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

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2018

- OR -

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____ to _____

Commission file number 001-37470

TransUnion

(Exact name of registrant as specified in its charter)

Delaware	**61-1678417**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**
555 West Adams, Chicago, Illinois	**60661**
(Address of principal executive offices)	**(Zip Code)**

312-985-2000
(Registrant's telephone number, including area code)

Securities Registered Pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, par value $0.01 per share	New York Stock Exchange

Securities Registered Pursuant to Section 12(g) of the Act:
None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

☒ YES ☐ 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 ☒ NO

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

☒ YES ☐ NO

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 and post such files).

☒ 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.

☐

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	☐ 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 Act).

☐ YES ☒ NO

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant was approximately $13.2 billion as of June 30, 2018 (based on the closing stock price of such stock as quoted on the New York Stock Exchange).

As of January 31, 2019, there were 186.0 million shares of TransUnion common stock outstanding, par value $0.01 per share.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Proxy Statement of TransUnion for the Annual Meeting of Stockholders to be held May 8, 2019 are incorporated by reference to the extent specified in Part III of this Form 10-K.

TRANSUNION
ANNUAL REPORT ON FORM 10-K
YEAR ENDED DECEMBER 31, 2018
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Cautionary Notice Regarding Forward-Looking Statements

This Annual Report on Form 10-K, including the exhibits hereto, contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These statements are based on the current beliefs and expectations of TransUnion's management and are subject to significant risks and uncertainties. Actual results may differ materially from those described in the forward-looking statements. Any statements made in this report that are not statements of historical fact, including statements about our beliefs and expectations, are forward-looking statements. Forward-looking statements include information concerning possible or assumed future results of operations, including descriptions of our business plans and strategies. These statements often include words such as "anticipate," "expect," "guidance," "suggest," "plan," "believe," "intend," "estimate," "target," "project," "should," "could," "would," "may," "will," "forecast," "outlook," "potential," "continues," "seeks," "predicts," or the negatives of these words and other similar expressions.

Factors that could cause actual results to differ materially from those described in the forward-looking statements. Factors that could materially affect our financial results or such forward-looking statements include:

- macroeconomic and industry trends and adverse developments in the debt, consumer credit and financial services markets;
- our ability to provide competitive services and prices;
- our ability to retain or renew existing agreements with large or long-term customers;
- our ability to maintain the security and integrity of our data;
- our ability to deliver services timely without interruption;
- our ability to maintain our access to data sources;
- government regulation and changes in the regulatory environment;
- litigation or regulatory proceedings;
- regulatory oversight of "critical activities";
- our ability to effectively manage our costs;
- economic and political stability in the United States and international markets where we operate;
- our ability to effectively develop and maintain strategic alliances and joint ventures;
- our ability to timely develop new services and the market's willingness to adopt our new services;
- our ability to manage and expand our operations and keep up with rapidly changing technologies;
- our ability to make acquisitions and successfully integrate the operations of acquired businesses and realize the intended benefits of such acquisitions;
- our ability to protect and enforce our intellectual property, trade secrets and other forms of unpatented intellectual property;
- our ability to defend our intellectual property from infringement claims by third parties;
- the ability of our outside service providers and key vendors to fulfill their obligations to us;
- further consolidation in our end-customer markets;
- the increased availability of free or inexpensive consumer information;
- losses against which we do not insure;
- our ability to make timely payments of principal and interest on our indebtedness;
- our ability to satisfy covenants in the agreements governing our indebtedness;
- our ability to maintain our liquidity;
- share repurchase plans; and
- our reliance on key management personnel.

There may be other factors, many of which are beyond our control, that may cause our actual results to differ materially from the forward-looking statements, including factors disclosed under the sections entitled "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" in this report. You should evaluate all forward-looking statements made in this report in the context of these risks and uncertainties.

The forward-looking statements contained in this report speak only as of the date of this report. We undertake no obligation to publicly release the result of any revisions to these forward-looking statements, to reflect the impact of events or circumstances that may arise after the date of this report.

PART I

Unless the context indicates otherwise, any reference to the "Company," "we," "us," and "our" refers to TransUnion and its direct and indirect subsidiaries.

ITEM 1 BUSINESS

Overview

TransUnion is a leading global risk and information solutions provider to businesses and consumers. We provide consumer reports, risk scores, analytical services and decisioning capabilities to businesses. Businesses embed our solutions into their process workflows to acquire new customers, assess consumer ability to pay for services, identify cross-selling opportunities, measure and manage debt portfolio risk, collect debt, verify consumer identities and investigate potential fraud. Consumers use our solutions to view their credit profiles and access analytical tools that help them understand and manage their personal information and take precautions against identity theft. We are differentiated by our comprehensive and unique datasets, our next-generation technology and our analytics and decisioning capabilities, which enable us to deliver insights across the entire consumer lifecycle. We believe we are the largest provider of risk and information solutions in the United States to possess both nationwide consumer credit data and comprehensive, diverse public records data, which allows us to better predict behaviors, assess risk and address a broader set of business issues for our customers. We have deep domain expertise across a number of attractive industries, which we also refer to as verticals, including financial services, healthcare, insurance and other markets we service. We have a global presence in over 30 countries and territories across North America, Latin America, the United Kingdom, Africa, Asia Pacific and India.

Our addressable market includes the big data and analytics market, which continues to grow as companies around the world recognize the benefits of building an analytical enterprise where decisions are made based on data and insights, and as consumers recognize the importance that data and analytics play in their ability to procure goods and services and protect their identities. International Data Corporation ("IDC") estimates worldwide spending on big data and analytics services is projected to continue to grow at a CAGR of approximately 12% through 2022. There are several underlying trends supporting this market growth, including the creation of large amounts of data, advances in technology and analytics that enable data to be processed more quickly and efficiently to provide business insights, and growing demand for these business insights across industries and geographies. Leveraging our more than 50 year operating history and our established position as a leading provider of risk and information solutions, we have evolved our business by investing in a number of strategic initiatives, such as transitioning to the latest big data and analytics technologies, expanding the breadth and depth of our data, strengthening our analytics capabilities and enhancing our business processes. As a result, we believe we are well positioned to expand our share within the markets we currently serve and capitalize on the larger big data and analytics opportunity.

We believe that we have the capabilities and assets, including comprehensive and unique datasets, advanced technology and analytics to provide differentiated solutions to our customers. We have over 65 petabytes of data, growing at an average rate of approximately 25% per year since 2010, representing over one billion consumers globally. Our solutions are based on a foundation of financial, credit, alternative credit, identity, bankruptcy, lien, judgment, healthcare, insurance claims, automotive and other relevant information from approximately 90,000 data sources, including financial institutions, private databases and public records repositories. We refine, standardize and enhance this data using sophisticated algorithms to create proprietary databases. Our next-generation technology allows us to quickly and efficiently integrate our data with our analytics and decisioning capabilities to create and deliver innovative solutions to our customers and to quickly adapt to changing customer needs. Our deep analytics expertise, which includes our people as well as tools such as predictive modeling and scoring, customer segmentation, benchmarking and forecasting, enables businesses and consumers to gain better insights into their risk and financial data. Our decisioning capabilities, which are generally delivered on a software-as-a-service platform, allow businesses to interpret data and apply their specific qualifying criteria to make decisions and take actions. Collectively, our data, analytics and decisioning capabilities allow businesses to authenticate the identity of consumers, effectively determine the most relevant products for consumers, retain and cross-sell to existing consumers, identify and acquire new consumers and reduce loss from fraud. Similarly, our capabilities allow consumers to see how their credit profiles have changed over time, understand the impact of financial decisions on their credit scores, manage their personal information and take precautions against identity theft.

We leverage our differentiated capabilities in order to serve a broad set of customers across multiple geographies and industry verticals. We have a global customer base of over 75,000 businesses and millions of consumers use our data to help manage their personal finances and take precautions against identity theft. We offer our solutions to business customers in financial services, healthcare, insurance and other industries. Our customer base includes many of the largest companies in each of the primary industries we serve. For example, in the United States, we contract with the top ten largest consumer lending banks, the top ten credit card issuers, the top twenty largest auto insurance carriers, the top twenty-five auto lenders, and thousands of healthcare providers and federal, state and local government agencies. We have been successful in leveraging our brand, our expertise and our solutions in our global operations and have a leading presence in several high-growth international markets.

We believe we have an attractive business model that has highly recurring and diversified revenue streams, low capital requirements, significant operating leverage and strong and stable cash flows. The proprietary and embedded nature of our solutions and the integral role that we play in our customers' decision-making processes have historically translated into high customer retention and revenue visibility. For example, we have had ongoing relationships with our top ten financial institution customers for over ten years. We continue to demonstrate organic growth by further penetrating existing customers, innovating new solutions and gaining new customers. We have a diversified portfolio of businesses across our segments, reducing our exposure to cyclical trends in any particular industry vertical, or geography. We operate primarily on a contributory data model in which we typically obtain updated information at little or no cost and own most of our data. We augment this data with a growing set of public record and alternative data as we develop new solutions and expand into new industries and geographies. We also directly manage and control our technology, which provides us with an efficient cost structure and allows us to benefit from economies of scale. Additionally, our technology investments enable us to grow and expand our business with low incremental cost, providing significant operating leverage.

Our total revenues increased from $1,933.8 million for the year ended December 31, 2017 to $2,317.2 million for the year ended December 31, 2018, representing year-over-year growth of 19.8%. Our net income attributable to the Company decreased from $441.2 million for the year ended December 31, 2017, which included the onetime tax provision benefit of $174 million due to the Tax Cuts and Jobs Act, to $276.6 million for the year ended December 31, 2018. Our Adjusted EBITDA increased from $748.1 million for the year ended December 31, 2017 to $916.9 million for the year ended December 31, 2018, representing year-over-year growth of 22.6%. As of December 31, 2018, the book value of our debt was $4.0 billion. See Part II, Item 7, "Management's Discussion and Analysis of Financial Conditions and Results of Operations - Key Performance Measures," for our definition of Adjusted EBITDA and the reconciliation to net income attributable to TransUnion.

Our Evolution

Our business has over a 50 year operating history and a long track record of providing risk and information solutions to businesses and consumers while continuing to innovate to meet their changing needs. Since our founding as a provider of regional credit reporting services, we have built a comprehensive database of U.S. consumers, which created a unique and highly valuable base to build solutions that span many industry verticals and customer processes. From this base, we expanded our operations by targeting new customers, industry verticals and geographies and also entered the consumer space. We have strengthened our analytics and decisioning capabilities and acquired complementary datasets and technologies enabling us to enhance our solutions, diversify our revenue base and expand into other verticals, such as healthcare and insurance. We have grown our global presence to over 30 countries and territories, creating and acquiring credit reporting agencies in new geographies and establishing strong international footholds from which we could expand into other emerging markets. We also expanded the reach of our consumer solutions by partnering with other market leaders and innovators.

As part of our continued evolution, we have invested in a number of strategic initiatives that we believe will allow us to cater to the growing demand for data and analytics, provide differentiated solutions and better serve our customers. These initiatives include:

- ***Investing in our Technology:*** Technology is at the core of the solutions we provide to our customers. We have made significant investments to modernize our infrastructure and to transition to the latest big data and analytics technologies which enable us to be quicker, more efficient and more cost-effective. Our next-generation technology enhances our ability to organize and handle high volumes of disparate data, improves delivery speeds, provides better availability and strengthens product development capabilities, while lowering our overall cost structure and allowing us to maintain our focus on information security. Our investment strategy has been to build capabilities and leverage them across multiple geographies and industry verticals.
- ***Expanding our Data:*** We have continued to invest in the breadth and depth of our data. We introduced the concept of trended data to provide the trajectory of a consumer's risk profile, used public records data to enhance the scope of business issues we can address and incorporated alternative data into our databases to better assess risk for banked and unbanked consumers. We believe we are the largest provider of scale in the United States to possess both nationwide consumer credit data and comprehensive, diverse public records data. All of these initiatives improve the quality of our data, provide deeper insights into risk and allow us to create differentiated solutions for our customers.
- ***Strengthening our Analytics Capabilities:*** We have strengthened our analytics capabilities by leveraging our next-generation technology and expanded data, utilizing more advanced tools and growing our analytics team. This has allowed us to create solutions that produce greater insights and more predictive results, which help our customers make better decisions. In addition, our strengthened analytics capabilities have shortened our time-to-market to create and deliver these solutions to our customers.
- ***Broadening our Target Markets:*** We have grown our target markets by establishing a presence in attractive high-growth and strategic international markets such as the United Kingdom, India, Colombia and the Philippines, entering new verticals such as government and investigative services in the United States and expanding the reach of our consumer

offerings by partnering with traditional and emerging providers in new verticals. Our capabilities enable us to develop scalable products that we are able to deploy across new markets and verticals.

- ***Enhancing our Business Processes and Capabilities:*** We have enhanced our business processes and capabilities to support our growth. We have hired additional industry experts, which has allowed us to create and sell new vertical-specific solutions that address our customers' needs. Our global sales force structure increases our sales team's coverage of customers across our target markets.

We believe that our ongoing focus on evolving with the market and with our customers' needs ensures continued improvement in our overall services to businesses and consumers. Leveraging our trusted brand, global scale and strong market position in the verticals we serve will allow us to capitalize on business opportunities worldwide and contribute to our long-term growth.

Our Market Opportunity

We believe there is a long-term trend of businesses and consumers using data and analytics to make more informed decisions and manage risk more effectively, resulting in a large and rapidly growing market. According to an August 2018 report from IDC, worldwide spending on big data and analytics services projected to continue to grow at a CAGR of approximately 12% through 2022.

We believe there are several key trends in the global macroeconomic environment affecting the geographies and industry verticals we serve that will create increasing demand for our solutions:

- ***Rapid Growth in Data Creation and Application:*** Larger and more diversified datasets are now assembled faster while the breadth of analytical applications and solutions has expanded. Companies are increasingly relying on business analytics and big data technologies to help process this data in a cost-efficient manner. In addition, non-traditional sources of structured and unstructured data have become important in deriving alternative metrics. The proliferation of smartphones and other mobile devices also generates enormous amounts of data tied to consumers, activities and locations. We believe that the demand for targeted data and sophisticated analytical solutions will continue to grow meaningfully as businesses seek real-time access to more granular views of consumer populations and more holistic views on individual consumers.
- ***Advances in Technology and Analytics Unlocking the Value of Data:*** Ongoing advances in data collection, storage and analytics technology have contributed to the greater use and value of data and analytics in decision making. As businesses have gained the ability to rapidly aggregate and analyze data, they increasingly expect access to real-time data and analytics from their information providers as well as solutions that fully integrate into their workflows. We believe this has made sophisticated technology critical for gaining and retaining business in the risk and information services industry.
- ***Greater Adoption of Big Data Solutions Across New and Existing Industry Verticals:*** With the proliferation of data, we believe companies across new and existing industry verticals recognize the value of risk information and analytical tools, particularly when tailored to their specific needs.
    - ***Financial Services Industry:*** The combination of increased regulatory capital, additional compliance costs and the overhang of legacy assets is pushing large segments of small-to-medium-sized business and consumer lending out of the banking sector, resulting in the creation of new specialty finance companies, such as peer-to-peer lending platforms and online balance sheet lenders, which are actively filling the void. These technology-enabled lending platforms provide access to credit in a fast and efficient manner by utilizing sophisticated risk assessment tools that leverage data, such as behavioral data, transactional data and employment and credit information. At the same time, traditional financial services companies are also increasing the use of applications and data in order to address regulatory requirements, lower operating costs and better serve their customers.
    - ***Healthcare Industry:*** Greater patient financial responsibility, focus on cost management and regulatory supervision are all driving healthcare providers to use data and related analytics tools to better manage their revenue cycle. For example, to reduce collection risks, healthcare providers seek information about their patients' insurance coverage and ability to pay at the time of registration. In addition, insurance discovery tools are being utilized to optimize accounts receivable management, maximize collections and minimize uncompensated care.
    - ***Insurance Industry:*** As consumers increasingly obtain quotes from multiple insurers in an effort to lower their costs, insurers are trying to improve the accuracy of their risk assessments and initial quotes. For example, insurance carriers are using driver violation data to uncover offenses that will impact pricing earlier in the quoting process so consumers have a more accurate view of the premiums they will be charged.
- ***Increasing Lending Activity in Emerging International Markets:*** As economies in emerging markets continue to develop and mature, we believe there will continue to be favorable socio-economic trends, such as an increase in the size of the middle class and a significant increase in the use of financial services by under-served and under-banked consumers. In addition, credit penetration is relatively low in emerging markets when compared to developed markets. For example, using our database of information compiled from financial institutions as a benchmark of credit activity, we estimate that

less than 25% of the adult population in India is currently credit active. Furthermore, the widespread adoption and use of mobile phones in emerging markets have enabled greater levels of financial inclusion and access to banking and credit. We expect the populations in emerging markets to continue to become more credit active, resulting in increased demand for our services.

- ***Increased Management and Monitoring of Personal Financial Information and Identity Protection by Consumers:*** Demand for consumer solutions is rising with greater consumer awareness of the importance and usage of their credit information, increased risk of identity theft due to data breaches and increasingly available free credit information. We estimate the number of consumer subscriptions to a credit monitoring or identity protection service has grown approximately 20% annually from 2015 through 2018. In addition, the proliferation of mobile devices has made data much more accessible, enabling consumers to manage their finances and monitor their information in real-time. We believe these trends will continue to drive growth for our consumer business.

Our Competitive Strengths

Comprehensive and Unique Datasets

Our long operating history and leadership in the industry have allowed us to build comprehensive and unique data assets that would be difficult for a new market entrant to replicate. We have over 65 petabytes of data, growing at an average rate of approximately 25% per year since 2010, representing over one billion consumers globally. Our solutions are based on a foundation of financial, credit, alternative credit, identity, bankruptcy, lien, judgment, healthcare, insurance claims, automotive and other relevant information from approximately 90,000 data sources, including financial institutions, private databases and public records repositories. We refine, standardize and enhance this data using sophisticated algorithms to create proprietary databases. We keep our data current by processing billions of updates each month, and we continue to identify opportunities to acquire additional data. We believe that our data is unique and differentiates us from our competitors. We own several proprietary datasets such as consumer credit information, driver violation history, healthcare eligibility information, business data and rental payment history. Internationally, our data assets also encompass alternative data, such as the voter registry in India with nearly 790 million records and the vehicle information database in South Africa with over 20 million vehicle records. We have also acquired public record datasets, which are time consuming and difficult for others to obtain and associate with the correct person. We believe we are the largest provider of scale in the United States to possess both nationwide consumer credit data and comprehensive, diverse public records data, which allows us to better predict behaviors, assess risk and address a broader set of business issues for our customers.

Next-generation Technology

Our next-generation technology allows us to continually improve our overall services to businesses and consumers and ensures that we are well positioned to differentiate our datasets and capabilities. We believe our next-generation technology capabilities has resulted in increased throughput, improved data matching, greater efficiency, advanced platform flexibility and lower operating costs.

- ***Powerful Big Data Capabilities:*** Our technology gives us the ability to process, organize and analyze high volumes of data across multiple operating systems, databases and file types as well as to deal with both structured and unstructured data that changes frequently. We process billions of transactions on a daily basis.
- ***Enhanced Linking and Matching:*** Because our data matching technology is able to interrelate data across disparate sources, industries and time periods, we believe that we are able to create differentiated datasets and provide our customers with comprehensive insights that allow them to better evaluate risk. For example, our *TLOxp* solution leverages these data matching capabilities across various datasets to identify and investigate relationships among people, assets, locations and businesses, allowing us to offer enhanced due diligence, threat assessment, identity authentication and fraud prevention and detection solutions.
- ***Greater Efficiency:*** From ingestion of data to distribution of analytics and insights, our next-generation technology enables a faster time to market. For example, a portion of our platform now allows for data profiling, cleansing and ingestion of data significantly faster and can be done in a self-service approach by non-IT power users, allowing us to significantly reduce overall production times for new products.
- ***Advanced Platform Flexibility:*** Our technology offers a high degree of flexibility, speed and customization of our solutions, via capabilities like graphical development and business rules environments, and allows easy integration with our customers' workflows. We manage and control our technology instead of outsourcing it, which provides us with the flexibility to prioritize changes and to quickly implement any updates to our applications and solutions.
- ***Lower Operating Costs:*** Our technology investments have lowered our overall cost to maintain and develop our systems, allowing us to redeploy significantly more resources to support revenue generating initiatives, such as vertical expansion and new product development.

Sophisticated and Flexible Analytics and Decisioning Capabilities

We have developed sophisticated and flexible analytics and decisioning capabilities by investing in technology, tools and people. Our technology allows us to quickly build sophisticated analytics and decisioning functionality that caters to our customers' evolving needs. Our analysts leverage our next-generation technology and data matching capabilities to gain real-time access to our entire dataset across different data sources and run analyses across this data while remaining compliant with permitted data use. Our analysts are typically able to create data samples for model development, model validations and custom analyses in less than one day using self-serve data access. Our analysts are equipped with a diverse modeling and analytical toolkit, such as visualization and machine learning, which allows them to quickly build and deploy these capabilities. For example, our team was able to build a new loan consolidation model in our *CreditVision* solution in less than one day using our advanced tools, a process that would have taken weeks with legacy tools and technology. We have an experienced analytics team with substantial industry experience, complemented by a deep knowledge of consumer credit data. Our team is highly qualified with advanced degrees or doctorates in statistics, math, finance or engineering, and is instrumental in understanding customer requirements, sourcing raw data and turning that data into solutions that provide insights and decisions to solve our customers' problems.

Innovative and Differentiated Solutions

We consistently focus on innovation to develop new and enhanced solutions that meet the evolving needs of our customers. We believe our specialized data, analytics and decisioning services and collaborative approach with our customers differentiate us from our competitors. Our solutions are often scalable across different customers, geographies and verticals. Recent examples of our innovative and differentiated solutions include:

- ***AdFuel***: *AdFuel* powers digital media campaigns with highly targeted audiences for the financial services and insurance industries. TransUnion *AdFuel* audiences are found across the online advertising ecosystem on the industry's leading publishers and platforms. Our audiences leverage TransUnion data, delivering actionable data and insights to financial services and insurance companies and helping organizations identify new opportunities and assess risk.
- ***CreditView***: *CreditView* is an interactive dashboard that provides consumers with credit information and educational tools in a comprehensive, user-friendly format. Consumers are able to easily see how their credit profiles have changed over time, receive alerts on key credit changes, simulate the impact of financial decisions on their credit score, and see relevant offers for financial products.
- ***CreditVision***: We continue to enhance our credit data by including new data fields, enriching values in existing data fields and expanding account history. Our enhanced credit data has been combined with hundreds of algorithms to produce *CreditVision* and *CreditVision Link*^{M}, first to market and market-leading solutions that provide greater granularity and evaluate consumer behavior patterns over time. This results in a more predictive view of the consumer, increases the total population of consumers who can effectively be scored and helps consumers gain improved pricing.
- ***DecisionEdge***: *DecisionEdge* is a software-as-a-service decisioning offering which allows businesses to identify and authenticate customers, interpret data and predictive model results, and apply customer-specific criteria to facilitate real-time, automated decisions at the point of consumer interaction.
- ***DriverRisk:*** Leveraging our driver violation database, we developed *DriverRisk*, a data and analytic solution that helps auto insurance carriers cost effectively validate driving records and assess risk during the underwriting and renewal process to improve returns.
- ***Insurance Coverage Discovery and Other Health Insurance***: For our healthcare customers, we offer insurance coverage discovery, coordination of benefits, and third party liability solutions, which enables the discovery of previously unidentified health insurance coverage to help both our provider and payer customers receive appropriate payment for uncompensated care and coordination of benefits payments. Our proprietary technology identifies patient accounts that qualify Disproportionate Share Hospitals (DSH), Medicare, TRICARE and commercial insurance benefits and monitors an account for up to three years for retroactive eligibility that providers may have missed.
- ***IDVision with iovation:*** We have recently expanded the capabilities of *IDVision* with the acquisition of iovation, Inc. ("iovation") in June 2018. iovation is one of the most advanced providers of device-based information in the world, with insight into nearly 5 billion unique devices. In October 2018 we announced the expansion of our *IDVision* product, which we now call *IDVision with iovation. IDVision with iovation* offers an enhanced suite of identity management, authentication and fraud prevention solutions that protect businesses from fraud while enabling great experiences for their online users. This results in a global network effect of fraud and risk insights that allow businesses to quickly and accurately determine good customers from fraudulent ones.
- ***Prama:*** *Prama Insights* provides customers with on-demand, 24/7 customer access to massive, depersonalized data sets and key analytics for portfolio understandings, benchmarking and peer analysis. *Prama Studio* offers an environment for customers to create, test and manage attributes that support model development to achieve growth, risk and compliance goals.

- ***SmartMove***: *SmartMove* allows independent landlords to screen applicants on a real-time basis by pushing the screening information of the individual renter to the landlord, based on the consent of the renter. The solution is delivered through our mobile channel and through our partners and provides independent landlords with convenient access to the same quality information provided to large property management firms.
- ***TLOxp***: *TLOxp* leverages our data matching capabilities across thousands of data sources to identify and investigate relationships among specific people, assets, locations and businesses. This allows us to offer enhanced due diligence, threat assessment, identity authentication and fraud prevention and detection solutions, and to expand our solutions into new verticals such as government and law enforcement.

Deep and Specialized Industry Expertise

We have deep expertise in a number of attractive industry verticals including financial services, healthcare and insurance. Our expertise has allowed us to develop sophisticated vertical-specific solutions within these targeted industries that play an integral role in our customers' decision-making processes and are often embedded into their workflows. Our team includes industry experts with significant experience in the verticals that we target and relationships with leading companies in those verticals. We also possess regulatory compliance expertise across the industries that we serve. Together, this provides us with a comprehensive understanding of business trends and insights for customers in these verticals, allowing us to build solutions that cater to these customers' specific requirements. We have been able to apply our industry knowledge, data assets, technology and analytics capabilities to develop new solutions and revenue opportunities within key verticals. For example, in financial services, our differentiated position allowed us to anticipate the increased demand for alternative consumer lending providers such as peer-to-peer lending platforms, and we created solutions that catered to these emerging providers. In insurance, we partnered with a vehicle history data provider to launch a vehicle history score that helps insurance carriers further segment risk based on the attributes of a specific automobile. In healthcare, we developed a solution that allows healthcare providers to search for additional health insurance coverage and recover additional uncompensated care costs.

Leading Presence in Attractive International Markets

We have been operating internationally for over 30 years and have strong global brand recognition. We have strategically targeted attractive markets in both developed and emerging economies and have a diversified global presence in over 30 countries and territories and a leading presence in several attractive international markets North America, Latin America, the United Kingdom, Africa, Asia Pacific and India. We have local, senior management in many of our international markets, and we believe this provides us with deeper insights into these markets and stronger relationships with our customers. We have leveraged our brand, operating history, global footprint and technology infrastructure to establish new credit bureaus in several international markets, such as Canada in 1989, India in 2001 and the Philippines in 2011. Once established, our model is to expand the services we offer within these markets and then move into adjacent emerging markets. For example, we have used our operations in Hong Kong to expand into other Asia Pacific countries and provide analytic scoring models in the Philippines, Singapore, Malaysia and Thailand. We have used our operations in South Africa to expand into neighboring African countries. We have also entered new markets through strategic acquisitions, including the United Kingdom in 2018, Colombia in 2016, and Brazil in 2011. In addition, we have been able to leverage our technology and experience from our U.S. operations to develop and grow our international operations. For example, we have expanded our CreditVision product into Canada, Asia Pacific, India, Africa and Latin America and expect to launch CreditVision in the United Kingdom in 2019. We have also expanded our direct-to-consumer business into all of our regions, and have implemented DecisionEdge across more than 600 active solutions in over 10 countries.

Proven and Experienced Management Team

Our senior management team has a track record of strong performance and significant expertise in the markets we serve, with an average of over twenty years of industry experience. We continue to attract and retain experienced management talent for our businesses. Our team has deep knowledge of the data and analytics sector and expertise across the various industries that we serve. Our team has overseen our expansion into new industries and geographies while managing ongoing strategic initiatives, including our significant technology investments. As a result of the sustained focus of our management team, we have been successful in consistently driving growth, both organically and through acquiring and integrating businesses.

Our Growth Strategy

Enhance Underlying Data, Technology and Analytics Capabilities to Develop Innovative Solutions

As the demand for big data and analytics solutions grows across industries and geographies, we will continue to expand the scope of our underlying data, improve our tools and technology and enhance our analytics and decisioning capabilities to provide innovative solutions that address this demand. As the needs of businesses and consumers evolve, we plan to continue to help them meet their challenges, which our recent investments in data, technology and analytics enable us to do more quickly and efficiently. For example, we enhanced our solutions with incremental data such as rental trade lines, additional contact data and auto asset data in order to address a broader set of customer requirements. Our recent technology investments have also reduced the time to market for new solutions, in certain instances from several weeks to a few days, which allow us to react quickly to customer requirements. We also intend to continue to take advantage of strategic partnerships to develop innovative services that differentiate us from our competitors.

Further Penetrate Existing Industry Verticals with Current and New Solutions

We are a leading provider of risk and information solutions in several industry verticals today, including financial services, healthcare and insurance. We believe there is significant opportunity for further growth within these industries by expanding the number of customers to whom we sell our current solutions as well as by creating innovative new solutions that we can use to grow our presence in these industries. We focus on developing new solutions that address evolving customer needs within our industry verticals. For example, in the financial services vertical, we launched *Prama*, an analytic workbench that enables access to massive anonymized data sets for benchmarking and attribute development. We also developed *CreditVision*, which provides customers with a time-based risk trend and increases the total eligible population of consumers. Similarly, in the insurance vertical, we introduced the *DriverRisk* solution that leverages our driver violation database to cost effectively identify drivers with ratable violations, resulting in unique insights into driver risk and reduced costs and higher returns for insurance carriers. In order to more effectively address these opportunities, we have redeployed and reallocated our sales resources to focus either on new customer opportunities or on selling additional services and solutions to existing customers. With our leading market positions, existing strong relationships in financial services, healthcare and insurance verticals and with our consumer partners, we believe we have the opportunity to further penetrate our existing customer base and capture a greater proportion of their spending across the consumer lifecycle.

Establish Positions in New, Adjacent Industry Verticals

In addition to increasing penetration in industries where we have a substantial presence, we also intend to create solutions that address customer needs in attractive new industries. Our strategy is to develop new solutions for a specific application, industry vertical or geography and then deploy them to other markets where they may be applicable. We believe that our capabilities allow us to quickly create and deliver solutions to new industries and geographies where information-based analytics and decisioning capabilities are currently underutilized. For example, our strong position in financial services and insurance verticals has allowed us to establish a presence in the healthcare vertical to capitalize on the increasing demand for data and analytics solutions. We have created innovative solutions that automate the insurance and payment processes at the beginning of the revenue cycle, help payers analyze claims-related data, facilitate performance reporting, help patients make informed decisions and optimize the collection of revenue. We continue to target other verticals such as public sector, rental screening, collections and investigative services, where we see an opportunity to leverage our existing data, analytics and decisioning capabilities.

Expand our Presence in Attractive International Markets

We believe international markets present a significant opportunity for growth, as these economies continue to develop and their populations become more credit active. We have significant scale in some of the world's fastest growing markets, which positions us well to take advantage of the favorable dynamics in these regions. We leverage solutions developed in the United States and deploy them to international markets, after localizing them to individual market requirements. For example, after launching *CreditVision* in the United States, we have expanded our offerings with similar solutions in Canada, Asia Pacific, India, Africa and Latin America and expect to launch CreditVision in the United Kingdom in 2019. In markets where we have established a presence in a particular vertical, we will expand further into adjacent verticals, such as insurance and consumer solutions. We intend to continue to expand into new geographic markets by forming alliances with financial services institutions, industry associations and other local partners, and by pursuing strategic acquisitions. Across all our international expansion initiatives, we will continue to leverage our next-generation technology to drive speed to market, scale and differentiation.

