charges reduced operating margin 4.4 points for 2017. In addition, operating income was impacted by lower order volume for checks, forms and accessories; investments in various revenue growth opportunities, including marketing investments and higher financial institution commission rates; higher incentive compensation expense; and increased material and delivery rates. Partially offsetting these decreases in operating income were price increases and benefits of our cost reduction initiatives, as well as gains of $8.7 million from the sale of businesses in 2017. The results of acquired businesses resulted in a slight increase in operating income for 2017, including acquisition-related amortization, but resulted in a 0.9 point decrease in operating margin for 2017.

Financial Services

Results for our Financial Services segment were as follows:

				Change	
(in thousands)	**2018**	**2017**	**2016**	**2018 vs. 2017**	**2017 vs. 2016**
Total revenue	$586,967	$585,275	$499,976	0.3%	17.1%
Operating income	69,939	101,047	106,335	(30.8%)	(5.0%)
Operating margin	11.9 %	17.3 %	21.3 %	(5.4) pt.	(4.0) pt.

The increase in total revenue for 2018, as compared to 2017, was driven by increased treasury management solutions revenue, including incremental revenue from acquired businesses of approximately $33.2 million. Information about our acquisitions can be found under the caption “Note 6: Acquisitions” in the Notes to Consolidated Financial Statements appearing in Item 8 of this report. This increase in revenue was partially offset by lower check order volume due to the continued secular decline in check usage. In addition, Deluxe Rewards revenue decreased approximately $11.0 million due to the loss of Verizon Communications Inc. as a customer in late 2017, and revenue was negatively impacted by continued check pricing allowances.

The decreases in operating income and operating margin for 2018, as compared to 2017, were primarily due to lower check order volume, the impact of the decline in Deluxe Rewards revenue, continued check pricing allowances, innovation investments, increased material and delivery rates in 2018 and factors affecting the profitability of our data-driven marketing offerings. In addition, restructuring and integration expense was $5.7 million higher than in 2017, driven by the integration of acquired businesses and the consolidation of information technology systems, and $3.0 million of our CEO transition costs were allocated to this segment in 2018. Partially offsetting these decreases in operating income were benefits of our continuing cost reduction initiatives and lower incentive compensation and medical costs. While acquired businesses contributed approximately $3.1 million to operating income in 2018, including acquisition-related amortization, operating margin decreased 0.3 points for 2018 due to acquired businesses.

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The increase in revenue for 2017, as compared to 2016, was driven by growth in MOS revenue of approximately $106.0 million, primarily from incremental revenue from acquired businesses of approximately $117.0 million. The increase from acquisitions was partially offset by a decrease in Deluxe Rewards revenue of approximately $9.0 million, driven primarily by pricing adjustments and the loss of Verizon Communications Inc. as a customer in late 2017. In addition, revenue benefited from price increases. Partially offsetting these revenue increases was lower check order volume due to the continued secular decline in check usage, as well as the impact of continued check pricing allowances.

The decreases in operating income and operating margin for 2017, as compared to 2016, were primarily due to the impact of lower check order volume, continued pricing allowances, higher incentive compensation expense, increased delivery and material rates, and the decline in Deluxe Rewards revenue. Partially offsetting these decreases in operating income were price increases and the benefit of our continuing cost reduction initiatives. While acquired businesses contributed approximately $7.0 million to operating income in 2017, including acquisition-related amortization, operating margin decreased 3.0 points for 2017 due to acquired businesses.

Direct Checks

Results for our Direct Checks segment were as follows:

				Change	
(in thousands)	**2018**	**2017**	**2016**	**2018 vs. 2017**	**2017 vs. 2016**
Total revenue	$127,438	$140,542	$153,343	(9.3%)	(8.3%)
Operating income	41,474	46,601	52,971	(11.0%)	(12.0%)
Operating margin	32.5 %	33.2 %	34.5 %	(0.7) pt.	(1.3) pt.

The decrease in revenue for the 2018, as compared to 2017, was primarily due to the reduction in orders stemming from the continued secular decline in check usage.

The decreases in operating income and operating margin for 2018, as compared to 2017, were due primarily to the lower order volume and increased delivery costs in 2018. These decreases in operating income were partially offset by benefits from our cost reduction initiatives, including lower advertising expense driven by advertising print reduction initiatives, as well as lower incentive compensation and medical costs.

The decrease in revenue for 2017, as compared to 2016, was primarily due to a reduction in orders stemming from the continued secular decline in check usage. Partially offsetting the volume decline was higher revenue per order, driven by price increases and various sales initiatives.

The decreases in operating income and operating margin for 2017, as compared to 2016, were due primarily to lower order volume and increased delivery and material costs in 2017. These decreases in operating income were partially offset by benefits from our cost reduction initiatives, including lower advertising expense driven by changes in circulation intended to maximize response rates, and higher revenue per order.

CASH FLOWS AND LIQUIDITY

As of December 31, 2018, we held cash and cash equivalents of $59.7 million and cash and cash equivalents included in funds held for customers of $85.5 million. The following table shows our cash flow activity for the last 3 years, and should be read in conjunction with the consolidated statements of cash flows appearing in Item 8 of this report.

				Change	
(in thousands)	**2018**	**2017**	**2016**	**2018 vs. 2017**	**2017 vs. 2016**
Net cash provided by operating activities	$339,315	$338,431	$319,312	$884	$19,119
Net cash used by investing activities	(275,414)	(180,891)	(279,511)	(94,523)	98,620
Net cash (used) provided by financing activities	(39,825)	(182,956)	5,998	143,131	(188,954)
Effect of exchange rate change on cash, cash equivalents, restricted cash and restricted cash equivalents	(7,636)	5,370	2,363	(13,006)	3,007
Net change in cash, cash equivalents, restricted cash and restricted cash equivalents	$16,440	$(20,046)	$48,162	$36,486	$(68,208)

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The $0.9 million increase in net cash provided by operating activities for 2018, as compared to 2017, was primarily due to a $36.6 million reduction in income tax payments, the benefit of cost reduction initiatives and previous price increases, the timing of collections of receivables, a $7.2 million reduction in medical benefit payments and a $3.3 million decrease in prepaid product discount payments. These increases in operating cash flow were mostly offset by the continuing secular decline in check and forms usage, lower Financial Services Deluxe Rewards revenue, higher restructuring and integration costs in 2018, the timing of accounts payable payments and a $6.4 million increase in interest payments.

The $19.1 million increase in net cash provided by operating activities for 2017, as compared to 2016, was primarily due to cash generated by operations, an $11.6 million decrease in payments for incentive compensation and the payment in 2016 of an incentive related to a 2013 acquisition. These increases in net cash provided by operating activities were partially offset by a $27.6 million increase in income tax payments, as well as higher prepaid product discount payments in 2017.

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

(in thousands)	2018	2017	2016	Change 2018 vs. 2017	2017 vs. 2016
Income tax payments	$88,253	$124,878	$97,309	$(36,625)	$27,569
Medical benefit payments	31,610	38,806	35,217	(7,196)	3,589
Interest payments	25,910	19,465	20,975	6,445	(1,510)
Prepaid product discount payments	23,814	27,079	23,068	(3,265)	4,011
Incentive compensation payments[(1)]	21,780	21,174	32,792	606	(11,618)
Severance payments	6,971	6,981	5,938	(10)	1,043
Incentive payment related to previous acquisition	—	—	5,434	—	(5,434)

[(1)] Amounts reflect compensation based on total company performance.

Net cash used by investing activities for 2018 was $94.5 million higher than in 2017, driven primarily by an increase of $75.0 million in payments for acquisitions. Further information about our acquisitions can be found under the caption “Note 6: Acquisitions” in the Notes to Consolidated Financial Statements appearing in Item 8 of this report. In addition, purchases of capital assets increased $14.8 million, as we continued to invest in key revenue growth initiatives and order fulfillment and information technology infrastructure. We also had proceeds of $3.5 million in 2017 from the redemption of marketable securities that were acquired as part of the acquisition of RDM Corporation in April 2017.

Net cash used by investing activities in 2017 was $98.6 million lower than in 2016, driven primarily by a decrease in payments for acquisitions of $100.4 million. In 2017, we made aggregate payments for acquisitions of $139.2 million, net of cash acquired, compared to aggregate payments for acquisitions of $239.7 million in 2016, net of cash acquired.

Net cash used by financing activities for 2018 was $143.1 million lower than in 2017, due primarily to a net increase in borrowings on long-term debt of $252.3 million and the net change in customer funds obligations of $26.3 million. Partially offsetting these decreases in cash used by financing activities was a $135.0 million increase in share repurchases and a $3.0 million increase in payments for debt issuance costs related to the revolving credit agreement executed in March 2018.

Net cash used by financing activities in 2017 was $189.0 million higher than in 2016, due primarily to a net increase in payments on long-term debt of $168.0 million, a $9.8 million increase in share repurchases, the change in customer funds obligations of $7.7 million and a $3.8 million increase in employee taxes paid for shares withheld related to stock-based compensation activity.

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

(in thousands)	2018	2017	2016	Change 2018 vs. 2017	2017 vs. 2016
Payments for acquisitions, net of cash acquired	$(214,258)	$(139,223)	$(239,664)	$(75,035)	$100,441
Payments for common shares repurchased	(200,000)	(65,000)	(55,224)	(135,000)	(9,776)
Purchases of capital assets	(62,238)	(47,450)	(46,614)	(14,788)	(836)
Cash dividends paid to shareholders	(56,669)	(58,098)	(58,720)	1,429	622
Employee taxes paid for shares withheld	(7,977)	(9,377)	(5,589)	1,400	(3,788)
Net change in debt	201,147	(51,165)	116,811	252,312	(167,976)
Net change in customer funds obligations	20,279	(6,007)	1,723	26,286	(7,730)
Proceeds from issuing shares under employee plans	7,523	9,033	9,114	(1,510)	(81)

We anticipate that net cash generated by operating activities in 2019, along with availability under our revolving credit facility, will be utilized for dividend payments, capital expenditures, required interest payments and periodic share repurchases, as well as possible acquisitions in the second half of 2019. 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, 2018, $29.8 million was available for borrowing under our revolving credit facility, and in January 2019, we increased the credit facility by $200.0 million, bringing the total facility commitment to $1.15 billion. To the extent we generate excess cash, we currently plan to opportunistically repurchase common shares and/or reduce the amount outstanding under our credit facility agreement.

As of December 31, 2018, our foreign subsidiaries held cash and cash equivalents of $51.3 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 our foreign cash and cash equivalents into the United States at one time, we estimate we would incur a withholding tax liability of approximately $2.5 million.

We believe that cash generated by operating activities, along with availability under our revolving credit facility, will be sufficient to support our operations for the next 12 months, including dividend payments, capital expenditures, interest payments, and periodic share repurchases, as well as possible acquisitions in the second half of 2019.

CAPITAL RESOURCES

Our total debt was $911.9 million as of December 31, 2018, an increase of $202.6 million from December 31, 2017. Further information concerning our outstanding debt can be found under the caption "Note 15: 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:

	December 31, 2018		December 31, 2017		
(in thousands)	Amount	Weighted-average interest rate	Amount	Weighted-average interest rate	Change
Fixed interest rate	$1,864	2.0 %	$1,914	2.0 %	$(50)
Floating interest rate	910,000	3.8 %	707,386	3.0 %	202,614
Total debt	911,864	3.8 %	709,300	3.0 %	202,564
Shareholders' equity	915,413		1,015,013		(99,600)
Total capital	$1,827,277		$1,724,313		$102,964

In May 2016, our board of directors authorized the repurchase of up to $300.0 million of our common stock, and in October 2018, the board increased our share repurchase authorization to $500.0 million, inclusive of the remaining amount outstanding under the prior authorization. This authorization has no expiration date. During 2018, we repurchased 3.6 million shares for $200.0 million under these authorizations. Under the May 2016 authorization and under a previous authorization, we repurchased 0.9 million

shares for $65.0 million during 2017 and we repurchased 0.9 million shares for $55.2 million during 2016. As of December 31, 2018, $420.0 million remained available for repurchase under the current authorization. Information

regarding changes in shareholders' equity can be found in the consolidated statements of shareholders' equity appearing in Item 8 of this report.

In March 2018, we entered into a new revolving credit facility in the amount of $950.0 million, subject to increase under the credit agreement to an aggregate amount not exceeding $1,425.0 million. The credit facility matures in March 2023. Our previous credit facility agreement was terminated contemporaneously with our entry into the new credit facility and was repaid utilizing proceeds from the new revolving credit facility. Our quarterly commitment fee ranges from 0.175% to 0.35% based on our leverage ratio. Our previous credit facility agreement also included a term loan facility. As of December 31, 2017, $294.9 million was outstanding under the term loan facility. This amount was repaid in March 2018, utilizing proceeds from the new revolving credit facility.

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 requires us to maintain certain financial ratios, including a maximum leverage ratio of 3.5 and a minimum ratio of consolidated earnings before interest and taxes to consolidated interest expense, as defined in the credit agreement, of 3.0. We were in compliance with all debt covenants as of December 31, 2018, and we expect to remain in compliance with these debt covenants throughout 2019.

As of December 31, 2018, amounts were available for borrowing under our revolving credit facility as follows:

(in thousands)	**Total available**
Revolving credit facility commitment[1]	$950,000
Amount drawn on revolving credit facility	(910,000)
Outstanding letters of credit[2]	(10,221)
Net available for borrowing as of December 31, 2018	$29,779

[1] In January 2019, we increased the credit facility by $200.0 million, bringing the total availability to $1.15 billion.

[2] 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 3: 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 6: Acquisitions" of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

Prepaid product discounts – Other non-current assets include prepaid product discounts of our Financial Services segment. These amounts are recorded as non-current assets upon contract execution and are generally amortized on the straight-line basis as reductions of revenue over the related contract term. Changes in prepaid product discounts during the past 3 years can be found under the caption "Note 3: 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 prepaid product discounts were $23.8 million for 2018, $27.1 million for 2017 and $23.1 million for 2016.

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 prepaid product discount payments and the amount of the payments has fluctuated from year to year. Although we anticipate that we will selectively continue to make these payments, we cannot quantify future amounts with certainty. The amount paid depends on numerous factors, such as 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 prepaid product discounts are recorded upon contract execution. These obligations are monitored for each contract and are adjusted as payments are made. Prepaid product discounts due within the next year are included in accrued liabilities in our consolidated balance sheets. These accruals were $10.9 million as of December 31, 2018 and $11.7 million as of December 31, 2017. Accruals for prepaid product discounts included in other non-current liabilities in our consolidated balance sheets were $12.5 million as of December 31, 2018 and $21.7 million as of December 31, 2017.

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, without limitation, 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 16: 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 3 years.

As of December 31, 2018, our contractual obligations were as follows:

(in thousands)	**Total**	**2019**	**2020 and 2021**	**2022 and 2023**	**2024 and thereafter**
Long-term debt	$910,000	$—	$—	$910,000	$ —
Lease obligations	60,746	17,301	23,243	9,146	11,056
Purchase obligations	61,679	30,686	29,929	1,064	—
Other non-current liabilities[(1)]	40,548	19,527	17,462	1,755	1,804
Total contractual obligations	$1,072,973	$67,514	$70,634	$921,965	$ 12,860

[(1)] Includes interest of $0.8 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 information technology services, Direct Checks direct mail advertising agreements and Financial Services data 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, $32.5 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 $32.6 million as of December 31, 2018.

Other non-current liabilities in our consolidated balance sheets consist primarily of liabilities for prepaid product discounts, uncertain tax positions, deferred compensation and our postretirement pension plan. Of the $39.9 million reported as other non-current liabilities in our consolidated balance sheet as of December 31, 2018, $19.7 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 $6.0 million as of December 31, 2018, excluding tax benefits of deductible interest and the federal benefit of deductible state income tax.
- 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, $3.6 million of our deferred compensation liability as of December 31, 2018 is excluded from the obligations shown in the table above.
- Other non-current liabilities which are not settled in cash, such as deferred revenue and incentive compensation that will be settled by issuing shares of our common stock.

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The table of contractual obligations does not include the following:

- Benefit payments for our postretirement medical 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 2019. Our postretirement benefit plan was overfunded $41.3 million as of December 31, 2018.
- 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.

Our MD&A discussion 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.

Impairment of Goodwill and Indefinite-Lived Trade Name

As of December 31, 2018, goodwill totaled $1,160.6 million, which represented 50.4% of total assets. Goodwill and our indefinite-lived trade name, which was written down to a carrying value of $0 during 2018, 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. 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.

Goodwill – In completing the 2018 annual impairment analysis of goodwill, we elected to perform a qualitative assessment for 5 of our reporting units and a quantitative assessment for 2 of our reporting units: Small Business Services Web Services and Small Business Services Indirect. Small Business Services Web Services includes our businesses that provide hosting and domain name services, logo and web design, search engine marketing and optimization, and payroll and incorporation services. Small Business Services Indirect consists primarily of our Safeguard distributor channel, former Safeguard distributors that we have purchased, and our independent dealer channel.

The qualitative analyses 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 analyses completed as of July 31, 2017, which indicated that the estimated fair values of the 5 reporting units exceeded their carrying values by approximate amounts between $64.0 million and $1.4 billion, or by amounts between 50% and 314% above the carrying values of their net assets. In completing these assessments, we noted no changes in events or circumstances that indicated that it was more likely than not that the fair value of any reporting unit was less than its carrying amount.

The quantitative analysis as of July 31, 2018 for the Small Business Services Web Services reporting unit indicated that the estimated fair value of the reporting unit exceeded its carrying value by approximately $63.0 million, or 22%. The carrying value of this reporting unit's goodwill was $225.4 million as of July 31, 2018. A large portion of this reporting unit consists of businesses that were acquired in 2018 and 2017, and growing web services is a focus of our growth strategy. However, if our acquisitions fail to achieve expected operating results or if we were to change our business strategies, this could result in a decline in the fair value of

this reporting unit. This impairment assessment is sensitive to changes in forecasted cash flows, as well as our assumed terminal growth rate of 3.0% and our selected discount rate of 9.8%. Holding all other assumptions constant, if we achieve less than 85% of our expected revenue growth in each year for 2019 through 2027 or if our earnings decline 20% or more each year, the goodwill of this reporting unit would be impaired. Additionally, a decrease in the terminal growth rate to 0.5% or an increase in the discount rate of 1.5 points or more would result in impairment.

The quantitative analysis of the Small Business Services Indirect reporting unit indicated that the reporting unit's goodwill was fully impaired, resulting in a pre-tax goodwill impairment charge of $78.2 million during the quarter ended September 30, 2018. The impairment charge was measured as the amount by which the reporting unit's carrying value exceeded its estimated fair value, limited to the carrying amount of goodwill. The analysis of this reporting unit, which incorporated the results of the annual strategic planning process completed during the third quarter of 2018, indicated lowered projected long-term revenue growth and profitability levels resulting from changes in strategy and focus and in the mix of products and services sold, including the continuing secular decline in check and forms usage. Additionally, our strategic plan reflected a shift in company resources to our growing businesses.

During the fourth quarter of 2018, we performed a quantitative analysis of our Financial Services Data-Driven Marketing reporting unit. Revenue for this reporting unit was below our projections driven by higher mortgage lending rates, which result in less lending activity for our financial institution clients and thus, may cause them to reduce their marketing spending, as well as a large client electing to do certain of its marketing in-house. The quantitative analysis as of December 31, 2018 indicated that the estimated fair value of the reporting unit exceeded its carrying value by approximately $105.0 million, or 36%. As such, no goodwill impairment charge was recorded for this reporting unit. The carrying value of this reporting unit's goodwill was $186.4 million as of December 31, 2018. This impairment assessment is sensitive to changes in forecasted cash flows, as well as our selected discount rate of 10.0%. Holding all other assumptions constant, if we achieve less than 75% of our expected revenue growth in each year for 2019 through 2024 or if our earnings decline 30% or more each year, goodwill for this reporting unit would be impaired. Additionally, an increase in the discount rate of 2.5 points or more would result in impairment.

In completing the quantitative analyses of goodwill, 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 market-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 are 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. When completing a quantitative analysis for all of our reporting units, the summation of our reporting units' fair values is compared to our consolidated fair value, as indicated by our market capitalization, to evaluate the reasonableness of our calculations.

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. Our indefinite-lived Safeguard trade name was included in the Small Business Services Indirect reporting unit. As of July 31, 2018, we completed a quantitative analysis of this asset that indicated the asset was fully impaired, resulting in a pre-tax asset impairment charge of $19.1 million. This impairment charge was driven by the same factors that resulted in the goodwill impairment charge, which indicated that any royalties attributable to the asset under our relief from royalty calculation had no future value.

Information regarding our 2017 and 2016 impairment analyses can be found under the caption "Note 8: Fair value measurements" of the Notes to Consolidated Financial Statements included in Item 8 of this report.

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 checks and forms were to materially accelerate, if recent acquisitions were to fail to achieve expected operating results, or if we were to change our business strategies, 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 or other assets.

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 trade 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, estimated earnings and estimated customer retention rates based on the acquirees' historical information.

The fair value of acquired technology and trade names is estimated, at times, using the relief from royalty method, which calculates the cost savings associated with owning rather than licensing the assets. Assumed royalty rates are applied to projected revenue for the remaining useful lives of the assets to estimate the royalty savings. Royalty rates are selected based on the attributes of the asset, including its recognition and reputation in the industry, and in the case of trade names, with consideration of the specific profitability of the products sold under a trade name and supporting assets. 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. Key assumptions used in these calculations include the discount rate, projected financial results of the acquired businesses from the perspective of an unrelated market participant, 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 1 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.

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 $43.8 million as of December 31, 2018, including valuation allowances of $1.7 million.

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, 2018, our liability for uncertain tax positions, including accrued interest and penalties, was $6.0 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 11: 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.

In December 2017, United States tax reform was signed into law under the 2017 Tax Act. This legislation included a broad range of tax reforms, including changes to corporate tax rates, business deductions and international tax provisions. The tax effects of changes in tax laws or rates must be recognized in the period in which the law is enacted. As such, this legislation resulted in a net benefit of approximately $20.5 million to our 2017 income tax provision. This amount included the net tax benefit from the remeasurement of deferred income taxes to the new federal statutory tax rate of 21%, which was effective for us on January 1, 2018, and revised state income tax rates for those states expected to follow the provisions of the 2017 Tax Act, partially offset by the establishment of a liability for the repatriation toll charge related to undistributed foreign earnings and profits.

When recording the impact of the 2017 Tax Act during 2017, we used reasonable estimates to determine many of the impacts, including our 2017 deferred activity and the amount of post-1986 unremitted foreign earnings subject to the repatriation toll charge. We refined our calculations throughout 2018 and recorded an additional net benefit of $1.7 million to our 2018 income tax provision, primarily due to a reduction in the amount accrued for the repatriation toll charge.

As of December 31, 2018, our foreign subsidiaries held cash and cash equivalents of $51.3 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 our foreign cash and cash equivalents into the United States at one time, the tax effects would generally be limited to foreign withholding taxes on any distributions, which we estimate would be approximately $2.5 million.

A one-percentage-point change in our effective income tax rate would have resulted in a $2.1 million change in income tax expense for 2018. 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.

Revenue Recognition

As discussed under the caption “Note 2: New accounting pronouncements” in the Notes to Consolidated Financial Statements appearing in Item 8 of this report, effective January 1, 2018, we implemented ASU No. 2014-09, *Revenue from Contracts with Customers*, and related amendments. Under this guidance, our product revenue is recognized when control of the goods is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those goods. In most cases, control is transferred when products are shipped. We recognize the vast majority of our service revenue as the services are provided. The majority of our contracts are for the shipment of tangible products or the delivery of services that have a single performance obligation or include multiple performance obligations where control is transferred at the same time. Many of our financial institution contracts require prepaid product discounts in the form of cash payments we make to our financial institution clients. These prepaid product discounts are included in other non-current assets in our consolidated balance sheets and are generally amortized as reductions of revenue on the straight-line basis over the contract term. Sales tax collected concurrent with revenue-producing activities is excluded from revenue. Amounts billed to customers for shipping and handling are included in revenue, while the related costs incurred for shipping and handling are reflected in cost of products and are accrued when the related revenue is recognized.

When another party is involved in providing goods or services to a customer, we must determine whether our obligation is to provide the specified good or service itself (i.e., we are the principal in the transaction) or to arrange for that good or service to be provided by the other party (i.e., we are an agent in the transaction). When we are responsible for satisfying a performance obligation, based on our ability to control the product or service provided, we are considered the principal and revenue is recognized for the gross amount of consideration. When the other party is primarily responsible for satisfying a performance

obligation, we are considered the agent and revenue is recognized in the amount of any fee or commission to which we are entitled. In the case of our Financial Services rewards, incentive and loyalty programs, we receive payments from consumers or our clients for the products and services provided, including hotel stays, gift cards and merchandise. We have determined that we are an agent in these transactions and this revenue is recorded net of the related fulfillment costs. Within our Small Business Services segment, we sell certain products and services through a network of Safeguard distributors. We have determined that we are the principal in these transactions and revenue is recorded for the gross amount of consideration.

When a customer pays in advance, primarily for treasury management solutions and web hosting services, we defer the revenue and recognize it as the services are performed, generally over a period of less than 1 year. Certain of our contracts for data-driven marketing solutions and treasury management outsourcing services within Financial Services have variable consideration that is contingent on either the success of the marketing campaign ("pay-for-performance") or the volume of outsourcing services provided. We recognize revenue for estimated variable consideration as services are provided based on the most likely amount to be realized. Revenue is recognized to the extent that it is probable that a significant reversal of revenue will not occur when the contingency is resolved. Typically, the amount of consideration for these contracts is finalized within 4 months, although pricing under certain of our outsourcing contracts may be based on annual volume commitments. Revenue recognized from these contracts was approximately $130.0 million in 2018.

Certain costs incurred to obtain contracts are required to be recognized as assets and amortized consistent with the transfer of goods or services to the customer. As such, we defer sales commissions related to obtaining check supply and treasury management solution contracts within Financial Services. These amounts are included in other non-current assets and are amortized on the straight-line basis as SG&A expense. Amortization of these amounts on the straight-line basis approximates the timing of the transfer of goods or services to the customer. Generally, these amounts are being amortized over periods of 3 to 6 years. We expense sales commissions as incurred when the amortization period would have been 1 year or less.

Accounting for customer contracts can be complex and may involve the use of various techniques to estimate total contract revenue. Estimates related to variable consideration are based on various assumptions to project the outcome of future events. We review and update our contract-related estimates regularly, and we do not anticipate that revisions to our estimates would have a material effect on our results of operations, financial position or cash flows.

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 14: Postretirement benefits” of the Notes to Consolidated Financial Statements appearing in Item 8 of this report.

We recorded net postretirement benefit income of $3.6 million for 2018, $2.0 million for 2017 and $1.8 million for 2016. Effective January 1, 2018, we adopted ASU No. 2017-07, *Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost.* This standard requires that the entire amount of our net postretirement benefit income be recorded in the non-operating section of the statements of income, as there is no service cost associated with our plans. In accordance with this standard, we revised our consolidated statements of income for 2017 and 2016 to reclassify the entire amount of our net periodic benefit income from cost of revenue and SG&A expense to other income.

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, estimated medical claims, 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.

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 did not affect the measurement of our total benefit obligation, but it reduced the interest component of net periodic benefit income by $0.9 million in 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, 2018, was $73.7 million. In measuring this obligation, we assumed a discount rate of 4.13%. A 0.25 point change in the discount rate would increase or decrease our postretirement benefit obligation by approximately $1.3 million.

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, 2018, the fair value of our plan assets was $115.0 million. In measuring net postretirement

benefit income for 2018, we assumed an expected long-term rate of return on plan assets of 6.25%. A 0.25 point change in this assumption would increase or decrease our annual postretirement benefit income by approximately $0.3 million.

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 14.3 years as of December 31, 2018.

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 2018, and we anticipate that we will utilize plan assets to pay a significant portion of benefits during 2019.

New Accounting Pronouncements

Information regarding the accounting pronouncements adopted during 2018 and those not yet adopted can be found under the caption “Note 2: New accounting pronouncements” 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, 2018, 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	$910,000	$910,000	3.8	%
Capital lease obligations	1,864	1,864	2.0	%
Total debt	$911,864	$911,864	3.8	%

[1] The carrying amount reported in the consolidated balance sheets for amounts drawn under our revolving credit facility approximates 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 mature in March 2023. During the first quarter of 2018, we executed a new revolving credit facility for $950.0 million, and in January 2019, we increased this credit facility to $1.15 billion. Further information regarding the credit facility can be found under the caption "Note 15: Debt and lease obligations" in the Notes to Consolidated Financial Statements appearing in Item 8 of this report. Our capital lease obligations are due through October 2022.

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 $7.9 million change in interest expense for 2018.

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 Canadian and Australian dollars. 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 Board of Directors and Shareholders of Deluxe Corporation:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Deluxe Corporation and its subsidiaries (the “Company”) as of December 31, 2018 and December 31, 2017, and the related consolidated statements of income, comprehensive income, shareholders’ equity and cash flows for each of the three years in the period ended December 31, 2018, including the related notes (collectively referred to as the “consolidated financial statements”). We also have audited the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

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

Basis for Opinions

The Company's management is responsible for these consolidated 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 the Company’s consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company’s internal control over financial reporting includes those policies and procedures that (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 26, 2019

We have served as the Company's auditor since 2001.

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

	December 31, 2018	December 31, 2017
ASSETS		
Current assets:		
Cash and cash equivalents	$ 59,740	$ 59,240
Trade accounts receivable, net of allowances for uncollectible accounts	173,862	149,844
Inventories and supplies	46,441	42,249
Funds held for customers	100,982	86,192
Revenue in excess of billings	30,458	16,379
Other current assets	38,563	39,062
Total current assets	450,046	392,966
Deferred income taxes	2,886	1,428
Long-term investments	43,773	42,607
Property, plant and equipment, net of accumulated depreciation	90,342	84,638
Assets held for sale	1,350	12,232
Intangibles, net of accumulated amortization	359,965	384,266
Goodwill	1,160,626	1,130,934
Other non-current assets	196,108	159,756
Total assets	$ 2,305,096	$ 2,208,827
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 106,978	$ 104,477
Accrued liabilities	284,281	277,253
Long-term debt due within one year	791	44,040
Total current liabilities	392,050	425,770
Long-term debt	911,073	665,260
Deferred income taxes	46,680	50,543
Other non-current liabilities	39,880	52,241
Commitments and contingencies (Notes 11, 15 and 16)		
Shareholders' equity:		
Common shares $1 par value (authorized: 500,000 shares; outstanding: December 31, 2018 – 44,647; December 31, 2017 – 47,953)	44,647	47,953
Retained earnings	927,345	1,004,657
Accumulated other comprehensive loss	(56,579)	(37,597)
Total shareholders' equity	915,413	1,015,013
Total liabilities and shareholders' equity	$ 2,305,096	$ 2,208,827

See Notes to Consolidated Financial Statements

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

	Year Ended December 31,		
	2018	**2017**	**2016**
Product revenue	$1,451,833	$1,469,854	$1,472,882
Service revenue	546,192	495,702	376,180
Total revenue	1,998,025	1,965,556	1,849,062
Cost of products	(547,640)	(529,638)	(534,906)
Cost of services	(244,108)	(213,069)	(132,907)
Total cost of revenue	(791,748)	(742,707)	(667,813)
Gross profit	1,206,277	1,222,849	1,181,249
Selling, general and administrative expense	(854,000)	(830,231)	(807,238)
Restructuring and integration expense	(19,737)	(8,562)	(7,124)
Asset impairment charges	(101,319)	(54,880)	—
Operating income	231,221	329,176	366,887
Loss on early debt extinguishment	—	—	(7,858)
Interest expense	(27,112)	(21,359)	(22,302)
Other income	8,522	5,010	3,659
Income before income taxes	212,631	312,827	340,386
Income tax provision	(63,001)	(82,672)	(111,004)
Net income	$149,630	$230,155	$229,382
Basic earnings per share	$3.18	$4.75	$4.68
Diluted earnings per share	3.16	4.72	4.65

See Notes to Consolidated Financial Statements

DELUXE CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(in thousands)

	Year Ended December 31,		
	2018	**2017**	**2016**
Net income	$149,630	$230,155	$229,382
Other comprehensive (loss) income, net of tax:			
Postretirement benefit plans:			
Net actuarial (loss) gain arising during the year	(3,805)	7,011	1,486
Less reclassification of amounts from other comprehensive (loss) income to net income:			
Amortization of prior service credit	(853)	(1,049)	(866)
Amortization of net actuarial loss	1,825	2,893	2,518
Postretirement benefit plans	(2,833)	8,855	3,138
Unrealized holding losses on debt securities arising during the year	(1)	(109)	(99)
Unrealized foreign currency translation adjustment	(9,281)	4,028	1,793
Other comprehensive (loss) income	(12,115)	12,774	4,832
Comprehensive income	$137,515	$242,929	$234,214
Income tax benefit (expense) of other comprehensive (loss) income included in above amounts:			
Postretirement benefit plans:			
Net actuarial (loss) gain arising during the year	$1,339	$(2,465)	$(952)
Less reclassification of amounts from other comprehensive (loss) income to net income:			
Amortization of prior service credit	568	372	555
Amortization of net actuarial loss	(1,059)	(744)	(1,279)
Postretirement benefit plans	848	(2,837)	(1,676)
Unrealized holding losses on debt securities arising during the year	—	38	35
Total net tax benefit (expense) included in other comprehensive (loss) income	$848	$(2,799)	$(1,641)

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, 2015	49,019	$49,019	$ —	$751,253	$ (55,203)	$745,069
Net income	—	—	—	229,382	—	229,382
Cash dividends ($1.20 per share)	—	—	—	(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)
Employee 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
Net income	—	—	—	230,155	—	230,155
Cash dividends ($1.20 per share)	—	—	—	(58,103)	—	(58,103)
Common shares issued	558	558	16,334	—	—	16,892
Common shares repurchased	(924)	(924)	(13,886)	(50,190)	—	(65,000)
Other common shares retired	(227)	(227)	(16,369)	—	—	(16,596)
Employee share-based compensation	—	—	13,921	—	—	13,921
Other comprehensive income	—	—	—	—	12,774	12,774
Balance, December 31, 2017	47,953	47,953	—	1,004,657	(37,597)	1,015,013
Net income	—	—	—	149,630	—	149,630
Cash dividends ($1.20 per share)	—	—	—	(56,743)	—	(56,743)
Common shares issued	525	525	18,397	—	—	18,922
Common shares repurchased	(3,584)	(3,584)	(14,384)	(182,032)	—	(200,000)
Other common shares retired	(247)	(247)	(17,609)	—	—	(17,856)
Employee share-based compensation	—	—	13,596	—	—	13,596
Adoption of Accounting Standards Update No. 2014-09 (Note 2)	—	—	—	4,966	—	4,966
Adoption of Accounting Standards Update No. 2018-02 (Note 2)	—	—	—	6,867	(6,867)	—
Other comprehensive loss	—	—	—	—	(12,115)	(12,115)
Balance, December 31, 2018	44,647	$44,647	$ —	$927,345	$ (56,579)	$915,413

See Notes to Consolidated Financial Statements

DELUXE CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended December 31,		
	2018	**2017**	**2016**
Cash flows from operating activities:			
Net income	$149,630	$230,155	$229,382
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation	16,572	15,868	14,498
Amortization of intangibles	114,528	106,784	77,085
Asset impairment charges	101,319	54,880	—
Amortization of prepaid product discounts	22,941	19,969	20,185
Deferred income taxes	(11,356)	(39,177)	1,886
Employee share-based compensation expense	13,378	15,109	12,459
Gain on sales of businesses and customer lists	(15,641)	(8,703)	—
Loss on early debt extinguishment	—	—	7,858
Other non-cash items, net	8,030	7,708	7,267
Changes in assets and liabilities, net of effect of acquisitions:			
Trade accounts receivable	(16,795)	5,279	(23,414)
Inventories and supplies	(3,641)	(644)	2,244
Other current assets	(12,032)	(7,976)	49
Non-current assets	(6,913)	(5,710)	(5,054)
Accounts payable	4,366	(7,796)	15,888
Prepaid product discount payments	(23,814)	(27,079)	(23,068)
Other accrued and non-current liabilities	(1,257)	(20,236)	(17,953)
Net cash provided by operating activities	339,315	338,431	319,312
Cash flows from investing activities:			
Purchases of capital assets	(62,238)	(47,450)	(46,614)
Payments for acquisitions, net of cash acquired	(214,258)	(139,223)	(239,664)
Proceeds from company-owned life insurance policies	—	1,293	4,123
Purchases of customer funds marketable securities	(7,807)	(7,737)	(7,869)
Proceeds from customer funds and corporate marketable securities	7,807	11,237	9,504
Other	1,082	989	1,009
Net cash used by investing activities	(275,414)	(180,891)	(279,511)
Cash flows from financing activities:			
Proceeds from issuing long-term debt	1,280,000	403,000	559,000
Payments on long-term debt, including costs of debt reacquisition	(1,078,853)	(454,165)	(442,189)
Net change in customer funds obligations	20,279	(6,007)	1,723
Proceeds from issuing shares under employee plans	7,523	9,033	9,114
Employee taxes paid for shares withheld	(7,977)	(9,377)	(5,589)
Payments for common shares repurchased	(200,000)	(65,000)	(55,224)
Cash dividends paid to shareholders	(56,669)	(58,098)	(58,720)
Other	(4,128)	(2,342)	(2,117)
Net cash (used) provided by financing activities	(39,825)	(182,956)	5,998
Effect of exchange rate change on cash, cash equivalents, restricted cash and restricted cash equivalents	(7,636)	5,370	2,363
Net change in cash, cash equivalents, restricted cash and restricted cash equivalents	16,440	(20,046)	48,162
Cash, cash equivalents, restricted cash and restricted cash equivalents, beginning of year	128,819	148,865	100,703
Cash, cash equivalents, restricted cash and restricted cash equivalents, end of year (Note 3)	$145,259	$128,819	$148,865

See Notes to Consolidated Financial Statements

DELUXE CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(dollars in thousands, except per share amounts)

Note 1: Significant accounting policies

Nature of operations – We provide a selection of customer life cycle management solutions that help our customers acquire and engage their customers across multiple channels. We offer a wide range of services and products to small businesses, including hosting and domain name services, logo and web design, search engine marketing and optimization, email marketing, payroll services, and business incorporation and organization services, in addition to our checks, forms and promotional product offerings. For financial institutions, we offer our check program solutions, as well as a selection of financial technology solutions, including data-driven marketing, including outsourced marketing campaign targeting and execution; treasury management solutions, including accounts receivable processing and remote deposit capture; and digital engagement solutions, including loyalty and rewards programs. 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.