Continue to Broaden Reach in Consumer Market through Direct and Indirect Channels

Our consumer business has delivered market-leading growth, driven by our innovative solutions and flexible and collaborative partnership model that has expanded the market for consumer services, along with greater consumer awareness of the value of their credit information and increased risk of identity theft. Our strategy is to grow our own member base in the direct channel as

well as expand our reach through partnerships in the indirect channel. Across both channels, our focus is on delivering value-added solutions and features while continuing to improve the consumer experience with more user-friendly interfaces and better customer service and educational tools. Within our indirect channel, we will continue to leverage and enhance our flexible technology platform to expand our relationship with existing partners as well as develop relationships with new partners and enter new verticals. We believe that partnerships not only enable us to grow our own business, but they also expand the overall market and provide us access to new consumer segments. We will also continue to leverage our approach in the U.S. consumer market to expand our consumer operations globally.

Pursue Strategic Acquisitions

We will continue to pursue acquisitions to accelerate growth within our existing businesses and diversify into new businesses. We are focused primarily on opportunities that are strategic to us, including opportunities that expand our geographic footprint, increase the breadth and depth of our datasets, enhance our services, provide us with industry expertise in our key verticals and deepen our presence in our international markets.

In June 2018 we acquired iovation, one of the most advanced providers of device-based information in the world, strengthening our leadership position in fraud and identity management. iovation pioneered the device intelligence industry and provides a highly advanced digital device reputation consortium, with insight into nearly 5 billion unique devices from more than 35,000 leading brands across more than 50 countries. In October 2018 we announced the launch of *IDVision with iovation*. *IDVision with iovation* brings together a combination of TransUnion's extensive personal data with iovation's digital data. *IDVision with iovation* offers an enhanced suite of identity management, authentication and fraud prevention solutions that protect businesses from fraud while enabling great experiences for their online users. This results in a global network effect of fraud and risk insights that allow businesses to quickly and accurately determine good customers from fraudulent ones. In addition to other capabilities, iovation's marquee FraudForce Device-based Reputation product has been integrated into our enhanced suite of solutions.

Further, our acquisition of FactorTrust, Inc. in 2017 reinforces our position as a provider of consumer reporting models that capture a wide range of positive payment behaviors. And our 2017 acquisition of eBureau, LLC, a leading provider of custom analytic solutions with both credit-risk and anti-fraud applications, demonstrates our commitment to build upon our success as a source of groundbreaking, versatile data and analytics capabilities.

We also have expanded into new countries such as the United Kingdom, Brazil, Chile, and Colombia. In June 2018, we acquired Callcredit Information Group, Ltd. ("Callcredit"), the second largest and fastest growing consumer credit bureau in the U.K. Founded in 2000, Callcredit is a U.K.-based information solutions company that, like TransUnion, provides data, analytics and technology solutions to help businesses and consumers make informed decisions. With a strong record of growth and innovation in both core credit and emerging solutions, Callcredit has achieved strong market success in the U.K.

We have also enhanced our domestic healthcare offerings through various acquisitions over the past few years. In June 2018, we acquired Healthcare Payment Specialists, Inc. ("HPS"), a leader in helping healthcare providers optimize Medicare reimbursement. The acquisition of HPS adds innovative technology that helps healthcare providers identify and recover Medicare reimbursements that they otherwise would not have received. Medicare accounts for 20% of total healthcare expenditures in the U.S., and the market for Medicare reimbursement optimization solutions is growing rapidly. HPS helps healthcare providers maximize Medicare reimbursement by focusing on payment areas where superior technology and deep domain expertise can drive significant improvements. The addition of HPS's solutions further positions TransUnion as a market leader in post-discharge revenue recovery. TransUnion Healthcare's Revenue Protection solutions help hospitals prevent revenue leakage by engaging patients early, ensuring that their earned revenue gets paid, and optimizing their collection strategies. The company partners with hospitals and health systems to protect billions in net revenue and cash to date for its entire client base.

In October 2018, we acquired Rubixis, Inc. ("Rubixis"), an innovative healthcare revenue cycle solutions company that helps providers maximize reimbursement from insurance payers. Rubixis brings specialized expertise in the management of denials and underpayments, two significant pain points for healthcare providers. Rubixis' revenue cycle optimization capabilities, particularly around denials and underpayments, round out TransUnion Healthcare's solutions and positions us as the leader in post-discharge revenue recovery for healthcare providers seeking to maximize reimbursement and prevent revenue leakage.

Our 2016 acquisitions of RTech Healthcare Revenue Technologies, Inc. ("RTech") and Auditz, LLC, ("Auditz"), two entities with proprietary technology that helps healthcare providers protect revenue and identify and recover payments, further bolstered our healthcare revenue cycle solutions.

Other examples include our December 2015 acquisition of Trustev, Ltd., a provider of digital verification technology to multiple industries, our November 2014 acquisition of DHI, a provider of traffic violations and criminal court data, our October 2014 acquisition of L2C, an innovator in predictive analytics using alternative data that is able to provide risk perspectives on non-traditional and non-credit active consumers and our December 2013 acquisition of TLO's assets, providing data solutions leveraging proprietary public records data for identity authentication, fraud prevention and debt recovery.

From time to time, we may also seek to increase our investments in foreign entities in which we have less than a 100% equity interest, as we did with Credit Information Bureau (India) Limited ("CIBIL") in India in 2014 through 2017, increasing our ownership to over 92%. We have a strong track record of integrating acquisitions and driving long-term value creation, and we will continue to maintain a disciplined approach to pursuing acquisitions.

Segment Overview

Over the past few years, we have completed a significant number of acquisitions that have transformed our business. We have also developed a significant number of new product offerings that have further diversified our portfolio of businesses. As a result of the evolution of our business, we have changed the disaggregated revenue and our measure of segment profit (Adjusted EBITDA) information that we provide to our chief operating decision makers (our "CODM") to better align with how we manage the business. Accordingly, our disclosures around the disaggregation of our revenue and the measure of segment profit have been recast for all periods presented in this Annual Report on Form 10-K to conform to the information used by our CODM. We have not changed our reportable segments and these changes do not impact our consolidated results.

We manage our business and report our financial results in three reportable segments: U.S. Information Services (or "USIS"), International and Consumer Interactive. We also report expenses for Corporate, which provides shared services and conducts enterprise functions. See Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," and Part II, Item 8 "Financial Statements and Supplementary Data - Notes to Consolidated Financial Statements," Note 16, "Reportable Segments," for further information about our reportable segments.

USIS

Our USIS segment provides consumer reports, risk scores, analytical services and decisioning capabilities to businesses. These businesses use our services to acquire new customers, assess consumer ability to pay for services, identify cross-selling opportunities, measure and manage debt portfolio risk, collect debt, verify consumer identities and investigate potential fraud.

We deliver our solutions across multiple industry vertical markets within USIS and report disaggregated revenue as follows:

Financial Services: The financial services vertical, which accounts for 53% of our 2018 USIS revenue, consists of our consumer lending, mortgage, auto and cards and payments lines of business. Our financial services clients consist of most banks, credit unions, finance companies, auto lenders, mortgage lenders, online-only lenders (FinTech), and other consumer lenders in the United States. We also distribute our solutions through most major resellers, secondary market players and sales agents. Beyond traditional lenders, we work with a variety of credit arrangers, such as auto dealers and peer-to-peer lenders. We provide solutions across every aspect of the lending lifecycle; customer acquisition and engagement, fraud and ID management, retention and recovery. Our products are focused on mitigating risk and include credit reporting, credit marketing, analytics and consulting, identity verification and authentication and debt recovery solutions.

Emerging Verticals: Emerging verticals include healthcare, insurance, collections, property management, public sector and other diversified markets. Our solutions in these verticals are also data-driven and address the entire customer lifecycle. We offer onboarding and transaction processing products, scoring and analytic products, marketing solutions, fraud and identity management solutions and customer retention solutions.

Within USIS, we leverage our comprehensive data assets, data matching expertise and predictive analytics to develop risk-based solutions:

- ***Comprehensive Data Assets:*** Our credit database contains the name and address of substantially all of the U.S. credit-active population, a listing of their existing credit relationships and their timeliness in repaying debt obligations. The information in our database is voluntarily provided by thousands of credit-granting institutions and other data furnishers. We enhance our data assets with alternative credit sources such as rental payments and utility payments. We also actively source information from courts, government agencies and other public records including suits, liens, judgments, bankruptcies, professional licenses, real property, vehicle ownership, other assets, driver violations, criminal records and contact information. Our databases are updated, reviewed and monitored on a regular basis.
- ***Predictive Analytics:*** Our predictive analytics capabilities allow us to analyze our proprietary datasets and provide insights to our customers to allow them to drive better business decisions. Our tools allow customers to investigate past behavior, reasonably predict the likelihood of future events and strategize actions based on those predictions. We have numerous tools such as predictive modeling and scoring, customer segmentation, benchmarking, forecasting, fraud modeling and campaign optimization, all of which cater to specific customer requirements. Our predictive analytics capabilities are developed by an analytics team with deep industry experience and a broad array of specialized qualifications.

International

The International segment provides services similar to our USIS segment to businesses in select regions outside the United States. Depending on the maturity of the credit economy in each country, services may include credit reports, analytics and decisioning services and other value-added risk management services. In addition, we have insurance, business and automotive databases in select geographies. These services are offered to customers in a number of industries including financial services, retail credit, insurance, automotive, collections, public sector and communications, and are delivered through both direct and indirect channels. The International segment also provides consumer solutions similar to those offered by our Consumer Interactive segment to help consumers proactively manage their personal finances. We report disaggregated revenue of our International segment for the following regions:

United Kingdom: In June 2018, we entered the world's second largest credit market, the United Kingdom, when we acquired Callcredit. Callcredit is the second largest and fastest growing consumer credit bureau in the U.K. Founded in 2000, Callcredit is an information solutions company that, like TransUnion, provides data, analytics and technology solutions to help businesses and consumers make informed decisions across a diverse group of industries. Callcredit has achieved strong market success in the U.K. and serves a broad customer base of approximately 2,500 customers, including the top 10 banks and customers in attractive, high-growth segments such as alternative finance, digital commerce and the public sector. We expect to recognize substantial cost and revenue synergies as we continue to integrate Callcredit into our operations.

Canada: We have operated in Canada since 1989 and are one of only two nationwide consumer reporting agencies in the Canadian market. We operate across multiple verticals in Canada with leading positions in insurance and automotive with a strong and growing presence in financial services. Our Canadian customer base encompasses some of the largest companies in their verticals, including the top five largest banks, eight of the largest credit card issuers, eight of the top ten insurance companies and the top nine auto manufacturer lenders. We have recently grown our operations in Canada by acquiring new customers and we expect to continue to grow by introducing innovative new solutions, such as *CreditVision* and *DecisionEdge*, by increasing our presence with existing customers and by growing our market share with businesses and consumers.

Latin America: We have been active in Latin America since 1985 when we entered the Puerto Rican market, and we have operations in numerous Central and South American countries, including a strong presence in Colombia, where in February 2016 we acquired CIFIN, one of two primary credit bureaus in Colombia. Together with CIFIN, we collect data from more than 3,000 traditional and alternate data sources, process over 370 million transactions annually and can provide credit reports and scores on nearly all individuals and 2.8 million businesses. In Colombia, we have over three thousand customers across multiple industries, including the top five private banks and top two telecommunications companies and six of the top ten insurance companies. In Brazil, we are a leading provider in decisioning services with over 40 million transactions processed monthly across key industry verticals. We believe we have the most extensive alternative database in Brazil with information on over 200 million consumers and 39 million companies. Our customer base in Brazil includes seven of the top ten banks, fourteen of the top fifteen automotive insurance carriers, four of the top five telecommunications groups and the largest Latin America online sales site. We also have a significant credit bureau business in the Dominican Republic and a 25.69% ownership interest in Trans Union de México, S.A., the primary credit reporting agency in Mexico. In Guatemala, we maintain a centralized database that services Guatemala, Nicaragua and Costa Rica. We also acquired a Chilean credit reporting agency in 2010.

Africa: We launched our operations in Africa by entering South Africa in 1993. We are highly diversified and serve a variety of industries through traditional consumer credit reporting services, insurance solutions, auto information solutions, commercial credit information services and consumer solutions in South Africa. We provide risk and information solutions in Africa to the top four banks, six of the top seven retailers, five of the top six dealer groups, and the top six insurers. We manage the database of all personal claims, policy and vehicle information on behalf of the South African Insurance Association and offer innovative solutions throughout the policy lifecycle. Our extensive vehicle information database in South Africa, which has over 20 million vehicle records and includes unique vehicle identifier codes, differentiates us from other providers. Our leading presence in South Africa has allowed us to expand into surrounding countries including Kenya, Namibia, Swaziland, Botswana, Zambia, Rwanda, and Malawi. With the completion of our technology transformation in South Africa, we are able to leverage our big data platform to ingest, process and analyze data at increasingly higher speeds and volumes with greater accuracy and reliability.

India: In 2001, we partnered with prominent Indian financial institutions to create CIBIL, the first consumer and business credit reporting agency in India. In 2014, we acquired a majority interest in CIBIL and further increased our ownership interest to over 92% in 2017. We now include their results in our consolidated financial statements. We are CIBIL's sole technology, analytics and decision services provider for its consumer risk information services business. In the absence of a comprehensive national ID, we created an innovative matching algorithm that allowed us to create the most extensive consumer credit database in India. Our credit database includes information on over 360 million consumers and over 20 million business entities.

In addition, we own or have access to several non-credit data sources that we use to enhance our solutions. These include the national voters' registry with nearly 790 million records, as well as other sources such as the confirmed and suspected fraud registry,

property registry and tax ID database. We offer a suite of risk and information solutions across the credit lifecycle for banks, telecommunication companies and insurance companies. Our suite of offerings includes analytics and decisioning solutions that enable our customers to make faster decisions. We are the primary risk and information solutions provider for financial institutions in India and our customers include all of the top twenty banks. We developed and launched the first generic credit score for India in 2007, which is the most widely used and adopted credit score across the financial services industry in India. In addition to our business solutions, we also offer consumer solutions such as online credit reports and scores.

Asia Pacific: Our operations in Asia Pacific include markets such as Hong Kong, Thailand, Singapore, Malaysia, China and the Philippines. We have had a majority ownership interest in the principal consumer credit reporting company in Hong Kong since 1998. We are a primary supplier of consumer credit data and value-added solutions to the top ten banks in Hong Kong. Additionally, we use our established operations in Hong Kong as a base to expand into other emerging markets in the Asia-Pacific region. We expect to continue to grow and transform the Hong Kong business by offering analytics, identity management, decisioning and consumer solutions. Asia Pacific is a growing market with increasing demand for credit driven by a rising middle class that offers significant growth potential in analytics and decisioning. Using Hong Kong as a base, we have leveraged our global intellectual property to expand to other countries in the Asia-Pacific region. For example, we launched the first consumer credit reporting agency in the Philippines in 2011 in partnership with the top-five credit card issuers in that market. We leverage our global intellectual property to scale very quickly and our solutions are now used for lending decisions by over 40% of the major banks in the Philippines. We have built credit risk scores for the National Credit Bureau of Thailand, in which we have a 12.25% ownership interest, Credit Bureau of Singapore and Credit Bureau of Malaysia. We also have a presence in China, where we currently provide fraud and authentication solutions to financial institutions.

Consumer Interactive

Consumer Interactive offers solutions that help consumers manage their personal finances and take precautions against identity theft. Services in this segment include credit reports and scores, credit monitoring, fraud protection and resolution and financial management. Our products are provided through user-friendly online and mobile interfaces and are supported by educational content and customer support. Our Consumer Interactive segment serves consumers through both direct and indirect channels.

Direct: We provide services directly to consumers, primarily on a subscription basis through websites and mobile applications. Product features include credit reports, credit scores and analysis, alerts to changes in credit information, debt analysis, debt and retirement calculators, identity protection services, and the ability to restrict third-party access to a consumer's TransUnion and Equifax credit reports through our paid subscription offering. We complement these features with educational content that explains how credit and financial data is used in various industries to evaluate consumers and how a consumer's financial choices impact this evaluation. Our integrated, data-driven marketing strategy spans multiple channels including paid search, online display and email, which allows us to efficiently acquire and retain high quality consumers.

Indirect: We also provide our services to partners who may offer them on a stand-alone basis or with their own or other branded services as a bundle to consumers, governmental agencies and businesses in support of fraud or credit protection, credit monitoring, identity authentication, or as a means to engage with and acquire consumers. We offer a broad suite of solutions that include many of the features, educational content and customer support available in our direct channel. We have taken a proactive and flexible partnership approach, which has resulted in long-term strategic relationships with some of the largest providers of credit information or identity protection services in the U.S. consumer market as well as with several large financial institutions. Through these partnerships, we have significantly expanded the overall market as well as the reach of our business.

Corporate

Corporate provides support services to each segment, holds investments and conducts enterprise functions. Certain costs incurred in Corporate that are not directly attributable to one or more of the segments remain in Corporate. These costs are primarily enterprise-level costs and are administrative in nature.

Markets and Customers

We have a highly diversified customer base, with our largest customer accounting for approximately 4% of revenue in 2018 and 5% of revenue in 2017. Our top ten customers accounted for approximately 17% of revenue in 2018 and 19% in 2017. Our customers include companies across multiple industries, including financial services, healthcare and insurance. A substantial portion of our revenue is derived from companies in the financial services industry and from sales in the United States.

We leverage our comprehensive data assets, industry expertise and our next-generation common code-based technology, allowing us to build solutions once and deploy them multiple times across the different verticals and regions. We provide services to our customers through real-time, online delivery for services such as credit reports and predictive scores, in batch form for services that help our customers proactively acquire new customers, cross-sell to existing customers and help them monitor and manage risk, and through our software-as-a-service offerings, which include a number of solutions that help businesses interpret data,

maximize reimbursements, visualize insights, predict model results and apply their customer-specific criteria to facilitate real-time automated decisions at the time of customer interaction, and through our websites to consumers, for various subscription-based and transaction-based products in the United States and in other regions we serve.

We have a presence in over 30 countries and territories across North America, Latin America, the United Kingdom, Africa, Asia Pacific and India. We market our services primarily through our own sales force. We have dedicated sales teams for our largest customers focused by industry group and geography. These dedicated sales teams provide strategic account management and direct support to customers. We use shared sales teams to sell our services to mid-size customers. These sales teams are based in our headquarters office and in field offices strategically located throughout the United States and abroad. Smaller customers' sales needs are serviced primarily through call centers. We also market our services through indirect channels such as resellers, who sell directly to businesses and consumers. Our interactive direct-to-consumer services are sold primarily through our website.

Seasonality

Seasonality in the USIS segment is correlated to volumes of online credit data purchased by our financial services and mortgage customers, and our sales have generally been higher during the second and third quarters. Seasonality in our International segment is driven by local economic conditions and relevant macroeconomic market trends. In our Consumer Interactive segment, demand for our products is usually higher in the first half of the year, impacted by seasonality and our advertising spend.

Competition

The market for our services is highly competitive. We compete primarily on the basis of differentiated solutions, datasets, analytics capabilities, ease of integration with our customers' technology, stability of services, customer relationships, innovation and price. We believe that we compete favorably in each of these categories. Our competitors vary based on the business segment, industry vertical and geographical market that our solutions address.

In our USIS segment, our competition generally includes Equifax, Experian and LexisNexis, in addition to certain competitors whom we only compete with in specific industry verticals. For example, we compete with FICO in the financial services vertical, with Solera and Verisk in the insurance vertical, with Experian Health, IMS Health, Inovalon and Trizetto in the healthcare vertical and with LifeLock and Experian in the fraud solutions market.

In our International segment, we generally compete with Equifax and Experian directly or indirectly through their subsidiaries or investments. We also compete with other competitors that may focus on a particular vertical, country or region.

In our Consumer Interactive segment, we generally compete with Equifax, Experian, FICO and LifeLock as well as emerging businesses, some of whom offer free credit information.

In addition to these competitors, we also compete with a number of other companies that may offer niche solutions catering to more specific customer requirements.

We believe the services we provide to our customers reflect our understanding of our customers' businesses, the depth and breadth of our data and the quality of our analytics and decisioning capabilities. By integrating our services into our customers' workflows, we ensure efficiency, continuous improvement and long-lasting relationships.

Information Technology

Technology

The continuous operation of our information technology systems is fundamental to our business. Our information technology systems collect, refine, access, process, deliver and store the data that is used to provide our solutions. Customers connect to our systems using a number of different technologies, including secured internet connections, virtual private networks and dedicated network connections. Control and management of the technology that operates our business is critical to our success and to this end, we directly control and manage all of our technology and infrastructure. Our technology relies on several third-party best-of-breed solutions as well as proprietary software and tools which we integrate into our platforms. Our control of our technology and infrastructure allows us to prioritize any changes and manage the roll-out of any upgrades or changes. We contract with various third-party providers to help us maintain and support our systems.

We have established technology Centers-of-Excellence that utilize similar tools and technology in order to provide scale and efficiency in modifying existing applications and developing new applications for our businesses. We deploy new development methodologies globally to enable rapid delivery of solutions and increase our speed-to-market. Our technology team includes both our own employees as well as additional resources from third-party providers.

We believe that our technology is at the core of our innovative solutions, and we continually invest in our technology and thought leaders to be a market leader. We continue to make significant investments in our technology infrastructure to leverage the latest

big data and analytics technologies. We believe that our next-generation platform enables us to be quicker, more efficient and more cost-effective across each step of our process chain, including receiving, consolidating and updating data, implementing analytics and decisioning capabilities, creating innovative solutions, delivering those solutions to our customers and incorporating customer feedback. Our platform has significant scale and capacity and enables us to deliver actionable information immediately to our customers. Our technology infrastructure gives us the ability to organize and handle high volumes of disparate data, maintain and improve our delivery speeds, increase availability and enhance our product development capabilities, while at the same time lowering our overall cost structure.

Data Centers and Business Continuity

In order to create redundancy and increase resiliency, we utilize multiple data centers in all of our major markets. We generally employ similar technologies and infrastructures in each data center to enable the optimal sharing of technical resources across geographies.

We maintain a framework for business continuity that includes written policies requiring each business and operating unit to identify critical functions. Our businesses and operating units have processes in place that are designed to maintain such functions in case there is a disruptive event. We also have a specific disaster recovery plan that will take effect if critical infrastructure or systems fail or become disabled.

As part of our program, each business unit's continuity plan is periodically updated and stored in a centralized database. These plans are monitored and reviewed by our compliance team. From time to time, our compliance team tests one or more of these plans using desktop exercises or in connection with actual events. We also periodically confirm the state of preparedness of our most critical disaster recovery procedures. We maintain systems redundancy plans for our primary U.S. data centers that allow for the transfer of capacity between geographically disbursed environments in the event there is a failure of computer hardware or a loss of our primary telecommunications lines or power sources. On an enterprise basis, our systems are designed to recover most of our operational capacity in a scenario where our primary data centers become inoperable.

Security

The security and protection of non-public consumer information is one of our highest priorities. We have a written information security program based on the ISO/IEC 27001:2013 standard with dedicated personnel charged with overseeing that program. Our information security program incorporates continuous improvement methodology and evaluates threats, industry events and asset values to help us appropriately adjust security controls. We employ a wide range of physical and technical safeguards that are designed to provide security around the collection, storage, use, access and delivery of information we have in our possession. These safeguards include firewalls, intrusion protection and monitoring, anti-virus and malware protection, vulnerability threat analysis, management and testing, advanced persistent threat monitoring, forensic tools, encryption technologies, data transmission standards, contractual provisions, customer credentialing, identity and access management, data loss, access and anomaly reports and training programs for associates. We, with other global financial services organizations, including U.S. nationwide consumer credit reporting companies, share cyber threat and attack information through our participation in the Financial Information Sharing and Analysis Council ("FS-ISAC") and other forums that may be targeted at our industry to better understand and monitor our systems and our connectivity to our customers, as well as how specific solutions that were implemented to protect against such attacks are performing. We undergo SSAE 16 reviews annually, and several of our major customers routinely audit our security controls. We conduct an annual Payment Card Industry Data Security Standard (PCI-DSS) compliance program and remain PCI certified. Additionally, we also hire third parties to conduct independent information security assessments.

Intellectual Property and Licensing Agreement

Our intellectual property is a strategic advantage and protecting it is critical to our business. Because of the importance of our intellectual property, we treat our brand, software, technology, know-how, concepts and databases as proprietary. We attempt to protect our intellectual property rights under the trademark, copyright, patent, trade secret and other intellectual property laws of the United States and other countries, as well as through the use of licenses and contractual agreements, such as nondisclosure agreements. While we hold various patents, we do not rely primarily on patents to protect our core intellectual property. Through contractual arrangements, disclosure controls and continual associate training programs, our principal focus is to treat our key proprietary information and databases as trade secrets. Also, we have registered certain trademarks, trade names, service marks, logos, internet URLs and other marks of distinction in the United States and foreign countries, the most important of which is the trademark TransUnion name and logo. This trademark is used in connection with most of the services we sell and we believe it is a known mark in the industry.

We own proprietary software that we use to maintain our databases and to develop and deliver our services. We develop and maintain business-critical software that transforms data furnished by various sources into databases upon which our services are built. We also develop and maintain software to manage our consumer interactions, including providing disclosures and resolving disputes. In all business segments, we develop and maintain software applications that we use to deliver services to our customers,

through a software-as-a-service model. In particular, we develop and maintain decisioning technology infrastructure that we host and integrate into our customers' workflow systems to improve the efficiency of their operations.

We license certain data and other intellectual property to other companies on arms-length terms that are designed to protect our rights to our intellectual property. We generally use standard licensing agreements and do not provide our intellectual property to third parties without a nondisclosure and license agreement in place.

We also license certain intellectual property that is important for our business from third parties. For example, we license credit-scoring algorithms and the right to sell credit scores derived from those algorithms from third parties for a fee.

Employees

As of December 31, 2018, we employed approximately 7,100 employees throughout the world. Other than certain employees in Brazil, none of our employees is currently represented by a labor union or have terms of employment that are subject to a collective bargaining agreement. We consider our relationships with our employees to be good and have not experienced any work stoppages.

Our History

TransUnion Corp. was spun-off from its parent, Marmon Holdings, Inc. in 2005 to the Pritzker family. On June 15, 2010, an affiliate of Madison Dearborn Partners, LLC, on behalf of certain of its investment funds, acquired 51.0% of our outstanding common stock from the Pritzker family and certain employee and director stockholders of TransUnion Corp. On April 30, 2012, TransUnion Corp. was acquired by TransUnion Holding Company, Inc., substantially all the common stock of which was owned by Advent-TransUnion Acquisition Limited Partnership, and GS Capital Partners VI Fund, L.P., GS Capital Partners VI Parallel, L.P., Spartan Shield Holdings, GS Capital Partners Offshore Fund, L.P., GS Capital Partners VI GmbH & Co. KG, MBD 2011 Holding, L.P., Opportunity Partners Offshore-B Co-Invest AIV, L.P., and became TransUnion Holding Company, Inc.'s wholly-owned subsidiary. On March 26, 2015, TransUnion Holding Company, Inc. was renamed TransUnion and TransUnion Corp. was renamed TransUnion Intermediate Holdings, Inc. On June 30, 2015, we completed the initial public offering of 33,977,273 shares of our common stock, including shares sold to the underwriters pursuant to their over-allotment option, at a public offering price of $22.50 per share. Our stock trades on the New York Stock Exchange under the ticker "TRU."

Legal and Regulatory Matters

Compliance with legal and regulatory requirements is a top priority. We are subject to numerous laws governing the collection, protection, dissemination and use of the non-public personal information we have in our possession. These laws are enforced by U.S. federal, state and local regulatory agencies, foreign regulatory authorities and, in some instances, through private civil litigation. Our failure to comply with applicable legal and regulatory requirements could have a negative impact on our financial condition or overall operations.

We proactively manage our compliance with laws and regulations through a dedicated legal and compliance team that is generally locally sourced and tasked to ensure that enterprise standards are followed. To that end, we have legal and compliance personnel situated at business operations in the United States, the United Kingdom, Canada, Brazil, Colombia, Hong Kong, India and South Africa. All such personnel report to the functional department leaders, who are located in our corporate offices in Chicago, Illinois. Through the legal and compliance functions, we provide training to our associates, monitor all material laws and regulations, establish compliance policies, routinely review internal processes to determine whether business practice changes are warranted, assist in the development of new services, and promote regular meetings with principal regulators and legislators to establish transparency in our operations and create a means to understand and react should any issues arise.

U.S. Data and Privacy Protection

Our U.S. operations are subject to numerous laws and regulations that regulate, among other areas, privacy, data security, consumer protection and the use of consumer credit or an individual's healthcare information. Certain of these laws provide for civil and criminal penalties for the unauthorized release of, or access to, this protected information. The laws and regulations that affect our U.S. business include, but are not limited to, the following:

- *Fair Credit Reporting Act (the "FCRA")*: FCRA applies to consumer credit reporting agencies, including us, as well as data furnishers and users of consumer reports. FCRA promotes the accuracy, fairness and privacy of information in the files of consumer reporting agencies that engage in the practice of assembling or evaluating information relating to consumers for certain specified purposes. FCRA limits what information may be reported by consumer reporting agencies, limits the distribution and use of consumer reports, establishes consumer rights to access and dispute their own credit files, requires consumer reporting agencies to make a free annual credit report available to consumers and imposes many other requirements on consumer reporting agencies, data furnishers and users of consumer report information. Violation of FCRA can result in civil and criminal penalties. The law contains an attorney fee shifting provision to provide an incentive to consumers to bring individual or class action lawsuits against a consumer reporting agency for violations of FCRA. Regulatory enforcement of FCRA is under the purview of the Federal Trade Commission (the "FTC"), the Consumer Financial Protection Bureau (the "CFPB") and state attorneys general, acting alone or in concert with one another.
- *State Fair Credit Reporting Acts*: Many states have enacted laws with requirements similar to FCRA. Some of these state laws impose additional, or more stringent, requirements than FCRA. FCRA preempts some of these state laws but the scope of preemption continues to be defined by the courts.
- *The Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank Act")*: A central purpose of the Dodd-Frank Act is to "protect consumers from abusive financial services practices, and for other purposes." Title X of the Dodd-Frank Act created the CFPB. The CFPB, through rulemaking, confirmed that the Company is subject to the examination and supervision of the CFPB, and such examinations began in 2012. In addition to transferring authority under certain existing laws to the CFPB and providing it with examination and supervisory authority, the Dodd-Frank Act also prohibits unfair, deceptive or abusive acts or practices ("UDAAP") with respect to consumer financial products and provides the CFPB with authority to enforce those provisions. The CFPB has stated that its UDAAP authority may allow it to find statutory violations even where a specific regulation does not prohibit the relevant conduct, or prior published regulatory guidance or judicial interpretation has found the activity to be in accordance with law.
- *The Economic Growth, Regulatory Relief, and Consumer Protection Act (the "EGRRCPA")*: In May 2018, Congress passed the EGRRCPA, which amended certain parts of the Dodd-Frank Act, FCRA and other U.S. federal laws applicable to us. Specifically, FCRA was amended to require that a credit reporting agency provide consumers with at least one year to submit a fraud alert to the credit reporting agency. The law also amended the FCRA for purposes of implementing a national security freeze that credit reporting agencies must provide free of charge upon formal request by a consumer. The credit freeze prevents credit reporting agencies from disclosing the content of a consumer report. Credit reporting agencies must also notify consumers of this right and provide instructions on how to implement and lift a credit freeze. The law increases veteran credit protection by implementing a process to remove inaccurate medical information and veteran medical debt and creates standards for verifying veteran medical debt. In addition, credit reporting agencies are required to provide free credit reporting monitoring, which requires notifying the consumer of any changes to his or her file, to any active duty military consumer.
- *State unfair and deceptive practices acts and practices laws*: Many state have enacted statutes that prohibit unfair and deceptive acts and practices, relating to, among other things, marketing, disclosures and billing practices within the state or directed to consumers within the state. The Company and others in the industry may be subject to these laws with respect to the marketing of consumer credit information products.
- *Gramm-Leach Bliley Act (the "GLBA"*): The GLBA regulates, among other things, the receipt, use and disclosure of non-public personal information of consumers that is held by financial institutions, including us. Several of our datasets are subject to GLBA provisions, including limitations on the use or disclosure of the underlying data and rules relating to the technological, physical and administrative safeguarding of non-public personal information. Violation of the GLBA can result in civil and criminal liability. Regulatory enforcement of the GLBA is under the purview of the FTC, the CFPB, the federal prudential banking regulators, the SEC and state attorneys general, acting alone or in concert with each other.
- *Drivers' Privacy Protection Act (the "DPPA")*: The DPPA requires all states to safeguard certain personal information included in licensed drivers' motor vehicle records from improper use or disclosure. Protected information includes the driver's name, address, phone number, Social Security Number, driver identification number, photograph, height, weight, gender, age, certain medical or disability information and, in some states, fingerprints, but does not include information on vehicular accidents, driving violations and driver's status. The DPPA limits the use of this information sourced from State departments of motor vehicles to certain specified purposes, and does not apply if a driver has consented to the

release of their data. The DPPA imposes criminal fines for non-compliance and grants individuals a private right of action, including actual and punitive damages and attorneys' fees. The DPPA provides a federal baseline of protections for individuals, and is only partially preemptive, meaning that except in a few narrow circumstances, state legislatures may pass laws to supplement the protections made by the DPPA. Many States are more restrictive than the federal law.

- *Data security breach laws*: All states have adopted data security breach laws that may require notice be given to affected consumers in the event of a breach of personal information, and in some cases the provision of additional benefits such as free credit monitoring to affected individuals. Some of these laws require additional data protection measures over and above the GLBA data safeguarding requirements. If data within our system is compromised by a breach, we may be subject to provisions of various state security breach laws, including regulatory investigations or enforcement actions from state attorneys general, who enforce state data breach or unfair and deceptive practices laws.
- *Identity theft laws*: Under the federal EGRRCPA, consumers can place a security freeze on their credit reports to prevent others from opening new accounts or obtaining new credit in their name and obtain one-year of fraud alerts free of charge. In addition, most states and the District of Columbia have passed laws that give consumers the right to place a security freeze on their credit report. Generally, these state laws require us to respond to requests for a freeze within a certain period of time, to send certain notices or confirmations to consumers in connection with a security freeze and to unfreeze files upon request within a specified time period.
- *Federal Trade Commission Act (the "FTC Act")*: The FTC Act prohibits unfair methods of competition and unfair or deceptive acts or practices. We must comply with the FTC Act when we market our services, such as consumer credit monitoring services through our Consumer Interactive segment. Our data collection, use and disclosure practices and the security measures we employ to safeguard the personal data of consumers could also be subject to the FTC Act, and our data practices or our failure to safeguard data adequately may subject us to regulatory scrutiny or enforcement action. There is no private right of action under the FTC Act.
- *The Credit Repair Organizations Act ("CROA")*: CROA regulates companies that claim to be able to assist consumers in improving their credit standing. Some courts have applied CROA to credit monitoring services offered by consumer reporting agencies and others. CROA allows for a private right of action and permits consumers to recover all money paid for alleged "credit repair" services in the event of violation. We, and others in our industry, have settled purported consumer class actions alleging violations of CROA without admitting or denying liability.
- *The Health Insurance Portability and Accountability Act of 1996, as amended by the American Recovery and Reinvestment Act of 2009 ("HIPAA") and the Health Information Technology for Economic and Clinical Health Act ("HITECH")*: HIPAA and HITECH require companies to implement reasonable safeguards to prevent intentional or unintentional misuse or wrongful disclosure of protected health information. In connection with receiving data from and providing services to healthcare providers, we may handle data subject to HIPAA and HITECH requirements. We obtain protected health information from healthcare providers and payers of healthcare claims that are subject to the privacy, security and transactional requirements imposed by HIPAA. We are frequently required to secure HIPAA-compliant "business associate" agreements with the providers and payers who supply data to us. As a business associate, we are obligated to limit our use and disclosure of health-related data to certain statutorily permitted purposes, HIPAA regulations, as outlined in our business associate agreements, and to preserve the confidentiality, integrity and availability of this data. HIPAA and HITECH also require, in certain circumstances, the reporting of breaches of protected health information to affected individuals and to the United States Department of Health and Human Services. A violation of any of the terms of a business associate agreement or noncompliance with HIPAA or HITECH data privacy or security requirements could result in administrative enforcement action and/or imposition of statutory penalties by the United States Department of Health and Human Services or a state Attorney General. HIPAA and HITECH requirements supplement but do not preempt state laws regulating the use and disclosure of health-related information; state law remedies, which can include a private right of action, remain available to individuals affected by an impermissible use or disclosure of health-related data.

We are also subject to U.S. federal and state laws that are generally applicable to any U.S. business with national or international operations, such as antitrust laws, the Foreign Corrupt Practices Act, the Americans with Disabilities Act and various employment laws. We continuously monitor U.S. federal and state legislative and regulatory activities that involve credit reporting, data privacy and security, and other relevant subjects to identify issues in order to remain in compliance with all applicable laws and regulations.

International Data and Privacy Protection

We are subject to data protection, privacy and consumer credit laws and regulations in the foreign countries where we conduct business. These laws and regulations include, but are not limited to, the following:

- *United Kingdom:* Data Protection Act (the "DPA") and the Privacy and Electronic Communications Regulation (the "PECR") - The DPA is the key legislation that governs all credit reporting agency ("CRA") activities and the PECR compliments it, setting out more specific privacy rights on electronic communications. PECR was most recently amended in 2016, limiting use cases of personal data for prospecting/origination purposes. The provision of credit referencing

services is a regulated activity which is authorized by the Financial Conduct Authority (the "FCA"). The FCA has regulated CRAs since 2014 with the objectives of protecting consumers, protecting financial markets and promoting competition. Callcredit, Experian and Equifax were granted full FCA authorization in early 2016. The Information Commissioners Office (the "ICO") is an independent body set up to uphold information rights, and oversees the DPA and the PECR. In addition to the DPA and the PECR, there are two key changes to be implemented within the regulatory environment: the General Data Protection Regulation (the "GDPR"); and Open Banking. Overall these changes are expected to have a neutral to positive impact on the CRA market. GDPR, which became effective May 25, 2018, aims to strengthen and unify data protection for all individuals within the European Union, and will replace the existing DPA. The GDPR will change the way personal data can be used and gives individuals significantly more power to access their information, bolsters consumers rights around automated processing of data (i.e., lenders will be required to provide an explanation on decisions), and also gives individuals the power to get their personal data erased if it is no longer necessary for the purpose it was collected, if consent is withdrawn, or if it was unlawfully processed. Ultimately, the GDPR will increase the cost of customer data management and data collection due to more rigorous regulations. Data retention periods are already defined and deletions automated so there will be no impact to CRA's operations. The GDPR will enable the ICO to fine non-compliant businesses. The GDPR states offenses could result in fines up 2% to 4% of a firm's global revenue, depending on severity of the offense. TransUnion was already subject to the GDPR and is working to become fully compliant. Open Banking aims to improve customer experience and to increase competition in the banking sector. Consumers can share transaction data with third parties via application program interfaces ("APIs") to identify best products and take up multi-bank products. As part of Open Banking, the Second Payment Services Directive came in effect in January 2018 and affects the payments industry, allowing merchants to retrieve a customer's account data from their bank with their consent. The implementation of Open Banking platforms will increase the number of payment service providers available to consumers and will expand beyond traditional banks.

- *South Africa*: National Credit Act of 2005 (the "NCA") - The NCA and its implementing regulations govern credit bureaus and consumer credit information. The NCA sets standards for filing, retaining and reporting consumer credit information. The NCA also defines consumers' rights with respect to accessing their own information and addresses the process for disputing information in a credit file. The NCA is enforced by The National Credit Regulator who has authority to supervise and examine credit bureaus.
- *Canada:* Personal Information Protection and Electronic Documents Act of 2000 ("PIPEDA") - The PIPEDA and substantially similar provincial laws govern how private sector organizations collect, use and disclose personal information in the course of commercial activities. The PIPEDA gives individuals the right to access and request correction of their personal information collected by such organizations. The PIPEDA requires compliance with the Canadian Standard Association Model Code for the Protection of Personal Information. Most Canadian provinces also have laws dealing with consumer reporting. These laws typically impose an obligation on credit reporting agencies to have reasonable processes in place to maintain the accuracy of the information, place limits on the disclosure of the information and give consumers the right to have access to, and challenge the accuracy of, the information.
- *India:* Credit Information Companies Regulation Act of 2005 ("CICRA") - The CICRA requires entities that collect and maintain personal credit information to ensure that it is complete, accurate and protected. Entities must adopt certain privacy principles in relation to collecting, processing, preserving, sharing and using credit information. In addition, India has privacy legislation that would allow individuals to sue for damages in the case of a data breach, if the entity negligently failed to implement "reasonable security practices and procedures" to protect personal data.
- *Hong Kong:* Personal Data (Privacy) Ordinance ("PDPO") and The Code of Practice on Consumer Credit Data ("COPCCD") - The PDPO and the COPCCD regulate the operation of consumer credit reference agencies. They prescribe the methods and security controls under which credit providers and credit reference agencies may collect, access and manage credit data. In April 2011, the COPCCD was amended to permit credit providers to share limited positive mortgage payment data. In June 2012, the PDPO was amended to increase penalties and create criminal liabilities for repeat contravention of PDPO under which enforcement notices have been served.
- *Colombia:* The Colombian Financial Data Protection Regime (Law 1266 of 2008) regulates the collection, use and transfer of personal data pertaining to financial services, including credit reporting. The Colombian General Data Protection Regime (Law 1581 of 2012 and Decree 1377 of 2013) covers regulation of all other personal data. Both of these regimes have applicability to credit reporting services in Colombia and together address obligations of information furnishers, database owners, consumer right of access, consumer consent and permitted information disclosures. Regulatory enforcement primarily rests with the Financial Superintendence of Colombia and the Colombia Data Protection Authority (Superintendence of Industry and Commerce).

We are also subject to various laws and regulations generally applicable to all businesses in the other countries where we operate.

Available Information

Through our corporate website under the heading "About Us - Investor Relations," at http://www.transunion.com, you can access electronic copies of our governing documents free of charge, including our Corporate Governance Guidelines and the charters of the committees of our Board of Directors. In addition, through our website, you can access the documents we file with the U.S. Securities and Exchange Commission (SEC), including our annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K, and all amendments thereto, as soon as reasonably practicable after we file or furnish them. You also may request printed copies of our SEC filings or governance documents, free of charge, by writing to our corporate secretary at the address on the cover of this report. Information contained on our website is not incorporated herein by reference and should not be considered part of this report.

In addition, the SEC maintains an Internet site (www.sec.gov) that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC.

Our corporate headquarters are located at 555 West Adams Street, Chicago, Illinois 60661, and our telephone number is (312) 985-2000.

ITEM 1A. RISK FACTORS

You should carefully consider the following risks as well as the other information included in this report, including "Selected Financial Data," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and related notes. Any of the following risks could materially and adversely affect our business, financial condition or results of operations. However, the selected risks described below are not the only risks facing us. Additional risks and uncertainties not currently known to us or those we currently view to be immaterial may also materially and adversely affect our business, financial condition or results of operations.

We have a substantial amount of debt which could adversely affect our financial position and prevent us from fulfilling our obligations under the debt instruments.

As of December 31, 2018, the book value of our debt was approximately $4.0 billion consisting of outstanding borrowings under Trans Union LLC's senior secured credit facility. We may also incur significant additional indebtedness in the future. Our substantial indebtedness may:

- make it difficult for us to satisfy our financial obligations, including with respect to our indebtedness;
- limit our ability to borrow additional funds for working capital, capital expenditures, acquisitions or other general business purposes;
- limit our ability to use our cash flow or obtain additional financing for future working capital, capital expenditures, acquisitions or other general business purposes;
- require us to use a substantial portion of our cash flow from operations to make debt service payments;
- expose us to the risk of increased interest rates as certain of our borrowings, including Trans Union LLC's senior secured credit facility, are at variable rates of interest;
- limit our ability to pay dividends;
- limit our flexibility to plan for, or react to, changes in our business and industry;
- place us at a competitive disadvantage compared with our less-leveraged competitors; and
- increase our vulnerability to the impact of adverse economic and industry conditions.

In addition, the credit agreement governing Trans Union LLC's senior secured credit facility contains restrictive covenants that may limit our ability to engage in activities that may be in our long-term best interest. Our failure to comply with those covenants could result in an event of default which, if not cured or waived, could result in the acceleration of substantially all of our debt.

Despite our current level of indebtedness, we may still be able to incur additional indebtedness. This could further the risks associated with our substantial indebtedness.

We and our subsidiaries may be able to incur substantial additional indebtedness in the future. The terms of the credit agreement governing our debt limit, but do not prohibit, us or our subsidiaries from incurring additional indebtedness, and the additional indebtedness incurred in compliance with these restrictions could be substantial. If we incur any additional debt, the priority of that debt may impact the ability of existing debt holders to share ratably in any proceeds distributed in connection with any insolvency, liquidation, reorganization, dissolution or other winding-up of us, subject to collateral arrangements. These restrictions will also not prevent us from incurring obligations that do not constitute indebtedness. We also have the ability to request incremental loans on the same terms under the existing senior secured credit facility up the greater of $675.0 million and 100% of consolidated EBITDA, and may incur additional incremental loans so long as the senior secured net leverage ratio does not exceed 4.25 to 1.0, subject to certain additional conditions and commitments by existing or new lenders to fund any additional borrowings. If new indebtedness is added to our current debt levels, the related risks that we and our subsidiaries now face could intensify.

We may not be able to generate sufficient cash to service all of our indebtedness, and may be forced to take other actions to satisfy our obligations under our indebtedness, which may not be successful.

Our ability to make scheduled payments due on our debt obligations or to refinance our debt obligations depends on our financial condition and operating performance, which are subject to prevailing economic, industry and competitive conditions and to certain financial, business, legislative, regulatory and other factors beyond our control as discussed above. Our total scheduled principal repayments of debt made in 2018 and 2017 were $54.3 million and $32.5 million, respectively. Our total interest expense for 2018 and 2017 was $137.5 million and $87.6 million, respectively. We may be unable to maintain a level of cash flow from operating activities sufficient to permit us to pay the principal, premium, if any, and interest on our indebtedness.

If our cash flow and capital resources are insufficient to fund our debt service obligations, we could face substantial liquidity problems and could be forced to reduce or delay investments and capital expenditures or to dispose of material assets or operations, seek additional debt or equity capital or restructure or refinance our indebtedness. We may not be able to implement any such alternative measures on commercially reasonable terms or at all and, even if successful, those alternative actions may not allow us to meet our scheduled debt service obligations. The credit agreement governing Trans Union LLC's senior secured credit facility

restricts our ability to dispose of assets and use the proceeds from those dispositions and may also restrict our ability to raise debt or equity capital to be used to repay other indebtedness when it becomes due. We may not be able to consummate those dispositions or to obtain proceeds in an amount sufficient to meet any debt service obligations then due. In addition, under the covenants of the credit agreement governing our senior secured credit facility, TransUnion Intermediate is restricted from making certain payments, including dividend payments to TransUnion, subject to certain exceptions.

Our inability to generate sufficient cash flow to satisfy our debt obligations, or to refinance our indebtedness on commercially reasonable terms or at all, would materially and adversely affect our financial position and results of operations and our ability to satisfy our obligations.

If we cannot make our scheduled debt payments, we will be in default and all outstanding principal and interest on our debt may be declared due and payable, the lenders under Trans Union LLC's senior secured credit facility could terminate their commitments to loan money, Trans Union LLC's secured lenders (including the lenders under Trans Union LLC's senior secured credit facility) could foreclose against the assets securing their borrowings and we could be forced into bankruptcy or liquidation.

Our revenues are concentrated in the U.S. consumer credit and financial services industries. When these industries or the broader financial markets experience a downturn, demand for our services and revenues may be adversely affected.

Our largest customers, and therefore our business and revenues, depend on favorable macroeconomic conditions and are impacted by the availability of credit, the level and volatility of interest rates, inflation, employment levels, consumer confidence and housing demand. In addition, a significant amount of our revenues are concentrated among certain customers and in distinct geographic regions, particularly in the United States. Our product offerings are also concentrated by varying degrees across different industries, particularly the financial services, healthcare and insurance industries in the United States where we derived more than 75% of our USIS segment revenues in 2018. Our customer base suffers when financial markets experience volatility, illiquidity and disruption, which has occurred in the past and which could reoccur, and the potential for increased and continuing disruptions going forward, present considerable risks to our business and revenue. Changes in the economy have resulted, and may continue to result, in fluctuations in volumes, pricing and operating margins for our services. If businesses in these industries experience economic hardship, we cannot assure you that we will be able to generate future revenue growth. In addition, if consumer demand for financial services and products and the number of credit applications decrease, the demand for our services could also be materially reduced. These types of disruptions could lead to a decline in the volumes of services we provide our customers and could negatively impact our revenue and results of operations.

We are subject to significant competition in the markets in which we operate and we may face significant competition in the new markets that we plan to enter.

The market for our services is highly competitive, and we may not be able to compete successfully against our competitors, which could impair our ability to sell our services. We compete on the basis of differentiated solutions, datasets, analytics capabilities, ease of integration with our customers' technology, stability of services, customer relationships, innovation and price. Our regional and global competitors vary in size, financial and technical capability, and in the scope of the products and services they offer. Some of our competitors may be better positioned to develop, promote and sell their products. Larger competitors may benefit from greater cost efficiencies and may be able to win business simply based on pricing. We consistently face downward pressure on the pricing of our products, which could result in reduced prices for certain products, or a loss of market share. Our competitors may also be able to respond to opportunities before we do, by taking advantage of new technologies, changes in customer requirements or market trends.

Our Consumer Interactive segment experiences competition from emerging companies. For example, prior to 2008, Equifax and Experian were our top competitors for direct-to-consumer credit services, such as credit reports and identity theft protection services. In the past several years, there has been an influx of other companies offering similar services, some of whom leverage the free services mandated by law to be provided by nationwide credit reporting agencies. These developments have resulted in increased competition.

Many of our competitors have extensive customer relationships, including relationships with our current and potential customers. New competitors, or alliances among competitors, may emerge and gain significant market share. Existing or new competitors may develop products and services that are superior to ours or that achieve greater market acceptance. If we are unable to respond to changes in customer requirements as quickly and effectively as our competition, our ability to expand our business and sell our services may be adversely affected.

Our competitors may be able to sell services at lower prices than us, individually or as part of integrated suites of several related services. This ability may cause our customers to purchase from our competitors rather than from us. Price reductions by our competitors could also negatively impact our operating margins or harm our ability to obtain new long-term contracts or renewals of existing contracts on favorable terms. Additionally, some of our customers may develop products of their own that replace the products they currently purchase from us, which would result in lower revenue.

We also expect that there will be significant competition in the new markets that we plan to enter. We cannot assure you that we will be able to compete effectively against current and future competitors. If we fail to successfully compete, our business, financial condition and results of operations may be adversely affected.

Our relationships with key long-term customers may be materially diminished or terminated.

We have long-standing relationships with a number of our customers, many of whom could unilaterally terminate their relationship with us or materially reduce the amount of business they conduct with us at any time. Our customer agreements relating to our core credit reporting service offered through our USIS segment are terminable upon advance written notice (typically ranging from 30 days to six months) by either us or the customer, which provides our customers with the opportunity to renegotiate their contracts with us or to award more business to our competitors.

We also provide our services to business partners who may combine them with their own or other branded services to be offered as a bundle to consumers, governmental agencies and businesses in support of fraud or credit protection, credit monitoring, identity authentication, insurance or credit underwriting, and collections. Some of these partners are the largest providers of credit information or identity protection services to the U.S. consumer market.

Market competition, business requirements, financial condition and consolidation through mergers or acquisitions, could adversely affect our ability to continue or expand our relationships with our customers and business partners. There is no guarantee that we will be able to retain or renew existing agreements, maintain relationships with any of our customers or business partners on acceptable terms or at all, or collect amounts owed to us from insolvent customers or business partners. The loss of one or more of our major customers or business partners could adversely affect our business, financial condition and results of operations.

Data security and integrity are critically important to our business, and cybersecurity incidents, including cyberattacks, breaches of security, unauthorized access to or disclosure of confidential information, business disruption, or the perception that confidential information is not secure, could result in a material loss of business, regulatory enforcement, substantial legal liability and/or significant harm to our reputation.

As a nationwide consumer credit reporting company in the United States and a global provider of risk and information solutions, we collect, store and transmit a large amount of sensitive and confidential consumer information on over one billion consumers, including financial information, personally identifiable information and protected health information. We operate in an environment of significant risk of cybersecurity incidents resulting from unintentional events or deliberate attacks by third parties or insiders, which may involve exploiting highly obscure security vulnerabilities or sophisticated attack methods. These cyberattacks can take many forms, but they typically have one or more of the following objectives, among others:

- obtain unauthorized access to confidential consumer information;
- manipulate or destroy data; or
- disrupt, sabotage or degrade service on our systems.

We experience numerous attempts to access our computer systems, software, networks, data and other technology assets on a daily basis, none of which has resulted in a material data incident or otherwise had any material impact on our business, operations or financial results.

The security and protection of non-public consumer information is a top priority for TransUnion. We devote significant resources to maintain and regularly upgrade the wide array of physical, technical, and contractual safeguards we employ to provide security around the collection, storage, use, access and delivery of information we have in our possession. We cannot assure you that our systems, databases and services will not be compromised or disrupted in the future, whether as a result of deliberate attacks by malicious actors, breaches due to employee error or malfeasance, or other disruptions during the process of upgrading or replacing computer software or hardware, power outages, computer viruses, telecommunication or utility failures or natural disasters or other catastrophic events. We work to monitor and develop our information technology networks and infrastructure to prevent, detect, address and mitigate the risk of unauthorized access, misuse, computer viruses and other events that could have a security impact.

While recent, highly publicized cybersecurity incidents, including the data incident announced by Equifax on September 7, 2017, have heightened consumer awareness of cybersecurity risks, they have also emboldened individuals or groups to target our systems even more aggressively.

The preventive actions we take to address cybersecurity risk, including protection of our systems and networks, may be insufficient to repel or mitigate the effects of cyberattacks in the future as it may not always be possible to anticipate, detect or recognize threats to our systems, or to implement effective preventive measures against all cybersecurity risks. This is because, among other things:

- the techniques used in cyberattacks change frequently and may not be recognized until after the attacks have succeeded;
- cyberattacks can originate from a wide variety of sources, including sophisticated threat actors involved in organized crime, sponsored by nation-states, or linked to terrorist or hacktivist organizations; and

- third parties may seek to gain access to our systems either directly or using equipment or security passwords belonging to employees, customers, third-party service providers or other users.

Unauthorized disclosure, loss or corruption of our data or inability of our customers to access our systems could disrupt our operations, subject us to substantial regulatory and legal proceedings and potential liability, result in a material loss of business and/or significantly harm our reputation.

We may not be able to immediately address the consequences of a cybersecurity incident because a successful breach of our computer systems, software, networks or other technology assets could occur and persist for an extended period of time before being detected due to, among other things:

- the breadth and complexity of our operations and the high volume of transactions that we process;
- the large number of customers, counterparties and third-party service providers with which we do business;
- the proliferation and increasing sophistication of cyberattacks; and
- the possibility that a third party, after establishing a foothold on an internal network without being detected, might obtain access to other networks and systems.

The extent of a particular cybersecurity incident and the steps that we may need to take to investigate it may not be immediately clear, and it may take a significant amount of time before such an investigation can be completed and full and reliable information about the incident is known. While such an investigation is ongoing, we may not necessarily know the extent of the harm or how best to remediate it, and certain errors or actions could be repeated or compounded before they are discovered and remediated, any or all of which could further increase the costs and consequences of a cybersecurity incident.

Due to concerns about data security and integrity, a growing number of legislative and regulatory bodies have adopted consumer notification and other requirements in the event that consumer information is accessed by unauthorized persons and additional regulations regarding the use, access, accuracy and security of such data are possible. In the United States, we are subject to federal and state laws that provide for more than 50 disparate notification regimes. In the event of unauthorized access, our failure to comply with the complexities of these various regulations could subject us to regulatory scrutiny and additional liability.

If we experience system failures, personnel disruptions or capacity constraints, or our customers do not modify their systems to accept new releases of our distribution programs, the delivery of our services to our customers could be delayed or interrupted, which could harm our business and reputation and result in the loss of revenues or customers.

Our ability to provide reliable service largely depends on our ability to maintain the efficient and uninterrupted operation of our computer network, systems and data centers, some of which have been outsourced to third-party providers. In addition, we generate a significant amount of our revenues through channels that are dependent on links to telecommunications providers. Our systems, personnel and operations could be exposed to damage or interruption from fire, natural disasters, power loss, war, terrorist acts, civil disobedience, telecommunication failures, computer viruses, DDoS attacks or human error. We may not have sufficient redundant operations to cover a loss or failure of our systems in a timely manner. Any significant interruption could severely harm our business and reputation and result in a loss of revenue and customers. Additionally, from time to time we send our customers new releases of our distribution programs, some of which contain security updates. Any failure by our customers to install these new releases could expose our customers to computer security risks.

We could lose our access to data sources which could prevent us from providing our services.

Our services and products depend extensively upon continued access to and receipt of data from external sources, including data received from customers, strategic partners and various government and public records repositories. In some cases, we compete with our data providers. Our data providers could stop providing data, provide untimely data or increase the costs for their data for a variety of reasons, including a perception that our systems are insecure as a result of a data security incidents, budgetary constraints, a desire to generate additional revenue or for regulatory or competitive reasons. We could also become subject to increased legislative, regulatory or judicial restrictions or mandates on the collection, disclosure or use of such data, in particular if such data is not collected by our providers in a way that allows us to legally use the data. If we were to lose access to this external data or if our access or use were restricted or were to become less economical or desirable, our ability to provide services could be negatively impacted, which would adversely affect our reputation, business, financial condition and results of operations. We cannot provide assurance that we will be successful in maintaining our relationships with these external data source providers or that we will be able to continue to obtain data from them on acceptable terms or at all. Furthermore, we cannot provide assurance that we will be able to obtain data from alternative sources if our current sources become unavailable.

Our business is subject to various governmental regulations, laws and orders, compliance with which may cause us to incur significant expenses or reduce the availability or effectiveness of our solutions, and the failure to comply with which could subject us to civil or criminal penalties or other liabilities.

Our businesses are subject to regulation under the FCRA, the GLBA, the DPPA, HIPAA, HITECH, the Dodd-Frank Act, the FTC Act and various other international, federal, state and local laws and regulations. See "Business-Legal and Regulatory Matters"

for a description of select regulatory regimes to which we are subject. These laws and regulations, which generally are designed to protect the privacy of the public and to prevent the misuse of personal information available in the marketplace, are complex, change frequently and have tended to become more stringent over time. We already incur significant expenses in our attempt to ensure compliance with these laws.

Currently, public concern is high with regard to the operation of credit reporting agencies in the United States, as well as the collection, use, accuracy, correction and sharing of personal information, including Social Security numbers, dates of birth, financial information, medical information, department of motor vehicle data and other behavioral data. In addition, many consumer advocates, privacy advocates, legislatures and government regulators believe that existing laws and regulations do not adequately protect privacy and have become increasingly concerned with the collection and use of this type of personal information. As a result, several U.S. states have recently introduced and passed legislation to expand data security breach notification rules and to mirror some of the protections provided by the General Data Protection Regulation ("GDPR") in the United Kingdom. These state laws are intended to provide consumers with greater transparency and control over their personal data. For example, the California Consumer Privacy Act of 2018 (the "CCPA"), when effective, will apply to certain businesses that collect personal information from California residents and establishes several consumer rights, including a right to know what personal information is being collected about them and whether and to whom it is sold, a right to access their personal information and have it deleted, a right to opt out of the sale of their personal information, and a right to equal service and price regardless of exercise of these rights. While the CCPA includes specific exemptions for practices and activities regulated by GLBA or FCRA, including our credit reporting and financial services business lines, it will, among other things, require new disclosures to California consumers, impose new rules for collecting or using information about minors, and afford consumers new abilities to opt out of certain disclosures of personal information in other portions of our business that are not regulated by GLBA or FCRA. California legislators have stated that they intend to propose amendments to the CCPA before it goes into effect, and it remains unclear what, if any, modifications will be made to this legislation or how it will be interpreted. The U.S. Congress may also pass a law to pre-empt all or part of the CCPA. Implementing regulations from the Attorney General that may clarify the CCPA are not due until July 1, 2020 and additional amendments to the CCPA may be signed into law before then.

The data incident announced by Equifax on September 7, 2017, resulted in significantly increased legislative and regulatory activity at the federal and state levels as lawmakers and regulators continue to propose a wide range of further restrictions on the collection, dissemination or commercial use of personal information, information security standards, data security incident disclosure standards and requirements to provide certain of our services to consumers free of charge. This and additional legislative or regulatory efforts in the United States, or action by Executive Order of the President of the United States, could further regulate credit reporting agencies and the collection, use, communication, access, accuracy, obsolescence, sharing, correction and security of this personal information. Similar initiatives are underway in various other countries in which we do business. In addition, any perception that our practices or products are an invasion of privacy, whether or not consistent with current or future regulations and industry practices, may subject us to public criticism, private class actions, reputational harm, or claims by regulators, which could disrupt our business and expose us to increased liability.

Public concern regarding identity theft also has led to more transparency for consumers as to what is in their credit reports. We provide credit reports and scores and monitoring services to consumers for a fee, and this income stream could be reduced or restricted by legislation that requires us to provide these services to consumers free of charge. For example, under U.S. federal law today, we are required to provide consumers with one credit report per year free of charge.

The following legal and regulatory developments also could have a material adverse effect on our business, financial condition or results of operations:

- amendment, enactment or interpretation of laws and regulations that restrict the access and use of personal information and reduce the availability or effectiveness of our solutions or the supply of data available to customers;
- changes in cultural and consumer attitudes in favor of further restrictions on information collection and sharing, which may lead to regulations that prevent full utilization of our solutions;
- failure of data suppliers or customers to comply with laws or regulations, where mutual compliance is required;
- failure of our solutions to comply with current laws and regulations; and
- failure of our solutions to adapt to changes in the regulatory environment in an efficient, cost-effective manner.

Changes in applicable legislation or regulations that restrict or dictate how we collect, maintain, combine and disseminate information, or that require us to provide services to consumers or a segment of consumers without charge, could adversely affect our business, financial condition or results of operations. In the future, we may be subject to significant additional expense to ensure continued compliance with applicable laws and regulations and to investigate, defend or remedy actual or alleged violations. Any failure by us to comply with applicable laws or regulations could also result in significant liability to us, including liability to private plaintiffs as a result of individual or class action litigation, or may result in the cessation of our operations or portions of our operations or impositions of fines and restrictions on our ability to carry on or expand our operations. Moreover, our compliance with privacy laws and regulations and our reputation depend in part on our customers' adherence to privacy laws and

regulations and their use of our services in ways consistent with consumer expectations and regulatory requirements. Certain of the laws and regulations governing our business are subject to interpretation by judges, juries and administrative entities, creating substantial uncertainty for our business. We cannot predict what effect the interpretation of existing or new laws or regulations may have on our business. See "Business-Legal and Regulatory Matters."

The Consumer Financial Protection Bureau has supervisory and examination authority over our business and may initiate enforcement actions with regard to our compliance with federal consumer financial laws.

The CFPB, which was established under the Dodd-Frank Act and commenced operations in July 2011, has broad authority over our business. This includes authority to issue regulations under federal consumer financial protection laws, such as under FCRA and other laws applicable to us and our financial customers. The CFPB is authorized to prevent "unfair, deceptive or abusive acts or practices" through its regulatory, supervisory and enforcement authority.