Comparability – Amounts within the consolidated balance sheet as of December 31, 2017 have been modified to conform to the current year presentation. Revenue in excess of billings is now presented separately. Previously, this amount was included in other current assets. Additionally, amounts within the cash flows from operating activities section of the consolidated statement of cash flows for the year ended December 31, 2017 have been modified to conform to the current year presentation. Gain on sales of businesses and customer lists is now presented separately. In the previous year, this amount was included within other non-cash items, net.

The consolidated statements of income for 2017 and 2016 have been revised to reflect the adoption of Accounting Standards Update (ASU) No. 2017-07, *Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*. The consolidated statements of cash flows for 2017 and 2016 have been revised to reflect the adoption of ASU No. 2016-18, *Restricted Cash*. Further information regarding these standards can be found in Note 2.

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 and Australian dollars, and are translated into United States 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 $1,270 as of December 31, 2018 and $5,665 as of December 31, 2017.

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 – Inventories are stated at the lower of cost or net realizable value. Cost is calculated on the first-in, first-out basis. Supplies consist of items not used directly in the production of goods, such as maintenance and other supplies utilized in the production area.

DELUXE CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(dollars in thousands, except per share amounts)

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. The customer contracts for our domestic payroll processing business include legal restrictions regarding the use of these funds. In addition, our treasury management cash receipt processing business remits a portion of cash receipts to our clients the business day following receipt. All of these funds, consisting of cash and available-for-sale debt 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 debt 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 and were not significant during the past 3 years.

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 Notes 13 and 14.

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, 2018. Buildings are depreciated using the 150% declining balance method, and machinery and equipment is 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 all of 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 3.

Intangibles – Intangible assets are stated at historical cost less accumulated amortization. Amortization expense is generally determined on the straight-line basis, with the exception of customer lists, which are generally amortized using accelerated methods that reflect the pattern in which we receive the economic benefit of the asset. Intangibles have been assigned useful lives ranging from 1 year to 14 years, with a weighted-average useful life of 6 years as of December 31, 2018. 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, 2017, we held a trade name asset that was assigned an indefinite useful life. As such, this asset was not amortized, but was subject to impairment testing on at least an annual basis. During 2018, we determined that this asset was fully impaired. Further information regarding the resulting asset impairment charge can be found in Note 8. 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 group'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 group 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 group 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 group exceeds the fair value of the asset group. 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 2018 and 2017, we recorded asset impairment charges related to certain intangible assets. Further information regarding these impairment charges can be found in Note 8.

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. During 2017, we recorded asset impairment charges related to Small Business Services assets held for sale. Further information regarding the impairment charges can be found in Note 8.

The evaluation of asset impairment requires us to make assumptions about future cash flows over the life of the asset group 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 change in market conditions that are indicative of a decline in the fair value of the assets, (4) a change in our business strategy, or (5) an adverse action or assessment by a regulator. Information regarding the results of our impairment analyses can be found in Note 8.

In completing the annual impairment analysis of our indefinite-lived trade name in each of the past 3 years, we elected to perform a quantitative assessment. This assessment compared the carrying amount of the asset to its estimated fair value. The estimate of fair value was 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 was applied to forecasted revenue and the resulting cash flows were discounted. If the estimated fair value is less than the carrying value of the asset, an impairment loss is recognized for the difference. During 2018, our analysis indicated that this asset was fully impaired. Further information regarding this impairment can be found in Note 8.

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 1 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 quantitative impairment test is unnecessary.

When performing a quantitative analysis of goodwill, we calculate the estimated fair value of the reporting unit and compare this amount to the carrying amount of the reporting unit's net assets. In calculating the estimated fair value of a business unit, we use the income approach. This approach is a valuation technique under which we estimate 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 project revenue and apply our fixed and variable cost experience rates to the projected revenue to arrive at the future cash flows. A terminal value is then applied to the projected cash flow stream. Future estimated cash flows are discounted to their present value to calculate the estimated fair value. Our discount rate is the market-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 are 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. When

completing a quantitative analysis for all of our reporting units, the summation of our reporting units' fair values is 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, an impairment loss is recorded for the difference, not to exceed the carrying amount of goodwill.

DELUXE CORPORATION
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(dollars in thousands, except per share amounts)

Prepaid product discounts – Certain of our financial institution contracts require prepaid product discounts in the form of upfront cash payments or accruals for amounts owed to financial institution clients of our Financial Services segment. These prepaid product discounts are included in other non-current assets in our consolidated balance sheets and are generally amortized as reductions of revenue on the straight-line basis over the contract term. 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, 2018. Whenever events or changes occur that impact the related contract, including significant declines in the anticipated profitability, we evaluate the carrying value of prepaid product discounts to determine if they are impaired. 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 prepaid product discount.

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 88% 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, including direct response and non-direct response advertising, was $74,549 in 2018, $78,722 in 2017 and $85,141 in 2016.

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 distributors and customer lists 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 continually monitor the credit quality and associated risks of these receivable on an individual basis based on criteria such as the financial stability of the distributor, historical commissions earned and their reported financial results. We generally withhold commissions payable to the distributors to settle the monthly payments due on the receivables, thus, somewhat mitigating the risk that the receivables will not be collected. As of December 31, 2018 and December 31, 2017, 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 or to resume the accrual of interest is completed on a case-by-case basis, evaluating the specifics of each situation.

Restructuring and integration expense – Over the past several years, we have recorded restructuring and integration expense as a result of various cost management efforts, including facility closings and the relocation of business activities, as well as fundamental changes in the manner in which certain business functions are conducted, including the integration of acquired businesses and the consolidation of redundant information technology systems. These expenses have consisted of costs which are expensed when incurred, such as information technology costs, employee and equipment moves, training and travel, as well as 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. 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 and integration accruals have been and will be required. Restructuring and integration accruals are included in accrued liabilities and other non-current liabilities in our consolidated balance sheets.

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 16.

Income taxes – Deferred income taxes result from temporary differences between the financial reporting basis of assets and liabilities and their respective tax reporting basis. 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.

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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 7. We did not have any derivative instruments outstanding as of December 31, 2018 or December 31, 2017, as we settled all of our interest rate swaps during 2016.

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 – On January 1, 2018, we adopted ASU No. 2014-09, *Revenue from Contracts with Customers,* along with subsequent amendments to this standard. We applied the new standards using the modified retrospective approach under which the cumulative effect of initially applying the standards was recorded as an adjustment to retained earnings as of the date of adoption. As such, prior periods have not been revised and continue to be reported under the accounting standards in effect for those periods. Further information regarding the adoption of this standard can be found in Note 2.

Beginning in 2018, our product revenue is recognized when control of the goods is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those goods. In most cases, control is transferred when products are shipped. We recognize the vast majority of our service revenue as the services are provided. The majority of our contracts are for the shipment of tangible products or the delivery of services that have a single performance obligation or include multiple performance obligations where control is transferred at the same time.

During previous years, revenue was recognized when (1) persuasive evidence of an arrangement existed, (2) delivery occurred or services were rendered, (3) the sales price was fixed or determinable, and (4) collectibility was reasonably assured. Our product revenue was recognized upon shipment or customer receipt, based upon the transfer of title, and we recognized the majority of our service revenue as the services were provided.

In all periods, revenue is presented in the consolidated statements of income net of rebates, discounts, amortization of prepaid product discounts, and sales tax collected concurrent with revenue-producing activities. Many of our check supply contracts with financial institutions provide for rebates on certain products. We record these rebates as reductions of revenue and as accrued liabilities on our consolidated balance sheets when the related revenue is recognized. Amounts billed to customers for shipping and handling are included in revenue, while the related shipping and handling costs are reflected in cost of products and are accrued when the related revenue is recognized.

When another party is involved in providing goods or services to a customer, we must determine whether our obligation is to provide the specified good or service itself (i.e., we are the principal in the transaction) or to arrange for that good or service to be provided by the other party (i.e., we are an agent in the transaction). When we are responsible for satisfying a performance obligation, based on our ability to control the product or service provided, we are considered the principal and revenue is recognized for the gross amount of consideration. When the other party is primarily responsible for satisfying a performance

obligation, we are considered the agent and revenue is recognized in the amount of any fee or commission to which we are entitled. In the case of our Financial Services rewards, incentive and loyalty programs, we receive payments from consumers or our clients for the products and services provided, including hotel stays, gift cards and merchandise. We have determined that we are an agent in these transactions and this revenue is recorded net of the related fulfillment costs. Within our Small Business Services segment, we sell certain products and services through a network of Safeguard distributors. We have determined that we are the principal in these transactions and revenue is recorded for the gross amount of consideration.

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Certain of our contracts for data-driven marketing solutions and treasury management outsourcing services within Financial Services have variable consideration that is contingent on either the success of the marketing campaign ("pay-for-performance") or the volume of outsourcing services provided. We recognize revenue for estimated variable consideration as services are provided based on the most likely amount to be realized. Revenue is recognized to the extent that it is probable that a significant reversal of revenue will not occur when the contingency is resolved. Estimates regarding the recognition of variable consideration are updated each quarter. Typically, the amount of consideration for these contracts is finalized within 4 months, although pricing under certain of our outsourcing contracts may be based on annual volume commitments. Revenue recognized from these contracts was approximately $130,000 in 2018. Upon adoption of ASU No. 2014-09, we accelerated the recognition of a portion of this variable consideration.

Our payment terms vary by type of customer and the products or services offered. The time period between invoicing and when payment is due is not significant. For certain products, services and customer types, we require payment before the products or services are delivered to the customer. When a customer pays in advance, primarily for treasury management solutions and web hosting services, we defer the revenue and recognize it as the services are performed, generally over a period of less than 1 year. Deferred revenue is included in accrued liabilities and other non-current liabilities in our consolidated balance sheets. The increase of $5,704 in deferred revenue during the year ended December 31, 2018 was driven primarily by cash payments received in advance of satisfying our performance obligations, partially offset by the recognition of $45,405 of revenue that was included in deferred revenue as of December 31, 2017.

In addition to the amounts included in deferred revenue, we will recognize revenue in future periods related to remaining performance obligations for certain of our data-driven marketing and treasury management solutions. Generally, these contracts have terms of 1 year or less and many have terms of 3 months or less. The amount of revenue related to these unsatisfied performance obligations is not significant to our annual consolidated revenue. When the revenue recognized for uncompleted contracts exceeds the amount of customer billings and the right to receive the consideration is conditional, a contract asset is recorded. These amounts are included in revenue in excess of billings on the consolidated balance sheets and totaled $19,705 as of December 31, 2018 and $7,387 as of December 31, 2017. Additionally, we record an asset for unbilled receivables when the revenue recognized has not been billed to customers in accordance with contractually stated billing terms and the right to receive the consideration is unconditional. These assets are also included in revenue in excess of billings on the consolidated balance sheets and totaled $10,753 as of December 31, 2018 and $8,992 as of December 31, 2017.

At times, a financial institution client may terminate its check supply contract with us prior to the end of the contract term. In many 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 performance obligations and collection of the funds is assured. If we have further performance obligations following the execution of a contract termination agreement, we record the related revenue over the remaining service period.

Beginning in 2018, sales commissions related to obtaining check supply and treasury management solution contracts within Financial Services are recorded as other non-current assets in the consolidated balance sheets and are amortized on the straight-line basis as SG&A expense. Amortization of these amounts on the straight-line basis approximates the timing of the transfer of goods or services to the customer. Generally, these amounts are being amortized over periods of 3 to 6 years.

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.
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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 and 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

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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, changes in the funded status and amortization of amounts related to our postretirement benefit plans, unrealized gains and losses on available-for-sale debt 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, net of their related tax impacts. We release stranded income tax effects from accumulated other comprehensive loss when the circumstances upon which they are premised cease to exist.

Note 2: New accounting pronouncements

The following discusses the impact of each accounting standard adopted on January 1, 2018:

ASU No. 2014-09 – In May 2014, the Financial Accounting Standards Board (FASB) issued ASU No. 2014-09, *Revenue from Contracts with Customers*. This 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. In addition, the FASB subsequently issued several amendments to the standard. We adopted this standard and all the related amendments on January 1, 2018 using the modified retrospective method. We applied the new guidance to uncompleted contracts as of January 1, 2018 and recorded the cumulative effect of initially applying the standard as an adjustment to retained earnings as of the date of adoption, with the offset to revenue in excess of billings, other non-current assets and deferred income tax liabilities. We elected the following practical expedients allowed under the guidance:

- We considered the impact of all contract modifications completed prior to January 1, 2018;
- We disregard the effects of a financing component when the period between payment and performance is 1 year or less;
- We account for shipping and handling activities that occur after the customer has obtained control of a good as a fulfillment cost; and
- We expense sales commissions as incurred when the amortization period would have been 1 year or less.

Election of these practical expedients did not have a significant impact on our results of operations or financial position. Prior period financial information has not been revised and continues to be reported under the accounting standards in effect for those periods. Adoption of this guidance did not have a significant impact on our results of operations, financial position or cash flows during the year ended December 31, 2018, and we do not expect it to have a significant impact on an ongoing basis. The new guidance also expands the required financial statement disclosures regarding revenue. Our revenue recognition accounting policy can be found in Note 1 and disaggregated revenue information can be found in Note 18.

The cumulative effect of adoption of the new revenue guidance on our consolidated balance sheet as of January 1, 2018 was as follows:

(in thousands)	Balance as of December 31, 2017	Adjustments due to adoption of ASU No. 2014-09	Balance as of January 1, 2018
Revenue in excess of billings	$16,379	$ 960	$17,339
Total current assets	392,966	960	393,926
Other non-current assets	159,756	5,733	165,489
Total assets	$2,208,827	$ 6,693	$2,215,520

Deferred income taxes	50,543	1,727	52,270
Retained earnings	1,004,657	4,966	1,009,623
Total liabilities and shareholders' equity	$2,208,827	$ 6,693	$2,215,520

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The impact of the new revenue guidance on our consolidated statement of income for the year ended December 31, 2018 and on our consolidated balance sheet as of December 31, 2018 was as follows:

(in thousands)	As reported	Effect of adoption	Amounts without adoption of ASU No. 2014-09
	Year Ended December 31, 2018		
Service revenue	$546,192	$(717)	$545,475
Total revenue	1,998,025	(717)	1,997,308
Cost of services	(244,108)	625	(243,483)
Total cost of revenue	(791,748)	625	(791,123)
Gross profit	1,206,277	(92)	1,206,185
Selling, general and administrative expense	(854,000)	(749)	(854,749)
Operating income	231,221	(841)	230,380
Income before income taxes	212,631	(841)	211,790
Income tax provision	(63,001)	209	(62,792)
Net income	$149,630	$(632)	$148,998
	December 31, 2018		
Revenue in excess of billings	$30,458	$(1,052)	$29,406
Total current assets	450,046	(1,052)	448,994
Other non-current assets	196,108	(6,482)	189,626
Total assets	$2,305,096	$(7,534)	$2,297,562
Accrued liabilities	$284,281	$(209)	$284,072
Total current liabilities	392,050	(209)	391,841
Deferred income taxes	46,680	(1,727)	44,953
Retained earnings	927,345	(5,598)	921,747
Total liabilities and shareholders' equity	$2,305,096	$(7,534)	$2,297,562

ASU No. 2016-01 – In January 2016, the FASB issued ASU No. 2016-01, *Recognition and Measurement of Financial Assets and Financial Liabilities*. This standard is intended to improve the recognition, measurement, presentation and disclosure of financial instruments. We adopted this standard on January 1, 2018. This standard had no impact on our results of operations or financial position. Our financial statement disclosures in Note 8 related to financial instruments have been modified to comply with the new standard.

ASU No. 2016-16 – In October 2016, the FASB issued ASU No. 2016-16, *Intra-Entity Transfers of Assets Other Than Inventory*. This 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. We adopted this standard on January 1, 2018. No adjustment was required to opening retained earnings. Application of this standard has not had a significant impact on our results of operations or financial position and we do not expect it to have a significant impact on an ongoing basis.

ASU No. 2016-18 – In November 2016, the FASB issued ASU No. 2016-18, *Restricted Cash*. This standard requires the statement of cash flows to explain the change during the period in the total of cash, cash equivalents, restricted cash and restricted cash equivalents. This standard was effective for us on January 1, 2018 and was required to be applied retrospectively. Accordingly, we have revised our consolidated statements of cash flows to include cash and cash equivalents included in funds held for customers with cash, cash equivalents, restricted cash and restricted cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statements of cash flows. Further information concerning adoption of this standard can be found in Summarized Quarterly Financial Data.