In 2012, credit reporting companies like us became subject to a federal supervision program for the first time under the CFPB's authority to supervise and examine certain non-depository institutions that are "larger participants" of the consumer credit reporting market. The CFPB conducts examinations and investigations, and may issue subpoenas and bring civil actions in federal court for violations of the federal consumer financial laws including FCRA. In these proceedings, the CFPB can seek relief that includes: rescission or reformation of contracts, restitution, disgorgement of profits, payment of damages, limits on activities and civil money penalties of up to $1.0 million per day for knowing violations. The CFPB conducts periodic examinations of us and the consumer credit reporting industry, which could result in new regulations or enforcement actions or proceedings.

There continues to be uncertainty as to how the CFPB's strategies and priorities, including in both its examination and enforcement processes, will impact our business and our results of operations going forward. Actions by the CFPB could result in requirements to alter or cease offering affected products and services, making them less attractive and restricting our ability to offer them. In December 2016, as part of an agreed settlement with the CFPB, we agreed among other things, to implement certain agreed practice changes in the way we advertise, market and sell products and services offered directly to consumers.

Although we have committed resources to enhancing our compliance programs, actions by the CFPB or other regulators against us could result in reputational harm. Our compliance costs and legal and regulatory exposure could increase materially if the CFPB or other regulators enact new regulations, change regulations that were previously adopted, modify through supervision or enforcement past regulatory guidance, or interpret existing regulations in a manner different or stricter than have been previously interpreted.

Regulatory oversight of our contractual relationships with certain of our customers may adversely affect our business.

The Office of the Comptroller of the Currency's (the "OCC") guidance to national banks and federal savings associations on assessing and managing risks associated with third-party relationships, which include all business arrangements between a bank and another entity, by contract or otherwise, requires banks to exercise comprehensive oversight throughout each phase of a bank's business arrangement with third-party service providers, and instructs banks to adopt risk management processes commensurate with the level of risk and complexity of its third-party relationships. The OCC expects especially rigorous oversight of third-party relationships that involve certain "critical activities." In light of this guidance, our existing or potential financial services customers subject to OCC regulation may continue to revise their third-party risk management policies and processes and the terms on which they do business with us, which may adversely affect our relationship with such customers.

The outcome of litigation, inquiries, investigations, examinations or other legal proceedings in which we are involved, in which we may become involved, or in which our customers or competitors are involved could subject us to significant monetary damages or restrictions on our ability to do business.

Legal proceedings arise frequently as part of the normal course of our business. These may include individual consumer cases, class action lawsuits and inquiries, investigations, examinations, regulatory proceedings or other actions brought by federal (e.g., the CFPB and the United States Federal Trade Commission ("FTC")) or state (e.g., state attorneys general) authorities or by consumers. The scope and outcome of these proceedings is often difficult to assess or quantify. Plaintiffs in lawsuits may seek recovery of large amounts and the cost to defend such litigation may be significant. There may also be adverse publicity and uncertainty associated with investigations, litigation and orders (whether pertaining to us, our customers or our competitors) that could decrease customer acceptance of our services or result in material discovery expenses. In addition, a court-ordered injunction or an administrative cease-and-desist order or settlement may require us to modify our business practices or may prohibit conduct that would otherwise be legal and in which our competitors may engage. Many of the technical and complex statutes to which we are subject, including state and federal credit reporting, medical privacy and financial privacy requirements, may provide for civil and criminal penalties and may permit consumers to maintain individual or class action lawsuits against us and obtain statutorily prescribed damages. Additionally, our customers might face similar proceedings, actions or inquiries, which could affect their business and, in turn, our ability to do business with those customers. While we do not believe that the outcome of any pending or threatened legal proceeding, investigation, examination or supervisory activity will have a material adverse effect on our financial

position, such events are inherently uncertain and adverse outcomes could result in significant monetary damages, penalties or injunctive relief against us.

See "Legal Proceedings" for further information regarding other material pending litigation or investigations.

Our ability to expand our operations in, and the portion of our revenue derived from, markets outside the United States is subject to economic, political and other inherent risks, which could adversely impact our growth rate and financial performance.

Over the last several years, we have derived a growing portion of our revenues from customers outside the United States, and it is our intent to continue to expand our international operations. We have sales and technical support personnel in numerous countries worldwide. We expect to continue to add personnel internationally to expand our abilities to deliver differentiated services to our international customers. Expansion into international markets will require significant resources and management attention and will subject us to new regulatory, economic and political risks. Moreover, the services we offer in developed and emerging markets must match our customers' demand for those services. Due to price, limited purchasing power and differences in the development of consumer credit markets, there can be no assurance that our services will be accepted in any particular developed or emerging market, and we cannot be sure that our international expansion efforts will be successful. The results of our operations and our growth rate could be adversely affected by a variety of factors arising out of international commerce, some of which are beyond our control. These factors include:

- currency exchange rate fluctuations;
- foreign exchange controls that might prevent us from repatriating cash to the United States;
- difficulties in managing and staffing international offices;
- increased travel, infrastructure, legal and compliance costs of multiple international locations;
- foreign laws and regulatory requirements;
- terrorist activity, natural disasters and other catastrophic events;
- restrictions on the import and export of technologies;
- difficulties in enforcing contracts and collecting accounts receivable;
- longer payment cycles;
- failure to meet quality standards for outsourced work;
- unfavorable tax rules;
- political and economic conditions in foreign countries, particularly in emerging markets;
- the presence and acceptance of varying level of business corruption in international markets;
- varying business practices in foreign countries; and
- reduced protection for intellectual property rights.

For example, in 2018, the revenue from our International segment decreased 2.5% due to the impact of weakening foreign currencies, and in 2017 the revenue from our International segment increased by 3.5% due to the impact of strengthening foreign currencies. See "Management's Discussion and Analysis of Financial Condition and Results of Operations-Twelve Months Ended December 31, 2018, 2017 and 2016-Revenue-International Segment." As we continue to expand our business, our success will partially depend on our ability to anticipate and effectively manage these and other risks. Our failure to manage these risks could adversely affect our business, financial condition and results of operations.

We depend, in part, on strategic alliances, joint ventures and acquisitions to grow our business. If we are unable to make strategic acquisitions and develop and maintain these strategic alliances and joint ventures, our growth may be adversely affected.

An important focus of our business is to identify business partners who can enhance our services and enable us to develop solutions that differentiate us from our competitors. We have entered into several alliance agreements or license agreements with respect to certain of our datasets and services and may enter into similar agreements in the future. These arrangements may require us to restrict our use of certain of our technologies among certain customer industries, or to grant licenses on terms that ultimately may prove to be unfavorable to us, either of which could adversely affect our business, financial condition or results of operations. Relationships with our alliance agreement partners may include risks due to incomplete information regarding the marketplace and commercial strategies of our partners, and our alliance agreements or other licensing agreements may be the subject of contractual disputes. If we or our alliance agreements' partners are not successful in maintaining or commercializing the alliance agreements' services, such commercial failure could adversely affect our business.

In addition, a significant strategy for our international expansion is to establish operations through strategic alliances or joint ventures with local financial institutions and other partners. We cannot provide assurance that these arrangements will be successful or that our relationships with our partners will continue to be mutually beneficial. If these relationships cannot be established or

maintained, it could negatively impact our business, financial condition and results of operations. Moreover, our ownership in and control of our foreign investments may be limited by local law.

We also selectively evaluate and consider acquisitions as a means of expanding our business and entering into new markets. We may not be able to acquire businesses we target due to a variety of factors such as competition from companies that are better positioned to make the acquisition. Our inability to make such strategic acquisitions could restrict our ability to expand our business and enter into new markets which would limit our ability to generate future revenue growth. Additionally, given some of our equity interests in various companies, we may be limited in our ability to require or influence such companies to make acquisitions or take other actions that we believe to be in our or their best interests. Our inability to take such actions could have a material impact on our revenues or earnings.

If we are unable to develop successful new services in a timely manner, or if the market does not adopt our new services, our ability to maintain or increase our revenue could be adversely affected.

In order to keep pace with customer demands for increasingly sophisticated service offerings, to sustain expansion into growth industries and to maintain our profitability, we must continue to innovate and introduce new services to the market. The process of developing new services is complex and uncertain. Our industry solutions require extensive experience and knowledge from within the relevant industry. We must commit significant resources to this effort before knowing whether the market will accept new service offerings. Additionally, our business strategy is dependent on our ability to expand into new markets and to bring new products to market. We may not successfully enter into new markets or execute on our new services because of challenges in planning or timing, technical hurdles, difficulty in predicting market demand, changes in regulation or a lack of appropriate resources. Additionally, even if we successfully develop new products, our existing customers might not accept these new products or new markets might not adopt our products due to operational constraints, high switching costs or general lack of market readiness. Failure to successfully introduce new services to the market could adversely affect our reputation, business, financial condition and results of operations.

If we fail to maintain and improve our systems, our data matching technology, and our interfaces with data sources and customers, demand for our services could be adversely affected.

In our markets, there are continuous improvements in computer hardware, network operating systems, programming tools, programming languages, operating systems, data matching, data filtering and other database technologies and the use of the internet. These improvements, as well as changes in customer preferences or regulatory requirements, may require changes in the technology used to gather and process our data and deliver our services. Our future success will depend, in part, upon our ability to:

- internally develop and implement new and competitive technologies;
- use leading third-party technologies effectively;
- respond to changing customer needs and regulatory requirements, including being able to bring our new products to the market quickly; and
- transition customers and data sources successfully to new interfaces or other technologies.

We cannot provide assurance that we will successfully implement new technologies, cause customers or data furnishers to implement compatible technologies or adapt our technology to evolving customer, regulatory and competitive requirements. If we fail to respond, or fail to cause our customers or data furnishers to respond, to changes in technology, regulatory requirements or customer preferences, the demand for our services, the delivery of our services or our market reputation could be adversely affected. Additionally, our failure to implement important updates could affect our ability to successfully meet the timeline for us to generate cost savings resulting from our investments in improved technology. Failure to achieve any of these objectives would impede our ability to deliver strong financial results.

When we engage in acquisitions, investments in new businesses or divestitures of existing businesses, we will face risks that may adversely affect our business.

We may acquire or make investments in businesses that offer complementary services and technologies. Acquisitions may not be completed on favorable terms and acquired assets, data or businesses may not be successfully integrated into our operations. Any acquisitions or investments will include risks commonly encountered in acquisitions of businesses, including:

- failing to achieve the financial and strategic goals for the acquired business;
- paying more than fair market value for an acquired company or assets;
- failing to integrate the operations and personnel of the acquired businesses in an efficient and timely manner;
- disrupting our ongoing businesses;
- distracting management focus from our existing businesses;
- acquiring unanticipated liabilities;
- failing to retain key personnel;

- incurring the expense of an impairment of assets due to the failure to realize expected benefits;
- damaging relationships with employees, customers or strategic partners;
- diluting the share value of existing stockholders; and
- incurring additional debt or reducing available cash to service our existing debt.

Any divestitures will be accompanied by the risks commonly encountered in the sale of businesses, which may include:

- disrupting our ongoing businesses;
- reducing our revenues;
- losing key personnel;
- distracting management focus from our existing businesses;
- indemnification claims for breaches of representations and warranties in sale agreements;
- damaging relationships with employees and customers as a result of transferring a business to new owners; and
- failure to close a transaction due to conditions such as financing or regulatory approvals not being satisfied.

These risks could harm our business, financial condition or results of operations, particularly if they occur in the context of a significant acquisition or divestiture. Acquisitions of businesses having a significant presence outside the United States will increase our exposure to the risks of conducting operations in international markets.

We may be unable to protect our intellectual property adequately or cost-effectively, which may cause us to lose market share or force us to reduce our prices. We also rely on trade secrets and other forms of unpatented intellectual property that may be difficult to protect.

Our success depends, in part, on our ability to protect and preserve the proprietary aspects of our technology and services. If we are unable to protect our intellectual property, including trade secrets and other unpatented intellectual property, our competitors could use our intellectual property to market and deliver similar services, decreasing the demand for our services. We rely on the patent, copyright, trademark, trade secret and other intellectual property laws of the United States and other countries, as well as contractual restrictions, such as nondisclosure agreements, to protect and control access to our proprietary intellectual property. These measures afford limited protection, however, and may be inadequate. We may be unable to prevent third parties from using our proprietary assets without our authorization or from breaching any contractual restrictions with us. Enforcing our rights could be costly, time-consuming, distracting and harmful to significant business relationships. Claims that a third party illegally obtained and is using trade secrets can be difficult to prove, and courts outside the United States may be less willing to protect trade secrets. Additionally, others may independently develop non-infringing technologies that are similar or superior to ours. Any significant failure or inability to adequately protect and control our proprietary assets may harm our business and reduce our ability to compete.

We may face claims for intellectual property infringement, which could subject us to monetary damages or limit us in using some of our technologies or providing certain services.

There has been substantial litigation in the United States regarding intellectual property rights in the information technology industry. We cannot be certain that we do not infringe on the intellectual property rights of third parties, including the intellectual property rights of third parties in other countries, which could result in a liability to us. Historically, patent applications in the United States and some foreign countries have not been publicly disclosed until eighteen months following submission of the patent application, and we may not be aware of currently filed patent applications that relate to our products or processes. If patents are later issued on these applications, we may be liable for infringement. In the event that claims are asserted against us, we may be required to obtain licenses from third parties (if available on acceptable terms or at all). Any such claims, regardless of merit, could be time consuming and expensive to litigate or settle, divert the attention of management and materially disrupt the conduct of our business, and we may not prevail. Intellectual property infringement claims against us could subject us to liability for damages and restrict us from providing services or require changes to certain products or services. Although our policy is to obtain licenses or other rights where necessary, we cannot provide assurance that we have obtained all required licenses or rights. If a successful claim of infringement is brought against us and we fail to develop non-infringing products or services, or to obtain licenses on a timely and cost-effective basis, our reputation, business, financial condition and results of operations could be adversely affected.

If our outside service providers and key vendors are not able to or do not fulfill their service obligations, our operations could be disrupted and our operating results could be harmed.

We depend on a number of service providers and key vendors such as telecommunication companies, software engineers, data processors, software and hardware vendors and providers of credit score algorithms, who are critical to our operations. These service providers and vendors are involved with our service offerings, communications and networking equipment, computer hardware and software and related support and maintenance. Although we have implemented service-level agreements and have established monitoring controls, our operations could be disrupted if we do not successfully manage relationships with our service

providers, if they do not perform or are unable to perform agreed-upon service levels, or if they are unwilling to make their services available to us at reasonable prices. If our service providers and vendors do not perform their service obligations, it could adversely affect our reputation, business, financial condition and results of operations.

There may be further consolidation in our end-customer markets, which may adversely affect our revenues.

There has been, and we expect there will continue to be, merger, acquisition and consolidation activity in our customer markets. If our customers merge with, or are acquired by, other entities that are not our customers, or that use fewer of our services, our revenue may be adversely impacted. In addition, industry consolidation could affect the base of recurring transaction-based revenue if consolidated customers combine their operations under one contract, since most of our contracts provide for volume discounts. In addition, our existing customers might leave certain geographic markets, which would no longer require them to purchase certain products from us and, consequently, we would generate less revenue than we currently expect.

To the extent the availability of free or relatively inexpensive consumer information increases, the demand for some of our services may decrease.

Public and commercial sources of free or relatively inexpensive consumer information have become increasingly available and this trend is expected to continue. Public and commercial sources of free or relatively inexpensive consumer information, including free credit information from lead generation companies and from banks, may reduce demand for our services. To the extent that our customers choose not to obtain services from us and instead rely on information obtained at little or no cost from these public and commercial sources, our business, financial condition and results of operations may be adversely affected.

If we experience changes in tax laws or adverse outcomes resulting from examination of our tax returns, it could adversely affect our results of operations.

We are subject to federal, state and local income and other taxes in the United States and in foreign jurisdictions. From time to time the United States federal, state, local and foreign governments make substantive changes to tax rules and the application thereof, which could result in materially different corporate taxes than would be incurred under existing tax law or interpretation and could adversely impact profitability. Governments have strengthened their efforts to increase revenues through changes in tax law, including laws regarding transfer pricing, economic presence and apportionment to determine the tax base.

Consequently, significant judgment is required in determining our worldwide provision for income taxes. Our future effective tax rates and the value of our deferred tax assets could be adversely affected by changes in tax laws. In addition, we are subject to the examination of our income tax returns and other tax returns by the Internal Revenue Service and other tax authorities. We regularly assess the likelihood of adverse outcomes resulting from such examinations to determine the adequacy of our provision for income taxes and reserves for other taxes. Although we believe we have made appropriate provisions for taxes in the jurisdictions in which we operate, changes in tax laws, or challenges from tax authorities under existing tax laws could adversely affect our business, financial condition and results of operations.

On December 22, 2017, a law commonly known as the Tax Cuts and Jobs Act (the "Act") was enacted in the United States. Among other things, the Act reduces the U.S. corporate income tax rate to 21 percent and implements a new system of taxation for non-U.S. earnings, including by imposing a one-time tax on the deemed repatriation of undistributed earnings of non-U.S. subsidiaries. For the year ended December 31, 2017, our tax provision included adjustments for certain items for which the accounting was incomplete but for which we made reasonable estimates that we finalized in 2018. Our 2017 tax provision did not include adjustments for certain items for which the accounting was incomplete and for which we were unable to make a reasonable estimate. We refined and completed these adjustments in 2018. In the absence of guidance on various uncertainties and ambiguities in the application of certain provisions of the Act, we have used what we believe are reasonable interpretations and assumptions in applying the Act, but it is possible that the IRS or the FASB could issue subsequent guidance or take positions that differ from our prior interpretations and assumptions, which could have a material adverse effect on our cash tax liabilities, results of operations, and financial condition.

Our stock price has been and may continue to be volatile or may decline regardless of our operating performance, and you may not be able to resell shares of our common stock at or above the price you paid or at all.

The trading price of our common stock has been and may continue to be volatile. The stock market routinely experiences price and volume fluctuations that are often unrelated or disproportionate to the operating performance of the underlying businesses. This market volatility, as well as general economic, market or political conditions, could adversely affect the market price of our common stock, regardless of our actual operating performance, and you may not be able to resell your shares at or above the price you paid. In addition to the risks described in this section, several factors that could cause the price of our common stock to fluctuate significantly include, among others, the following, most of which we cannot control:

- quarterly variations in our operating results compared to market expectations;
- guidance that we provide to the public, any changes in this guidance or our failure to meet this guidance;
- changes in preferences of our customers;

- announcements of new products or significant price reductions by us or our competitors;
- size of our public float;
- stock price performance of our competitors;
- publication of research reports about our industry;
- changes in market valuations of our competitors;
- fluctuations in stock market prices and volumes;
- default on our indebtedness;
- actions by our competitors;
- changes in senior management or key personnel;
- changes in financial estimates by securities analysts;
- negative earnings or other announcements by us or other credit reporting agencies;
- downgrades in our credit ratings or the credit ratings of our competitors;
- issuances of capital stock or future sales of our common stock or other securities;
- investor perceptions or the investment opportunity associated with our common stock relative to other investment alternatives;
- the public response to press releases or other public announcements by us or third parties, including our filings with the SEC;
- announcements relating to litigation;
- the sustainability of an active trading market for our stock;
- changes in accounting principles;
- global economic, legal and regulatory factors unrelated to our performance; and
- other events or factors, including those resulting from natural disasters, war, acts of terrorism or responses to these events.

In addition, price volatility may be greater if the public float and trading volume of our common stock is low, and the amount of public float on any given day can vary depending on whether our stockholders choose to hold for the long term.

In the past, following periods of market volatility, stockholders have instituted securities class action litigation. If we were involved in securities litigation, it could have a substantial cost and divert resources and the attention of executive management from our business regardless of the outcome of such litigation.

We are subject to losses from risks for which we do not insure.

For certain risks, we do not maintain insurance coverage because of cost and/or availability. Because we retain some portion of insurable risks, and in some cases retain our risk of loss completely, unforeseen or catastrophic losses in excess of insured limits could materially adversely affect our business, financial condition and results of operations.

We may not be able to attract and retain the skilled employees that we need to support our business.

Our success depends on our ability to attract and retain experienced management, sales, research and development, analytics, marketing and technical support personnel. If any of our key personnel were unable or unwilling to continue in their present positions, it may be difficult to replace them and our business could be seriously harmed. If we are unable to find qualified successors to fill key positions as needed, our business could be seriously harmed. The complexity of our services requires trained customer service and technical support personnel. We may not be able to hire and retain such qualified personnel at compensation levels consistent with our compensation structure. Some of our competitors may be able to offer more attractive terms of employment. In addition, we invest significant time and expense in training our employees, which increases their value to competitors who may seek to recruit them. If we fail to retain our employees, we could incur significant expense replacing employees and our ability to provide quality services could diminish, resulting in a material adverse effect on our business.

Anti-takeover provisions in our organizational documents might discourage, delay or prevent acquisition attempts for us that you might consider favorable.

Certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws may have an anti-takeover effect and may delay, defer or prevent a merger, acquisition, tender offer, takeover attempt or other change of control transaction that a stockholder might consider in its best interest, including those attempts that might result in a premium over the market price for the shares held by our stockholders.

These provisions provide for, among other things:

- a classified Board of Directors with staggered three year terms;
- the ability of our Board of Directors to issue one or more series of preferred stock;
- advance notice for nominations of directors by stockholders and for stockholders to include matters to be considered at our annual meetings;
- certain limitations on convening special stockholder meetings;
- the removal of directors only for cause and only upon the affirmative vote of the holders of at least 66 $^{2}/_{3}$% in voting power of all the then-outstanding shares of stock of the Company entitled to vote thereon, voting together as a single class; and
- that certain provisions may be amended only by the affirmative vote of at least 66 $^{2}/_{3}$% in voting power of all the then-outstanding shares of stock of the Company entitled to vote thereon, voting together as a single class.

These anti-takeover provisions could make it more difficult for a third party to acquire us, even if the third party's offer may be considered beneficial by many of our stockholders. As a result, our stockholders may be limited in their ability to obtain a premium for their shares.

Our ability to pay cash dividends may be limited by the terms of our secured credit facility.

On February 13, 2018, we announced that our board of directors approved a dividend policy pursuant to which we intend to pay quarterly cash dividends on our common stock. We commenced paying dividends pursuant to this policy in the second quarter of 2018. The terms of our senior secured credit facility impose certain limitations on our ability to pay dividends. We may, however, declare and pay cash dividends up to an unlimited amount unless a default or event of default exists under the senior secured credit facility. Any determination to pay dividends in the future will be at the discretion of our board of directors and will depend upon results of operations, financial condition, contractual restrictions, restrictions imposed by applicable law and other factors our board of directors deems relevant.

If we fail to maintain proper and effective internal controls, our ability to produce accurate financial statements on a timely basis could be impaired, which would adversely affect our business and our stock price.

Ensuring that we have adequate internal financial and accounting controls and procedures in place to produce accurate financial statements on a timely basis is a costly and time-consuming effort that needs to be reevaluated frequently. Our management is responsible for establishing and maintaining adequate internal control over financial reporting to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with U.S. general accepted accounting principles. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within our company will have been detected. Effective internal controls are necessary for us to produce reliable financial reports and are important to prevent fraud. As a result, any failure to maintain the adequacy of internal control over financial reporting, or any consequent inability to produce accurate financial statements on a timely basis, could increase our operating costs and could materially impair our ability to operate our business, which in turn, could cause the market value of our stock to decline.

The United Kingdom's vote to exit from the European Union could adversely impact us.

On June 23, 2016, in a referendum vote commonly referred to as "Brexit," a majority of British voters voted to exit the European Union. In March 2017, the U.K. government officially triggered the process to formally initiate negotiations for the terms of separation from the European Union. In June 2017, the U.K. government began negotiations to leave the European Union. A withdrawal could potentially disrupt the free movement of goods, services and people between the U.K. and the European Union, undermine bilateral cooperation in key geographic areas and significantly disrupt trade between the U.K. and the European Union or other nations as the U.K. pursues independent trade relations. In addition, Brexit could lead to legal uncertainty and potentially divergent national laws and regulations as the U.K. determines which European Union laws to replace or replicate. The effects of Brexit will depend on any agreements the U.K. makes to retain access to European Union or other markets either during a transitional period or more permanently. Because this is an unprecedented event, it is unclear what long-term economic, financial, trade and legal implications the withdrawal of the U.K. from the European Union would have and how such withdrawal would affect our business globally and in the region. In addition, Brexit may lead other European Union member countries to consider referendums regarding their European Union membership. Any of these events, along with any political, economic and regulatory changes that may occur, could cause political and economic uncertainty in Europe and internationally and harm our business and financial results.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Properties

Our corporate headquarters and main data center are located in Chicago, Illinois, in an office building that we own. We also own a data center building in Hamilton, Ontario, Canada. As of December 31, 2018, we lease space in over 100 other locations, including office space and additional data centers. These locations are geographically dispersed to meet our sales and operating needs. We anticipate that suitable additional or alternative space will be available at commercially reasonably terms for future expansion.

ITEM 3. LEGAL PROCEEDINGS

General

In addition to the matters described below, we are routinely named as defendants in, or parties to, various legal actions and proceedings relating to our current or past business operations. These actions generally assert claims for violations of federal or state credit reporting, consumer protection or privacy laws, or common law claims related to privacy, libel, slander or the unfair treatment of consumers, and may include claims for substantial or indeterminate compensatory or punitive damages, or injunctive relief, and may seek business practice changes. We believe that most of these claims are either without merit or we have valid defenses to the claims, and we vigorously defend these matters or seek non-monetary or small monetary settlements, if possible. However, due to the uncertainties inherent in litigation, we cannot predict the outcome of each claim in each instance.

In the ordinary course of business, we also are subject to governmental and regulatory examinations, information-gathering requests, investigations and proceedings (both formal and informal), certain of which may result in adverse judgments, settlements, fines, penalties, injunctions or other relief. In connection with formal and informal inquiries by these regulators, we routinely receive requests, subpoenas and orders seeking documents, testimony and other information in connection with various aspects of our activities. See "Legal and Regulatory Matters."

In view of the inherent unpredictability of litigation and regulatory matters, particularly where the damages sought are substantial or indeterminate or when the proceedings or investigations are in the early stages, we cannot determine with any degree of certainty the timing or ultimate resolution of litigation and regulatory matters or the eventual loss, fines, penalties or business impact, if any, that may result. We establish reserves for litigation and regulatory matters when those matters present loss contingencies that are both probable and can be reasonably estimated. The actual costs of resolving litigation and regulatory matters, however, may be substantially higher than the amounts reserved for those matters, and an adverse outcome in certain of these matters could have a material adverse effect on our consolidated financial statements in particular quarterly or annual periods.

On a regular basis, we accrue reserves for litigation and regulatory matters based on our historical experience and our ability to reasonably estimate and ascertain the probability of any liability. See Part II, Item 8, "Financial Statements and Supplementary Data - Notes to Consolidated Financial Statements," Note [18], "Contingencies," for additional information about these reserves. However, for certain of the matters described below, we are not able to reasonably estimate our exposure because damages have not been specified and (i) the proceedings are in early stages, (ii) there is uncertainty as to the likelihood of a class being certified or the ultimate size of the class, (iii) there is uncertainty as to the outcome of similar matters pending against our competitors, (iv) there are significant factual issues to be resolved, and/or (v) there are legal issues of a first impression being presented. However, for these matters we do not believe based on currently available information that the outcomes will have a material adverse effect on our financial condition, though the outcomes could be material to our operating results for any particular period.

To reduce our exposure to an unexpected significant monetary award resulting from an adverse judicial decision, we maintain insurance that we believe is appropriate and adequate based on our historical experience. We regularly advise our insurance carriers of the claims (threatened or pending) against us in the course of litigation and generally receive a reservation of rights letter from the carriers when such claims exceed applicable deductibles. We are not aware of any significant monetary claim that has been asserted against us in the course of pending litigation that would not have some level of coverage by insurance after the relevant deductible, if any, is met.

OFAC Alert Service

As a result of a decision by the United States Third Circuit Court of Appeals (*Cortez v. Trans Union LLC*) in 2010, we modified one of our add-on services we offer to our business customers that was designed to alert our customer that the consumer, who was seeking to establish a business relationship with the customer, may potentially be on the Office of Foreign Assets Control, Specifically Designated National and Blocked Persons alert list (the "OFAC Alert"). The OFAC Alert service is meant to assist our customers with their compliance obligations in connection with the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism (USA PATRIOT) Act of 2001.

In *Ramirez v. Trans Union LLC*, (No. 3:12-cv-00632-JSC, United States District Court for the Northern District of California), filed in 2012, the plaintiff has alleged that: the OFAC Alert service does not comply with the *Cortez* ruling; we have willfully violated the Fair Credit Reporting Act ("FCRA") and the corresponding California state-FCRA based on the *Cortez* ruling by continuing to offer the OFAC Alert service; and there are one or more classes of individuals who should be entitled to statutory damages (i.e., $100 to $5,000 per person) based on the allegedly willful violations. In addition to the *Ramirez* action, the same lawyers representing *Ramirez* (who also represented the plaintiff in *Cortez*) filed two additional alleged class actions in 2012 (*Miller v. Trans Union, LLC*, No. 12-1715-WJN, United States District Court for the Middle District of Pennsylvania; and *Larson v. Trans Union, LLC*, No. 12-5726-JSC, United States District Court for the Northern District of California) and one in 2014 (*Amit Patel, et al. v. TransUnion LLC, TransUnion Rental Screening Solutions, Inc. and TransUnion Background Data Solutions*, No. 14-cv-0522-LB, United States District Court for the Northern District of California) claiming that our process for disclosing OFAC information to consumers, or how we match OFAC information to a consumer's name or other identifying information, violates the FCRA and, in some instances, the corresponding California state-FCRA. In addition to the OFAC allegations, the plaintiff in the *Patel* action sought to collapse all TransUnion FCRA regulated entities into a single entity. In July 2014, the Court in *Ramirez* certified a class of approximately 8,000 individuals solely for purposes of statutory damages if TransUnion is ultimately found to have willfully violated the FCRA, and a sub-class of California residents solely for purposes of injunctive relief under the California Consumer Credit Reporting Agencies Act. While the Court noted that the plaintiff is not seeking any actual monetary damage, the class certification order was predicated on a disputed question of Ninth Circuit law (currently there is a conflict between the federal circuits) that was awaiting action by the United States Supreme Court. Our motions to stay the *Ramirez, Miller* and *Larson* proceedings were granted and the proceedings stayed pending action by the U.S. Supreme Court in *Spokeo v. Robins*. In June 2015, the Court in *Patel* certified a national class of approximately 11,000 individuals with respect to allegations that TransUnion willfully violated the FCRA by failing to maintain and follow reasonable procedures to ensure the maximum possible accuracy of their information, and a national subclass of approximately 3,000 individuals with respect to allegations that TransUnion willfully violated the FCRA by failing to provide consumers with all information in their files. In September 2015, our motion to stay the *Patel* proceedings was granted and the proceedings stayed pending action by the U.S. Supreme Court in *Spokeo v. Robins*.

On May 16, 2016, the U.S. Supreme Court issued its decision in *Spokeo v. Robins*, holding that the injury-in-fact requirement for standing under Article III of the United States Constitution requires a plaintiff to allege an injury that is both "concrete and particularized." The Court held that the Ninth Circuit's analysis failed to consider concreteness in its analysis and vacated the decision and remanded to the Ninth Circuit to consider both aspects of the injury-in-fact requirement. Following the U.S. Supreme Court's decision, the stays in the *Ramirez, Miller, Larson* and *Patel* matters were lifted. In August 2016, the Court in *Larson* certified a class of approximately 18,000 California residents with respect to allegations that TransUnion failed to provide consumers with all information in their files in violation of the Fair Credit Reporting Act. In October 2016, the Court in *Larson* denied our petition for permission to appeal the class certification decision to the Ninth Circuit, and the Courts in *Ramirez* and *Patel* denied our motions to decertify the classes based on the implications of *Spokeo*. In January 2017, the magistrate in *Miller* recommended that the Court find that the plaintiff has standing to bring suit in federal court, and that the motion for class certification should be granted.

As a result of mediation in May 2017 and without admitting any wrongdoing, we agreed, with the consent of our insurance carrier, to the terms of an $8.0 million settlement of all class, subclass and individual claims in the *Patel* matter, which was primarily accrued in the prior year. In March 2018, the Court granted final approval of the settlement and the final settlement was paid to the settlement administrator on May 17, 2018.

The *Miller* and *Larson* cases were consolidated in the United States District Court for the Northern District of California, and on May 1, 2018, we agreed to the terms of a settlement of all class and individual claims, pursuant to which we will pay attorneys' fees and representative plaintiffs' awards, which are not material, mail corrective disclosures to class members and provide them three years of single-bureau credit monitoring. On November 29, 2018, the Court granted final approval of the settlement and letters were mailed to all class members on December 19, 2018, containing information about credit monitoring services.

On June 21, 2017, the jury in *Ramirez* returned a verdict in favor of a class of 8,185 individuals in the amount of approximately $8.1 million ($984.22 per class member) in statutory damages and approximately $52.0 million ($6,353.08 per class member) in punitive damages. In November 2017, the trial court denied our post-trial motions for judgment as a matter of law, a new trial and a reduction on the jury verdict, and we appealed the *Ramirez* ruling to the United States Court of Appeals for the Ninth Circuit. We have posted a bond at nominal cost to stay the execution of the judgment pending resolution of our appeal.

The timing and outcome of the ultimate resolution of this matter is uncertain. Despite the jury verdict, we continue to believe that we have not willfully violated any law and have meritorious grounds for seeking modification of the judgment on appeal. Given the complexity and uncertainties associated with the outcome of the current and any subsequent appeals, there is a wide range of potential results, from vacating the judgment in its entirety to upholding some or all aspects of the judgment. As of December 31, 2018, we have recorded a charge for this matter equal to our current estimate of probable losses and our costs of defending this matter, net of amounts we expect to receive from our insurance carriers, the impact of which is not material to our financial

condition or results of operations. That charge does not include any accrual with respect to the punitive damages awarded by the jury since it is not probable, based on current legal precedent, that an award for punitive damages in conjunction with statutory damages for the alleged conduct will survive the post-judgment actions. We currently estimate, however, that the reasonably possible loss in future periods for punitive damages falls within a range from zero to something less than the amount of the statutory damages awarded by the jury. This estimate is based on currently available information. As available information changes, our estimates may change as well. We believe we will have full insurance coverage for our current estimate of probable losses and the legal fees and expenses we have incurred and will incur for defending this matter should this matter be unfavorably resolved against us after exhaustion of our post-judgment options.

ITEM 4. MINE SAFETY DISCLOSURES

Not Applicable.

EXECUTIVE OFFICERS

Our executive officers, and their positions and ages as of February 12, 2019, are set forth below:

Name	Age	Position
James M. Peck	55	Director, President & Chief Executive Officer
Todd M. Cello	43	Executive Vice President & Chief Financial Officer
Christopher A. Cartwright	53	Executive Vice President-U.S. Information Services
John T. Danaher	54	Executive Vice President-Consumer Interactive
Abhi Dhar	47	Executive Vice President & Chief Information and Technology Officer
David M. Neenan	53	Executive Vice President-International
Heather J. Russell	47	Executive Vice President & Chief Legal Officer
David E. Wojczynski	46	Executive Vice President, Healthcare

James M. Peck joined the Company in December 2012 as President and Chief Executive Officer. On November 14, 2018, the Company announced that Mr. Peck will retire as President and CEO, effective on May 8, 2019. Mr. Peck will be succeeded by Christopher A. Cartwright, effective on his retirement date. Mr. Peck has more than 20 years of information management, global product development and engineering experience. He has led TransUnion through a transformation into a higher-growth, higher-margin business by setting and executing a strong strategy focused on enhancing the Company's data, technology and analytics capabilities and achieving growth in key industry verticals and international markets. Prior to TransUnion, Mr. Peck was with Reed Elsevier, a FTSE 100 company, where he served as CEO of the LexisNexis Risk Solutions business from 2004-2012. Prior to 2004, Mr. Peck was the Senior Vice President and Chief Product Officer for the LexisNexis group. Previously, Mr. Peck was the Senior Vice President of Product Development with Celera Genomics, a bio-technology firm that sequenced the human genome. Prior to that, he spent a decade at LexisNexis in engineering and executive roles to manage and build information solutions. He also serves on the boards of Sun Life Financial, CCC Information Services and the Museum of Science and Industry, Chicago.

Todd M. Cello joined the Company in October 1997 and has held numerous roles with increasing levels of responsibility in the corporate finance department. Mr. Cello has served as our Executive Vice President and Chief Financial Officer since August 2017. Prior to his current role, Mr. Cello served as Senior Vice President and International CFO from August 2015 to August 2017, overseeing financial operations for the International segment. Prior to that, Mr. Cello served as Vice President, Financial Planning and Analysis from January 2009 to August 2015, overseeing the enterprise financial planning and analysis function, where he played a lead role in the two leveraged buyouts of TransUnion in 2010 and 2012 and the initial public offering of TransUnion in 2015. Prior to that, Mr. Cello served as Vice President and US Information Services CFO from October 2005 to December 2008, overseeing financial operations of our USIS segment. Mr. Cello also serves on the board of Kaleidoscope, a Chicago-based non-profit child welfare agency.

Christopher A. Cartwright joined the Company in August 2013 as Executive Vice President-U.S. Information Services. On November 14, 2018, the Company announced that Mr. Cartwright will succeed Mr. Peck as the Company's President and CEO, effective on May 8, 2019. Mr. Cartwright will be a nominee for election to the Company's Board of Directors at the Company's annual meeting of stockholders. From December 2010 through March 2013, he was the Chief Executive Officer of Decision Insight Information Group, a portfolio of independent businesses providing real property information, software and services to insurance, finance, legal and real estate professionals in the United States, Canada and Europe. From June 1997 through October 2010, he held a variety of positions at Wolters Kluwer, a global information services and workflow solutions company, where he was CEO of Corporate Legal and Financial Services Division of North America and Shared Services. Prior to Wolters Kluwer, he was Senior Vice President, Strategic Planning & Operations for Christie's Inc. and Strategy Consultant for Coopers and Lybrand.

John T. Danaher joined the Company in November 2002 and is currently Executive Vice President-Consumer Interactive. Mr. Danaher has more than 25 years of financial services industry expertise and direct marketing experience and has served as the president of the consumer subsidiary of TransUnion since 2004. Prior to TransUnion, from 2001 to 2002, Mr. Danaher was Chief Operating Officer of TrueLink, Inc., which was acquired by TransUnion. Mr. Danaher joined TrueLink, Inc. from Citibank, where he held several roles including Vice President of E-Commerce, where he was responsible for planning and executing Citibank's e-commerce strategy for home equity loan products. He also served in a variety of leadership roles in operations and technology.

Abhi Dhar joined the Company in January 2019 as Executive Vice President and Chief Information and Technology Officer. In this role, Mr. Dhar is responsible for all aspects of the company's technology including strategy, security, applications, operations, infrastructure and delivery of solutions that support TransUnion's global information systems. Prior to TransUnion, Mr. Dhar co-founded Packyge, Inc., a last-mile delivery startup focused on enabling last step in-store digital experiences. Prior to Packyge, he held technology leadership roles at Walgreen Boots Alliance (WBA), TravelCLICK, Inc.; Cendant Corporation / Travelport; PricewaterhouseCoopers; and several engineering roles with AT&T. Mr. Dhar serves on the Board of Directors of

Hawaiian Airlines which trades on NASDAQ under the ticker symbol HA. He has been serving on Hawaiian Airlines' Board of Directors since September 2017 and is a member of its Compensation Committee.

David M. Neenan joined the Company in September 2012 as Executive Vice President-International. From October 1998 through September 2012, he held a variety of positions at HSBC. From 2011 through August 2012, he served as the Global Chief Operations Officer for HSBC's insurance division. From 2009 through 2011, he served as the Global Head of Sales and marketing for the insurance division. From July 2006 through 2008, he served as President and CEO of HSBC Finance, Canada.

Heather J. Russell joined the Company in June 2018 as Executive Vice President and Chief Legal Officer. In this role, Ms. Russell is responsible for all legal, government relations, corporate governance and compliance, and consumer privacy functions of TransUnion and its subsidiaries. Ms. Russell is an accomplished legal executive with more than 20 years of diverse experience across the global financial services sector. Prior to joining TransUnion, she was a partner at the law firm of Buckley Sandler, LLP, from October 2016 until May 2018, where she led the firm's Financial Institutions Regulation, Supervision and FinTech practices. Previously, she served as Executive Vice President, Chief Legal Officer and Corporate Secretary at Fifth Third Bancorp from September 2015 until July 2016. From July 2011 until August 2015, Ms. Russell was Managing Director and Global Head of Public Policy and Regulatory Affairs at Bank of New York Mellon. Prior to that, she spent five years as Senior Vice President and Associate General Counsel at Bank of America. She also spent eight years at Skadden, Arps in Washington, DC and London.

David E. Wojczynski joined the company in 2010 and is currently Executive Vice President-Healthcare. Before his current role, Mr. Wojczynski served as Senior Vice President and Chief Operating Officer-Healthcare for approximately 8 years where he was responsible for leading the operations and service delivery teams. Prior to joining TransUnion, Mr. Wojczynski served as the Chief Operating Officer at DAXKO, a member-based health and wellness industry software and payments provider. He has also held senior positions at Emageon, a diagnostic imaging software business, Source Medical Solutions, the leading provider of ambulatory surgery center software solutions, and General Electric. Mr. Wojczynski began his career as a military officer and helicopter pilot.

Our executive officers are elected annually by our Board of Directors. There are no family relationships among any of the Company's executive officers.

PART II

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

Market Information

Our common stock has been listed on The New York Stock Exchange under the symbol "TRU" since June 25, 2015.

Holders of Record

As of January 31, 2019, we had 26 stockholders of record. We have a greater number of beneficial owners of our stock who own their shares through brokerage firms and other nominees.

Recent Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

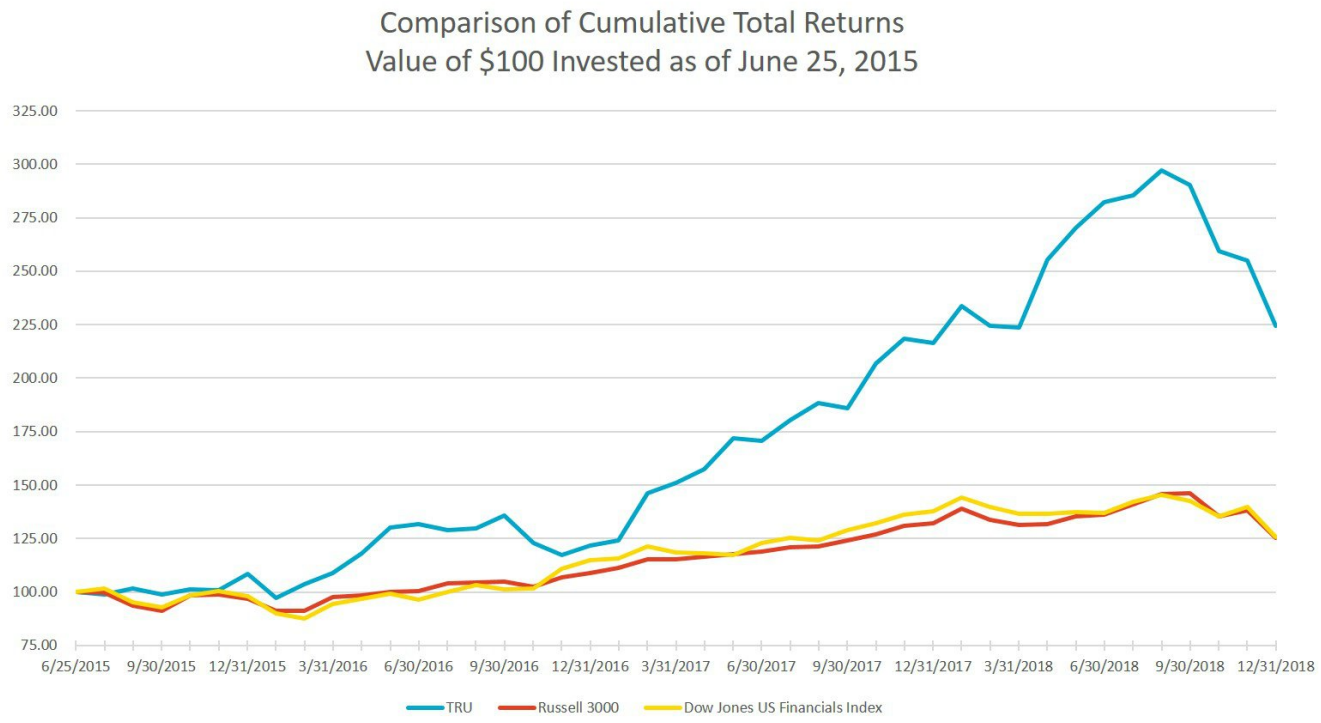
Period	Total Number of Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs[2]	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs[1]
October 1 to October 31	—	$ —	—	$ 166.6
November 1 to November 30	—	—	—	$ 166.6
December 1 to December 31	6,526	56.80	—	$ 166.6
Total	6,526	$ 56.80	—	

(1) On February 13, 2017, our board of directors authorized the repurchase of up to $300.0 million of our common stock through February 13, 2020. Our board of directors removed the three-year time limitation on February 8, 2018. Prior to the fourth quarter of 2017, we had purchased approximately $133.4 million of common stock under the program and may purchase up to an additional $166.6 million. Additional repurchases may be made from time to time at management's discretion at prices management considers to be attractive through open market purchases or through privately negotiated transactions, subject to availability. Open market purchases will be conducted in accordance with the limitations set forth in Rule 10b-18 of the Exchange Act and other applicable legal requirements.

Performance Graph

This performance graph shall not be deemed "soliciting material" or to be "filed" with the SEC for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any filing of TransUnion under the Securities Act of 1933, as amended, or the Exchange Act.

The following graph shows a comparison of cumulative total return for the Company's common stock, the Russell 3000 and the Dow Jones U.S. Financials Index from June 25, 2015, the date the Company's common stock commenced trading on the NYSE, through December 31, 2018. The graph assumes that $100 was invested at market close on June 25, 2015, in each of the Company's common stock, the Russell 3000 and the Dow Jones U.S. Financial Index. The cumulative total returns for the Russell 3000 and the Dow Jones U.S. Financial Index assume reinvestment of dividends. The stock price performance of the following graph is not necessarily indicative of future stock price performance.


Comparison of Cumulative Total Returns
Value of $100 Invested as of June 25, 2015
325.00
300.00
275.00
250.00
225.00
200.00
175.00
150.00
125.00
100.00
75.00
6/25/2015
9/30/2015
12/31/2015
3/31/2016
6/30/2016
9/30/2016
12/31/2016
3/31/2017
6/30/2017
9/30/2017
12/31/2017
3/31/2018
6/30/2018
9/30/2018
12/31/2018
TRU
Russell 3000
Dow Jones US Financials Index

ITEM 6. SELECTED FINANCIAL DATA

The following table sets forth our selected historical consolidated financial data for the periods ended and as of the dates indicated below.

We have derived the selected historical consolidated financial data as of December 31, 2018 and 2017, and for each of the twelve months ended December 31, 2018, 2017 and 2016 from our audited consolidated financial statements included elsewhere in this report. We have derived the selected historical consolidated financial data as of December 31, 2016, 2015 and 2014 and for the twelve months ended December 31, 2015 and 2014, from our audited consolidated financial statements, which are not included in this report. Our historical results are not necessarily indicative of the results expected for any future period.

You should read the following financial data together with Part I, Item 1A, "Risk Factors," Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," our audited consolidated financial statements and related notes appearing elsewhere in this report, and our audited consolidated financial statements and related notes included in our annual reports on Form 10-K for the years ended December 31, 2015 and December 31, 2016 previously filed with the SEC.

Selected financial data consists of the following:

	TransUnion				
	For the Twelve Months Ended December 31,				
(dollars in millions)	2018	2017	2016	2015	2014
Income Statement Data:					
Revenue	$ 2,317.2	$ 1,933.8	$ 1,704.9	$ 1,506.8	$ 1,304.7
Operating expenses					
Cost of services	790.1	645.7	579.1	531.6	500.2
Selling, general and administrative	707.7	585.4	560.1	499.7	434.9
Depreciation and amortization	306.9	238.0	265.2	278.4	241.2
Total operating expense	1,804.7	1,469.1	1,404.4	1,309.7	1,176.3
Operating income (loss)	512.5	464.7	300.5	197.1	128.4
Non-operating income and expense	(169.0)	(92.2)	(95.1)	(170.5)	(130.2)
Income from continuing operations before income taxes	343.5	372.5	205.4	26.6	(1.8)
(Provision) benefit for income taxes	(54.5)	79.1	(74.0)	(11.3)	(2.6)
Income (loss) from continuing operations	289.0	451.6	131.4	15.3	(4.4)
Discontinued operations, net of tax	(1.5)	—	—	—	—
Net income	287.5	451.5	131.4	15.3	(4.4)
Less: net income attributable to noncontrolling interests	(10.9)	(10.4)	(10.8)	(9.4)	(8.1)
Net income (loss) attributable to the Company	$ 276.6	$ 441.2	$ 120.6	$ 5.9	$ (12.5)
Net earnings (loss) per share from continuing operations:					
Basic	$ 1.51	$ 2.42	$ 0.66	$ 0.04	$ (0.09)
Diluted	$ 1.46	$ 2.32	$ 0.65	$ 0.04	$ (0.09)
Weighted average shares outstanding:					
Basic	184.6	182.4	182.6	165.3	147.3
Diluted	190.9	189.9	184.6	166.8	147.3
Dividends per common share:	$ 0.23	$ —	$ —	$ —	$ —

	As of December 31,				
(dollars in millions)	2018	2017	2016	2015	2014
Balance Sheet Data:					
Total assets[(1)]	$ 7,039.8	$ 5,118.5	$ 4,781.2	$ 4,442.8	$ 4,633.8
Total debt[(1)]	$ 4,048.1	$ 2,464.6	$ 2,375.6	$ 2,204.6	$ 2,907.9
Total stockholders' equity[(1)]	$ 1,982.2	$ 1,824.6	$ 1,473.0	$ 1,367.0	$ 747.7

(1) The change in total assets at December 31, 2018, compared with December 31, 2017, is due primarily to businesses we acquired in 2018. The change in total debt at December 31, 2018, compared with December 2017, is due to new borrowings to fund our 2018 business acquisitions. The change in total debt and total stockholders' equity at December 31, 2015, compared with December 31, 2014 reflects the impact of our initial public offering and the use of those proceeds to retire our public debt.

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

The following discussion and analysis of TransUnion's financial condition and results of operations is provided as a supplement to, and should be read in conjunction with Part I, Item 1A, "Risk Factors," Part II, Item 6, "Selected Financial Data," and Part II, Item 8, "Financial Statements and Supplementary Information," including TransUnion's audited consolidated financial statements and the accompanying notes. In addition to historical data, this discussion contains forward-looking statements about our business, operations and financial performance based on current expectations that involve risks, uncertainties and assumptions. Our actual results may differ materially from those discussed in the forward-looking statements as a result of various factors, including but not limited to those discussed in "Cautionary Notice Regarding Forward-Looking Statements" and Part I, Item 1A, "Risk Factors."

References in this discussion and analysis to the "Company," "we," "us," and "our" refer to TransUnion and its direct and indirect subsidiaries, including TransUnion Intermediate Holdings, Inc.

Overview

TransUnion is a leading global risk and information solutions provider to businesses and consumers. We provide consumer reports, risk scores, analytical services and decisioning capabilities to businesses. Businesses embed our solutions into their process workflows to acquire new customers, assess consumer ability to pay for services, identify cross-selling opportunities, measure and manage debt portfolio risk, collect debt, verify consumer identities and investigate potential fraud. Consumers use our solutions to view their credit profiles and access analytical tools that help them understand and manage their personal information and take precautions against identity theft. We are differentiated by our comprehensive and unique datasets, our next-generation technology and our analytics and decisioning capabilities, which enable us to deliver insights across the entire consumer lifecycle. We believe we are the largest provider of risk and information solutions in the United States to possess both nationwide consumer credit data and comprehensive, diverse public records data, which allows us to better predict behaviors, assess risk and address a broader set of business issues for our customers. We have deep domain expertise across a number of attractive industries, which we also refer to as verticals, including financial services, healthcare, insurance and specialized risk. We have a global presence in over 30 countries and territories across North America, Latin America, the United Kingdom, Africa, Asia Pacific and India.

Our solutions are based on a foundation of financial, credit, alternative credit, identity, bankruptcy, lien, judgment, insurance claims, automotive and other relevant information from approximately 90,000 data sources, including financial institutions, private databases and public records repositories. We refine, standardize and enhance this data using sophisticated algorithms to create proprietary databases. Our deep analytics expertise, which includes our people as well as tools such as predictive modeling and scoring, customer segmentation, benchmarking and forecasting, enables businesses and consumers to gain better insights into their risk and financial data. Our decisioning capabilities, which are generally delivered on a software-as-a-service platform, allow businesses to interpret data and apply their specific qualifying criteria to make decisions and take action with respect to their customers. Collectively, our data, analytics and decisioning capabilities allow businesses to authenticate the identity of consumers, effectively determine the most relevant products for consumers, retain and cross-sell to existing consumers, identify and acquire new consumers and reduce loss from fraud. Similarly, our capabilities allow consumers to see how their credit profiles have changed over time, understand the impact of financial decisions on their credit scores and manage their personal information as well as to take precautions against identity theft.

Segments

Over the past few years, we have completed a significant number of acquisitions that have transformed our business. We have also developed a significant number of new product offerings that have further diversified our portfolio of businesses. As a result of the evolution of our business, we have changed the disaggregated revenue and our measure of segment profit (Adjusted EBITDA) information that we provide to our chief operating decision makers (our "CODM") to better align with how we manage the business. Accordingly, our disclosures around the disaggregation of our revenue and the measure of segment profit have been recast for all periods presented in this Annual Report on Form 10-K to conform to the information used by our CODM. We have not changed our reportable segments and these changes do not impact our consolidated results. See Part II, Item 8, "Financial Statements and Supplementary Data," Note 18, "Reportable Segments," for further information about this change.

We manage our business and report disaggregated revenue and financial results in three reportable segments: U.S. Information Services, International and Consumer Interactive.

- The U.S. Information Services (or "USIS") segment provides consumer reports, risk scores, analytical and decisioning services to businesses. These businesses use our services to acquire new customers, assess consumers' ability to pay for services, identify cross-selling opportunities, measure and manage debt portfolio risk, collect debt, verify consumer identities and investigate potential fraud. The core capabilities and delivery methods in our USIS segment allow us to serve a broad set of customers across industries. We report disaggregated revenue of our USIS segment for the financial services and emerging verticals.

- The International segment provides services similar to our USIS segment to businesses in select regions outside the United States. Depending on the maturity of the credit economy in each country, services may include credit reports, analytics and decisioning services, and other value-added risk management services. In addition, we have insurance, business and automotive databases in select geographies. These services are offered to customers in a number of industries including financial services, insurance, automotive, collections, and communications, and are delivered through both direct and indirect channels. The International segment also provides consumer services similar to those offered by our Consumer Interactive segment that help consumers proactively manage their personal finances.

  We report disaggregated revenue of our International segment for the following regions: Canada, Latin America, the United Kingdom, Africa, India, and Asia Pacific.

- The Consumer Interactive segment offers solutions that help consumers manage their personal finances and take precautions against identity theft. Services in this segment include credit reports and scores, credit monitoring, fraud protection and resolution, and financial management. Our products are provided through user-friendly online and mobile interfaces and are supported by educational content and customer support. Our Consumer Interactive segment serves consumers through both direct and indirect channels.

In addition, Corporate provides shared services for each of the segments, holds investments, raises capital, and conducts enterprise functions. Certain costs incurred in Corporate that are not directly attributable to one or more of the segments remain in Corporate. These costs are typically enterprise-level costs and are primarily administrative in nature.

Factors Affecting Our Results of Operations

The following are certain key factors that affect, or have recently affected, our results of operations:

Macroeconomic and Industry Trends

Our revenues can be significantly influenced by general macroeconomic conditions, including the availability of credit and capital, interest rates, inflation, employment levels, consumer confidence and housing demand. In the markets where we compete, we have generally seen good economic conditions and increased market stabilization over the past few years. In the United States, we continue to see a healthy, well-functioning consumer lending market driven by the exceptionally strong labor market and strong consumer confidence. We have also seen solid demand for our marketing services, and in our Consumer Interactive segment, strong demand for our credit and identity theft solutions. These positive signs have been tempered by softness in mortgage originations, which is driven in part by higher interest rates, significant increases in home prices, and a lack of affordable inventory at the entry level. Further, recent volatility in the financial markets and the uncertainty around trade policies and global economic growth add to the concern. Internationally, we continue to see strong growth in key markets, tempered by uncertainty in our Africa region as South Africa emerges from a recession. Also, weakening foreign currencies, primarily in India and Latin America, resulted in a slight decline in results for 2018 compared with 2017.

Our revenues are also significantly influenced by industry trends, including the demand for information services in financial services, healthcare, insurance and other industries we serve. Companies are increasingly relying on business analytics and big-data technologies to help process data in a cost-efficient manner. As customers have gained the ability to rapidly aggregate and analyze data generated by their own activities, they are increasingly expecting access to real-time data and analytics from their information providers as well as solutions that fully integrate into their workflows. As economies in emerging markets continue to develop and mature, we believe there will continue to be favorable socio-economic trends, such as an increase in the size of the middle class and a significant increase in the use of financial services by currently under-served and under-banked customers. Demand for consumer solutions is rising, with higher consumer awareness of the importance and usage of their credit information, increased risk of identity theft due to data breaches, and more readily available free credit information. The complexity of regulations, including from the Consumer Financial Protection Bureau ("CFPB") and the Dodd-Frank Wall Street Reform and Consumer Protection Act and new capital requirements, continue to make operations for businesses more challenging.

Effects of Inflation

We do not believe that inflation has had a material effect on our business, results of operations or financial condition.

Recent Developments

On December 31, 2018, we made a prepayment of $60.0 million towards our Senior Secured Term Loan B-3, funded from our cash on hand.

On December 17, 2018, we entered into interest rate swap agreements with various counter-parties that fixes our LIBOR exposure on an additional portion of our existing senior secured term loans or similar replacement debt at approximately 2.647% to 2.706%. We have designated these swap agreements as cash flow hedges. The current aggregate notional amount under these agreements is $1,450.0 million, decreasing each quarter until the second agreement terminates on December 30, 2022.

During the third quarter of 2018, we repaid the remaining outstanding Senior Secured Revolving Line of Credit balance of $75.0 million.

During the second quarter of 2018, we borrowed a significant amount of additional debt against our senior secured credit facility to fund the purchase of three acquisitions as discussed in "Recent Acquisitions and Partnerships" below. During the second quarter of 2018, we borrowed a total of $125.0 million under the Senior Secured Revolving Line of Credit to fund an acquisition and for general corporate purposes. On June 19, 2018, we borrowed an additional $800.0 million against our Senior Secured Term Loan A-2 and $600.0 million against a new tranche 4 of our Senior Secured Term Loan B ("Senior Secured Term Loan B-4") to fund the acquisition of Callcredit. On June 29, 2018, we borrowed an additional $400.0 million of our Senior Secured Term Loan B-4 to fund another acquisition and to repay a portion of our Senior Secured Revolving Line of Credit. Our net incremental borrowings during the second quarter of 2018 was $20.0 million under the Senior Secured Revolving Line of Credit.

On March 12, 2018, we repaid $30.0 million of our outstanding Senior Secured Revolving Line of Credit.

On February 13, 2018, we announced that our board of directors approved a dividend policy pursuant to which we intend to pay quarterly cash dividends on our common stock. During 2018, the board of directors declared three quarterly dividends in May, August and November of $0.075 per share, that we paid in June, September and December. In total, we declared $42.6 million of dividends and paid $41.6 million, with the remainder dues as dividend equivalents to employees who hold restricted stock units when and if those units vest.

On February 8, 2018, our board of directors removed the three-year time limitation of our previously announced $300.0 million stock repurchase program. The remaining authorized $166.6 million of repurchases may be made from time to time at management's discretion at prices management considers to be attractive through open market purchase or through privately negotiated transactions.

On January 1, 2018, we adopted ASU No. 2014-09, Revenue from Contracts with Customers (ASC Topic 606), using the modified retrospective approach. Under the modified retrospective approach, we recognized the cumulative effect of adopting ASC Topic 606 in the opening balance of retained earnings. There was no material impact on our consolidated financial statements or on how we recognize revenue upon adoption. See Part II, Item 8 - Financial Statements and Supplementary Data, Notes to Consolidated Financial Statements, Note 1, "Significant Accounting Policies," and Note 13, "Revenue," for additional information about the adoption of Topic 606.

Recent Acquisitions and Partnerships

We selectively evaluate acquisitions and partnerships as a means to expand our business and international footprint and to enter new markets. During 2018 we completed the following acquisitions:

- On October 15, 2018, we acquired 100% of the equity of Rubixis, Inc. ("Rubixis"). Rubixis is an innovative healthcare revenue cycle solutions company that helps providers maximize reimbursement from insurance payers. Rubixis brings specialized expertise in the management of denials and underpayments, two significant pain points for healthcare providers. The results of operations of Rubixis, which are not material to our consolidated financial statements, have been included as part of our USIS segment in our consolidated statements of income since the date of the acquisition.
- On June 29, 2018, we acquired 100% of the equity of iovation, Inc. ("iovation"). iovation is a provider of advanced device identity and consumer authentication services that helps businesses and consumers safely transact in a digital world. The results of operations of iovation, which are not material to our consolidated financial statements, have been included as part of our USIS segment in our consolidated statements of income since the date of the acquisition.
- On June 22, 2018, we increased our noncontrolling interest investment in SavvyMoney, Inc. ("SavvyMoney"). Our initial investment in SavvyMoney was made on August 30, 2016. SavvyMoney is a provider of credit information services for bank and credit union users. We measure our investment in SavvyMoney at our initial cost, minus any impairments, plus or minus changes resulting from observable price changes in orderly transactions for the identical or similar investments in SavvyMoney, with any adjustments recorded in other income and expense. We will record any future dividends in other income and expense when received.
- On June 19, 2018, we acquired 100% of the equity of Callcredit Information Group, Ltd. ("Callcredit"). Callcredit is a U.K. based information solutions company founded in 2000 that provides data, analytics and technology solutions to help businesses and consumers make informed decisions. The results of operations of Callcredit have been included as part of our International segment in our consolidated statements of income since the date of the acquisition. See Part II, Item 8, "Notes to Consolidated Financial Statements," Note 2, "Business Acquisitions," for further information about this acquisition.
- On June 1, 2018, we acquired 100% of the equity of Healthcare Payment Specialists, LLC ("HPS"). HPS provides expertise and technology solutions to help medical care providers maximize Medicare reimbursements. The results of

operations of HPS, which are not material to our consolidated financial statements, have been included as part of our USIS segment in our consolidated statements of income since the date of the acquisition.