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The impact of this revision on our consolidated statements of cash flows for the years ended December 31, 2017 and December 31, 2016 was as follows:

(in thousands)	As previously reported	Effect of adoption	As revised
	Year Ended December 31, 2017		
Purchases of customer funds marketable securities	$—	$(7,737)	$(7,737)
Proceeds from customer funds and corporate marketable securities	3,500	7,737	11,237
Net cash used by investing activities	(180,891)	—	(180,891)
Net change in customer funds obligations	—	(6,007)	(6,007)
Net cash used by financing activities	(176,949)	(6,007)	(182,956)
Effect of exchange rate change on cash, cash equivalents, restricted cash and restricted cash equivalents	2,075	3,295	5,370
Net change in cash, cash equivalents, restricted cash and restricted cash equivalents	(17,334)	(2,712)	(20,046)
Cash, cash equivalents, restricted cash and restricted cash equivalents, beginning of year	76,574	72,291	148,865
Cash, cash equivalents, restricted cash and restricted cash equivalents, end of year (Note 3)	$59,240	$69,579	$128,819
	Year Ended December 31, 2016		
Payments for acquisitions, net of cash acquired	$(270,939)	$31,275	$(239,664)
Purchases of customer funds marketable securities	—	(7,869)	(7,869)
Proceeds from customer funds and corporate marketable securities	1,635	7,869	9,504
Net cash used by investing activities	(310,786)	31,275	(279,511)
Net change in customer funds obligations	—	1,723	1,723
Net cash provided by financing activities	4,275	1,723	5,998
Effect of exchange rate change on cash, cash equivalents, restricted cash and restricted cash equivalents	1,346	1,017	2,363
Net change in cash, cash equivalents, restricted cash and restricted cash equivalents	14,147	34,015	48,162
Cash, cash equivalents, restricted cash and restricted cash equivalents, beginning of year	62,427	38,276	100,703
Cash, cash equivalents, restricted cash and restricted cash equivalents, end of year (Note 3)	$76,574	$72,291	$148,865

ASU No. 2017-01 – In January 2017, the FASB issued ASU No. 2017-01, *Clarifying the Definition of a Business*. This 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. We adopted this standard on January 1, 2018, applying the guidance to transactions occurring on or after this date. Adoption of the standard did not have a significant impact on our results of operations or financial position.

ASU No. 2017-07 – In March 2017, the FASB issued ASU No. 2017-07, *Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*. This standard requires that the service cost component of net periodic benefit expense be recognized in the same statement of income caption(s) as other compensation costs, and requires that the other components of net periodic benefit expense be recognized in the non-operating section of the statement of income. In addition, only the service cost component of net periodic benefit expense is eligible for capitalization when applicable. We adopted this standard on January 1, 2018. The reclassification of the other components of our net periodic benefit income was applied on a retrospective basis. As such, we have revised our results of operations for previous periods. We utilized the practical expedient for adoption allowing us to use the amounts previously disclosed in our postretirement benefits footnote as the basis for revising prior periods. As there is no service cost associated with our plans, we reclassified the entire amount of our net periodic benefit income from cost of revenue and SG&A expense to other income in our consolidated statements of income. In addition, we no longer include any portion of net periodic benefit income in amounts capitalized for inventory or internal-use software, as only the service cost component is eligible for capitalization. This change did not have a significant impact on our results of operations or financial position.

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The impact of the revision on our consolidated statements of income for the years ended December 31, 2017 and December 31, 2016 was as follows:

(in thousands)	As previously reported	Effect of adoption	As revised
	Year Ended December 31, 2017		
Cost of products	$(529,088)	$ (550)	$(529,638)
Cost of services	(213,002)	(67)	(213,069)
Total cost of revenue	(742,090)	(617)	(742,707)
Gross profit	1,223,466	(617)	1,222,849
Selling, general and administrative expense	(828,832)	(1,399)	(830,231)
Operating income	331,192	(2,016)	329,176
Other income	2,994	2,016	5,010
Net income	$230,155	$ —	$230,155
	Year Ended December 31, 2016		
Cost of products	$(534,390)	$ (516)	$(534,906)
Cost of services	(132,851)	(56)	(132,907)
Total cost of revenue	(667,241)	(572)	(667,813)
Gross profit	1,181,821	(572)	1,181,249
Selling, general and administrative expense	(805,970)	(1,268)	(807,238)
Operating income	368,727	(1,840)	366,887
Other income	1,819	1,840	3,659
Net income	$229,382	$ —	$229,382

ASU No. 2017-09 – In May 2017, the FASB issued ASU No. 2017-09, *Scope of Modification Accounting*. This standard provides guidance about which changes to the terms or conditions of a share-based payment award require modification accounting, which may result in a different fair value for the award. We adopted this standard on January 1, 2018, and it is being applied prospectively to awards modified on or after this date. Application of this standard did not have a significant impact on our results of operations or financial position and we do not expect it to have a significant impact on an ongoing basis.

ASU No. 2018-02 – In February 2018, the FASB issued ASU No. 2018-02, *Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*. This standard allows companies to make an election to reclassify from accumulated other comprehensive income to retained earnings the stranded tax effects resulting from the Tax Cuts and Jobs Act of 2017 (the "2017 Tax Act"). We elected to early adopt this standard on January 1, 2018, applying it in the period of adoption. As such, we reclassified $6,867 from accumulated other comprehensive loss to retained earnings. This represents the effect of the change in the United States federal corporate income tax rate on the gross deferred tax amount at the date of enactment of the 2017 Tax Act related to items remaining in accumulated other comprehensive loss.

ASU No. 2018-05 – In March 2018, the FASB issued ASU No. 2018-05, *Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin (SAB) No. 118*. This standard added to the FASB Codification the guidance provided by the SEC in December 2017 regarding the accounting for the 2017 Tax Act. We complied with SAB No. 118 when preparing our annual consolidated financial statements for the year ended December 31, 2017. During 2017, reasonable estimates were used to determine certain impacts of the 2017 Tax Act, including our 2017 deferred income tax activity and the amount of post-1986 unremitted foreign earnings subject to the repatriation toll charge. We finalized our accounting for the 2017 Tax Act during the fourth quarter of 2018. Our income tax provision for the year ended December 31, 2018 was reduced $1,700 for adjustments to our accounting for the 2017 Tax Act, primarily a reduction in the amount accrued for the repatriation toll charge.

Other accounting pronouncements adopted – In August 2018, the FASB issued ASU No. 2018-13, *Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurements*. This standard removes, modifies and adds certain disclosures

related to recurring and nonrecurring fair value measurements. On September 30, 2018, we early adopted the provisions of the standard that remove and modify disclosure requirements. This adoption had minimal impact on our fair value disclosures in Note 8. The additional disclosures required under the new guidance are effective for us on January 1, 2020.

In August 2018, the FASB issued ASU No. 2018-14, *Disclosure Framework –Changes to the Disclosure Requirements for Defined Benefit Plans*. This standard modifies certain disclosures related to defined benefit pension and other postretirement plans and requires adoption on a retrospective basis to all periods presented. We early adopted this standard on December 31, 2018 and included the modified disclosures in Note 14.

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Accounting pronouncements not yet adopted – In February 2016, the FASB issued ASU No. 2016-02*Leasing*. This 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. In July 2018, the FASB issued two amendments to ASU No. 2016-02: ASU No. 2018-10, *Codification Improvements to Topic 842, Leases*, which amends narrow aspects of the guidance in ASU No. 2016-02, and ASU No. 2018-11, *Targeted Improvements,* which provides an optional transition method under which comparative periods presented in financial statements in the period of adoption would not be restated. All of these standards are effective for us on January 1, 2019. They are required to be adopted using a modified retrospective approach, and we plan to elect the optional transition method under ASU No. 2018-11. We established an implementation team to evaluate and identify the impact of these standards on our financial position, results of operations and cash flows. We are currently completing the assessment of our leasing arrangements and the implementation of software to meet the reporting requirements of the standard. We anticipate that we will elect the practical expedient package outlined in ASU No. 2016-02 under which we do not have to reassess whether an arrangement contains a lease, we can carryforward our previous classification of leases as either operating or capital leases, and we do not have to reassess previously recorded initial direct costs. Additionally, we anticipate that we will make the following policy elections:

- We will exclude leases with original terms of 12 months or less from lease assets and liabilities;
- We will separate nonlease components from the associated lease component for real estate leases; and
- We will use the accounting lease term when determining the incremental borrowing rate for leases with renewal options.

We estimate that we will recognize, as of January 1, 2019, lease assets and liabilities of at least $45,000 for leases classified as operating leases under previous guidance. We do not expect the new guidance to have a significant impact on our consolidated statements of income or on our consolidated statements of cash flows on an ongoing basis.

In June 2016, the FASB issued ASU No. 2016-13, *Measurement of Credit Losses on Financial Instruments*. This 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. In November 2018, the FASB issued ASU No. 2018-19, *Codification Improvements to Topic 326, Financial Instruments – Credit Losses*, which clarifies that receivables arising from operating leases are not within the scope of ASU No. 2016-13. These standards are effective for us on January 1, 2020 and require adoption using a modified retrospective approach. We do not expect the application of these standards to have a significant impact on our results of operations or financial position.

In August 2018, the FASB issued ASU No. 2018-15, *Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*. This standard aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. The accounting for the service element of a hosting arrangement that is a service contract is not affected by the new standard. The guidance is effective for us on January 1, 2020 and may be adopted retrospectively or prospectively to eligible costs incurred on or after the date the guidance is first applied. This new guidance will impact our results of operations and financial position as we currently expense these implementation costs as incurred. As we have not historically tracked these costs separately, we are not able to quantify the expected impact on our consolidated financial statements. We plan to adopt the standard prospectively.

Note 3: Supplemental balance sheet and cash flow information

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

(in thousands)	2018	2017
Trade accounts receivable – gross	$177,501	$152,728
Allowances for uncollectible accounts	(3,639)	(2,884)
Trade accounts receivable – net	$173,862	$149,844

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

(in thousands)	2018	2017	2016
Balance, beginning of year	$2,884	$2,828	$4,816

Bad debt expense	3,622	3,208	2,539
Write-offs, net of recoveries	(2,867)	(3,152)	(4,527)
Balance, end of year	$3,639	$2,884	$2,828

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

(in thousands)	2018	2017
Raw materials	$7,543	$7,357
Semi-finished goods	7,273	7,635
Finished goods	27,608	24,146
Supplies	4,017	3,111
Inventories and supplies	$46,441	$42,249

Available-for-sale debt securities – Available-for-sale debt securities included within funds held for customers were comprised of the following:

	December 31, 2018			
(in thousands)	Cost	Gross unrealized gains	Gross unrealized losses	Fair value
Funds held for customers:[1]				
Domestic money market fund	$16,000	$ —	$ —	$16,000
Canadian and provincial government securities	8,485	—	(355)	8,130
Canadian guaranteed investment certificates	7,333	—	—	7,333
Available-for-sale debt securities	$31,818	$ —	$ (355)	$31,463

[1] Funds held for customers, as reported on the consolidated balance sheet as of December 31, 2018, also included cash of $69,519.

	December 31, 2017			
(in thousands)	Cost	Gross unrealized gains	Gross unrealized losses	Fair value
Funds held for customers:[1]				
Domestic money market fund	$17,300	$ —	$ —	$17,300
Canadian and provincial government securities	9,051	—	(393)	8,658
Canadian guaranteed investment certificates	7,955	—	—	7,955
Available-for-sale debt securities	$34,306	$ —	$ (393)	$33,913

[1] Funds held for customers, as reported on the consolidated balance sheet as of December 31, 2017, also included cash of $52,279.

Expected maturities of available-for-sale debt securities as of December 31, 2018 were as follows:

(in thousands)	Fair value
Due in one year or less	$25,195
Due in two to five years	3,398
Due in six to ten years	2,870
Available-for-sale debt securities	$31,463

Further information regarding the fair value of available-for-sale debt securities can be found in Note 8.

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

	2018			2017		
(in thousands)	Gross carrying amount	Accumulated depreciation	Net carrying amount	Gross carrying amount	Accumulated depreciation	Net carrying amount
Land and improvements	$28,199	$ (8,167)	$ 20,032	$28,220	$ (8,064)	$ 20,156
Buildings and improvements	116,348	(83,317)	33,031	114,793	(80,168)	34,625
Machinery and equipment	313,000	(275,721)	37,279	299,645	(269,788)	29,857
Property, plant and equipment	$457,547	$ (367,205)	$ 90,342	$442,658	$ (358,020)	$ 84,638

Assets held for sale – Assets held for sale as of December 31, 2018 consisted of 1 small business customer list. Assets held for sale as of December 31, 2017 included 2 providers of printed and promotional products and 2 small business distributors, all of which were sold during 2018. Also during 2018, we sold several small business customer lists that did not meet the requirements to be classified as held for sale in the December 31, 2017 consolidated balance sheet. We determined that the assets sold would be better positioned for long-term growth if they were managed by independent distributors. Subsequent to the sales, the businesses and customer lists are owned by independent distributors that are part of our Safeguard distributor network. As such, our revenue is not impacted by these sales and the impact to our costs is not significant. We entered into aggregate notes receivable of $35,616 in conjunction with these sales and we recognized aggregate net gains of $15,641 within SG&A expense in the 2018 consolidated statement of income. During 2017, we sold a provider of printed and promotional products, assets associated with certain custom printing activities and 3 small business distributors. We entered into aggregate notes receivable of $24,497 in conjunction with these sales and we recognized aggregate net gains of $8,703 within SG&A expense in the 2017 consolidated statement of income.

The assets sold during 2018 and 2017, as well as the customer list held for sale as of December 31, 2018, were included in our Small Business Services segment and consisted primarily of intangible assets. During 2017, we recorded aggregate pre-tax asset impairment charges of $8,250 related to a small business distributor sold during the second quarter of 2017. The impairment charges reduced the carrying value of the business to its fair value less costs to sell, as we finalized the sale of this business.

We are actively marketing the remaining asset held for sale and we expect the selling price will equal or exceed its current carrying value. Net assets held for sale consisted of the following at December 31:

(in thousands)	2018	2017	Balance sheet caption
Current assets	$—	$4	Other current assets
Intangibles	1,350	8,459	Assets held for sale
Goodwill	—	3,566	Assets held for sale
Other non-current assets	—	207	Assets held for sale
Net assets held for sale	$1,350	$12,236	

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

	2018			2017		
(in thousands)	Gross carrying amount	Accumulated amortization	Net carrying amount	Gross carrying amount	Accumulated amortization	Net carrying amount
Indefinite-lived intangibles:						
Trade name[1]	$—	$ —	$—	$19,100	$ —	$19,100
Amortizable intangibles:						
Internal-use software	388,477	(308,313)	80,164	359,079	(284,074)	75,005
Customer lists/relationships[2]	379,570	(170,973)	208,597	343,589	(121,729)	221,860
Trade names	50,645	(26,204)	24,441	36,931	(19,936)	16,995
Technology-based intangibles	39,300	(14,007)	25,293	31,800	(6,400)	25,400
Software to be sold	36,900	(15,430)	21,470	36,900	(11,204)	25,696
Other	700	(700)	—	1,800	(1,590)	210
Amortizable intangibles	895,592	(535,627)	359,965	810,099	(444,933)	365,166
Intangibles	$895,592	$ (535,627)	$359,965	$829,199	$ (444,933)	$384,266

[1] During the third quarter of 2018, we recorded a pre-tax asset impairment charge of $19,100 for our indefinite-lived trade name. Further information can be found in Note 8.

[2] During 2018, we recorded pre-tax asset impairment charges of $4,031 related to amortizable customer lists. Further information can be found in Note 8.

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

(in thousands)	2018	2017	2016
Customer lists/relationships	$57,243	$54,450	$33,233
Internal-use software	38,307	35,952	35,217
Technology-based intangibles	7,607	6,400	—
Trade names	6,362	5,789	4,952
Other amortizable intangibles	5,009	4,193	3,683
Amortization of intangibles	$114,528	$106,784	$77,085

Based on the intangibles in service as of December 31, 2018, estimated amortization expense for each of the next five years ending December 31 is as follows:

(in thousands)	Estimated amortization expense
2019	$ 90,924
2020	71,135
2021	54,795
2022	39,571
2023	29,205

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We acquire internal-use software in the normal course of business. We also acquire intangible assets in conjunction with acquisitions (Note 6). The following intangible assets were acquired during the years ended December 31:

	2018		2017		2016	
(in thousands)	Amount	Weighted-average amortization period (in years)	Amount	Weighted-average amortization period (in years)	Amount	Weighted-average amortization period (in years)
Customer lists/relationships[1]	$60,775	8	$60,034	7	$118,415	8
Internal-use software	42,744	3	38,422	3	45,780	4
Trade names	14,700	7	10,000	6	3,800	4
Technology-based intangibles	7,500	5	800	3	28,000	5
Software to be sold	—	—	2,200	5	6,200	10
Acquired intangibles	$125,719	6	$111,456	6	$202,195	6

[1] During 2018, we acquired customer lists of $1,188 that did not qualify as business combinations.

Information regarding acquired intangibles does not include measurement-period adjustments for changes in the estimated fair values of intangibles acquired through acquisitions. Information regarding these adjustments can be found in Note 6.

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, 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
Impairment charge (Note 8)	(28,379)	—	—	(28,379)
Goodwill resulting from acquisitions (Note 6)	26,788	33,210	—	59,998
Measurement-period adjustments for prior year acquisitions (Note 6)	30	(2,160)	—	(2,130)
Sale of small business distributor	(1,000)	—	—	(1,000)
Reclassification of assets held for sale	(3,970)	—	—	(3,970)
Currency translation adjustment	459	—	—	459
Balance, December 31, 2017:				
Goodwill, gross	706,568	324,239	148,506	1,179,313
Accumulated impairment charges	(48,379)	—	—	(48,379)
Goodwill, net of accumulated impairment charges	658,189	324,239	148,506	1,130,934
Impairment charge (Note 8)	(78,188)	—	—	(78,188)
Goodwill resulting from acquisitions (Note 6)	59,488	46,419	—	105,907
Measurement-period adjustments for prior year acquisitions (Note 6)	1,420	2,763	—	4,183
Adjustment of assets held for sale	635	—	—	635
Currency translation adjustment	(2,845)	—	—	(2,845)
Balance, December 31, 2018:				
Goodwill, gross	765,266	373,421	148,506	1,287,193
Accumulated impairment charges	(126,567)	—	—	(126,567)
Goodwill, net of accumulated impairment charges	$638,699	$373,421	$148,506	$1,160,626

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

(in thousands)	2018	2017
Loans and notes receivable from Safeguard distributors	$78,693	$44,276
Prepaid product discounts[1]	54,642	63,895
Postretirement benefit plan asset (Note 14)	41,259	39,849
Deferred sales commissions[2]	6,482	—
Deferred advertising costs	5,746	6,135
Other	9,286	5,601
Other non-current assets	$196,108	$159,756

[1] In our prior year financial statements, we referred to this asset as contract acquisition costs.