Key Components of Our Results of Operations

Revenue

The following is a more detailed description of how we derive and report revenue for our three reportable segments:

U.S. Information Services

U.S. Information Services (or "USIS") provides consumer reports, risk scores, analytical and decisioning services to businesses. These businesses use our services to acquire new customers, assess consumers' ability to pay for services, identify cross-selling opportunities, measure and manage debt portfolio risk, collect debt, verify consumer identities and investigate potential fraud. The core capabilities and delivery methods in our USIS segment allow us to serve a broad set of customers across industries. We report disaggregated revenue of our USIS segment for the following verticals:

- ***Financial Services:*** The financial services vertical, which accounts for 53% of our 2018 USIS revenue, consists of our consumer lending, mortgage, auto and cards and payments lines of business. Our financial services clients consist of most banks, credit unions, finance companies, auto lenders, mortgage lenders, online-only lenders (FinTech), and other consumer lenders in the United States. We also distribute our solutions through most major resellers, secondary market players and sales agents. Beyond traditional lenders, we work with a variety of credit arrangers, such as auto dealers and peer-to-peer lenders. We provide solutions across every aspect of the lending lifecycle; customer acquisition and engagement, fraud and ID management, retention and recovery. Our products are focused on mitigating risk and include credit reporting, credit marketing, analytics and consulting, identity verification and authentication and debt recovery solutions.
- ***Emerging Verticals:*** Emerging verticals include healthcare, insurance, collections, property management, public sector and other diversified markets. Our solutions in these verticals are similar to the solutions in our financial services vertical and also address the entire customer lifecycle. We offer onboarding and retention solutions, transaction processing products, scoring products, marketing solutions, analytics and consulting, identity management and fraud solutions, and revenue optimization and collections solutions.

International

The International segment provides services similar to our USIS segment to businesses in select regions outside the United States. Depending on the maturity of the credit economy in each country, services may include credit reports, analytics and decisioning services, and other value-added risk management services. In addition, we have insurance, business and automotive databases in select geographies. These services are offered to customers in a number of industries including financial services, insurance, automotive, collections, and communications, and are delivered through both direct and indirect channels. The International segment also provides consumer services similar to those offered by our Consumer Interactive segment that help consumers proactively manage their personal finances.

We report disaggregated revenue of our International segment for the following regions: Canada, Latin America, the United Kingdom, Africa, India, and Asia Pacific.

Consumer Interactive

Consumer Interactive offers solutions that help consumers manage their personal finances and take precautions against identity theft. Services in this segment include credit reports and scores, credit monitoring, fraud protection and resolution, and financial management. Our products are provided through user-friendly online and mobile interfaces and are supported by educational content and customer support. Our Consumer Interactive segment serves consumers through both direct and indirect channels.

Cost of Services

Costs of services include data acquisition and royalty fees, personnel costs related to our databases and software applications, consumer and call center support costs, hardware and software maintenance costs, telecommunication expenses and occupancy costs associated with the facilities where these functions are performed.

Selling, General and Administrative

Selling, general and administrative expenses include personnel-related costs for sales, administrative and management employees, costs for professional and consulting services, advertising and occupancy and facilities expense of these functions.

Non-Operating Income and Expense

Non-operating income and expense includes interest expense, interest income, earnings from equity-method investments, dividends from cost-method investments, impairments of equity-method and cost-method investments, if any, expenses related to successful and unsuccessful business acquisitions, loan fees, debt refinancing expenses, certain acquisition-related gains and losses and other non-operating income and expenses.

Results of Operations—Twelve Months Ended December 31, 2018, 2017 and 2016

Key Performance Measures

Over the past few years, we have completed a significant number of acquisitions, including the two largest acquisitions in our company's history. We have also developed a significant number of new product offerings that have further diversified our portfolio of businesses. As a result of the evolution of our business, we have changed the information that we provide to our CODM to better align with how we currently manage the business. Accordingly, we are also aligning our disclosures around the disaggregation of our revenue and the measure of segment profit, and have recast all periods presented to conform to this new presentation in this Annual Report on Form 10-K. We have not changed our segments and these changes do not impact our consolidated results. See Part II, Item 8, "Financial Statements and Supplementary Data," Note 18, "Reportable Segments," for further information about this change.

Management, including our CODM, evaluates the financial performance of our businesses based on a variety of key indicators. These indicators include the non-GAAP measures Adjusted Revenue and consolidated Adjusted EBITDA, and the GAAP measures of revenue, segment Adjusted EBITDA, cash provided by operating activities and cash paid for capital expenditures. For the twelve months ended December 31, 2018, 2017 and 2016, these key indicators were as follows:

				Change			
	Twelve months ended December 31,			2018 vs. 2017		2017 vs. 2016	
(dollars in millions)	2018	2017	2016	$	%	$	%
Revenue:							
Consolidated revenue as reported	$ 2,317.2	$ 1,933.8	$ 1,704.9	$ 383.4	19.8 %	$ 229.0	13.4 %
Acquisition revenue related adjustments[2]	28.1	—	—	28.1	100.0 %	—	— %
Consolidated Adjusted Revenue[1]	$ 2,345.3	$ 1,933.8	$ 1,704.9	$ 411.5	21.3 %	$ 229.0	13.4 %
USIS gross revenue	$ 1,444.7	$ 1,204.1	$ 1,045.1	$ 240.6	20.0 %	$ 159.0	15.2 %
Acquisition revenue related adjustments[2]	2.0	—	—	2.0	nm	—	nm
USIS gross Adjusted Revenue	$ 1,446.7	$ 1,204.1	$ 1,045.1	$ 242.6	20.1 %	$ 159.0	15.2 %
International gross revenue	$ 472.4	$ 361.9	$ 313.9	$ 110.5	30.5 %	$ 48.0	15.3 %
Acquisition revenue related adjustments[2]	26.1	—	—	26.1	nm	—	nm
International gross Adjusted Revenue	$ 498.5	$ 361.9	$ 313.9	$ 136.6	37.7 %	$ 48.0	15.3 %
Consumer Interactive gross revenue	$ 475.8	$ 432.1	$ 407.1	$ 43.8	10.1 %	$ 25.0	6.1 %
Adjusted EBITDA:							
USIS	$ 576.1	$ 492.3	$ 428.6	$ 83.8	17.0 %	$ 63.7	14.9 %
International	193.0	135.0	113.7	58.0	43.0 %	21.3	18.7 %
Consumer Interactive	237.6	211.0	181.6	26.6	12.6 %	29.4	16.2 %
Corporate	(89.8)	(90.2)	(87.2)	0.3	0.4 %	(2.9)	(3.4)%

Consolidated Adjusted EBITDA[1]	$ 916.9	$ 748.1	$ 636.8	$ 168.8	22.6 %	$ 111.4	17.5 %

Reconciliation of net income (loss) attributable to TransUnion to consolidated Adjusted EBITDA[1]:

				Change			
	Twelve months ended December 31,			2018 vs. 2017		2017 vs. 2016	
(dollars in millions)	2018	2017	2016	$	%	$	%
Net income (loss) attributable to TransUnion	$ 276.6	$ 441.2	$ 120.6	$ (164.6)	(37.3)%	$ 320.6	nm
Discontinued operations	1.5	—	—	1.5	nm	—	—%
Net income from continuing operations attributable to Transunion	278.1	441.2	120.6	(163.1)	(37.0)%	320.6	nm
Net interest expense	132.0	82.1	80.9	49.9	60.7 %	1.3	1.5 %
(Benefit) Provision for income taxes	54.5	(79.1)	74.0	133.6	nm	(153.1)	nm
Depreciation and amortization	306.9	238.0	265.2	68.9	28.9 %	(27.2)	(10.2)%
EBITDA	771.5	682.2	540.7	89.3	13.1 %	141.5	26.2 %
Adjustments to EBITDA:							
Acquisition-related revenue adjustments[2]	28.1	—	—	28.1	nm	—	— %
Stock-based compensation[3]	61.4	47.7	31.2	13.7	28.7 %	16.5	52.7 %
Mergers and acquisitions, divestitures and business optimization[4]	38.7	8.5	18.5	30.2	nm	(10.0)	(53.9)%
Technology transformation[5]	—	—	23.3	—	— %	(23.3)	(100.0)%
Other[6]	17.2	9.7	23.1	7.5	77.0 %	(13.4)	(57.9)%
Total adjustments to EBITDA	145.4	65.9	96.1	79.5	120.6 %	(30.2)	(31.4)%
Consolidated Adjusted EBITDA[1]	$ 916.9	$ 748.1	$ 636.8	$ 168.8	22.6 %	$ 111.4	17.5 %
Other Metrics:							
Cash provided by operating activities	$ 559.4	$ 465.8	$ 389.9	$ 93.6	20.1 %	$ 75.9	19.5 %
Capital expenditures	$ (180.1)	$ (135.3)	$ (124.0)	$ (44.8)	33.1 %	$ (11.3)	9.1 %

nm: not meaningful

As a result of displaying amounts in millions, rounding differences may exist in the table above.

1. We define Adjusted Revenue as GAAP revenue adjusted for certain acquisition-related deferred revenue and non-core contract-related revenue. We define Adjusted EBITDA as net income (loss) attributable to the Company before net interest expense, income tax provision (benefit), depreciation and amortization and other adjustments noted in the table above. We present Adjusted Revenue as a supplemental measure of revenue because we believe its provides a basis to compare revenue between periods. We present Adjusted EBITDA as a supplemental measure of our operating performance because it eliminates the impact of certain items that we do not consider indicative of our cash operations and ongoing operating performance. Also, Adjusted EBITDA is a measure frequently used by securities analysts, investors and other interested parties in their evaluation of the operating performance of companies similar to ours. In addition, our board of directors and executive management team use Adjusted EBITDA as a compensation measure under our incentive compensation plan. Furthermore, under the credit agreement governing our senior secured credit facility, our ability to engage in activities such as incurring additional indebtedness, making investments and paying dividends is tied to a ratio based on Adjusted EBITDA. See "Management's Discussion and Analysis of Financial Condition and Results of Operations - Liquidity and Capital Resources - Debt." Adjusted EBITDA does not reflect our capital expenditures, interest, income tax, depreciation, amortization, stock-based compensation and certain other income and expense. Other companies in our industry may calculate Adjusted EBITDA differently than we do, limiting its usefulness as a comparative measure. Because of these limitations, Adjusted EBITDA should not be considered in isolation or as a substitute for performance measures calculated in accordance with GAAP. Adjusted EBITDA is not a measure of financial condition or profitability under GAAP and should not be considered as an alternative to cash flows from operating activities, as a measure of liquidity or as an alternative to operating income or net income as indicators of operating

performance. We believe that the most directly comparable GAAP measure to Adjusted EBITDA is net income attributable to TransUnion. The table above provides a reconciliation from our net income (loss) attributable to TransUnion to consolidated Adjusted EBITDA for the twelve months ended December 31, 2018, 2017 and 2016.

2. This adjustment represents certain non-cash adjustments related to acquired entities, predominantly adjustments to increase revenue resulting from purchase accounting reductions to deferred revenue we record on the opening balance sheets of acquired entities. Deferred revenue results when a company receives payment in advance of fulfilling their performance obligations under contracts. Business combination accounting rules require us to record deferred revenue of acquired entities at fair value if we are obligated to perform any future services under these contracts. The fair value of this deferred revenue is determined based on the direct and indirect incremental costs of fulfilling our performance obligations under these contracts, plus a normal profit margin. Generally, this fair value calculation results in a reduction to the purchased deferred revenue balance. The above adjustment includes an estimate for the increase in revenue equal to the difference between what the acquired entities would have recorded as revenue and the lower revenue we record as a result of the reduced deferred revenue balance. This increase is partially offset by an estimated decrease to revenue for certain acquired non-core customer contracts that are not classified as discontinued operations that will expire within approximately one year from the date of acquisition. We present Adjusted Revenue as a supplemental measure of our revenue because we believe it provides meaningful information regarding our revenue and provides a basis to compare revenue between periods. In addition, our board of directors and executive management team use Adjusted Revenue as a compensation measure under our incentive compensation plans. The table above provides a reconciliation for revenue to Adjusted Revenue. The estimated adjustments to revenue are subject to change as we finalize the fair value assessments of the deferred revenue acquired with recent acquisitions and as we complete our assessment of the non-core customer contracts.
3. Consisted of stock-based compensation and cash-settled stock-based compensation.
4. For the twelve months ended December 31, 2018, consisted of the following adjustments: $29.3 million of acquisition expenses; $6.8 million of Callcredit integration costs; a $2.3 million loss on the divestiture of a small business operation; a $0.4 million adjustment to contingent consideration expense from previous acquisitions; and $(0.1) million of miscellaneous.

   For the twelve months ended December 31, 2017, consisted of the following adjustments: $8.3 million of acquisition expenses; a $0.5 million loss on the divestiture of a small business operation; and a $(0.3) million reduction to contingent consideration expense from previous acquisitions.

   For the twelve months ended December 31, 2016, consisted of the following adjustments: $17.6 million of acquisition expenses; a $2.0 million loss on the impairment of a cost method investment; a $0.2 million loss on the closure and divestiture of certain business operations; a $(0.7) million net gain from exiting a business relationship and the closure and divestiture of certain business operations; a $(0.5) million adjustment to business optimization expenses; and a $(0.1) million reduction in contingent consideration expense from previous acquisitions.
5. Represented costs associated with a project to transform our technology infrastructure.
6. For the twelve months ended December 31, 2018, consisted of the following adjustments: $12.0 million of fees related to new financing under our senior secured credit facility, $3.8 million of currency remeasurement of our foreign operations; $1.6 million of loan fees; $0.5 million of fees incurred in connection with a secondary offering of shares of TransUnion common stock by certain of our stockholders; and a $(0.7) million mark-to-market gain related to ineffectiveness of our interest rate hedge.

   For the twelve months ended December 31, 2017, consisted of the following adjustments: $10.5 million of fees related to the refinancing of our senior secured credit facility; $1.7 million of fees incurred in connection with secondary offerings of shares of TransUnion common stock by certain of our stockholders; $1.4 million of loan fees; a $0.3 million mark-to-market loss related to ineffectiveness of our interest rate hedge; $(2.2) million of currency remeasurement of our foreign operations; a $(1.3) million reduction to expense for certain legal and regulatory matters; a $(0.6) million reduction to expense for sales and use tax matters; and $(0.1) million of miscellaneous.

   For the twelve months ended December 31, 2016, consisted of the following adjustments: $19.4 million for the settlement with the CFPB and related costs; $2.7 million of fees connected to the filing of secondary registration statements filed on behalf of certain stockholders; $1.4 million of loan fees; a $0.5 million mark-to-market loss related to ineffectiveness of our interest rate hedge; $0.3 million for certain legal and regulatory matters; $(0.3) million of currency remeasurement of our foreign operations; and $(0.9) million of miscellaneous.

Revenue

For 2018, revenue increased $383.4 million compared with 2017, due to strong organic growth in all of our segments, including both the USIS financial services and emerging verticals and all of the International regions, revenue from our recent acquisitions in our USIS and International segments, and revenue from new product initiatives, partially offset by the impact of weakening foreign currencies on the 2018 revenue of our International segment. Acquisitions accounted for an increase in revenue of 7.9%. The impact of weakening foreign currencies accounted for a decrease in revenue of 0.5%.

For 2017, revenue increased $229.0 million compared with 2016, due to strong organic growth in all of our segments, including both the USIS financial services and emerging verticals and all International regions, revenue from our 2016 and 2017 acquisitions in our USIS and International segments, and by the impact of strengthening foreign currencies on the 2017 revenue of our International segment. Acquisitions accounted for an increase in revenue of 1.6%. The impact of strengthening foreign currencies accounted for an increase in revenue of 0.6%.

Revenue by segment and a more detailed explanation of revenue within each segment are as follows:

				Change			
	Twelve months ended December 31,			2018 vs. 2017		2017 vs. 2016	
(dollars in millions)	2018	2017	2016	$	%	$	%
USIS:							
Financial Services	$ 765.1	$ 620.0	$ 551.7	$ 145.1	23.4 %	$ 68.3	12.4 %
Emerging Verticals	679.6	584.1	493.4	95.5	16.4 %	90.7	18.4 %
USIS gross revenue	1,444.7	1,204.1	1,045.1	240.6	20.0 %	159.0	15.2 %
International:							
Canada	96.0	85.8	73.9	10.3	12.0 %	11.9	16.1 %
Latin America	102.3	98.4	86.9	3.9	3.9 %	11.5	13.2 %
UK	71.3	—	—	71.3	nm	—	nm
Africa	64.2	61.3	60.6	2.9	4.8 %	0.7	1.1 %
India	81.8	64.6	47.5	17.2	26.7 %	17.1	36.0 %
Asia Pacific	56.7	51.9	45.0	4.8	9.3 %	6.9	15.3 %
International gross revenue	472.4	361.9	313.9	110.5	30.5 %	48.0	15.3 %
Consumer Interactive gross revenue	475.8	432.1	407.1	43.8	10.1 %	25.0	6.1 %
Total gross revenue	$ 2,392.9	$ 1,998.1	$ 1,766.0	$ 394.9	19.8 %	$ 232.0	13.1 %
Intersegment revenue eliminations:							
USIS	$ (70.0)	$ (59.3)	$ (57.0)	$ (10.7)	(18.0)%	$ (2.3)	(4.0)%
International	(5.1)	(4.8)	(4.0)	(0.3)	(5.3)%	(0.7)	(17.0)%
Consumer Interactive	(0.7)	(0.2)	—	(0.5)	nm	(0.1)	nm
Total intersegment revenue eliminations	(75.7)	(64.2)	(61.1)	(11.5)	(17.9)%	(3.1)	(5.1)%
Total revenue as reported	$ 2,317.2	$ 1,933.8	$ 1,704.9	$ 383.4	19.8 %	$ 229.0	13.4 %

nm: not meaningful

As a result of displaying amounts in millions, rounding differences may exist in the table above.

USIS Segment

For 2018, USIS revenue increased $240.6 million compared with 2017, due to increases in revenue from both verticals, including an increase of 6.8% from recent acquisitions.

For 2017, USIS revenue increased $159.0 million compared with 2016, due to increases in revenue from both verticals, including revenue from recent acquisitions.

Financial Services: For 2018, financial services revenue increased $145.1 million due primarily to a 13.8% increase in credit report unit volume, an increase of 6.0% from our recent acquisitions, and an increase from new product initiatives, partially offset by a decrease in the average price per credit report due to a change in the mix of customer volumes. Credit report unit volume increased in 2018 despite softness in the mortgage market, including refinance volume, particularly in the fourth quarter of 2018, which was more than offset by an increase in volume in consumer lending.

For 2017, financial services revenue increased $68.3 million due primarily to a 3.9% increase in online credit report unit volume, an increase from new product initiatives, revenue from recent acquisitions, and an increase in the average price per credit report due to a change in the mix of customer volumes.

Emerging Verticals: For 2018, emerging verticals revenue increased $95.5 million due primarily to an increase of 7.6% from recent acquisitions, an increase from new product initiatives, and organic growth in our emerging verticals, particularly our insurance and public sector verticals, driven by a 7.8% increase in credit report unit volume.

For 2017, emerging vertical revenue increased $90.7 million due primarily to organic growth in our emerging verticals, particularly our healthcare and property management verticals, revenue from recent acquisitions, revenue from new product initiatives and a 2.8% increase in credit report unit volume.

International Segment

For 2018, International revenue increased $110.5 million, or 30.5%, compared with 2017. The increase was due to a 19.7% increase from our acquisition of Callcredit and higher local currency revenue in all regions from increased volumes, partially offset by a decrease of 2.5% from the impact of weakening foreign currencies.

For 2017, International revenue increased $48.0 million, or 15.3%, compared with 2016. The increase was due to higher local currency revenue in most regions from increased volumes, the inclusion of revenue from our acquisition of CIFIN in 2016 and by an increase of 3.5% from the impact of strengthening foreign currencies.

Canada: For 2018, Canada revenue increased $10.3 million, or 12.0%, due to higher local currency revenue from increased volumes including new product initiatives.

For 2017, Canada revenue increased $11.9 million, or 16.1%, due to higher local currency revenue from increased volumes including new product initiatives and an increase of 2.3% from the impact of strengthening foreign currencies.

Latin America: For 2018, Latin America revenue increased $3.9 million, or 3.9%, due to higher local currency revenue from increased volumes including new product initiatives, partially offset by a decrease of 4.5% from the impact of weakening foreign currencies.

For 2017, Latin America revenue increased $11.5 million, or 13.2%, due to higher local currency revenue from increased volumes including new product initiatives, the inclusion of revenue from our acquisition of CIFIN in 2016, and an increase of 3.0% from the impact of strengthening foreign currencies.

United Kingdom: For 2018, our United Kingdom revenue from continuing operations was $71.3 million, all attributable to Callcredit. We did not have revenue in the United Kingdom in 2017.

Africa: For 2018, Africa revenue increased $2.9 million, or 4.8%, due to an increase in local currency revenue from increased volumes including new product initiatives and a 0.8% increase due to the impact of strengthening foreign currencies.

For 2017, Africa revenue increased $0.7 million, or 1.1%, compared with 2016, due to an increase of 8.5% from the impacts of strengthening foreign currencies, partially offset by lower local currency revenue from a decrease in volume resulting from general economic headwinds.

India: For 2018, India revenue increased $17.2 million, or 26.7%, due to higher local currency revenue from increased volumes including new product initiatives, partially offset by a decrease of 6.9% from the impact of weakening foreign currencies.

For 2017, India revenue increased $17.1 million, or 36.0%, due to higher local currency revenue from increased volumes including new product initiatives and an increase of 4.4% from the impact of strengthening foreign currencies.

Asia Pacific: For 2018, Asia Pacific revenue increased $4.8 million, or 9.3%, due to higher local currency revenue from increased volumes including new product initiatives, partially offset by a decrease of 1.4% from the impact of weakening foreign currencies.

For 2017, Asia Pacific revenue increased $6.9 million, or 15.3%, due to higher local currency revenue from increased volumes including new product initiatives, partially offset by a decrease of 1.4% from the impact of weakening foreign currencies.

Consumer Interactive Segment

For 2018, Consumer Interactive revenue increased $43.8 million compared with 2017, due primarily to an increase in revenue from our direct channel and from our indirect channel, which includes incremental credit monitoring revenue due to a breach at a competitor.

For 2017, Consumer Interactive revenue increased $25.0 million, compared with 2016, due primarily to an increase in revenue from our indirect channel.

Operating Expenses

Operating expenses for the periods reported were as follows:

				Change			
	Twelve months ended December 31,			2018 vs. 2017		2017 vs. 2016	
(dollars in millions)	2018	2017	2016	$	%	$	%
Cost of services	$ 790.1	$ 645.7	$ 579.1	$ 144.5	22.4%	$ 66.6	11.5 %
Selling, general and administrative	707.7	585.4	560.1	122.2	20.9%	25.3	4.5 %
Depreciation and amortization	306.9	238.0	265.2	68.9	28.9%	(27.2)	(10.3)%
Total operating expenses	$1,804.7	$ 1,469.1	$1,404.4	$ 335.6	22.8%	$ 64.7	4.6 %

As a result of displaying amounts in millions, rounding differences may exist in the table above.

Cost of Services

For 2018, cost of services increased $144.5 million compared with 2017. The increase was due primarily to:

- operating and integration-related costs relating to the business acquisitions in our USIS and International segments;
- an increase in labor costs, primarily in our USIS and International segments, as we continue to invest in key strategic growth initiatives; and
- an increase in product costs resulting from the increase in revenue, primarily in our USIS segment.

For 2017, cost of services increased $66.6 million compared with 2016. The increase was due primarily to:

- an increase in product costs resulting from the increase in revenue, primarily in our USIS segment;
- an increase in labor costs, primarily in our USIS and International segments, as we continue to invest in key strategic growth initiatives;
- operating costs related to our acquisitions in our USIS and International segments; and
- the impact of strengthening foreign currencies on the expenses of our International segment,

partially offset by:

- savings enabled by our technology transformation and other key productivity initiatives; and
- a decrease in product costs from a favorable shift in the mix of revenue in our Consumer Interactive segment.

Selling, General and Administrative

For 2018, selling, general and administrative expenses increased $122.2 million compared with 2017. The increase was due primarily to:

- operating and integration-related costs relating to the business acquisitions in our USIS and International segments; and
- an increase in labor costs, primarily in our USIS segment and in Corporate, as we continue to invest in key strategic growth initiatives.

For 2017, selling, general and administrative expenses increased $25.3 million compared with 2016. The increase was due primarily to:

- an increase in labor costs, primarily in our USIS and International segments, as we continue to invest in key strategic growth initiatives, and higher stock-based compensation;
- the impact of strengthening foreign currencies on the expenses of our International segment; and
- operating costs related to our acquisitions in our USIS and International segments,

partially offset by:

- a decrease in litigation expense in Corporate as a result of recording the settlement with the CFPB in 2016; and
- the benefit of focusing our marketing spend on more efficient channels in our Consumer Interactive.

Depreciation and amortization

For 2018, depreciation and amortization increased $68.9 million compared with 2017, primarily in our International and USIS segments, due to fixed assets and intangible assets acquired with our recent USIS and International segment business acquisitions.

For 2017, depreciation and amortization decreased $27.2 million compared with 2016, primarily in our USIS segment, due to the useful lives of certain USIS internal-use software and equipment assets ending June 30, 2016, in conjunction with our strategic initiative to transform our technology platform. The decrease related to these technology assets was partially offset by additional depreciation and amortization from the new capital expenditures related to our technology transformation initiative and from assets acquired with our recent business acquisitions.

Adjusted EBITDA and Adjusted EBITDA margin

	Twelve months ended December 31,			Change			
				2018 vs. 2017		2017 vs. 2016	
(dollars in millions)	2018	2017	2016	$	%	$	%
Adjusted Revenue:							
USIS gross Adjusted Revenue	$1,446.7	$1,204.1	$1,045.1	$ 242.6	20.1 %	$ 159.0	15.2 %
International gross Adjusted revenue	498.5	361.9	313.9	136.6	37.7 %	48.0	15.3 %
Interactive gross Adjusted Revenue	475.8	432.1	407.1	43.8	10.1 %	25.0	6.1 %
Total gross Adjusted Revenue	2,421.0	1,998.1	1,766.0	423.0	21.2 %	232.0	13.1 %
Less: intersegment revenue eliminations	(75.7)	(64.2)	(61.1)	(11.5)	(17.9)%	(3.1)	(5.1)%
Consolidated Adjusted Revenue	$2,345.3	$1,933.8	$1,704.9	$ 411.5	21.3 %	$ 229.0	13.4 %
Adjusted EBITDA:							
USIS	$ 576.1	$ 492.3	$ 428.6	$ 83.8	17.0 %	$ 63.7	14.9 %
International	193.0	135.0	113.7	58.0	43.0 %	21.3	18.7 %
Consumer Interactive	237.6	211.0	181.6	26.6	12.6 %	29.4	16.2 %
Corporate	(89.8)	(90.2)	(87.2)	0.3	0.4 %	(2.9)	(3.4)%
Consolidated Adjusted EBITDA	$ 916.9	$ 748.1	$ 636.8	$ 168.8	22.6 %	$ 111.4	17.5 %
Adjusted EBITDA margin:							
USIS	39.8%	40.9%	41.0%		(1.1)%		(0.1)%
International	38.7%	37.3%	36.2%		1.4 %		1.1 %
Consumer Interactive	49.9%	48.8%	44.6%		1.1 %		4.2 %
Consolidated Adjusted EBITDA margin	39.1%	38.7%	37.3%		0.4 %		1.3 %

As a result of displaying amounts in millions, rounding differences may exist in the table above. Segment Adjusted EBITDA margins are calculated using segment gross Adjusted Revenue and segment Adjusted EBITDA. Consolidated Adjusted EBITDA margin is calculated using consolidated Adjusted Revenue and consolidated Adjusted EBITDA. See *Key Performance Measures* table above for the reconciliation of segment revenue to segment gross Adjusted Revenue. See *Revenue* table above for details of the intersegment revenue eliminations by segment.

For 2018, consolidated Adjusted EBITDA increased $168.8 million due primarily to:

- an increase in revenue in all of our segments, including revenue from recent acquisitions,

Partially offset by:

- operating and integration-related costs relating to the business acquisitions in our USIS and International segments;
- an increase in labor costs, primarily in our USIS and International segments and in Corporate, as we continue to invest in key strategic growth initiatives; and
- an increase in product costs resulting from the increase in revenue, primarily in our USIS and Consumer Interactive segments.

For 2018, Adjusted EBITDA margins for the USIS segment decreased due to the operating and integration-related costs of the USIS business acquisitions, the increase in labor costs, and the increase in product costs resulting from the increase in revenue, partially offset by the increase in revenue. Adjusted EBITDA margins for the International segment increased due to the increases in revenue, partially offset by the increase in operating and integration-related costs of the International business acquisition and the increase in labor costs. Adjusted EBITDA margins for the Consumer Interactive segment increased due to the increase in revenue.

For 2017, consolidated Adjusted EBITDA increased $111.4 million due primarily to:

- an increase in revenue in all of our segments, including revenue from recent acquisitions:
- savings enabled by our technology transformation and other key productivity initiatives;
- a decrease in product costs from a favorable shift in the mix of revenue in our Consumer Interactive segment; and
- the benefit of focusing our marketing spend on more efficient channels in our Consumer Interactive segment,

Partially offset by:

- an increase in labor costs, primarily in our USIS and International segments, as we continue to invest in key strategic growth initiatives;
- an increase in product costs in our USIS segment due to the increase in revenue; and
- operating and integration-related costs relating to the business acquisitions in our USIS and International segments;

For 2017, Adjusted EBITDA margins for the USIS segment decreased slightly due to the increase in labor costs and the increase in operating and integration-related costs of the USIS business acquisitions, mostly offset by the increase in revenue and savings enabled by our technology transformation. Adjusted EBITDA margins for the International segment increased due primarily to the increases in revenue and cost savings from our key productivity initiatives. Margins for the Consumer Interactive segment increased due to the increase in revenue, decrease in product costs from a favorable shift in the mix of revenue and more efficient marketing spend.

Non-Operating Income and Expense

				Change			
	Twelve months ended December 31,			2018 vs. 2017		2017 vs. 2016	
(dollars in millions)	2018	2017	2016	$	%	$	%
Interest expense	$ (137.5)	$ (87.6)	$ (85.5)	$ (49.9)	(57.0)%	$ (2.1)	(2.4)%
Interest income	5.5	5.5	4.6	—	(0.1)%	0.8	18.2 %
Earnings from equity method investments	9.9	9.1	8.6	0.9	9.8 %	0.5	5.4 %
Other income and expense, net:							
Acquisition fees	(29.3)	(8.3)	(17.6)	(21.0)	nm	9.2	52.7 %
Loan Fees	(13.6)	(11.9)	(1.4)	(1.6)	(13.4)%	(10.5)	nm
Dividends from cost method investments	1.1	1.0	0.9	0.1	14.6 %	0.1	12.2 %
Other income (expense), net	(5.2)	0.1	(4.7)	(5.3)	nm	4.8	102.4 %
Total other income and expense, net	(46.9)	(19.2)	(22.8)	(27.7)	nm	3.7	16.0 %
Non-operating income and expense	$ (169.0)	$ (92.2)	$ (95.1)	$ (76.7)	83.2 %	$ 2.9	3.0 %

nm: not meaningful

As a result of displaying amounts in millions, rounding differences may exist in the table above.

For the twelve months ended December 31, 2018, interest expense increased $49.9 million compared with 2017 primarily due to the impact of the increase in our average outstanding principal balance as a result of funding our business acquisitions and an increase in the average interest rate. Our interest expense will continue to be higher going forward due to the additional debt we incurred to fund our recent business acquisitions, and could be impacted by changes in our variable interest rates.

For the twelve months ended December 31, 2017, interest expense increased $2.1 million compared with 2016 primarily due to an increase in the average outstanding principal balance.

Acquisition fees represent costs we have incurred for various acquisition-related efforts. For 2018, acquisition fees included costs related to our acquisition of Callcredit, iovation, HPS, and Rubixis, and costs of other acquisition efforts. For 2017, acquisition fees included costs related to our acquisition of DataLink, eBureau and FactorTrust, and costs of other acquisition efforts. For 2016, acquisition fees included costs related to our acquisition of CIFIN, Auditz and RTech, and costs of other acquisition efforts.

For 2018, loan fees included $12.0 million of fees related to the additional debt we incurred to fund our recent business acquisitions. For 2017, loan fees included $10.5 million of refinancing fees and other net costs expensed as a result of refinancing our Senior Secured Term Loan in January 2017 and August 2017. See Part II, Item 8, "Financial Statements and Supplementary Data - Notes to Consolidated Financial Statements," Note 11, "Debt," for additional information these loan fees.

Other income (expense) includes currency remeasurement gains and losses, hedge gains and losses, and other miscellaneous non-operating income and expense items.

Provision for Income Taxes

We finalized the accounting impacts of the Act in connection with filing our 2017 U.S. federal income tax return during the fourth quarter 2018. This resulted in an increase to income tax expense of $5.3 million, offsetting our original $175.3 million tax benefit estimated under SAB 118 during the fourth quarter 2017. We also elected to report Global Intangible Low Taxed Income ("GILTI") in income tax expense as part of the current income tax provision.

For 2018, we reported an effective tax rate of 15.9%, which is lower than the 21.0% U.S. federal statutory rate due primarily from the release of valuation allowances on foreign tax credit carryforwards and excess tax benefits on stock based compensation that is now recorded to tax expense due to our adoption of ASU 2016-09 on January 1, 2017, partially offset by state taxes and foreign taxes in jurisdictions which have tax rates that are higher than the U.S. corporate tax rate.

For 2017, we reported a negative 21.2% effective tax rate, which is lower than the 35.0% U.S. federal statutory rate due primarily to the one-time decreases resulting from enactment of the Act in December 2017 and the excess tax benefits on stock-based compensation that is now recorded to tax expense upon our adoption of ASU 2016-09 on January 1, 2017.

For 2016, we reported a 36.0% effective tax rate, which is higher than the 35.0% U.S. federal statutory rate due primarily to increases resulting from changes to our state tax assumptions and tax on our foreign earnings that are not considered permanently reinvested outside the United States, partially offset by decreases resulting from the impact of international restructuring and Internal Revenue Code Section 199 Domestic Productions Activities Deduction ("DPAD") and Research and Development ("R&D") tax credits.

Significant Changes in Assets and Liabilities

Goodwill and other intangible assets at December 31, 2018, increased compared with December 31, 2017, due primarily to the business acquisitions we completed in the second half of 2018. Debt at December 31, 2018, increased compared with December 31, 2017, because we funded the business acquisitions with additional debt. See "Recent Developments" above and Part II, Item 8 "Financial Statements and Supplementary Data - Notes to Consolidated Financial Statements," Note 4, "Goodwill," Note 5, Intangible Assets" and Note 11, "Debt," for additional information.

Liquidity and Capital Resources

Overview

Our principal sources of liquidity are cash flows provided by operating activities, cash and cash equivalents on hand, and our senior secured revolving line of credit. Our principal uses of liquidity are working capital, capital expenditures, debt service and other capital structure obligations, business acquisitions, and other general corporate purposes. We believe our cash on hand, cash generated from operations, and funds available under the senior secured revolving line of credit will be sufficient to fund our planned capital expenditures, debt service and other capital structure obligations, business acquisitions and operating needs for the foreseeable future. We may, however, elect to raise funds through debt or equity financing in the future to fund significant investments or acquisitions that are consistent with our growth strategy.

Cash and cash equivalents totaled $187.4 million and $115.8 million at December 31, 2018 and 2017, respectively, of which $130.8 million and $84.9 million was held outside the United States. As of December 31, 2018, we had no amounts outstanding under the senior secured revolving line of credit and could have borrowed up to the full $300.0 million available. We also have the ability to request incremental loans on the same terms under the existing senior secured credit facility up to the greater of an additional $675.0 million and 100% of Consolidated EBITDA. Consolidated EBITDA is reduced to the extent that the senior secured net leverage ratio is above 4.25-to-1. In addition, so long as the senior secured net leverage ratio does not exceed 4.25-to-1, we may incur additional incremental loans, subject to certain additional conditions and commitments by existing or new lenders to fund any additional borrowings.

The balance retained in cash and cash equivalents is consistent with our short-term cash needs and investment objectives. The Company is required to make additional principal payments on the Senior Secured Term Loan B based on excess cash flows of the prior year, as defined in the agreement. There were no excess cash flows for 2018 and therefore no additional payment will be required in 2019. Additional payments based on excess cash flows could be due in future years. See Part II, Item 8, “Financial Statements and Supplementary Data - Notes to Consolidated Financial Statements,” Note 11, “Debt,” for additional information about our debt.

On December 31, 2018, we made a prepayment of $60.0 million towards our Senior Secured Term Loan B-3, funded from our cash on hand.

On February 13, 2017, our board of directors authorized the repurchase of up to $300.0 million of our common stock over the next three years. Our board of directors removed the three-year time limitation on February 8, 2018. On February 22, 2017, the Company purchased 1.85 million shares of common stock for a total of $68.3 million from the underwriters of a secondary offering of shares of our common stock by certain of our stockholders. On May 2, 2017, the Company purchased an additional 1.65 million shares of common stock for a total of $65.2 million from the underwriters of a secondary offering of shares of our common stock by certain of our stockholders.

The Company has no obligation to repurchase shares, and the timing, actual number and value of the shares that are repurchased, if any, will be at the discretion of management and will depend on a number of factors, including market conditions, the cost of repurchasing shares, the availability of alternative investment opportunities, liquidity, and other factors deemed appropriate. Repurchases may be suspended, terminated or modified at any time for any reason. Any repurchased shares will have the status of treasury shares and may be used, if and when needed, for general corporate purposes.

On February 13, 2018, we announced that our board of directors approved a dividend policy pursuant to which we intend to pay quarterly cash dividends on our common stock. During 2018, the board of directors declared three quarterly dividends in May, August and November of $0.075 per share, that we paid in June, September and December. In total, we declared $42.6 million of dividends and paid $41.6 million, with the remainder dues as dividend equivalents to employees who hold restricted stock units when and if those units vest.

On June 19, 2018, we borrowed an additional $800.0 million against our Senior Secured Term Loan A-2 and $600.0 million against a new tranche 4 of our Senior Secured Term Loan B (“Senior Secured Term Loan B-4”) to fund the acquisition of Callcredit. On June 29, 2018, we borrowed an additional $400.0 million of our Senior Secured Term Loan B-4 to fund another acquisition and to repay a portion of our Senior Secured Revolving Line of Credit. These new borrowings will increase our future scheduled loan repayments and interest expense.

Sources and Uses of Cash

(dollars in millions)	Twelve months ended December 31, 2018	2017	2016	Change 2018 vs. 2017	2017 vs. 2016
Cash provided by operating activities	$ 559.4	$ 465.8	$ 389.9	$ 93.6	$ 75.9
Cash used in investing activities	(2,017.6)	(480.8)	(495.8)	(1,536.8)	15.0
Cash (used in) provided by financing activities	1,540.2	(51.7)	153.8	1,591.9	(205.5)
Effect of exchange rate changes on cash and cash equivalents	(6.6)	0.3	1.1	(6.9)	(0.8)
Net change in cash and cash equivalents	$ 75.4	$ (66.4)	$ 49.0	$ 141.8	$ (115.4)

Operating Activities

For 2018, the increase in cash provided by operating activities was due primarily to the increase in operating income excluding depreciation and amortization and non-cash items, partially offset by the increase in interest expense resulting from the increase in outstanding debt. For 2017, the increase in cash provided by operating activities was due primarily to the increase in operating income excluding depreciation and amortization and non-cash items.

Investing Activities

For 2018, the increase in cash used in investing activities was primarily due to the significant increase in cash used for acquisitions, as well as an increase in capital expenditures. For 2017, the decrease in cash used in investing activities was due primarily to slightly lower cash used for acquisitions and purchases of other investments.

Financing Activities

For 2018, the increase in cash provided by financing activities was due primarily to cash borrowed to fund our acquisitions and a decrease in treasury stock repurchased, partially offset by dividends paid in 2018. For 2017, the increase in cash used in financing activities was due primarily to cash used for our stock buy-back program and lower borrowings in 2017 compared with 2016.

Capital Expenditures

We make capital expenditures to grow our business by developing new and enhanced capabilities, to increase the effectiveness and efficiency of the organization and to reduce risks. We make capital expenditures for product development, disaster recovery, security enhancements, regulatory compliance, and the replacement and upgrade of existing equipment at the end of its useful life.

For 2018, cash paid for capital expenditures increased $44.8 million, including the capital expenditures of our new acquisitions. For 2017, cash paid for capital expenditures increased $11.3 million.

Debt

Senior Secured Credit Facility

On June 15, 2010, we entered into a senior secured credit facility with various lenders. This facility has been amended several times and currently consists of the Senior Secured Term Loan B-3, Senior Secured Term Loan A-2, the Senior Secured Term Loan B-4 and the Senior Secured Revolving Line of Credit.

During the second quarter of 2018, we borrowed additional funds under our Senior Secured Term Loan A-2 and B-4 to fund the purchase of Callcredit, iovation and HPS. The terms of the additional borrowings on our Senior Secured Term Loan A-2 are the same as the terms of the other outstanding borrowings under the Senior Secured Term Loan A-2. Interest rates on the new Senior Secured Term Loan B-4 are based on LIBOR, unless otherwise elected, plus a margin of 2.00%. The Company is required to make principal payments on the Senior Secured Term Loan B-4 at the end of each quarter of 0.25% starting the third quarter of 2018 with the remaining balance due June 19, 2025.

Hedge

On December 17, 2018, we entered into interest rate swap agreements with various counter-parties that effectively fixes our LIBOR exposure on a portion of our existing senior secured term loans or similar replacement debt at approximately 2.647% to 2.706%. We have designated these swap agreements as cash flow hedges. The current aggregate notional amount under these agreements is $1,450.0 million, decreasing each quarter until the second agreement terminates on December 30, 2022.

On December 18, 2015, we entered into interest rate cap agreements with various counter-parties that effectively cap our LIBOR exposure on a portion of our existing senior secured term loans or similar replacement debt at 0.75% beginning June 30, 2016. We have designated these cap agreements as cash flow hedges. The current aggregate notional amount under these agreements is

$1,451.8 million and will continue to decrease each quarter until the agreement terminates on June 30, 2020. In July 2016, we began to pay the various counter-parties a fixed rate on the outstanding notional amounts of between 0.98% and 0.994% and receive payments to the extent LIBOR exceeds 0.75%.

Effect of certain debt covenants

A breach of any of the covenants under the agreements governing our debt could limit our ability to borrow funds under the senior secured revolving line of credit and could result in a default under the senior secured credit facility. Upon the occurrence of an event of default under the senior secured credit facility, the lenders could elect to declare all amounts then outstanding to be immediately due and payable, and the lenders could terminate all commitments to extend further credit. If we were unable to repay the amounts declared due, the lenders could proceed against any collateral granted to them to secure that indebtedness.

With certain exceptions, the senior secured credit facility obligations are secured by a first-priority security interest in substantially all of the assets of Trans Union LLC, including its investment in subsidiaries. The senior secured credit facility contains various restrictions and nonfinancial covenants, along with a senior secured net leverage ratio test. The nonfinancial covenants include restrictions on dividends, investments, dispositions, future borrowings and other specified payments, as well as additional reporting and disclosure requirements. The senior secured net leverage test must be met as a condition to incur additional indebtedness, make certain investments, and may be required to make certain restricted payments. The senior secured net leverage ratio must not exceed 5.5-to-1 at any such test date. TransUnion may make dividend payments up to an unlimited amount under the terms of the senior secured credit facility provided that no default or event of default exists and so long as the total net leverage ratio does not exceed 4.75-to-1. As of December 31, 2018, we were in compliance with all debt covenants.

Our ability to meet our liquidity needs or to pay dividends on its common stock depends on our subsidiaries' earnings, the terms of their indebtedness, and other contractual restrictions. Trans Union LLC, the borrower under the senior secured credit facility, is not permitted to declare any dividend or make any other distribution subject to certain exceptions, including compliance with a fixed charge coverage ratio and a basket that depends on TransUnion Intermediate Holding, Inc.'s consolidated net income.

For additional information about our debt and hedge, see Part II, Item 8, "Financial Statements and Supplementary Data - Notes to Consolidated Financial Statements, Note 11, "Debt."

Contractual Obligations

Consolidated future minimum payments for noncancelable operating leases, purchase obligations and debt repayments as of December 31, 2018, are payable as follows:

(in millions)	Operating leases	Purchase obligations and other	Debt repayments	Loan fees and interest payments	Total
2019	$ 21.7	$ 251.3	$ 71.7	$ 182.9	$ 527.6
2020	18.9	45.7	93.5	171.5	329.6
2021	15.4	29.6	89.9	164.7	299.6
2022	10.5	4.1	1,044.9	147.6	1,207.1
2023	8.7	0.6	1,832.1	69.4	1,910.8
Thereafter	20.7	0.2	945.0	65.2	1,031.1
Totals	$ 95.9	$ 331.5	$ 4,077.1	$ 801.3	$ 5,305.8

Purchase obligations and other includes $169.9 million of trade accounts payable that were included in our balance sheet as of December 31, 2018. Purchase obligations and other include commitments for outsourcing services, royalties, data licenses, maintenance and other operating expenses. Loan fees and interest payments are estimates based on the interest rates in effect at December 31, 2018, and the contractual principal paydown schedule, excluding any excess cash flow prepayments that may be required. See Part II, Item 8, "Financial Statements and Supplementary Data - Notes to Consolidated Financial Statements," Note 11, "Debt," for additional information about our interest payments.

Off-Balance Sheet Arrangements

As of December 31, 2018, we had no off-balance sheet arrangements as defined in Item 303(a)(4) of Regulation S-K.

Application of Critical Accounting Estimates

We prepare our consolidated financial statements in conformity with generally accepted accounting principles ("GAAP"). The notes to our consolidated financial statements include disclosures about our significant accounting policies. These accounting policies require us to make certain judgments and estimates in reporting our operating results and our assets and liabilities. The following paragraphs describe the accounting policies that require significant judgment and estimates due to inherent uncertainty or complexity.

Goodwill and Indefinite-Lived Intangibles

As of December 31, 2018, our consolidated balance sheet included goodwill of $3,293.6 million. As of December 31, 2018, we had no other indefinite-lived intangible assets. We test goodwill for impairment on an annual basis, in the fourth quarter, or on an interim basis if there is an indicator of impairment. We have the option to first consider qualitative factors to determine if it is more likely than not that the fair value of any reporting units is less than its carrying amount. If the qualitative assessment indicates that an impairment is more likely than not for any reporting unit, then we are required to perform a quantitative impairment test for that reporting unit.

For our qualitative goodwill impairment tests, we analyze actual and projected reporting unit growth trends for revenue and profits, as well as historical performance versus plans and prior quantitative tests performed. We also assess critical areas that may impact each reporting unit, including macroeconomic conditions and the expected related impacts, market-related exposures, cost factors, changes in the carrying amount of its net assets, any plans to dispose of all or part of the reporting unit, and other reporting-unit specific factors such as changes in key personnel, strategy, customers or competition.

For our quantitative goodwill impairment tests, we use discounted cash flows techniques to determine fair value, and compare the fair value of the reporting unit to its carrying amount to determine if there is a potential impairment. Beginning in the fourth quarter of 2017, upon the adoption of ASU 2017-04, if a reporting unit's fair value is less than its carrying amount, we will record an impairment charge based on that difference, up to the amount of goodwill allocated to that reporting unit.

The discounted cash flow techniques we use require a number of significant assumptions, including projections of future cash flows, exchange rates and an estimate of the appropriate discount rates. The projections of future cash flows used to assess the fair value of the reporting units are based on the internal operating plans reviewed by management. The projections of future exchange rates were based on the current exchange rates at the time the projections were prepared. The estimated discount rates were based on the risk-free rate of interest and estimated risk premiums for the reporting units at the time the impairment analysis was prepared.

We believe the assumptions we use in our qualitative and quantitative analysis are reasonable and consistent with assumptions that would be used by other marketplace participants. Such assumptions are, however, inherently uncertain, and different assumptions could lead to a different assessment for a reporting unit that could result in a material impairment that would adversely affect our results of operations.

For 2018, we performed the qualitative test for each of our reporting units and the results of our tests indicated that it was not more likely than not that the goodwill in any reporting unit was impaired, with the exception of Africa and Latin America. For Africa and Latin America, we also performed the quantitative test and determined that no impairment existed. Further, a 10% decrease in the estimated cash flows or a 10% increase in the discount rate would not result in an impairment. In prior years, the India and Asia-Pacific reporting units were combined. We separated them this year and performed a quantitative test on each of the reporting units and determined there was no impairment for either reporting unit. The goodwill impairment tests we performed during 2017 and 2016 also resulted in no impairment. At December 31, 2018, there was no accumulated goodwill impairment loss.

Long-Lived Depreciable and Amortizable Assets

As of December 31, 2018, our consolidated balance sheet included fixed assets of $586.5 million, $220.3 million net of accumulated depreciation, and long-lived intangible assets of $3,754.8 million, $2,548.1 million net of accumulated amortization. We review long-lived asset groups subject to amortization for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset group may not be recoverable. Recoverability of asset groups to be held and used is measured by a comparison of the carrying amount of an asset group to the estimated undiscounted future cash flows expected to be generated by the asset group. If the carrying amount of an asset group exceeds its estimated future cash flows, an impairment charge is recognized equal to the amount by which the carrying amount of the asset group exceeds the fair value of the asset group. Assets to be disposed of are separately presented in the consolidated balance sheet, and reported at the lower of the carrying amount or fair value, less costs to sell, and are no longer depreciated. When a long-lived asset group is tested for recoverability, we also review depreciation estimates and methods. Any revision to the remaining useful life of long-lived assets resulting from that review is also considered in developing estimates of future cash flows used to test the asset group for recoverability.

When events or changes in circumstances indicate that the carrying amount of an asset group may not be recoverable, we use estimates of future cash flows to determine recoverability and base such estimates on assumptions that are reasonable and consistent with assumptions that would be used by other marketplace participants. Such estimates, however, are inherently uncertain and estimates using different assumptions, or different valuation techniques, could result in significantly different results. During 2018, 2017 and 2016, there were no material impairment charges.

Legal Contingencies

In the ordinary course of business, we are routinely named as defendants in, or parties to, various legal actions and proceedings relating to our current or past business operations. These actions generally assert claims for violations of federal or state credit reporting, consumer protection or privacy laws, or common law claims related to privacy, libel, slander or the unfair treatment of consumers, and may include claims for substantial or indeterminate compensatory or punitive damages, or injunctive relief, and may seek business practice changes. In the ordinary course of business, we also are subject to governmental and regulatory examinations, information-gathering requests, investigations and proceedings, both formal and informal, certain of which may result in adverse judgments, settlements, fines, penalties, injunctions or other relief. In connection with formal and informal inquiries by these regulators, we routinely receive requests, subpoenas and orders seeking documents, testimony and other information in connection with various aspects of our activities. We regularly review all litigation and regulatory matters to determine whether a loss is probable and, if probable, whether the loss can be reasonably estimated. If a loss is probable and can be reasonably estimated, an appropriate reserve is accrued, taking into consideration legal positions, contractual obligations and applicable insurance coverages, and included in other current liabilities. We believe that the reserves established for pending or threatened legal and regulatory matters are appropriate based on the facts currently known. Due to the uncertainties inherent in the investigation and resolution of legal and regulatory matters, however, the actual costs of resolving litigation and regulatory matters may be substantially higher than the amounts reserved for those matters, and an adverse outcome in certain of these matters could have a material adverse effect on our financial results. Legal fees incurred in connection with ongoing litigation are considered a period cost and are expensed as incurred.

As of December 31, 2018 and 2017, we have accrued $33.2 million and $46.3 million, respectively, for anticipated claims. The decrease at December 31, 2018 compared with December 31, 2017 was due primarily to payments we made during the year to settle a case. The accrued liabilities are included in other current liabilities in the consolidated balance sheets and the associated expenses are recorded in selling, general and administrative expenses in the consolidated statements of income.

See Part I, Item 3, “Legal Proceedings” and Part II, Item 8 “Financial Statements and Supplementary Data - Notes to Consolidated Financial Statements, Note 20, “Contingencies,” for further information.

Income Taxes

As of December 31, 2018, TransUnion’s consolidated balance sheet included noncurrent deferred tax liabilities of $478.0 million. Certain deferred tax assets, including net operating loss and foreign tax credit carryforwards, may be deducted from future taxable income in computing our federal income tax liability. Our deferred tax liability includes deferred tax assets and liabilities resulting from net operating loss and foreign tax credit carryforwards, temporary differences, and unrecognized tax benefits for uncertain tax positions.

We have made certain judgments and estimates to determine various tax amounts recorded, including future tax rates, future taxable income, whether it is more likely than not a tax position will be sustained, and the amount of the unrecognized tax benefit to record. We believe the judgments and estimates used are reasonable, but events may arise that were not anticipated and the outcome of tax audits may differ significantly from what is expected.

See Part II, Item 8 “Financial Statements and Supplementary Data - Notes to Consolidated Financial Statements, Note 15, “Income Taxes” for additional information about the impact the Act had on our income taxes.

Stock-Based Compensation

For the years ended December 31, 2018, 2017 and 2016, we recognized stock-based compensation expense of $61.4 million, $47.7 million and $31.2 million, respectively, with related income tax benefits of approximately $14.9 million, $16.3 million and $11.3 million, respectively.

Since June 30, 2015, the date we completed our initial public offering, the fair value of most of our stock-based award grants has been the closing price of our stock on the grant date. For stock-based award grants with market-based contingencies, the fair value of each award was determined using a risk-neutral Monte-Carlo model, with assumptions based on conditions that existed on the grant date of the award. For stock-based awards granted prior to June 30, 2015, the fair value of each award was determined by various methods including independent valuations of our common stock based on discounted cash flow and selected comparable public company analysis, the Black-Scholes valuation model, and risk-neutral Monte Carlo valuation models. The various valuation models required management to make a number of significant assumptions, including the fair value of our stock, projections of future cash flows and an estimate of our cost of capital, volatility rates, expected life of awards and risk-free interest rates. We believe the determinations of fair values were based on assumptions and estimates that were reasonable and consistent with what would have been used by other marketplace participants to determine fair value. Valuations, however, are inherently uncertain and valuations using different assumptions and estimates, or different valuation techniques, could result in significantly different values.

In addition, certain of our stock awards are performance-based or market-based awards with vesting contingent on meeting certain future revenue or Adjusted EBITDA or total stockholder return targets. We estimate the number of shares we expect to vest each reporting period, which impacts our expense and our weighted average diluted shares outstanding calculations.

See Part II, Item 8, “Financial Statements and Supplementary Data - Notes to Consolidated Financial Statements,” Note 14, “Earnings Per Share” and Note 16, “Stock-Based Compensation,” for additional information.

Recent Accounting Pronouncements

For information about recent accounting pronouncements and the potential impact on our consolidated financial statements, see Part II, Item 8, “Financial Statements and Supplementary Data - Notes to Consolidated Financial Statements,” Note 1, “Significant Accounting and Reporting Policies.”

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

In the normal course of business we are exposed to market risk, primarily from changes in variable interest rates and foreign currency exchange rates, which could impact our results of operations and financial position. We manage the exposure to this market risk through our regular operating and financing activities. We may use derivative financial instruments, such as foreign currency and interest rate hedges, but only as a risk management tool and not for speculative or trading purposes.

Interest Rate Risk

Our senior secured credit facility consists of senior secured term loans and a $300.0 million Senior Secured Revolving Line of Credit. Interest rates on these borrowings are based, at our election, on LIBOR or an alternate base rate, subject to floors, plus applicable margins based on applicable net leverage ratios. As of December 31, 2018, essentially all of our outstanding debt was variable-rate debt. As of December 31, 2018, our variable-rate debt had a weighted-average interest rate of 4.45% and a weighted-average life of 4.63 years. During 2018, a 10% change in the average LIBOR rates utilized in the calculation of our actual interest expense would have increased our interest expense by $5.6 million for the year.

On December 17, 2018, we entered into interest rate swap agreements with various counter-parties that effectively fixes our LIBOR exposure on a portion of our existing senior secured term loans or similar replacement debt at approximately 2.647% to 2.706%. We have designated these swap agreements as cash flow hedges. The current aggregate notional amount under these agreements is $1,450.0 million, decreasing each quarter until the second agreement terminates on December 30, 2022.

On December 18, 2015, we entered into interest rate cap agreements with various counter-parties that effectively cap our LIBOR exposure on a portion of our existing senior secured term loans or similar replacement debt at 0.75% beginning June 30, 2016. We have designated these cap agreements as cash flow hedges. The current aggregate notional amount under these agreements is $1,451.8 million and will continue to decrease each quarter until the agreement terminates on June 30, 2020. In July 2016, we began to pay the various counter-parties a fixed rate on the outstanding notional amounts of between 0.98% and 0.994% and receive payments to the extent LIBOR exceeds 0.75%.

Based on the amount of unhedged outstanding variable-rate debt, we have a material exposure to interest rate risk. In the future our exposure to interest rate risk may change due to changes in the amount borrowed, changes in interest rates, or changes in the amount we have hedged. The amount of our outstanding debt, and the ratio of fixed-rate debt to variable-rate debt, can be expected to vary as a result of future business requirements, market conditions or other factors.

See Part II, Item 8, "Financial Statements and Supplementary Data - Notes to Consolidated Financial Statements," Note 11, "Debt," for additional information about interest rates on our debt.

Foreign Currency Exchange Rate Risk

A substantial majority of our revenue, expense and capital expenditure activities are transacted in U.S. dollars. However, we transact business in a number of foreign currencies, including British pounds sterling, the South African rand, the Canadian dollar, the Indian rupee, the Colombian peso and the Brazilian real. In reporting the results of our foreign operations, we benefit from a weaker U.S. dollar and are adversely affected by a stronger U.S. dollar relative to the foreign currencies.

We are required to translate the assets and liabilities of our foreign subsidiaries that are measured in foreign currencies at the applicable period-end exchange rate in our consolidated balance sheets. We are required to translate revenue and expenses at the average exchange rates prevailing during the year in our consolidated statements of income. The resulting translation adjustment is included in other comprehensive income, as a component of stockholders' equity. Transaction gains and losses that arise from exchange rate fluctuations on transactions denominated in a currency other than the functional currency are included in other income and expense as incurred.

In 2018, revenue attributable to our foreign operations was $493.3 million, and Adjusted EBITDA attributable to our foreign operations was $201.8 million. A 10% change in the value of the U.S. dollar relative to a basket of the currencies for all foreign countries in which we had operations during 2018 would have changed our revenue by $49.3 million and our Adjusted EBITDA by $20.2 million.

A 10% change in the value of the U.S. dollar relative to a basket of currencies for all foreign countries in which we had operations would not have had a significant impact on our 2018 realized foreign currency transaction gains and losses.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of TransUnion and subsidiaries

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of TransUnion and subsidiaries as of December 31, 2018 and 2017, the related consolidated statements of comprehensive income, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2018, and the related notes and financial statement schedules listed in the Index at Item 15 (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2018 and 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 U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 14, 2019 expressed an unqualified opinion thereon.

Basis for Opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the 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 financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2005.

Chicago, Illinois
February 14, 2019

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of TransUnion and subsidiaries

Opinion on Internal Control over Financial Reporting

We have audited TransUnion and subsidiaries' internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, TransUnion and subsidiaries (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on the COSO criteria.

As indicated in the accompanying Management's Report on Financial Statements and Assessment of Internal Control over Financial Reporting, management's assessment of and conclusion on the effectiveness of internal control over financial reporting did not include the internal controls of Callcredit Information Group, Ltd. ("Callcredit") and iovation, Inc. ("iovation"), which are included in the 2018 consolidated financial statements of the Company. Callcredit constituted 22% and 67% of total and net assets, respectively, as of December 31, 2018 and 3% and (6)% of revenues and net income from continuing operations attributable to TransUnion, respectively, for the year then ended. iovation constituted 5% and 17% of total and net assets, respectively, as of December 31, 2018 and 1% and (3)% of revenues and net income from continuing operations attributable to TransUnion, respectively, for the year then ended. Our audit of internal control over financial reporting of the Company also did not include an evaluation of the internal control over financial reporting of Callcredit and iovation.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2018 and 2017, the related consolidated statements of comprehensive income, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2018, and the related notes and financial statement schedules listed in the Index at Item 15 and our report dated February 14, 2019 expressed an unqualified opinion thereon.

Basis for Opinion

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

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

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

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

/s/ Ernst & Young LLP
Chicago, Illinois
February 14, 2019

TRANSUNION AND SUBSIDIARIES

Consolidated Balance Sheets

(in millions, except per share data)

	December 31, 2018	December 31, 2017
Assets		
Current assets:		
Cash and cash equivalents	$ 187.4	$ 115.8
Trade accounts receivable, net of allowance of $13.5 and $9.9	456.8	326.7
Other current assets	136.5	146.2
Current assets of discontinued operations	60.8	—
Total current assets	841.5	588.7
Property, plant and equipment, net of accumulated depreciation and amortization of $366.2 and $299.3	220.3	198.6
Goodwill	3,293.6	2,368.8
Other intangibles, net of accumulated amortization of $1,206.7 and $993.6	2,548.1	1,825.8
Other assets	136.3	136.6
Total assets	$ 7,039.8	$ 5,118.5
Liabilities and stockholders' equity		
Current liabilities:		
Trade accounts payable	$ 169.9	$ 131.3
Short-term debt and current portion of long-term debt	71.7	119.3
Other current liabilities	284.1	207.8
Current liabilities of discontinued operations	22.8	—
Total current liabilities	548.5	458.4
Long-term debt	3,976.4	2,345.3
Deferred taxes	478.0	419.4
Other liabilities	54.7	70.8
Total liabilities	5,057.6	3,293.9
Stockholders' equity:		
Common stock, $0.01 par value; 1.0 billion shares authorized at December 31, 2018 and December 31, 2017; 190.0 million and 187.4 million shares issued as of December 31, 2018 and December 31, 2017, respectively; and 185.7 million and 183.2 million shares outstanding as of December 31, 2018 and December 31, 2017, respectively	1.9	1.9
Additional paid-in capital	1,947.3	1,863.5
Treasury stock at cost; 4.2 million shares at December 31, 2018 and December 31, 2017	(139.9)	(138.8)
Retained earnings	363.1	137.4
Accumulated other comprehensive loss	(282.7)	(135.3)
Total TransUnion stockholders' equity	1,889.7	1,728.7
Noncontrolling interest	92.5	95.9
Total stockholders' equity	1,982.2	1,824.6
Total liabilities and stockholders' equity	$ 7,039.8	$ 5,118.5

See accompanying notes to consolidated financial statements.

TRANSUNION AND SUBSIDIARIES

Consolidated Statements of Income

(in millions, except per share data)

	Twelve Months Ended December 31,		
	2018	2017	2016
Revenue	$ 2,317.2	$ 1,933.8	$ 1,704.9
Operating expenses			
Cost of services (exclusive of depreciation and amortization below)	790.1	645.7	579.1
Selling, general and administrative	707.7	585.4	560.1
Depreciation and amortization	306.9	238.0	265.2
Total operating expenses	1,804.7	1,469.1	1,404.4
Operating income	512.5	464.7	300.5
Non-operating income and (expense)			
Interest expense	(137.5)	(87.6)	(85.5)
Interest income	5.5	5.5	4.6
Earnings from equity method investments	9.9	9.1	8.6
Other income and (expense), net	(46.9)	(19.2)	(22.8)
Total non-operating income and (expense)	(169.0)	(92.2)	(95.1)
Income from continuing operations before income taxes	343.5	372.5	205.4
(Provision) benefit for income taxes	(54.5)	79.1	(74.0)
Income from continuing operations	289.0	451.6	131.4
Discontinued operations, net of tax	(1.5)	—	—
Net income	287.5	451.6	131.4
Less: net income attributable to noncontrolling interests	(10.9)	(10.4)	(10.8)
Net income attributable to TransUnion	$ 276.6	$ 441.2	$ 120.6
Income from continuing operations	$ 289.0	$ 451.6	$ 131.4
Less: income from continuing operations attributable to noncontrolling interests	(10.9)	(10.4)	(10.8)
Income from continuing operations attributable to TransUnion	278.1	441.2	120.6
Discontinued operations, net of tax	(1.5)	—	—
Net income attributable to TransUnion	$ 276.6	$ 441.2	$ 120.6
Basic earnings per common share from:			
Income from continuing operations attributable to TransUnion	$ 1.51	$ 2.42	$ 0.66
Discontinued operations, net of tax	(0.01)	—	—
Net Income attributable to TransUnion	$ 1.50	$ 2.42	$ 0.66
Diluted earnings per common share from:			
Income from continuing operations attributable to TransUnion	$ 1.46	$ 2.32	$ 0.65
Discontinued operations, net of tax	(0.01)	—	—
Net Income attributable to TransUnion	$ 1.45	$ 2.32	$ 0.65
Weighted-average shares outstanding:			
Basic	184.6	182.4	182.6
Diluted	190.9	189.9	184.6

See accompanying notes to consolidated financial statements.