[2] Net of amortization of $2,722 for the year ended December 31, 2018.

Changes in prepaid product discounts were as follows for the years ended December 31:

(in thousands)	2018	2017	2016
Balance, beginning of year	$63,895	$65,792	$58,792
Additions[1]	14,023	18,224	27,506
Amortization	(22,941)	(19,969)	(20,185)
Other	(335)	(152)	(321)
Balance, end of year	$54,642	$63,895	$65,792

[1] Prepaid product discounts are generally accrued upon contract execution. Cash payments made for prepaid product discounts were $23,814 for 2018, $27,079 for 2017 and $23,068 for 2016.

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

(in thousands)	2018	2017
Funds held for customers	$99,818	$85,091
Deferred revenue	54,313	47,021
Employee profit sharing/cash bonus	31,286	31,312
Prepaid product discounts due within one year[1]	10,926	11,670
Customer rebates	9,555	11,508
Income tax	7,991	17,827
Acquisition-related liabilities[2]	4,850	23,878
Restructuring and integration (Note 9)	3,320	4,380
Other	62,222	44,566
Accrued liabilities	$284,281	$277,253

[1] In our prior year financial statements, we referred to this liability as contract acquisition costs due within one year.

[2] 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 8.

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

(in thousands)	2018	2017
Prepaid product discounts[1]	$12,513	$21,658
Other	27,367	30,583
Other non-current liabilities	$39,880	$52,241

(1) In our prior year financial statements, we referred to this liability as contract acquisition costs.

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

(in thousands)	2018	2017	2016
Reconciliation of cash, cash equivalents, restricted cash and restricted cash equivalents to the consolidated balance sheets:			
Cash and cash equivalents	$59,740	$59,240	$76,574
Restricted cash and restricted cash equivalents included in funds held for customers	85,519	69,579	72,291
Total cash, cash equivalents, restricted cash and restricted cash equivalents	$145,259	$128,819	$148,865
Income taxes paid	$88,253	$124,878	$97,309
Interest paid	25,910	19,465	20,975
Non-cash investing activities:			
Proceeds from sales of assets – notes receivable	35,616	24,497	—
Acquisition-related liabilities[1]	3,011	5,855	27,441

[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 8.

Note 4: 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.

(in thousands, except per share amounts)	2018	2017	2016
Earnings per share – basic:			
Net income	$149,630	$230,155	$229,382
Income allocated to participating securities	(617)	(1,457)	(1,870)
Income available to common shareholders	$149,013	$228,698	$227,512
Weighted-average shares outstanding	46,842	48,127	48,562
Earnings per share – basic	$3.18	$4.75	$4.68
Earnings per share – diluted:			
Net income	$149,630	$230,155	$229,382
Income allocated to participating securities	(616)	(1,450)	(1,858)
Re-measurement of share-based awards classified as liabilities	(471)	59	296
Income available to common shareholders	$148,543	$228,764	$227,820
Weighted-average shares outstanding	46,842	48,127	48,562
Dilutive impact of potential common shares	149	321	413
Weighted-average shares and potential common shares outstanding	46,991	48,448	48,975
Earnings per share – diluted	$3.16	$4.72	$4.65
Antidilutive options excluded from calculation	1,209	262	214

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Note 5: Other comprehensive (loss) income

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

Accumulated other comprehensive loss components	**Amounts reclassified from accumulated other comprehensive loss**			**Affected line item in consolidated statements of income**
(in thousands)	**2018**	**2017**	**2016**	
Amortization of postretirement benefit plan items:				
Prior service credit	$1,421	$1,421	$1,421	Other income
Net actuarial loss	(2,884)	(3,637)	(3,797)	Other income
Total amortization	(1,463)	(2,216)	(2,376)	Other income
Tax benefit	491	372	724	Income tax provision
Total reclassifications, net of tax	$(972)	$(1,844)	$(1,652)	Net income

Accumulated other comprehensive loss – Changes in the components of accumulated other comprehensive loss were as follows for the years ended December 31:

(in thousands)	**Postretirement benefit plans, net of tax**	**Net unrealized loss on marketable debt securities, net of tax**	**Currency translation adjustment**	**Accumulated other comprehensive loss**
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)
Other comprehensive income (loss) before reclassifications	7,011	(109)	4,028	10,930
Amounts reclassified from accumulated other comprehensive loss	1,844	—	—	1,844
Net current-period other comprehensive income (loss)	8,855	(109)	4,028	12,774
Balance, December 31, 2017	(26,829)	(322)	(10,446)	(37,597)
Other comprehensive loss before reclassifications	(3,805)	(1)	(9,281)	(13,087)
Amounts reclassified from accumulated other comprehensive loss	972	—	—	972
Net current-period other comprehensive loss	(2,833)	(1)	(9,281)	(12,115)
Adoption of ASU No. 2018-02 (Note 2)	(6,867)	—	—	(6,867)
Balance, December 31, 2018	$ (36,529)	$ (323)	$ (19,727)	$ (56,579)

Note 6: Acquisitions

We regularly 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 $1,719 in 2018, $2,342 in 2017 and $4,944 in 2016. The acquisitions completed during the past 3 years were cash transactions, funded by use of our revolving credit facility. We completed these acquisitions primarily to increase our mix of marketing solutions and other services revenue,

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to add financial technology and web services capabilities, to improve our product and service offerings and to reach new customers.

2018 acquisitions – During 2018, we completed the following acquisitions that were included within our Small Business Services segment:

- In March 2018, we acquired all of the equity of Logomix Inc. (Logomix), a self-service marketing and branding platform that helps small businesses create logos and custom marketing products. The allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in nondeductible goodwill of $29,451. The acquisition resulted in goodwill as we expect to accelerate revenue growth by combining our capabilities with Logomix's platform.
- In June 2018, we acquired selected assets of Velocity Servers, Inc., doing business as ColoCrossing, a data center solutions, cloud hosting and infrastructure colocation provider of dedicated hosting 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 $9,689. The acquisition resulted in goodwill as we expect to accelerate revenue growth by bringing colocation services into our portfolio of hosting services. We expect to finalize the allocation of the purchase price in the first quarter of 2019, when our valuation of the acquired intangible assets is complete.
- In December 2018, we acquired selected assets of My Corporation Business Services, Inc., a provider of business incorporation and organization 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 $20,348. The acquisition resulted in goodwill as we expect to accelerate revenue growth by bringing these services into our portfolio of web services. We expect to finalize the allocation of the purchase price in 2019, when our valuation of the acquired intangible assets, as well as various other assets acquired and liabilities assumed, is complete.
- During 2018, we acquired the operations of 3 small business distributors. The assets acquired consisted primarily of customer list intangible assets. As these small business 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.

Within our Financial Services segment, we acquired the equity of REMITCO LLC (RemitCo) in August 2018. RemitCo was the remittance processing business of First Data Corporation. 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 $46,419 and a customer list intangible asset of $36,000. The acquisition resulted in goodwill as it expands the scale of our receivables management solutions, which allows us to take advantage of the ongoing market trend toward outsourcing technology-enabled services to trusted financial technology partners of scale. We expect to finalize the allocation of the purchase price by mid-2019, when our valuation of miscellaneous assets acquired and liabilities assumed is complete.

2017 acquisitions – During 2017, we completed the following acquisitions that were included within our Small Business Services segment:

- In February 2017, we acquired selected assets of Panthur Pty Ltd (Panthur), an Australian web hosting and domain registration service provider. The allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in nondeductible goodwill of $1,198. The acquisition resulted in goodwill as we used Panthur's platform to selectively expand into foreign markets.
- In July 2017, we acquired all of the equity of Digital Pacific Group Pty Ltd (Digital Pacific), an Australian web hosting and domain registration service provider. The allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in nondeductible goodwill of $23,773. The acquisition resulted in goodwill as we acquired enhanced web hosting capabilities that we used to selectively expand into foreign markets.
- In September 2017, we acquired all of the equity of j2 Global Australia Pty Ltd, doing business as Web24, an Australian web hosting and domain registration service provider. The allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in nondeductible goodwill of $2,731. The acquisition resulted in goodwill as we used Web24's platform to selectively expand into foreign markets.
- In November 2017, we acquired selected assets of Impact Marketing Specialists, Inc., which provides marketing solutions to real estate agents.
- In December 2017, we acquired selected assets of SY Holdings, LLC, doing business as managed.com, a web hosting services provider. 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 $266. The acquisition resulted in goodwill as the expertise we acquired improved our customer mix and enhanced our portfolio of web services.
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During 2017, we acquired the operations of several small business distributors. The assets acquired consisted primarily of customer list intangible assets. All but 1 of these distributors were previously part of our Safeguard distributor network. As such, our results of operations were not significantly impacted by these acquisitions.

Within our Financial Services segment, we acquired all of the equity of RDM Corporation (RDM) of Canada in April 2017. RDM is a provider of remote deposit capture software, hardware and digital imaging solutions for financial institutions and corporate clients. The allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities

assumed resulted in nondeductible goodwill of $35,973. The acquisition resulted in goodwill as it enhanced our selection of treasury management solutions, strengthening our value proposition and improving our market position.

2016 acquisitions – During 2016, we completed the following acquisitions that were included within our Small Business Services segment:

- 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 April 2016, we acquired selected assets of 180 Fusion LLC, a digital marketing services provider. 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 $800. The acquisition resulted in goodwill as it enhanced our Small Business Services product set by providing valuable marketing tools to our customers, thus, enhancing customer acquisition and loyalty.
- 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 it enabled us to diversify our promotional product offerings and bring these offerings to our customer base.
- 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 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 it enabled 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 allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in tax-deductible goodwill of $6,882. The acquisition resulted in goodwill as Payce's expertise, customer mix and operational strength enhanced our existing portfolio of web 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 results of operations were not significantly impacted by these acquisitions.

Within Financial Services, we completed the following acquisitions:

- 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 allocation of the purchase price based upon the estimated fair values of the assets acquired and liabilities assumed resulted in tax-deductible goodwill of $4,025. The acquisition resulted in goodwill as Data Support Systems' solutions were complementary to those of our Wausau Financial Services business, which created significant cross-sell opportunities.
- In December 2016, we acquired all of the equity of First Manhattan Consulting Group, LLC (FMCG), a provider of data-driven marketing solutions for financial institutions. 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 $110,219. The acquisition resulted in goodwill due to revenue synergies with our Datamyx business, cost synergies such as leveraging common data sources, and the ability to bring FMCG's solutions to our client base.

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

(in thousands)	**FMCG**
Net tangible assets acquired and liabilities assumed[1]	$4,334
Identifiable intangible assets:	
Customer list/relationships	53,000
Technology-based intangible	31,000
Trade name	3,000
Total intangible assets[2]	87,000
Goodwill	110,219
Total aggregate purchase price	201,553
Liability for holdback payments	(16,000)
Payment for acquisition, net of cash acquired	$185,553

[1] Net tangible assets acquired consisted primarily of accounts receivable, revenue in excess of billings and accounts payable outstanding as of the date of acquisition.

[2] The 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.

Aggregate information – Information regarding goodwill by reportable segment and the useful lives of acquired intangibles can be found in Note 3. Information regarding the calculation of the estimated fair values of the acquired intangibles can be found in Note 8. As our acquisitions were not significant to our reported operating results both individually and in the aggregate, pro forma results of operations are not provided.

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The following illustrates the allocation of the aggregate purchase price for the above acquisitions to the assets acquired and liabilities assumed:

(in thousands)	2018 acquisitions[1]	2017 acquisitions[2]	2016 acquisitions[3]
Net tangible assets acquired and liabilities assumed[4]	$ 9,366	$ (1,956)	$ (8,804)
Identifiable intangible assets:			
Customer lists/relationships	59,587	58,620	116,491
Trade names	14,700	10,000	3,800
Software to be sold	—	2,200	6,200
Technology-based intangibles	7,500	800	31,000
Internal-use software	—	1,445	10,450
Total intangible assets	81,787	73,065	167,941
Goodwill	105,907	63,941	127,197
Total aggregate purchase price	197,060	135,050	286,334
Liabilities for holdback payments and contingent consideration[5]	(3,011)	(5,980)	(27,441)
Non-cash consideration[6]	(1,060)	—	(2,020)
Net cash paid for current year acquisitions	192,989	129,070	256,873
Measurement-period adjustment for 2015 acquisition[7]	—	—	(18,743)
Holdback payments for prior year acquisitions	21,269	10,153	1,534
Payments for acquisitions, net of cash acquired[8]	$ 214,258	$ 139,223	$ 239,664

[1] Net tangible assets acquired and liabilities assumed for 2018 consisted primarily of REMITCO accounts receivable and Logomix deferred income tax liabilities.

[2] Net tangible assets acquired and liabilities assumed for 2017 consisted primarily of accounts receivable, marketable securities, inventory and accrued liabilities of RDM and Digital Pacific. Amounts include measurement-period adjustments recorded in 2018 for the finalization of purchase accounting for several of the 2017 acquisitions. These adjustments increased goodwill $4,183, with the offset to various assets and liabilities, including deferred revenue, deferred income taxes and other long-term liabilities, as well as a decrease of $1,654 in customer list intangibles and an increase in internal-use software of $1,000.

[3] Net tangible assets acquired and liabilities assumed for 2016 included customer funds obligations of $12,532 related to the acquisition of Payce, Inc., as well as accounts receivable, revenue in excess of billings and accounts payable of FMCG. Amounts include measurement-period adjustments recorded in 2017 for the finalization of purchase accounting for several of the 2016 acquisitions. These adjustments decreased goodwill $2,130, with the offset to various assets and liabilities, including other current assets, accounts payable and intangibles, including an increase of $3,000 in acquired technology-based intangibles and a decrease of $1,924 in customer list intangibles.

[4] Net tangible assets acquired included trade accounts receivable of $11,564 during 2018, $4,544 during 2017 and $8,065 during 2016.

[5] 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 8.

[6] Consists of pre-acquisition amounts owed to us by certain of the acquired businesses.

[7] Reflects a measurement-period adjustment recorded in 2016 for funds held for customers of FISC Solutions, which was acquired in December 2015. Cash and cash equivalents included in funds held for customers are presented as restricted cash and restricted cash equivalents in the consolidated statements of cash flows.

[8] Cash and cash equivalents acquired were $1,645 during 2018, $27,299 during 2017 and $146 during 2016.

Note 7: Derivative financial instruments

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. 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 related long-term debt was retired during 2016 (Note 15) and we concurrently settled the interest rate swaps, resulting in a cash payment of $2,842, which is included in net cash provided by operating activities in our consolidated statement of cash flows for the year ended December 31, 2016.

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Note 8: 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.

2018 impairment analyses – In completing the 2018 annual impairment analysis of goodwill, we elected to perform a qualitative assessment for 5 of our reporting units and a quantitative assessment for 2 of our reporting units: Small Business Services Web Services and Small Business Services Indirect. Small Business Services Web Services includes our businesses that provide hosting and domain name services, logo and web design, search engine marketing and optimization, payroll services and business incorporation and organization services. Small Business Services Indirect consists primarily of our Safeguard distributor channel, former Safeguard distributors that we have purchased, and our independent dealer channel.

The qualitative analyses 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 analyses completed as of July 31, 2017, which indicated that the estimated fair values of the 5 reporting units exceeded their carrying values by approximate amounts between $64,000 and $1,405,000, or by amounts between 50% and 314% above the carrying values of their net assets. In completing these assessments, we noted no changes in events or circumstances that indicated that it was more likely than not that the fair value of any reporting unit was less than its carrying amount.

The quantitative analysis as of July 31, 2018 for the Small Business Services Web Services reporting unit indicated that the estimated fair value of the reporting unit exceeded its carrying value by approximately $63,000, or 22%. The carrying value of this reporting unit's goodwill was $225,383 as of July 31, 2018. The quantitative analysis of the Small Business Services Indirect reporting unit indicated that the reporting unit's goodwill was fully impaired, resulting in a pre-tax goodwill impairment charge of $78,188 during the quarter ended September 30, 2018. The impairment charge was measured as the amount by which the reporting unit's carrying value exceeded its estimated fair value, limited to the carrying amount of goodwill. The analysis of this reporting unit, which incorporated the results of the annual strategic planning process completed during the third quarter of 2018, indicated lowered projected long-term revenue growth and profitability levels resulting from changes in strategy and focus and in the mix of products and services sold, including the continuing secular decline in check and forms usage. Additionally, our strategic plan reflected a shift in company resources to our growing businesses. Our indefinite-lived Safeguard trade name was included in the Small Business Services Indirect reporting unit. As of July 31, 2018, we completed a quantitative analysis of this asset that indicated the asset was fully impaired (level 3 fair value measurement), resulting in a pretax asset impairment charge of $19,100. This impairment charge was driven by the same factors that resulted in the goodwill impairment charge, which indicated that any royalties attributable to the asset under our relief from royalty calculation had no future value.

2017 impairment analyses – In conjunction with our annual strategic planning process during the third quarter of 2017, we made various changes to our internal reporting structure. As a result, we reassessed our operating segments and determined that no changes were required in our reportable operating segments. We also reassessed our previously determined reporting units and concluded that a realignment of a portion of our reporting units was required. As such, we reallocated the carrying value of goodwill to our revised reporting units based on their relative fair values. We analyzed goodwill for impairment immediately prior to this realignment by performing qualitative analyses for our Small Business Services reporting units and quantitative analyses for our Financial Services and Direct Checks reporting units. The qualitative analyses 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 last quantitative analysis we completed. In completing these assessments, we noted no changes in events or circumstances that indicated that it was more likely than not that the fair value of any reporting unit was less than its carrying amount, with the exception of our Small Business Services Safeguard reporting unit. The analysis of this reporting unit, which incorporated the results of the annual strategic planning process, indicated lowered projected long-term revenue growth and profitability levels resulting from changes in market trends and the mix of products and services sold, including the continuing secular decline in check and forms usage. As a result, we completed impairment analyses of the long-term assets of this reporting unit, excluding goodwill, and concluded that these assets were not impaired. We then completed the quantitative analysis of the reporting unit, utilizing the income approach outlined in Note 1. This quantitative analysis indicated that this reporting unit's goodwill was fully impaired and resulted in a non-cash pre-tax goodwill impairment charge of $28,379 during the quarter ended September 30, 2017. The impairment charge was measured as the amount by which the reporting unit's carrying value exceeded its estimated fair value, limited to the carrying amount of goodwill. Immediately subsequent to the realignment of our reporting unit structure, we completed a quantitative analysis for all of our reporting units. This quantitative analysis as of July 31, 2017 indicated that the

estimated fair values of our reporting units exceeded their carrying values by approximate amounts between $64,000 and $1,405,000, or by amounts between 36% and 314% above the carrying values of their net assets.

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In completing the 2017 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 $16,000 as of July 31, 2017.

2016 impairment analyses – In completing the 2016 annual goodwill impairment analyses, we elected to perform qualitative assessments 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%. 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 the 2016 assessment. Our qualitative analyses completed during 2016 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 analyses 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 the 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.

Other non-recurring asset impairment analyses – During the fourth quarter of 2018, we performed a quantitative analysis of our Financial Services Data-Driven Marketing reporting unit. Revenue for this reporting unit was below our projections driven by higher mortgage lending rates, which result in less lending activity for our financial institution clients and thus, may cause them to reduce their marketing spending, as well as a large client electing to do certain of its marketing in-house. The quantitative analysis as of December 31, 2018 indicated that the estimated fair value of the reporting unit exceeded its carrying value by approximately $105,000, or 36%. As such, no goodwill impairment charge was recorded for this reporting unit. The carrying value of this reporting unit's goodwill was $186,388 as of December 31, 2018.

During the third quarter of 2018, we recorded pre-tax asset impairment charges of $1,882 for Financial Services customer list intangible assets related to 2 distributors we acquired in 2015. Based on higher than anticipated customer attrition, we determined that the customer lists were partially impaired as of July 31, 2018. During the first quarter of 2018, we recorded a pre-tax asset impairment charge of $2,149 related to a Small Business Services customer list intangible asset. Based on changes in the customer base of one of our small business distributors, we determined that the customer list asset was fully impaired as of March 31, 2018. We utilized the discounted value of estimated future cash flows to estimate the fair values of these asset groups.

During 2017, we recorded aggregate pre-tax asset impairment charges of $8,250 related to a small business distributor that was classified as held for sale in the consolidated balance sheets prior to its sale during the second quarter of 2017. The impairment charges were calculated based on ongoing negotiations for the sale of the business and reduced its carrying value to its fair value less costs to sell by reducing the carrying value of the related customer list intangible asset. Further information regarding assets held for sale can be found in Note 3.

During the quarter ended September 30, 2017, we decided that we would no longer utilize our Small Business Services NEBS® trade name in the marketplace, and we recorded a non-cash pre-tax asset impairment charge of $14,752 to write down the remaining book value of this trade name to a fair value of $0. Also during the quarter ended September 30, 2017, we recorded pre-tax asset impairment charges of $3,499 related to other long-lived assets within Small Business Services, primarily internal-use software related to an order capture system. During the third quarter of 2017, we signed a contract for customer relationship management services that resulted in our decision to no longer utilize a portion of this software. As such, the remaining net book value of the assets was written down to a fair value of $0.

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Information regarding these other nonrecurring asset impairment analyses 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
2018 analyses:					
Customer list (Small Business Services)	$ —	$ —	$ —	$ —	$ 2,149
Customer lists (Financial Services)[1]	4,223	—	—	4,223	1,882
Total					$ 4,031
2017 analyses:					
Trade name	$ —	$ —	$ —	$ —	$ 14,752
Assets held for sale	3,500	—	—	3,500	8,250
Other	—	—	—	—	3,499
Total					$ 26,501

[1] The fair value presented is for the entire asset group that includes the impaired customer lists.

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 6 and information regarding the useful lives of acquired intangibles can be found in Note 3. The identifiable net assets acquired during the past 3 years were comprised primarily of customer list intangible assets, technology-based intangible assets, trade names and software. The fair value of the more significant 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 trade 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 of the remainder of our acquired customer lists was estimated by discounting the estimated cash flows expected to be generated by the assets. Key assumptions used in these calculations included same-customer revenue growth rates, estimated earnings and estimated customer retention rates based on the acquirees' historical information.

The estimated fair value of the acquired technology-based intangibles, trade names and a portion of the acquired software was estimated using the relief from royalty method, which calculates the cost savings associated with owning rather than licensing the assets. Assumed royalty rates were applied to projected revenue for the estimated remaining useful lives of the assets to estimate the royalty savings. Royalty rates are selected based on the attributes of the asset, including its recognition and reputation in the industry, and in the case of trade names, with consideration of the specific profitability of the products sold under a trade name and supporting assets. 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.

For liabilities for contingent consideration recorded in conjunction with our acquisitions, we determined the fair value as of the acquisition dates by discounting to present value the probability-weighted contingent payments expected to be made. Key assumptions used in these calculations included the discount rate; projected revenue, gross profit or operating income, as appropriate, based on projected financial results of the acquired businesses from the perspective of an unrelated market participant; and factors indicating the probability of achieving the forecasted revenue, gross profit or operating income. The liabilities for contingent consideration related primarily to 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 debt securities (Note 3). The cash equivalents consisted of a money market fund investment that 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 debt 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

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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 3 years.

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)	**2018**	**2017**	**2016**
Balance, beginning of year	$3,623	$4,682	$5,861
Acquisition date fair value	100	—	1,132
Change in fair value	610	1,190	(1,174)
Payments	(1,937)	(2,249)	(1,137)
Balance, end of year	$2,396	$3,623	$4,682

The fair value of interest rate swaps outstanding during 2016 (Note 7) 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 that we settled during the fourth quarter of 2016. The 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 derivative and the related long-term debt were equal and were as follows for the year ended December 31, 2016:

(in thousands)	**2016**
Gain from derivatives	$1,200
Loss from change in fair value of hedged debt	(1,200)
Net effect on interest expense	$—

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Information regarding the fair values of our financial instruments was as follows:

	December 31, 2018		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)
Measured at fair value through net income:					
Accrued contingent consideration	$(2,396)	$(2,396)	$—	—	$(2,396)
Measured at fair value through comprehensive income:					
Cash equivalents (funds held for customers)	16,000	16,000	16,000	—	
Available-for-sale debt securities (funds held for customers)	15,463	15,463	—	15,463	—
Amortized cost:					
Cash	59,740	59,740	59,740	—	
Cash (funds held for customers)	69,519	69,519	69,519	—	
Loans and notes receivable from Safeguard distributors	81,560	60,795	—	—	60,795
Long-term debt[1]	910,000	910,000	—	910,000	—

[1] Amounts exclude capital lease obligations.

	December 31, 2017		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)
Measured at fair value through net income:					
Accrued contingent consideration	$(3,623)	$(3,623)	$—	—	$(3,623)
Measured at fair value through comprehensive income:					
Cash equivalents (funds held for customers)	17,300	17,300	17,300	—	
Available-for-sale debt securities (funds held for customers)	16,613	16,613	—	16,613	—
Amortized cost:					
Cash	59,240	59,240	59,240	—	
Cash (funds held for customers)	52,279	52,279	52,279	—	
Loans and notes receivable from Safeguard distributors	46,409	44,650	—	—	44,650
Long-term debt[1]	707,386	707,938	—	707,938	—

[1] Amounts exclude capital lease obligations.

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Note 9: Restructuring and integration expense

Net restructuring and integration expense for the years ended December 31 consisted of the following components:

(dollars in thousands)	2018	2017	2016
Severance accruals	$7,672	$7,843	$7,217
Severance reversals	(1,898)	(667)	(864)
Operating lease obligations	597	23	59
Operating lease reversals	(71)	—	—
Net accruals	6,300	7,199	6,412
Other costs	14,903	1,931	1,359
Restructuring and integration expense	$21,203	$9,130	$7,771
Number of employees included in severance accruals	205	200	265

Net restructuring and integration expense for the years ended December 31 is reflected in the consolidated statements of income as follows:

(in thousands)	2018	2017	2016
Total cost of revenue	$1,466	$568	$647
Operating expenses	19,737	8,562	7,124
Restructuring and integration expense	$21,203	$9,130	$7,771

In each of the past 3 years, the net 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, as well as employee reductions related to our integration initiatives. These charges were reduced by the reversal of accruals when fewer employees received severance benefits than originally estimated. Other restructuring and integration costs, which were expensed as incurred, included items such as information technology costs, employee and equipment moves, training and travel. During 2018, these costs related primarily to the integration of acquired businesses and the consolidation of information technology systems.

Restructuring and integration accruals of $3,461 as of December 31, 2018 are reflected in the consolidated balance sheet as accrued liabilities of $3,320 and other non-current liabilities of $141. Restructuring and integration accruals of $4,380 as of December 31, 2017 are included in accrued liabilities in the consolidated balance sheet. The majority of the employee reductions are expected to be completed by mid-2019, and we expect most of the related severance payments to be paid by the third quarter of 2019, utilizing cash from operations. The remaining amounts due under operating lease obligations will be paid by December 2020. As of December 31, 2018, approximately 30 employees had not yet started to receive severance benefits.

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Restructuring and integration accruals, summarized by year, were as follows:

(in thousands)	2018 initiatives	2017 initiatives	2016 initiatives	2014 & 2015 initiatives	Total
Balance, December 31, 2015	$ —	$ —	$ —	$ 3,864	$ 3,864
Charges	—	—	7,198	78	7,276
Reversals	—	—	(281)	(583)	(864)
Payments	—	—	(2,816)	(3,279)	(6,095)
Balance, December 31, 2016	—	—	4,101	80	4,181
Charges	—	7,222	603	41	7,866
Reversals	—	(161)	(464)	(42)	(667)
Payments	—	(2,713)	(4,208)	(79)	(7,000)
Balance, December 31, 2017	—	4,348	32	—	4,380
Charges	8,136	133	—	—	8,269
Reversals	(1,412)	(552)	(5)	—	(1,969)
Payments	(3,276)	(3,916)	(27)	—	(7,219)
Balance, December 31, 2018	$ 3,448	$ 13	$ —	$ —	$ 3,461
Cumulative amounts:					
Charges	$ 8,136	$ 7,355	$ 7,801	$ 14,488	$ 37,780
Reversals	(1,412)	(713)	(750)	(2,416)	(5,291)
Payments	(3,276)	(6,629)	(7,051)	(12,072)	(29,028)
Balance, December 31, 2018	$ 3,448	$ 13	$ —	$ —	$ 3,461

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

	Employee severance benefits				Operating lease obligations		
(in thousands)	Small Business Services	Financial Services	Direct Checks	Corporate[1]	Small Business Services	Financial Services	Total
Balance, December 31, 2015	$1,023	$884	$ —	$ 1,859	$56	$ 42	$3,864
Charges	2,634	1,937	143	2,503	59	—	7,276
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
Charges	2,032	2,168	143	3,500	23	—	7,866
Reversals	(214)	(93)	(4)	(356)	—	—	(667)
Payments	(2,212)	(2,018)	(6)	(2,745)	(19)	—	(7,000)
Balance, December 31, 2017	789	1,398	140	2,049	4	—	4,380
Charges	2,682	4,148	—	842	306	291	8,269
Reversals	(530)	(1,200)	(5)	(163)	—	(71)	(1,969)
Payments	(1,615)	(2,949)	(135)	(2,272)	(28)	(220)	(7,219)
Balance, December 31, 2018	$1,326	$1,397	$ —	$ 456	$282	$ —	$3,461
Cumulative amounts[2]:							
Charges	$13,073	$12,512	$ 322	$ 10,856	$673	$ 344	$37,780
Reversals	(2,313)	(1,668)	(13)	(1,226)	—	(71)	(5,291)
Inter-segment transfer	41	(14)	—	(27)	—	—	—
Payments	(9,475)	(9,433)	(309)	(9,147)	(391)	(273)	(29,028)
Balance, December 31, 2018	$1,326	$1,397	$ —	$ 456	$282	$ —	$3,461

[1] As discussed in Note 18, corporate costs are allocated to our business segments. As such, the net corporate charges are reflected in the business segment operating income presented in Note 18 in accordance with our allocation methodology.

[2] Includes accruals related to our cost reduction and integration initiatives for 2014 through 2018.

Note 10: Chief Executive Officer transition costs

In April 2018, we announced the retirement of Lee Schram, our former Chief Executive Officer (CEO). Mr. Schram will remain employed under the terms of a transition agreement through March 1, 2019. Under the terms of the transition agreement, if Mr. Schram remains employed through March 1, 2019, assists with the CEO transition, and complies with certain covenants, we will provide to Mr. Schram certain benefits, including a transition bonus in the amount of $2,000, accelerated vesting of certain restricted stock unit awards and continued vesting and settlement of a pro-rata portion of outstanding performance share awards to the extent such awards were earned based on the attainment of performance goals. The modifications to Mr. Schram's share-based payment awards resulted in expense of $2,088, which is being recognized through the first quarter of 2019.

In conjunction with the CEO transition, we also offered retention agreements to certain members of our management team under which each employee will be entitled to receive a cash bonus equal to his or her annual base salary or up to 1.5 times his or her annual base salary if he or she remains employed during the retention period, generally from July 1, 2018 to December 31, 2019, and complies with certain covenants. The retention bonus will be paid to an employee if his or her employment is terminated without cause before the end of the retention period. In addition, we incurred certain other costs related to the CEO transition process, such as executive search, legal, travel and board of directors fees. CEO transition costs are included in SG&A expense and were $7,210 for the year ended December 31, 2018, including the impact of modifications to Mr. Schram’s share-based payment awards. Accruals for CEO transition costs were $1,972 within accrued liabilities and $1,808 within other non-current liabilities on the consolidated balance sheet as of December 31, 2018.

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Note 11: Income tax provision

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

(in thousands)	2018	2017	2016
United States	$198,727	$299,424	$325,396
Foreign	13,904	13,403	14,990
Income before income taxes	$212,631	$312,827	$340,386

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

(in thousands)	2018	2017	2016
Current tax provision:			
Federal	$57,117	$104,079	$93,261
State	11,319	12,996	12,006
Foreign	5,921	4,774	3,851
Total current tax provision	74,357	121,849	109,118
Deferred tax provision:			
Federal	(7,220)	(37,471)	1,752
State	(1,701)	(491)	462
Foreign	(2,435)	(1,215)	(328)
Total deferred tax provision	(11,356)	(39,177)	1,886
Income tax provision	$63,001	$82,672	$111,004

The effective tax rate on pre-tax income reconciles to the United States federal statutory tax rate for the years ended December 31 as follows:

	2018	2017	2016
Income tax at federal statutory rate	21.0%	35.0%	35.0%
Goodwill impairment charge	7.1 %	1.5 %	—
State income tax expense, net of federal income tax benefit	3.0 %	2.7 %	2.4 %
Impact of Tax Cuts and Jobs Act	(0.8 %)	(6.6 %)	—
Qualified production activities deduction	—	(3.2 %)	(2.8 %)
Net tax benefit of share-based compensation	(0.8 %)	(1.6 %)	(1.2 %)
Other	0.1 %	(1.4 %)	(0.8 %)
Effective tax rate	29.6%	26.4%	32.6%

In December 2017, United States tax reform was signed into law as the Tax Cuts and Jobs Act (the 2017 Tax Act). This legislation included a broad range of tax reforms, including changes to corporate tax rates, business deductions and international tax provisions. The tax effects of changes in tax laws or rates must be recognized in the period in which the law is enacted. As such, this legislation resulted in a net benefit of approximately $20,500 to our 2017 income tax provision. This amount included the net tax benefit from the remeasurement of deferred income taxes to the new federal statutory tax rate of 21%, which was effective for us on January 1, 2018, and revised state income tax rates for those states we expected to follow the provisions of the 2017 Tax Act, partially offset by the establishment of a liability for repatriation toll charges related to undistributed foreign earnings and profits. During 2017, reasonable estimates were used to determine certain impacts of the 2017 Tax Act, including our 2017 deferred activity and the amount of post-1986 foreign deferred earnings subject to the repatriation toll charge. We finalized our accounting for the 2017 Tax Act during the fourth quarter of 2018. Our income tax provision for the year ended December 31, 2018 was reduced $1,700 for adjustments to our accounting for the 2017 Tax Act, primarily a reduction in the amount accrued for the repatriation toll charge.

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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)	2018	2017	2016
Balance, beginning of year	$3,795	$7,373	$5,743
Additions for tax positions of current year	315	378	521
Additions for tax positions of prior years	1,177	659	1,428
Reductions for tax positions of prior years	(108)	(4,389)	(177)
Lapse of statutes of limitations	(378)	(226)	(142)
Balance, end of year	$4,801	$3,795	$7,373

If the unrecognized tax benefits as of December 31, 2018 were recognized in our consolidated financial statements, income tax expense would decrease $4,801. Accruals for interest and penalties, excluding the tax benefits of deductible interest, were $1,156 as of December 31, 2018 and $1,046 as of December 31, 2017. Our income tax provision included expense for interest and penalties of $110 in 2018 and $179 in 2016 and included a reduction for interest and penalties of $284 in 2017. Within the next 12 months, it is reasonably possible that our unrecognized tax benefits will change in the range of a decrease of $3,200 to an increase of $1,800 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 2014 and prior years has expired. Audits of our federal income tax returns through 2015 have been completed by the Internal Revenue Service (IRS). Our 2016 and 2017 returns and our 2018 return, when filed, are subject to IRS examination. In general, income tax returns for the years 2014 through 2018 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:

	2018		2017	
(in thousands)	Deferred tax assets	Deferred tax liabilities	Deferred tax assets	Deferred tax liabilities
Goodwill	$—	$ 47,993	$—	$ 45,317
Intangible assets	—	3,780	—	7,490
Prepaid assets	—	3,469	—	3,137
Installment sales treatment of notes receivable	—	3,054	—	2,450
Deferred advertising costs	—	1,948	—	1,920
Property, plant and equipment	—	1,739	—	8,122
Net operating loss, capital loss and tax credit carryforwards	9,380	—	11,802	—
Reserves and accruals	8,893	—	6,151	—
Inventories	2,043	—	2,110	—
All other	4,657	5,095	3,895	3,119
Total deferred taxes	24,973	67,078	23,958	71,555
Valuation allowances	(1,689)	—	(1,518)	—
Net deferred taxes	$23,284	$ 67,078	$22,440	$ 71,555

The valuation allowances as of December 31, 2018 and December 31, 2017 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 $290 for 2018, $1,015 for 2017 and $302 for 2016 related to changes in the valuation allowances. The remainder of the change in the valuation allowances was attributable to foreign currency translation.

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As of December 31, 2018, 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 our foreign cash and cash equivalents into the United States at one time, the tax effects would generally be limited to foreign withholding taxes on any distributions. As of December 31, 2018, the amount of cash and cash equivalents held by our foreign subsidiaries was $51,310, primarily in Canada.

As of December 31, 2018, we had the following net operating loss, capital loss and tax credit carryforwards:

- state net operating loss carryforwards and tax credit carryforwards of $56,713 that expire at various dates up to 2038,
- foreign capital loss and net operating loss carryforwards of $6,733 that do not expire,
- foreign research tax credit and net operating loss carryforwards of $6,238 that expire at various dates up to 2037, and
- federal net operating loss and capital loss carryforwards of $1,708 that expire at various dates between 2025 and 2029.

Note 12: 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, 2017, our shareholders approved the Deluxe Corporation 2017 Long-Term Incentive Plan, simultaneously terminating our previous plan. Under this plan, 5.0 million shares of common stock plus any shares released as a result of the forfeiture or termination of awards issued under our prior plan are reserved for issuance, with 5.4 million shares remaining available for issuance as of December 31, 2018. Full value awards such as restricted stock, restricted stock units and performance share 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. Under our current and previous plans, we have granted non-qualified stock options, restricted stock units, restricted shares and performance share awards. Our current plan also allows for the issuance of stock appreciation rights, which we have not granted as of December 31, 2018. Our policies regarding the recognition of compensation expense for employee share-based awards can be found in Note 1.

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

(in thousands)	2018	2017	2016
Restricted shares and restricted stock units	$5,232	$6,533	$5,786
Performance share awards	4,502	4,782	2,806
Stock options	3,143	3,270	3,401
Employee stock purchase plan	501	524	466
Total share-based compensation expense	$13,378	$15,109	$12,459
Income tax benefit	$(3,946)	$(5,152)	$(4,063)

As of December 31, 2018, the total compensation expense for unvested awards not yet recognized in our consolidated statements of income was $16,683, net of the effect of estimated forfeitures. This amount is expected to be recognized over a weighted-average period of 2.1 years.

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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. 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:

	2018	2017	2016
Risk-free interest rate	2.7 %	1.6 %	1.1 %
Dividend yield	2.0 %	1.6 %	2.2 %
Expected volatility	23.0%	23.7%	25.5%
Weighted-average option life (in years)	3.9	3.7	4.0

The risk-free interest rate for periods within the expected option life is based on the United States 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 (in thousands)	Weighted-average remaining contractual term (in years)
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		
Granted	270	75.30		
Exercised	(347)	38.72		
Forfeited or expired	(35)	62.19		
Outstanding, December 31, 2017	1,139	56.51		
Granted	519	62.12		
Exercised	(339)	42.55		
Forfeited or expired	(74)	66.85		
Outstanding, December 31, 2018	1,245	62.04	$ 127	5.0
Exercisable at December 31, 2016	624	$ 38.50		
Exercisable at December 31, 2017	555	47.42		
Exercisable at December 31, 2018	472	59.90	$ 127	3.5

The weighted-average grant-date fair value of options granted was $10.98 per option for 2018, $12.81 per option for 2017 and $9.16 per option for 2016. 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 $10,007 for 2018, $11,699 for 2017 and $16,043 for 2016.

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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 qualified 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, 2015	167	$ 34.74	
Granted	38	55.39	
Vested	(46)	40.15	
Forfeited	(20)	58.69	
Outstanding at December 31, 2016	139	37.99	
Granted	16	73.27	
Vested	(43)	43.18	
Forfeited	(3)	57.18	
Outstanding at December 31, 2017	109	38.31	
Granted	110	52.32	
Vested	(22)	48.14	
Forfeited	(2)	74.96	
Outstanding at December 31, 2018	195	45.41	3.3

Of the awards outstanding as of December 31, 2018, 14 thousand restricted stock units with a value of $546 were included in accrued liabilities and other non-current liabilities in our consolidated balance sheet. As of December 31, 2018, these units had a fair value of $38.44 per unit and a weighted-average remaining contractual term of 7 months.

The total fair value of restricted stock units that vested was $1,619 for 2018, $3,161 for 2017 and $2,805 for 2016. We made cash payments of $78 during 2018, $421 during 2017 and $140 during 2016 to settle share-based liabilities.

Restricted shares - For restricted share awards granted to employees under our current long-term incentive plan, one-third of the shares vest each year over 3 years. Such awards granted under our previous plan vest in their entirety at the end of the 3 year vesting period. Restricted shares granted to directors typically have a 1 year vesting period. The restrictions lapse immediately in the case of qualified retirement, death or disability, or in the event of a change in control where replacement securities are not awarded. In the case of involuntary termination without cause, 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.

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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, 2015	170	$ 56.35	
Granted	97	56.22	
Vested	(22)	56.63	
Forfeited	(25)	56.86	
Unvested at December 31, 2016	220	56.43	
Granted	68	74.84	
Vested	(99)	52.41	
Forfeited	(8)	61.37	
Unvested at December 31, 2017	181	65.33	
Granted	77	71.29	
Vested	(76)	69.73	
Forfeited	(14)	66.24	
Unvested at December 31, 2018	168	66.02	1.1

The total fair value of restricted shares that vested was $5,375 for 2018, $7,452 for 2017 and $1,398 for 2016.

Performance share awards - Our performance share awards have a 3-year vesting period. 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:

	2018	2017	2016
Risk-free interest rate	2.4 %	1.4 %	0.9 %
Dividend yield	1.6 %	1.7 %	2.3 %
Expected volatility	21.6%	21.9%	22.7%

The risk-free interest rate for periods within the expected award life is based on the United States 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.

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Information regarding unvested performance shares was as follows:

	Performance shares (in thousands)	Weighted-average grant date fair value per share	Weighted-average remaining contractual term (in years)
Unvested at December 31, 2015	122	$ 58.13	
Granted[1]	153	52.75	
Forfeited	(39)	55.04	
Unvested at December 31, 2016	236	55.15	
Granted[1]	83	75.31	
Forfeited	(9)	64.85	
Vested	(60)	50.17	
Adjustment for performance results achieved[2]	5	50.34	
Unvested at December 31, 2017	255	63.42	
Granted[1]	91	74.49	
Forfeited	(48)	59.32	
Vested	(45)	67.10	
Adjustment for performance results achieved[2]	(3)	67.11	
Unvested at December 31, 2018	250	67.54	1.1

[1] Reflects awards granted assuming achievement of performance goals at target.

[2] Reflects the difference between the awards earned at the end of the performance period and the target number of shares.

Employee stock purchase plan – During 2018, 53 thousand shares were issued under this plan at prices of $63.13 and $50.09. During 2017, 46 thousand shares were issued under this plan at prices of $61.92 and $61.37. During 2016, 48 thousand shares were issued under this plan at prices of $47.52 and $57.45.

Note 13: Employee compensation 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 may contribute up to 50% of eligible wages, subject to IRS limitations and the terms and conditions of the plan. For the majority of employees, we match 100% of the first 1% of wages contributed 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.

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

(in thousands)	2018	2017	2016
Performance-based compensation plans[1]	$20,297	$22,085	$19,730
401(k) expense	9,686	9,023	8,309

[1] Excludes expense for share-based compensation, which is discussed in Note 12.

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 $4,458 as of December 31, 2018 and $4,581 as of December 31, 2017. 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 $10,831 as of December 31, 2018 and $11,648 as of December 31, 2017.

Note 14: Postretirement benefits

We have historically provided certain health care benefits for a large number of retired United States 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.

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Obligations and funded status – The following tables summarize the change in benefit obligation, plan assets and funded status during 2018 and 2017:

(in thousands)	Postretirement benefit plan	Pension plan[1]
Change in benefit obligation:		
Benefit obligation, December 31, 2016	$ 94,188	$3,447
Interest cost	2,794	101
Net actuarial (gain) loss	(1,469)	174
Benefits paid from plan assets and company funds	(7,919)	(324)
Benefit obligation, December 31, 2017	87,594	3,398
Interest cost	2,529	97
Net actuarial gain	(9,231)	(23)
Benefits paid from plan assets and company funds	(7,175)	(324)
Benefit obligation, December 31, 2018	$ 73,717	$3,148
Change in plan assets:		
Fair value of plan assets, December 31, 2016	$ 118,128	$—
Return on plan assets	15,309	—
Benefits paid	(5,994)	—
Fair value of plan assets, December 31, 2017	127,443	—
Return on plan assets	(6,663)	—
Benefits paid	(5,804)	—
Fair value of plan assets, December 31, 2018	$ 114,976	$—
Funded status, December 31, 2017	$ 39,849	$(3,398)
Funded status, December 31, 2018	$ 41,259	$(3,148)

[1] The accumulated benefit obligation equals the 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)	2018	2017	2018	2017
Other non-current assets	$41,259	$39,849	$ —	$ —
Accrued liabilities	—	—	324	324
Other non-current liabilities	—	—	2,824	3,074

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)	2018	2017
Unrecognized prior service credit	$14,178	$15,599
Unrecognized net actuarial loss	(57,436)	(55,174)
Tax effect	6,729	12,746
Amount recognized in accumulated other comprehensive loss, net of tax	$(36,529)	$(26,829)

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

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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.

Unrecognized net actuarial gains and losses result from experience different from that assumed and from changes in assumptions. The net actuarial gain generated during 2018 was primarily due to favorable claims experience and an increase in the discount rate used to discount the benefit obligation. The net actuarial gain generated during 2017 was primarily due to favorable claims experience, partially offset by a decrease in the discount rate used to discount the benefit obligation. 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 14.3 years.

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

(in thousands)	2018	2017	2016
Interest cost	$2,626	$2,896	$3,118
Expected return on plan assets	(7,737)	(7,128)	(7,335)
Amortization of prior service credit	(1,421)	(1,421)	(1,421)
Amortization of net actuarial losses	2,884	3,637	3,797
Net periodic benefit income	$(3,648)	$(2,016)	$(1,841)

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

	Postretirement benefit plan		Pension plan	
	2018	2017	2018	2017
Discount rate	4.13%	3.46%	4.01%	3.35%

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

	Postretirement benefit plan			Pension plan		
	2018	2017	2016	2018	2017	2016
Discount rate	3.46%	3.81%	4.02%	3.35%	3.66%	3.88%
Expected return on plan assets	6.25%	6.25%	6.50%	—	—	—

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 did not affect the measurement of our total benefit obligation, but it reduced the interest component of net periodic benefit income by $881 in 2016. This is a change in accounting estimate, and accordingly, we accounted for it on a prospective basis.

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.

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

	2018		2017		2016	
	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	7.70 %	8.70 %	7.90 %	9.10 %	7.50 %	8.75 %
Rate to which the cost trend rate is assumed to decline (the ultimate trend rate)	4.50 %	4.50 %	4.50 %	4.50 %	4.50 %	4.50 %
Year that the rate reaches the ultimate trend rate	2029	2029	2025	2025	2025	2025

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

	Postretirement benefit plan	
	2018	2017
Mortgage-backed securities	25 %	23 %
U.S. large capitalization equity securities	23 %	24 %
U.S. corporate debt securities	20 %	18 %
International equity securities	18 %	18 %
Government debt securities	11 %	13 %
U.S. small and mid-capitalization equity securities	3 %	4 %
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 55% fixed income securities, 24% large capitalization equity securities, 18% international equity securities and 3% small and mid-capitalization equity securities.

Information regarding fair value measurements of plan assets was as follows as of December 31, 2018:

	Fair value measurements using				
	Quoted prices in active markets for identical assets	Significant other observable inputs	Significant unobservable inputs	Investments measured at net asset value	Fair value as of December 31, 2018
(in thousands)	(Level 1)	(Level 2)	(Level 3)		
Mortgage-backed securities	$—	$ 13,593	$ —	$ 15,138	$ 28,731
U.S. large capitalization equity securities	—	—	—	26,240	26,240
U.S. corporate debt securities	6,489	12,468	—	3,594	22,551
International equity securities	20,261	298	—	—	20,559
Government debt securities	—	12,738	—	—	12,738
U.S. small and mid-capitalization equity securities	3,259	27	—	551	3,837
Other debt securities	(6)	326	—	—	320
Plan assets	$ 30,003	$ 39,450	$ —	$ 45,523	$ 114,976

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Information regarding fair value measurements of plan assets was as follows as of December 31, 2017:

	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, 2017
Mortgage-backed securities	$—	$ 13,274	$ —	$ 15,388	$ 28,662
U.S. large capitalization equity securities	—	—	—	30,167	30,167
U.S. corporate debt securities	—	13,032	—	10,206	23,238
International equity securities	23,127	340	—	—	23,467
Government debt securities	—	17,118	—	—	17,118
U.S. small and mid-capitalization equity securities	3,490	56	—	956	4,502
Other debt securities	134	155	—	—	289
Plan assets	$ 26,751	$ 43,975	$ —	$ 56,717	$ 127,443

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 3 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 $6,869 as of December 31, 2018 and $6,615 as of December 31, 2017.

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

(in thousands)	Postretirement benefit plan	Pension plan
2019	$ 7,679	$ 320
2020	7,906	320
2021	7,730	310
2022	7,219	300
2023	6,686	300
2024 - 2028	26,205	1,320

DELUXE CORPORATION
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Note 15: Debt and lease obligations

Debt outstanding was comprised of the following at December 31:

(in thousands)	2018	2017
Amount drawn on revolving credit facility	$910,000	$413,000
Amount outstanding under term loan facility	—	294,938
Capital lease obligations	1,864	1,914
Long-term debt, principal amount	911,864	709,852
Less unamortized debt issuance costs	—	(471)
Less current portion of long-term debt	(791)	(44,121)
Long-term debt	911,073	665,260
Current portion of amount drawn under term loan facility	—	43,313
Current portion of capital lease obligations	791	808
Long-term debt due within one year, principal amount	791	44,121
Less unamortized debt issuance costs	—	(81)
Long-term debt due within one year	791	44,040
Total debt	$911,864	$709,300

There are currently no limitations on the amount of dividends and share repurchases under the terms of our credit 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.

Senior notes – In November 2012, we issued $200,000 of 6.0% senior notes that were scheduled to mature on November 15, 2020. The notes were issued via a private placement under Rule 144A of the Securities Act of 1933 and were subsequently registered with the SEC via a registration statement that became effective on April 3, 2013. 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 7, we 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.

Credit facility – In March 2018, we entered into a revolving credit facility in the amount of $950,000, subject to increase under the credit agreement to an aggregate amount not exceeding $1,425,000. The credit facility matures in March 2023. Our previous credit facility agreement was terminated contemporaneously with our entry into the new credit facility and was repaid utilizing proceeds from the new credit facility. Our quarterly commitment fee ranges from 0.175% to 0.35% based on our leverage ratio. As of December 31, 2018, $910,000 was drawn on our revolving credit facility at a weighted-average interest rate of 3.79%. As of December 31, 2017, $413,000 was drawn on our previous revolving credit facility at a weighted-average interest rate of 2.98%. Our previous credit facility agreement also included a $330,000 variable rate term loan facility, the proceeds from which were used to retire our senior notes due in 2020 and to partially fund the acquisition of FMCG in December 2016 (Note 6). As of December 31, 2017, $294,938 was outstanding under the term loan facility at a weighted-average interest rate of 2.99%. This amount was repaid in March 2018, utilizing proceeds from the new revolving credit facility.

Borrowings under the credit 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 requires us to maintain certain financial ratios, including a maximum leverage ratio of 3.5 and a minimum ratio of consolidated earnings before interest and taxes to consolidated interest expense, as defined in the credit agreement, of 3.0.

DELUXE CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
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Daily average amounts outstanding under our credit facility were as follows for the years ended December 31:

(in thousands)	2018	2017	2016
Revolving credit facility:			
Daily average amount outstanding	$731,110	$436,588	$417,219
Weighted-average interest rate	3.24 %	2.55 %	1.93 %
Term loan facility:			
Daily average amount outstanding	$63,638	$315,862	$52,381
Weighted-average interest rate	2.97 %	2.57 %	1.52 %

As of December 31, 2018, amounts were available for borrowing under our revolving credit facility as follows:

(in thousands)	Total available
Revolving credit facility commitment[1]	$950,000
Amount drawn on revolving credit facility	(910,000)
Outstanding letters of credit[2]	(10,221)
Net available for borrowing as of December 31, 2018	$29,779

[1] In January 2019, we increased the credit facility by $200,000, bringing the total availability to $1,150,000.

[2] 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.

Lease obligations – We had capital lease obligations of $1,864 as of December 31, 2018 and $1,914 as of December 31, 2017 related to information technology hardware. The lease obligations will be paid through October 2022. 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)	2018	2017
Machinery and equipment	$6,413	$4,676
Accumulated depreciation	(4,673)	(3,522)
Net assets under capital leases	$1,740	$1,154

In addition to capital leases, we also have operating leases on certain facilities and equipment. Rental expense was $23,928 for 2018, $19,839 for 2017 and $16,454 for 2016. As of December 31, 2018, 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
2019	$ 822	$ 16,479
2020	637	13,240
2021	365	9,001
2022	91	5,792
2023	—	3,263
Thereafter	—	11,056
Total minimum lease payments	1,915	$ 58,831
Less portion representing interest	(51)	
Present value of minimum lease payments	$ 1,864	

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Note 16: Other commitments and contingencies

Indemnifications – In the normal course of business, we periodically enter into agreements that incorporate general indemnification language. These indemnification provisions generally encompass third-party claims arising from our products and services, including, without limitation, 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 matters 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 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 $2,755 as of December 31, 2018 and $2,646 as of December 31, 2017. 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. Expense reflected in our consolidated statements of income for environmental matters was $750 for 2018 and $348 for 2017. 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.

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 at certain other sites. These policies cover liability for claims of bodily injury or property damage arising from pollution events at the covered facilities, as well as 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 $6,627 as of December 31, 2018 and $7,679 as of December 31, 2017. These accruals are included in accrued liabilities and other non-current liabilities in the consolidated balance sheets. Our workers' compensation liability is recorded at present value. The difference between the discounted and undiscounted liability was not significant as of December 31, 2018 or December 31, 2017.

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 – Recorded liabilities for legal matters, as well as related charges recorded in each of the past 3 years, were not material to our financial position, results of operations or liquidity during the periods presented, 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 in future periods.

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Note 17: Shareholders' equity

In May 2016, our board of directors authorized the repurchase of up to $300,000 of our common stock, and in October 2018, the board increased our share repurchase authorization to $500,000, inclusive of the remaining amount outstanding under the prior authorization. This authorization has no expiration date. During 2018, we repurchased 3.6 million shares for $200,000 under these authorizations. Under the May 2016 authorization and under a previous authorization, we repurchased 924 thousand shares for $65,000 during 2017 and we repurchased 901 thousand shares for $55,224 during 2016. As of December 31, 2018, $420,000 remained available for repurchase under the current authorization.

Note 18: Business segment information

We operate 3 reportable business segments: Small Business Services, Financial Services and Direct Checks. Our business segments are generally organized by the type of customer served and reflect the way we manage the company. Small Business Services promotes and sells products and services to businesses via direct response mail and internet advertising; referrals from financial institutions, telecommunications clients and other partners; networks of Safeguard distributors and independent dealers; a direct sales force that focuses on selling to and through enterprise accounts; and an outbound telemarketing group. Financial Services' products and services are sold primarily through a direct sales force that executes product and service supply contracts with our financial institution clients, including banks, credit unions and financial services companies. 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, Australia and portions of Europe, and Financial Services has operations in Canada. No single customer accounted for more than 10% of consolidated revenue during the past 3 years.

Our product and service offerings are comprised of the following:

Marketing solutions and other services (MOS) – We offer products and services designed to meet our customers' sales and marketing needs, as well as various other service offerings. During 2018, MOS represented 37.3% of our Small Business Services segment's revenue, 59.0% of our Financial Services segment's revenue and 11.1% of our Direct Checks segment's revenue. Our MOS offerings generally consist of the following:

- Small business marketing solutions – Our marketing products utilize digital printing and web-to-print solutions to provide printed marketing materials and promotional solutions, such as postcards, brochures, retail packaging supplies, apparel, greeting cards and business cards.

- Web services – These service offerings include hosting and domain name services, logo and web design, search engine marketing and optimization, email marketing, payroll services and business incorporation and organization services.

- Data-driven marketing solutions – These Financial Services offerings include outsourced marketing campaign targeting and execution and marketing analytics solutions that help our customers grow revenue through strategic targeting, lead optimization, retention and cross-selling services.

- Treasury management solutions – These Financial Services solutions include remote deposit capture, receivables management, payment processing, and paperless treasury management, as well as software, hardware and digital imaging solutions.

- Fraud, security, risk management and operational services – These service offerings include fraud protection and security services, electronic checks and deposits ("ePayments") and digital engagement solutions, including loyalty and rewards programs and financial management tools.

Checks – We remain one of the largest providers of checks in the United States. During 2018, checks represented 37.1% of our Small Business Services segment's revenue, 38.6% of our Financial Services segment's revenue and 84.0% of our Direct Checks segment's revenue.

Forms, accessories and other products – 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, as well as

computer forms compatible with accounting software packages commonly used by small businesses. Small Business Services also offers other customized products, including envelopes, office supplies, ink stamps and labels. Our Financial Services and Direct Checks segments offer deposit tickets, check registers, checkbook covers, labels and ink stamps.

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(dollars in thousands, except per share amounts)

The following tables present revenue disaggregated by our product and service offerings:

	Year Ended December 31, 2018			
(in thousands)	Small Business Services	Financial Services	Direct Checks	Consolidated
Marketing solutions and other services:				
Small business marketing solutions	$292,245	$—	$—	$ 292,245
Web services	161,646	—	—	161,646
Data-driven marketing solutions	—	147,893	—	147,893
Treasury management solutions	—	148,011	—	148,011
Fraud, security, risk management and operational services	25,460	50,499	14,146	90,105
Total MOS	479,351	346,403	14,146	839,900
Checks	476,751	(226,554)	107,084	810,389
Forms, accessories and other products	327,518	14,010	6,208	347,736
Total revenue	$1,283,620	$586,967	$127,438	$ 1,998,025

	Year Ended December 31, 2017			
(in thousands)	Small Business Services	Financial Services	Direct Checks	Consolidated
Marketing solutions and other services:				
Small business marketing solutions	$262,192	$—	$—	$ 262,192
Web services	131,644	—	—	131,644
Data-driven marketing solutions	—	150,572	—	150,572
Treasury management solutions	—	109,240	—	109,240
Fraud, security, risk management and operational services	25,491	61,185	15,354	102,030
Total MOS	419,327	320,997	15,354	755,678
Checks	482,928	249,716	118,392	851,036
Forms, accessories and other products	337,484	14,562	6,796	358,842
Total revenue	$1,239,739	$585,275	$140,542	$ 1,965,556

	Year Ended December 31, 2016			
(in thousands)	Small Business Services	Financial Services	Direct Checks	Consolidated
Marketing solutions and other services:				
Small business marketing solutions	$242,710	$—	$—	$ 242,710
Web services	115,226	—	—	115,226
Data-driven marketing solutions	—	50,022	—	50,022
Treasury management solutions	—	92,259	—	92,259
Fraud, security, risk management and operational services	26,948	72,940	16,812	116,700
Total MOS	384,884	215,221	16,812	616,917
Checks	467,386	268,926	128,973	865,285
Forms, accessories and other products	343,473	15,829	7,558	366,860
Total revenue	$1,195,743	$499,976	$153,343	$ 1,849,062

DELUXE CORPORATION
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(dollars in thousands, except per share amounts)

Product revenue is recognized at a point in time. Total MOS revenue for 2018 included product revenue of $293,708 and service revenue of $546,192. The majority of our service revenue is recognized over time as services are provided.

The following table presents revenue disaggregated by geography, based on where items are shipped or services are performed:

(in thousands)	Small Business Services	Financial Services	Direct Checks	Total
Year Ended December 31, 2018				
United States	$1,180,019	$563,918	$127,438	$1,871,375
Foreign, primarily Canada and Australia	103,601	23,049	—	126,650
Total revenue	$1,283,620	$586,967	$127,438	$1,998,025
Year Ended December 31, 2017				
United States	$1,150,055	$568,801	$140,542	$1,859,398
Foreign, primarily Canada and Australia	89,684	16,474	—	106,158
Total revenue	$1,239,739	$585,275	$140,542	$1,965,556
Year Ended December 31, 2016				
United States	$1,123,382	$499,976	$153,343	$1,776,701
Foreign, primarily Canada and Australia	72,361	—	—	72,361
Total revenue	$1,195,743	$499,976	$153,343	$1,849,062

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

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, real estate, finance, information technology and legal functions. Where costs incurred are directly attributable to a business segment, those costs are charged directly to that segment. During 2017 and 2016, costs that were not directly attributable to a business segment were allocated to the segments based on segment revenue. Effective January 1, 2018, we completed a more detailed analysis of our corporate costs and were able to allocate substantially all of the costs directly to our business segments. The costs that were not directly allocated to a business segment, primarily certain human resources costs, were allocated to the segments based on the number of employees in each segment. This change in our allocation methodology did not have a significant impact on the operating results of our business segments. Corporate assets are not allocated to the segments and consisted primarily of long-term investments and assets related to our corporate shared services functions of manufacturing, information technology and real estate, including property, plant and equipment; internal-use software; and inventories and supplies. Depreciation and amortization expense related to corporate assets, which was allocated to the segments, was $33,812 in 2018, $33,302 in 2017 and $32,785 in 2016.

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.

DELUXE CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(dollars in thousands, except per share amounts)

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:	2018	$1,283,620	$586,967	$127,438	$ —	$ 1,998,025
	2017	1,239,739	585,275	140,542	—	1,965,556
	2016	1,195,743	499,976	153,343	—	1,849,062
Operating income:	2018	119,808	69,939	41,474	—	231,221
	2017	181,528	101,047	46,601	—	329,176
	2016	207,581	106,335	52,971	—	366,887
Depreciation and amortization expense:	2018	66,031	61,843	3,226	—	131,100
	2017	56,834	62,592	3,226	—	122,652
	2016	52,195	35,850	3,538	—	91,583
Asset impairment charges:	2018	99,437	1,882	—	—	101,319
	2017	54,880	—	—	—	54,880
	2016	—	—	—	—	—
Total assets:	2018	1,094,262	751,242	157,802	301,790	2,305,096
	2017	1,081,098	679,547	158,827	289,355	2,208,827
	2016	1,086,500	631,353	161,039	305,446	2,184,338
Capital asset purchases:	2018	—	—	—	62,238	62,238
	2017	—	—	—	47,450	47,450
	2016	—	—	—	46,614	46,614

DELUXE CORPORATION

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

	2018 Quarter Ended			
	March 31	**June 30**	**September 30**	**December 31**
Total revenue	$491,914	$488,244	$493,190	$524,677
Gross profit	303,156	298,043	295,556	309,522
Net income (loss)	63,336	60,207	(31,083)	57,170
Earnings (loss) per share:				
Basic	1.32	1.26	(0.67)	1.25
Diluted	1.31	1.25	(0.67)	1.25
Cash dividends per share	0.30	0.30	0.30	0.30

	2017 Quarter Ended			
	March 31	**June 30**	**September 30**	**December 31**
Total revenue	$487,766	$485,232	$497,669	$494,889
Gross profit	308,452	305,864	304,598	303,935
Net income	57,066	59,579	28,801	84,709
Earnings per share:				
Basic	1.17	1.23	0.60	1.76
Diluted	1.16	1.22	0.59	1.75
Cash dividends per share	0.30	0.30	0.30	0.30

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

	2018 Quarter Ended			
(in thousands)	**March 31**	**June 30**	**September 30**	**December 31**
Asset impairment charges	$2,149	$—	$ 99,170	$ —
Restructuring and integration expense	2,322	6,371	5,104	7,406
Gain on sales of businesses and customer lists	7,228	3,862	1,765	2,786
Certain litigation	297	631	1,805	7,769
CEO transition costs	—	1,530	2,622	3,058
Impact of the Tax Cuts and Jobs Act	(310)	441	(1,249)	(582)
Other discrete income tax (benefit) expense[1]	(579)	(1,167)	15,634	(1,987)

	2017 Quarter Ended			
	March 31	**June 30**	**September 30**	**December 31**
Asset impairment charges	$5,296	$2,954	$ 46,630	$ —
Restructuring and integration expense	993	1,457	1,242	5,438
Gain on sales of businesses and customer lists	6,779	—	1,924	—
Impact of the Tax Cuts and Jobs Act	—	—	—	(20,500)
Other discrete income tax (benefit) expense[1]	(3,664)	(1,276)	4,555	(1,843)

[1] Relates primarily to the tax effects of share-based compensation and the non-deductible portion of goodwill impairment charges in the third quarter of each year.

In November 2016, the FASB issued Accounting Standards Update No. 2016-18, *Restricted Cash*. This standard requires the statement of cash flows to explain the change during the period in the total of cash, cash equivalents, restricted

cash and restricted cash equivalents. This standard was effective for us on January 1, 2018 and must be applied retrospectively. During the quarter ended December 31, 2018, we identified a misstatement in our statement of cash flows presentation under this standard. We concluded that the cash and cash equivalents included in funds held for customers should be included with cash, cash equivalents, restricted cash and restricted cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statements of cash flows, in accordance with ASU No. 2016-18. Additionally, we determined that gross redemptions and purchases of marketable debt securities included in funds held for customers should be presented as cash flows from investing activities in the statements of cash flows. This misstatement affected our consolidated statements of cash flows as presented in our 2018 Quarterly Reports on Form 10-Q.

We assessed the materiality of this misstatement on prior periods' financial statements in accordance with the Securities and Exchange Commission Staff Accounting Bulletin No. 99, *Materiality*, codified in Accounting Standards Codification (ASC) 250, *Presentation of Financial Statements*. We concluded that the misstatement was not material to any prior interim period and therefore, amendments of previously filed reports are not required. Periods presented herein will be revised, as applicable, in future Quarterly Reports on Form 10Q. The revisions had no impact on total assets, total liabilities, shareholders' equity, net income or net cash provided by operating activities.

The revised total of cash, cash equivalents, restricted cash and restricted cash equivalents as of the end of each interim period in 2018 and 2017 is as follows:

(in thousands)	**Cash, cash equivalents, restricted cash and restricted cash equivalents**
	(unaudited)
September 30, 2018	$ 126,114
June 30, 2018	145,303
March 31, 2018	146,479
September 30, 2017	115,172
June 30, 2017	105,479
March 31, 2017	160,000

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, 2018 (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 Exchange 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, 2018 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, 2018. In making this assessment, it used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control - Integrated Framework* (2013). Based on this assessment, we have concluded that, as of December 31, 2018, 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 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 Business Ethics” are incorporated by reference into this report.

The full text of our Code of Business 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 Business 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, 2018:

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	1,689,279 [1]	$ 62.04 [1]	8,903,638 [2]
Equity compensation plans not approved by shareholders	—	—	—
Total	1,689,279	$ 62.04	8,903,638

[1] Includes awards granted under our 2017 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 1,244,541, restricted stock unit awards of 194,690 and 250,048 shares subject to outstanding performance share awards. The number of performance shares reflects the target amount for awards outstanding as of December 31, 2018. 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 3,476,245 shares reserved for issuance under our Amended and Restated 2000 Employee Stock Purchase Plan and 5,427,393 shares available for issuance under our 2017 Long-Term Incentive Plan. Under the 2017 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 Accountant Fees and Services.

The sections of the proxy statement entitled “Fiscal Year2018 Audit and Independent Registered Public Accounting Firm-Fees Paid to Independent Registered Public Accounting Firm” and “Fiscal Year2018 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.

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PART IV

Item 15. Exhibits and 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, as amended and restated on October 23, 2018 (incorporated by reference to Exhibit 3.2 to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2018)	*
4.1	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)	*
10.1	Deluxe Corporation 2017 Annual Incentive Plan (incorporated by reference to Appendix A of the definitive proxy statement filed with the Commission on March 17, 2017)**	*
10.2	Deluxe Corporation 2017 Long-Term Incentive Plan (incorporated by reference to Appendix B of the definitive proxy statement filed with the Commission on March 17, 2017)**	*
10.3	Amended and Restated 2000 Employee Stock Purchase Plan**	Filed herewith
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 Pete Godich, Julie Loosbrock and Malcolm McRoberts (incorporated by reference to Exhibit 10.17 to the Annual Report on Form 10-K for the year ended December 31, 2000)**	*
10.8	Form of Severance Letter entered into between us and Amanda Brinkman, Keith Bush, Jeffrey Cotter, Tracey Engelhardt, Michael Mathews and Amanda Parrilli**	Filed herewith
10.9	Employment Agreement, dated October 14, 2018, between us and Barry C. McCarthy (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed with the Commission on November 6, 2018)**	*
10.10	Transition Agreement, dated April 25, 2018, between us and Lee J. Schram (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed with the Commission on April 26, 2018)**	*

Exhibit Number	Description	Method of Filing
10.11	Form of Retention Letter entered into between us and Amanda Brinkman, Keith Bush, Jeffrey Cotter, Tracey Engelhardt, Pete Godich, Julie Loosbrock, Michael Mathews and Malcolm McRoberts**	Filed herewith
10.12	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)**	*
10.13	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)**	*
10.14	Form of Executive Retention Agreement entered into between us and Pete Godich, Julie Loosbrock and Malcolm McRoberts (incorporated by reference to Exhibit 99.2 to the Current Report on Form 8-K filed with the Commission on August 10, 2007)**	*
10.15	Form of Addendum to Executive Retention and Severance Agreements Relating to Section 409A of the Internal Revenue Code between us Pete Godich, Julie Loosbrock and Malcolm McRoberts (incorporated by reference to Exhibit 10.18 to the Annual Report on Form 10-K for the year ended December 31, 2008)**	*
10.16	Separation and Release Agreement between us and John Filby **	Filed herewith
10.17	Form of Agreement for Awards Payable in Restricted Stock Units (version 10/12) (incorporated by reference to Exhibit 10.16 to the Annual Report on Form 10-K for the year ended December 31, 2012)**	*
10.18	Form of Agreement for Awards Payable in Restricted Stock Units (version 12/17) (incorporated by reference to Exhibit 10.14 to the Annual Report on Form 10-K for year ended December 31, 2017)**	*
10.19	Form of Restricted Stock Unit Award Agreement (Bonus Deferral) (version 1/19)**	Filed herewith
10.20	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)**	*
10.21	Form of Employee Restricted Stock Award Agreement (version 12/17) (incorporated by reference to Exhibit 10.16 to the Annual Report on Form 10-K for the year ended December 31, 2017)**	*
10.22	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)**	*
10.23	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)**	*
10.24	Form of Non-Qualified Stock Option Agreement (version 12/17) (incorporated by reference to Exhibit 10.19 to the Annual Report on Form 10-K for the year ended December 31, 2017)**	*
10.25	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)**	*
10.26	Form of Performance Share (Total Shareholder Return) Award Agreement (version 2/18) (incorporated by reference to Exhibit 10.21 to the Annual Report on Form 10-K for the year ended December 31, 2017)**	*

Exhibit Number	Description	Method of Filing
10.27	Form of Performance Share Award Agreement (Marketing Solutions and Other Services Organic Growth) (version 2/18) (incorporated by reference to Exhibit 10.22 to the Annual Report on Form 10-K for the year ended December 31, 2017)**	*
10.28	Description of modification to the Deluxe Corporation Non-Employee Director Retirement and Deferred Compensation Plan (incorporated by reference to Exhibit 10.23 to the Annual Report on Form 10-K for the year ended December 31, 2017)**	*
10.29	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)**	*
10.30	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)**	*
10.31	Form of Non-Employee Director Restricted Stock Unit Award Agreement (version 2/18) (incorporated by reference to Exhibit 10.26 to the Annual Report on Form 10-K for the year ended December 31, 2017)**	*
10.32	Credit agreement, dated as of March 21, 2018, 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 March 21, 2018)	*
10.33	Increasing Lender Supplement, dated January 22, 2019, to the credit agreement dated as of March 21, 2018, among us, the lenders party thereto and JPMorgan Chase Bank, N.A., as administrative agent (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed with the Commission on January 24, 2019)	*
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
101	Interactive data files pursuant to Rule 405 of Regulation S-T: (i) Consolidated Balance Sheets as of December 31, 2018 and December 31, 2017, (ii) Consolidated Statements of Income for the years ended December 31, 2018, 2017 and 2016, (iii) Consolidated Statements of Comprehensive Income for the years ended December 31, 2018, 2017 and 2016, (iv) Consolidated Statements of Shareholders' Equity for the years ended December 31, 2018, 2017 and 2016 (v) Consolidated Statements of Cash Flows for the years ended December 31, 2018, 2017 and 2016, 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.

We have elected not to include an optional Form 10-K Summary.

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 26, 2019 /s/ Barry C. McCarthy

Barry C. McCarthy, President and 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 26, 2019.

Signature	**Title**
/s/ Barry C. McCarthy Barry C. McCarthy	President and Chief Executive Officer (Principal Executive Officer)
/s/ Keith A. Bush Keith A. Bush	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)
* Ronald C. Baldwin	Director
* Cheryl Mayberry McKissack	Director
* Don J. McGrath	Director
* Neil J. Metviner	Director
* Stephen P. Nachtsheim	Director
* Thomas J. Reddin	Director
* Martyn R. Redgrave	Director
* John L. Stauch	Director
* Victoria A. Treyger	Director

* By: /s/ Keith A. Bush

Keith A. Bush, Attorney-in-Fact