TRANSUNION AND SUBSIDIARIES

Consolidated Statements of Comprehensive Income

(in millions)

	Twelve Months Ended December 31,		
	2018	2017	2016
Net income	$ 287.5	$ 451.6	$ 131.4
Other comprehensive income (loss):			
Foreign currency translation:			
Foreign currency translation adjustment	(148.9)	35.4	26.7
Benefit for income taxes	—	0.6	2.7
Foreign currency translation, net	(148.9)	36.0	29.4
Hedge instruments:			
Net change on interest rate cap	7.6	10.1	(12.0)
Net change on interest rate swap	(10.7)	—	—
Amortization of accumulated loss	—	0.4	0.4
Benefit (expense) for income taxes	0.8	(4.0)	4.4
Hedge instruments, net	(2.3)	6.5	(7.2)
Available-for-sale securities:			
Net unrealized (loss) gain	—	(0.1)	0.4
Expense for income taxes	—	—	(0.2)
Available-for-sale securities, net	—	(0.1)	0.2
Total other comprehensive (loss) income, net of tax	(151.2)	42.4	22.4
Comprehensive income	136.3	494.0	153.8
Less: comprehensive income attributable to noncontrolling interests	(7.1)	(13.3)	(16.2)
Comprehensive income attributable to TransUnion	$ 129.2	$ 480.7	$ 137.6

See accompanying notes to consolidated financial statements.

TRANSUNION AND SUBSIDIARIES

Consolidated Statements of Cash Flows

(in millions)

	Twelve Months Ended December 31,		
	2018	2017	2016
Cash flows from operating activities:			
Net income	$ 287.5	$ 451.6	$ 131.4
Add: loss from discontinued operations, net of tax	1.5	—	—
Income from continuing operations	289.0	451.6	131.4
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	306.9	238.0	265.2
Loss on debt financing transactions	12.0	10.5	—
Amortization and (gain) loss on fair value of hedge instruments	(0.7)	0.7	0.9
Impairment of cost method investment, net	1.5	—	2.0
Equity in net income of affiliates, net of dividends	(0.1)	(1.7)	(0.6)
Deferred taxes	(69.0)	(212.8)	(22.2)
Amortization of discount and deferred financing fees	4.8	2.7	3.2
Stock-based compensation	57.9	33.1	24.4
Payment of contingent obligation	(0.2)	(2.2)	—
Provision for losses on trade accounts receivable	8.6	6.6	4.3
Other	4.1	(3.4)	(5.1)
Changes in assets and liabilities:			
Trade accounts receivable	(113.8)	(44.7)	(42.5)
Other current and long-term assets	17.1	(59.8)	(5.9)
Trade accounts payable	20.7	9.7	2.9
Other current and long-term liabilities	20.6	37.5	31.9
Cash provided by operating activities of continuing operations	559.4	465.8	389.9
Cash used in operating activities of discontinued operations	(3.7)	—	—
Cash provided by operating activities	555.7	465.8	389.9
Cash flows from investing activities:			
Capital expenditures	(180.1)	(135.3)	(124.0)
Proceeds from sale of trading securities	1.8	3.0	0.9
Purchases of trading securities	(2.1)	(1.8)	(1.5)
Proceeds from sale of other investments	24.3	59.2	58.2
Purchases of other investments	(31.8)	(50.2)	(64.6)
Acquisitions and purchases of noncontrolling interests, net of cash acquired	(1,828.4)	(342.6)	(356.6)
Acquisition-related deposits	—	(13.5)	(6.2)
Other	(1.3)	0.4	(2.0)
Cash used in investing activities of continuing operations	(2,017.6)	(480.8)	(495.8)
Cash used in investing activities of discontinued operations	(0.1)	—	—
Cash used in investing activities	(2,017.7)	(480.8)	(495.8)
Cash flows from financing activities:			
Proceeds from Senior Secured Term Loan B-4	1,000.0	—	150.0
Proceeds from Senior Secured Term Loan A-2	800.0	33.4	55.0
Proceeds from senior secured revolving line of credit	125.0	215.0	145.0

TRANSUNION AND SUBSIDIARIES

Consolidated Statements of Cash Flows

(in millions)

	Twelve Months Ended December 31,		
	2018	2017	2016
Cash flows from financing activities (continued):			
Payments of senior secured revolving line of credit	(210.0)	(130.0)	(145.0)
Repayments of debt	(114.3)	(32.5)	(49.3)
Debt financing fees	(33.8)	(12.6)	(3.7)
Proceeds from issuance of common stock and exercise of stock options	26.2	27.1	6.0
Dividends to stockholders	(41.6)	—	—
Treasury stock purchased	—	(133.5)	(0.7)
Distributions to noncontrolling interests	(10.1)	(10.3)	(9.3)
Excess tax benefit	—	—	6.3
Payment of contingent obligation	—	(8.3)	(0.5)
Other	(1.2)	—	—
Cash provided by (used in) financing activities	1,540.2	(51.7)	153.8
Effect of exchange rate changes on cash and cash equivalents	(6.6)	0.3	1.1
Net change in cash and cash equivalents	71.6	(66.4)	49.0
Cash and cash equivalents, beginning of period	115.8	182.2	133.2
Cash and cash equivalents, end of period	$ 187.4	$ 115.8	$ 182.2
Noncash investing activities:			
Property and equipment acquired through capital lease obligations	$ 0.1	$ 1.2	$ —
Noncash financing activities:			
Finance arrangements	$ —	$ 0.5	$ 16.3
Supplemental disclosure of cash flow information:			
Cash paid during the period for:			
Interest	$ 132.1	$ 90.2	$ 87.9
Income taxes, net of refunds	$ 111.1	$ 120.2	$ 93.6

See accompanying notes to consolidated financial statements.

TRANSUNION AND SUBSIDIARIES

Consolidated Statements of Stockholders' Equity

(in millions)

	Common Stock								
	Shares	Amount	Paid-In Capital	Treasury Stock	Accumulated Deficit	Accumulated Other Comprehensive Loss	Noncontrolling Interests	Total	Redeemable Noncontrolling Interests
Balance, December 31, 2015	182.3	$ 1.8	$ 1,850.3	$ (4.6)	$ (424.3)	$ (191.8)	$ 135.6	$ 1,367.0	$ 2.9
Net income	—	—	—	—	120.6	—	10.8	131.4	—
Other comprehensive income	—	—	—	—	—	17.0	0.8	17.8	4.6
Distributions to noncontrolling interests	—	—	—	—	—	—	(9.3)	(9.3)	—
Adjustment of redeemable noncontrolling interest	—	—	(10.0)	—	—	—	—	(10.0)	15.8
Establishment of noncontrolling interests	—	—	—	—	—	—	10.2	10.2	43.7
Excess tax benefit	—	—	6.3	—	—	—	—	6.3	—
Stock-based compensation	—	—	23.7	—	—	—	—	23.7	—
Employee share purchase plan	0.1	—	1.4	—	—	—	—	1.4	—
Exercise of stock options	0.8	—	4.6	—	—	—	—	4.6	—
Purchase of noncontrolling interest	—	—	(31.4)	—	—	—	(37.9)	(69.3)	(67.0)
Treasury stock purchased	—	—	—	(0.7)	—	—	—	(0.7)	—
Other	—	—	—	—	(0.1)	—	—	(0.1)	—
Balance, December 31, 2016	183.2	$ 1.8	$ 1,844.9	$ (5.3)	$ (303.8)	$ (174.8)	$ 110.2	$ 1,473.0	$ —

TRANSUNION AND SUBSIDIARIES
Consolidated Statements of Stockholders' Equity—Continued
(in millions)

	Common Stock							
	Shares	Amount	Paid-In Capital	Treasury Stock	Accumulated Deficit	Accumulated Other Comprehensive Loss	Noncontrolling Interests	Total
Net income	—	$ —	$ —	$ —	$ 441.2	$ —	$ 10.4	$ 451.6
Other comprehensive income	—	—	—	—	—	39.5	2.9	42.4
Distributions to noncontrolling interests	—	—	—	—	—	—	(10.3)	(10.3)
Stock-based compensation	—	—	31.8	—	—	—	—	31.8
Employee share purchase plan	0.2	—	7.5	—	—	—	—	7.5
Exercise of stock options	3.3	0.1	20.7	—	—	—	—	20.8
Treasury stock purchased	(3.5)	—	—	(133.5)	—	—	—	(133.5)
Purchase of noncontrolling interest	—	—	(41.4)	—	—	—	(17.3)	(58.7)
Balance, December 31, 2017	183.2	$ 1.9	$ 1,863.5	$ (138.8)	$ 137.4	$ (135.3)	$ 95.9	$ 1,824.6

TRANSUNION AND SUBSIDIARIES
Consolidated Statements of Stockholders' Equity—Continued
(in millions)

	Common Stock							
	Shares	Amount	Paid-In Capital	Treasury Stock	Retained Earnings	Accumulated Other Comprehensive Loss	Noncontrolling Interests	Total
Net income	—	$ —	$ —	$ —	$ 276.6	$ —	$ 10.9	$ 287.5
Other comprehensive income	—	—	—	—	—	(147.4)	(3.8)	(151.2)
Distributions to noncontrolling interests	—	—	—	—	—	—	(10.7)	(10.7)
Noncontrolling interests of acquired businesses	—	—	—	—	—	—	0.3	0.3
Stock-based compensation	—	—	55.9	—	—	—	—	55.9
Employee share purchase plan	0.2	—	11.3	—	—	—	—	11.3
Exercise of stock options	2.3	—	16.6	—	—	—	—	16.6
Treasury stock purchased	—	—	—	(1.2)	—	—	—	(1.2)
Dividends to stockholders ($0.225 per share)	—	—	—	—	(42.6)	—	—	(42.6)
Cumulative effect of adopting Topic 606, net of tax	—	—	—	—	(6.0)	—	(0.1)	(6.1)
Cumulative effect of adopting ASC 2016-16	—	—	—	—	(2.2)	—	—	(2.2)
Other	—	—	—	0.1	(0.1)	—	—	—
Balance, December 31, 2018	185.7	$ 1.9	$ 1,947.3	$ (139.9)	$ 363.1	$ (282.7)	$ 92.5	$ 1,982.2

See accompanying notes to consolidated financial statements.

TRANSUNION AND SUBSIDIARIES
Notes to Consolidated Financial Statements
Years Ended December 31, 2018, 2017 and 2016

1. Significant Accounting and Reporting Policies

Description of Business

TransUnion is a leading global risk and information solutions provider to businesses and consumers. We provide consumer reports, risk scores, analytical services and decisioning capabilities to businesses. Businesses embed our solutions into their process workflows to acquire new customers, assess consumer ability to pay for services, identify cross-selling opportunities, measure and manage debt portfolio risk, collect debt, verify consumer identities and investigate potential fraud. Consumers use our solutions to view their credit profiles and access analytical tools that help them understand and manage their personal information and take precautions against identity theft. We are differentiated by our comprehensive and unique datasets, our next-generation technology and our analytics and decisioning capabilities, which enable us to deliver insights across the entire consumer lifecycle. We believe we are the largest provider of risk and information solutions in the United States to possess both nationwide consumer credit data and comprehensive, diverse public records data, which allows us to better predict behaviors, assess risk and address a broader set of business issues for our customers. We have deep domain expertise across a number of attractive industries, which we also refer to as verticals, including financial services and our emerging verticals. We have a global presence in over 30 countries and territories across North America, Latin America, the United Kingdom, Africa, Asia Pacific and India.

We believe that we have the capabilities and assets, including comprehensive and unique datasets, advanced technology and analytics to provide differentiated solutions to our customers. Our solutions are based on a foundation of financial, credit, alternative credit, identity, bankruptcy, lien, judgment, healthcare, insurance claims, automotive and other relevant information from nearly 90,000 data sources, including financial institutions, private databases and public records repositories. We refine, standardize and enhance this data using sophisticated algorithms to create proprietary databases. Our next-generation technology allows us to quickly and efficiently integrate our data with our analytics and decisioning capabilities to create and deliver innovative solutions to our customers and to quickly adapt to changing customer needs. Our deep analytics expertise, which includes our people as well as tools such as predictive modeling and scoring, customer segmentation, benchmarking and forecasting, enables businesses and consumers to gain better insights into their risk and financial data. Our decisioning capabilities, which are generally delivered on a software-as-a-service platform, allow businesses to interpret data and apply their specific qualifying criteria to make decisions and take actions. Collectively, our data, analytics and decisioning capabilities allow businesses to authenticate the identity of consumers, effectively determine the most relevant products for consumers, retain and cross-sell to existing consumers, identify and acquire new consumers and reduce loss from fraud. Similarly, our capabilities allow consumers to see how their credit profiles have changed over time, understand the impact of financial decisions on their credit scores, manage their personal information and take precautions against identity theft.

Basis of Presentation

The accompanying consolidated financial statements of TransUnion and subsidiaries have been prepared in accordance with U.S. generally accepted accounting principles ("GAAP"). Our consolidated financial statements reflect all adjustments which, in the opinion of management, are necessary for a fair presentation of the periods presented. All significant intercompany transactions and balances have been eliminated.

Unless the context indicates otherwise, any reference in this report to the "Company," "we," "our," "us," and "its" refers to TransUnion and its consolidated subsidiaries, collectively.

For the periods presented, TransUnion does not have any material assets, liabilities, revenues, expenses or operations of any kind other than its ownership investment in TransUnion Intermediate.

Subsequent Events

Events and transactions occurring through the date of issuance of the financial statements have been evaluated by management and, when appropriate, recognized or disclosed in the financial statements or notes to the consolidated financial statements.

Principles of Consolidation

The consolidated financial statements of TransUnion include the accounts of TransUnion and all of its controlled subsidiaries. Investments in nonmarketable unconsolidated entities in which the Company is able to exercise significant influence are accounted for using the equity method. Investments in nonmarketable unconsolidated entities in which the Company is not able to exercise significant influence, our "Cost Method Investments," are accounted for at our initial cost, minus any impairment, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer.

Use of Estimates

The preparation of consolidated financial statements and related disclosures in accordance with GAAP requires management to make estimates and judgments that affect the amounts reported. We believe that the estimates used in preparation of the accompanying consolidated financial statements are reasonable, based upon information available to management at this time. These estimates and judgments affect the reported amounts of assets, liabilities and disclosure of contingent assets and liabilities at the balance sheet date, as well as the amounts of revenue and expense during the reporting period. Estimates are inherently uncertain and actual results could differ materially from the estimated amounts.

Segments

Over the past few years, we have completed a significant number of acquisitions that have transformed our business. We have also developed a significant number of new product offerings that have further diversified our portfolio of businesses. As a result of the evolution of our business, we have changed the disaggregated revenue and our measure of segment profit (Adjusted EBITDA) information that we provide to our chief operating decision makers (our "CODM") to better align with how we manage the business. Accordingly, our disclosures around the disaggregation of our revenue and the measure of segment profit have been recast for all periods presented to conform to the information used by our CODM. We have not changed our reportable segments and these changes do not impact our consolidated results.

Operating segments are businesses for which separate financial information is available and evaluated regularly by our CODM deciding how to allocate resources and assess performance. We have four operating segments; U.S. Information Services (or "USIS"), Healthcare, International and Consumer Interactive. We aggregate our USIS and Healthcare operating segments into the USIS reportable segment. We manage our business and report our financial results in three reportable segments; USIS, International, and Consumer Interactive. We also report expenses for Corporate, which provides support services to each segment. Details of our segment results are discussed in Note 18, "Reportable Segments."

Revenue Recognition and Deferred Revenue

All of our revenue is derived from contracts with customers and is reported as revenue in the Consolidated Statement of Income generally as or at the point in time the performance obligation is satisfied. A performance obligation is a promise in a contract to transfer a distinct good or service to a customer, and is the unit of account under ASC Topic 606. We have contracts with two general groups of performance obligations; those that require us to stand ready to provide goods and services to a customer to use as and when requested ("Stand Ready Performance Obligations") and those that do not require us to stand ready ("Other Performance Obligations"). Our Stand Ready Performance Obligations include obligations to stand ready to provide data, process transactions, access our databases, software-as-a-service and direct-to-consumer products, rights to use our intellectual property and other services. Our Other Performance Obligations include the sale of certain batch data sets and various professional and other services. See Note 13, "Revenue," for a further discussion about our revenue recognition policies.

Deferred revenue generally consists of amounts billed in excess of revenue recognized for the sale of data services, subscriptions and set up fees. Deferred revenue is primarily short-term in nature, the long-term portion is not significant. These amounts are included in other current liabilities and other liabilities.

Costs of Services

Costs of services include data acquisition and royalty fees, personnel costs related to our databases and software applications, consumer and call center support costs, hardware and software maintenance costs, telecommunication expenses and occupancy costs associated with the facilities where these functions are performed.

Selling, General and Administrative Expenses

Selling, general and administrative expenses include personnel-related costs for sales, administrative and management employees, costs for professional and consulting services, advertising and occupancy and facilities expense of these functions. Advertising costs, are expensed as incurred. Advertising costs, which now include commissions we pay to our partners to promote our products online, for the years ended December 31, 2018, 2017 and 2016 were $79.3 million, $76.5 million and $79.0 million, respectively.

Stock-Based Compensation

Compensation expense for all stock-based compensation awards is determined using the grant date fair value and includes an estimate for expected forfeitures. Expense is recognized on a straight-line basis over the requisite service period of the award, which is generally equal to the vesting period. The details of our stock-based compensation program are discussed in Note 16, "Stock-Based Compensation."

Income Taxes

Deferred income tax assets and liabilities are determined based on the estimated future tax effects of temporary differences between the financial statement and tax basis of assets and liabilities, as measured by current enacted tax rates. The effect of a tax rate

change on deferred tax assets and liabilities is recognized in operations in the period that includes the enactment date of the change. We periodically assess the recoverability of our deferred tax assets, and a valuation allowance is recorded against deferred tax assets if it is more likely than not that some portion of the deferred tax assets will not be realized. See Note 15, "Income Taxes," for additional information.

Foreign Currency Translation

The functional currency for each of our foreign subsidiaries is generally that subsidiary's local currency. We translate the assets and liabilities of foreign subsidiaries at the year-end exchange rate, and translate revenues and expenses at the monthly average rates during the year. We record the resulting translation adjustment as a component of other comprehensive income in stockholders' equity.

Transaction gains and losses that arise from exchange rate fluctuations on transactions denominated in a currency other than the functional currency of an entity are included in the results of operations as incurred. The exchange rate loss for the year ended December 31, 2018, was $3.8 million. The exchange rate gains for the years ended December 31, 2017 and 2016 were $2.2 million and $0.3 million, respectively.

Cash and Cash Equivalents

We consider investments in highly liquid debt instruments with original maturities of three months or less to be cash equivalents.

Trade Accounts Receivable

Trade accounts receivable are recorded at the invoiced amount and do not bear interest. The allowance for doubtful accounts is based on our historical write-off experience, analysis of the aging of outstanding receivables, customer payment patterns and the establishment of specific reserves for customers in adverse financial condition or for existing contractual disputes. Adjustments to the allowance are recorded as a bad debt expense in selling, general and administrative expenses. Trade accounts receivable are written off against the allowance when we determine that they are no longer collectible. We reassess the adequacy of the allowance for doubtful accounts each reporting period.

Long-Lived Assets

Property, Plant, Equipment and Intangibles

Property, plant and equipment is depreciated primarily using the straight-line method over the estimated useful lives of the assets. Buildings and building improvements are generally depreciated over twenty years. Computer equipment and purchased software are depreciated over three to seven years. Leasehold improvements are depreciated over the shorter of the estimated useful life of the asset or the lease term. Other assets are depreciated over five to seven years. Intangibles, other than indefinite-lived intangibles, are amortized using the straight-line method over their economic life, generally three to forty years. Assets to be disposed of, if any, are separately presented in the consolidated balance sheet and reported at the lower of the carrying amount or fair value, less costs to sell, and are no longer depreciated. See Note 4, "Property, Plant and Equipment," and Note 6, "Intangible Assets," for additional information about these assets.

Internal Use Software

We monitor the activities of each of our internal use software and system development projects and analyze the associated costs, making an appropriate distinction between costs to be expensed and costs to be capitalized. Costs incurred during the preliminary project stage are expensed as incurred. Many of the costs incurred during the application development stage are capitalized, including costs of software design and configuration, development of interfaces, coding, testing and installation of the software. Once the software is ready for its intended use, it is amortized on a straight-line basis over its useful life, generally three to seven years.

As our business continues to evolve, and in connection with the completion of our strategic initiative to transform our technology infrastructure, we reviewed the remaining estimated useful lives for all of our internally developed software assets during the fourth quarter of 2016. This review indicated that the estimated useful lives of certain assets were longer than the estimates initially used for amortization purposes. As a result, in the fourth quarter of 2016, we changed the estimated useful lives for a portion of these assets to better align with their estimated remaining economic useful lives. Subsequent to the completion of our review, we continue to amortize our internal use software assets on a straight-line basis over their estimated useful lives, generally three to seven years.

Impairment of Long-Lived Assets

We review long-lived asset groups that are subject to amortization for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset group may not be recoverable. Recoverability of asset groups to be held and used is measured by a comparison of the carrying amount of an asset group to the estimated undiscounted future cash flows expected to be generated by the asset group. If the carrying amount of an asset group exceeds its estimated future cash flows, an impairment

charge is recognized equal to the amount by which the carrying amount of the asset group exceeds the fair value of the asset group. There were no significant impairment charges recorded during 2018, 2017 and 2016.

Marketable Securities

We classify our investments in debt and equity securities in accordance with our intent and ability to hold the investments. Held-to-maturity securities are carried at amortized cost, which approximates fair value, and are classified as either short-term or long-term investments based on the contractual maturity date. Earnings from these securities are reported as a component of interest income. Available-for-sale securities are carried at fair market value, with the unrealized gains and losses, net of tax, included in accumulated other comprehensive income. Trading securities are carried at fair value, with unrealized gains and losses included in income.

At December 31, 2018 and 2017, the Company's marketable securities consisted of trading securities and available-for-sale securities. The trading securities relate to a nonqualified deferred compensation plan held in trust for the benefit of plan participants. The available-for-sale securities relate to foreign exchange-traded corporate bonds. There were no significant realized or unrealized gains or losses for these securities for any of the periods presented. We follow fair value guidance to measure the fair value of our financial assets as further described in Note 17, "Fair Value".

We periodically review our marketable securities to determine if there is an other-than-temporary impairment on any security. If it is determined that an other-than-temporary decline in value exists, we write down the investment to its market value and record the related impairment loss in other income. There were no other-than-temporary impairments of marketable securities in 2018, 2017 or 2016.

Goodwill and Other Indefinite-Lived Intangibles

Goodwill and any indefinite-lived intangible assets are allocated to the reporting units, which are an operating segment or one level below an operating segment, that will receive the related sales and income. We have no indefinite-lived intangible assets other than goodwill. We test goodwill for impairment on an annual basis, in the fourth quarter, or on an interim basis if there is an indicator of impairment. We have the option to first consider qualitative factors to determine if it is more likely than not that the fair value of any reporting units is less than its carrying amount. If the qualitative assessment indicates that an impairment is more likely than not for any reporting unit, then we are required to perform a quantitative impairment test for that reporting unit.

For our qualitative goodwill impairment tests, we analyze actual and projected reporting unit growth trends for revenue and profits, as well as historical performance versus plans and prior quantitative tests performed. We also assess critical areas that may impact each reporting unit, including macroeconomic conditions and the expected related impacts, market-related exposures, cost factors, changes in the carrying amount of its net assets, any plans to dispose of all or part of the reporting unit, and other reporting-unit specific factors such as changes in key personnel, strategy, customers or competition.

For our quantitative goodwill impairment tests, we use discounted cash flow techniques to determine fair value, and compare the fair value of the reporting unit to its carrying amount to determine if there is a potential impairment. Beginning in the fourth quarter of 2017, upon the adoption of ASU 2017-04, if a reporting unit's fair value is less than its carrying amount, we will record an impairment charge based on that difference, up to the amount of goodwill allocated to that reporting unit.

We believe the assumptions we use in our qualitative and quantitative analysis are reasonable and consistent with assumptions that would be used by other marketplace participants. Such assumptions are, however, inherently uncertain, and different assumptions could lead to a different assessment for a reporting unit that could adversely affect our results of operations.

See Note 5, "Goodwill," for additional information about our 2018 impairment analysis.

Benefit Plans

We maintain a 401(k) defined-contribution profit sharing plan for eligible employees. We provide a partial matching contribution and a discretionary contribution based on a fixed percentage of a participant's eligible compensation. Contributions to this plan for the years ended December 31, 2018, 2017 and 2016 were $28.4 million, $22.0 million and $19.1 million, respectively. We also maintain a nonqualified deferred compensation plan for certain key employees. The deferred compensation plan contains both employee deferred compensation and company contributions. These investments are held in the TransUnion Rabbi Trust, and are included in marketable securities in the consolidated balance sheets. The assets held in the Rabbi Trust are for the benefit of the participants in the deferred compensation plan, but are available to our general creditors in the case of our insolvency. The liability for amounts due to these participants is included in other current liabilities and other liabilities in the consolidated balance sheets.

Recently Adopted Accounting Pronouncements

On May 28, 2014, the Financial Accounting Standards Board ("FASB") issued ASU No. 2014-09, *Revenue from Contracts with Customers (ASC Topic 606),* with several subsequent updates. This series of comprehensive guidance has replaced all existing revenue recognition guidance and is effective for annual reporting periods beginning after December 15, 2017, and interim periods therein. Under the new guidance, there is a five-step model to apply to revenue recognition. The five-steps consist of: (1) determination of whether a contract, an agreement between two or more parties that creates legally enforceable rights and obligations, exists; (2) identification of the performance obligations in the contract; (3) determination of the transaction price; (4) allocation of the transaction price to the performance obligations in the contract; and (5) recognition of revenue when (or as) the performance obligation is satisfied.

We adopted this standard as of January 1, 2018, and used the modified retrospective approach applied to reflect the aggregate effect of all modifications of those contracts that were not completed as of that date. Under the modified retrospective approach, we recognized the cumulative effect of adopting ASC Topic 606 in the opening balance of retained earnings to reflect deferred revenue related to certain contracts where we satisfy performance obligations over time. There was no material impact on our consolidated financial statements or on how we recognize revenue upon adoption. Prior period amounts were not adjusted and the prior period amounts continue to be reported in accordance with previous accounting guidance. These financial statements include enhanced disclosures, particularly around contract assets and liabilities and the disaggregation of revenue. See Note 13, "Revenue," and Note 18, "Reportable Segments," for these enhanced disclosures.

On January 5, 2016, the FASB issued ASU No. 2016-01, *Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities.* The FASB issued technical corrections to this guidance in February 2018. This ASU is intended to improve the recognition and measurement of financial instruments. Among other things, the ASU requires equity investments (except those accounted for under the equity method of accounting, or those that result in consolidation of the investee) to be measured at fair value, if fair value is readily determinable, with changes in fair value recognized in net income. If fair value is not readily determinable, an entity may elect to measure equity investments at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. On January 1, 2018, we adopted this guidance and have availed ourselves of this measurement election for all currently held equity investments that do not have readily determinable fair values. See Note 8, "Investments in Affiliated Companies," for the impact on our current financial statements, which was not material.

On August 26, 2016, the FASB issued ASU No. 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments.* This ASU addresses the diversity in how certain cash receipts and cash payments are presented and classified in the statement of cash flows. We adopted this guidance on January 1, 2018, and are required to apply it on a retrospective basis. Accordingly, we have reclassified certain payments made in 2017 in satisfaction of contingent obligations from financing activities to operating activities on our statement of cash flows. The reclassification was not material for the twelve months ended December 31, 2018.

On October 16, 2016, the FASB issued ASU No. 2016-16, *Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory*. This ASU requires companies to recognize the income tax effects of intercompany sales and transfers of assets other than inventory in the income statement in the period in which the transfer occurs. Intercompany transactions are generally eliminated in consolidation, however there may be income tax consequences of such transactions that do not eliminate. Prior to adoption, any income tax resulting from these transactions were deferred on the balance sheet as a prepaid asset until the asset leaves the consolidated group. The new guidance requires the income tax resulting from these transactions to be recognized in the income statement in the period in which the sale or transfer of the asset occurs. Further, the new guidance requires a modified retrospective approach upon adoption, with any previously established prepaid assets resulting from past intercompany sales or transfers to be reversed with an offset to retained earnings. On January 1, 2018, we adopted this guidance and reclassified our previously established prepaid assets, which were not material, to retained earnings.

Recent Accounting Pronouncements Not Yet Adopted

On February 25, 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. During 2018, the FASB issued additional update improvements related to lease accounting. This series of comprehensive guidance, among other things, will require us to record the future discounted present value of all future lease payments as a liability on our balance sheet, as well as a corresponding "right-to-use" asset, which is an asset that represents the right to use or control the use of a specified asset for the lease term, for all long-term leases. This guidance is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. We have adopted this guidance effective January 1, 2019, on a prospective basis, including the package of transition practical expedients available per paragraph 842-10-65-1(f). Upon adoption, we estimate that the impact on our Consolidated Balance Sheet will be to record a lease liability and offsetting right-of-use asset of approximately$75 million to $85 million, with no significant impact to our Consolidated Statements of Income.

On June 16, 2016, the FASB issued ASU 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments.* This ASU amends the accounting for credit losses on available-for-sale debt securities and

purchased financial assets with credit deterioration. In addition, these amendments require the measurement of all expected credit losses for financial assets, including trade accounts receivable, held at the reporting date based on historical experience, current conditions, and reasonable and supportable forecasts. This guidance and related amendments is effective for annual reporting periods beginning after December 15, 2019, including interim periods therein. We are currently assessing the impact this guidance will have on our consolidated financial statements.

On August 28, 2017, the FASB issued ASU No. 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities.* The new standard is intended to improve and simplify accounting rules around hedge accounting. The guidance is effective for annual reporting periods beginning after December 15, 2018, including interim periods therein. We have adopted this ASU and related amendments effective January 1, 2019 and have applied the modified retrospective transition method that allows for a cumulative-effect adjustment to reclassify cumulative ineffectiveness previously recorded in other comprehensive income to retained earnings in the period of adoption. The adjustment was not material to our consolidated financial statements.

On February 14, 2018, the FASB issued ASU 2018-02, *Income Statement-Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income.* These amendments provide an option to reclassify stranded tax effects within accumulated other comprehensive income to retained earnings in each period in which the effect of the change in the U.S. federal corporate income tax rate in the Tax Cuts and Jobs Act (the "Act") is recorded. This guidance is effective for fiscal years beginning after December 15, 2018, and interim periods therein. This guidance will not have a material impact on our consolidated financial statements.

On August 27, 2018, the FASB issued ASU 2018-13 *Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement.* These amendments modify the disclosure requirements in Topic 820 by removing, adding or modifying certain fair value measurement disclosures. This guidance is effective for fiscal years beginning after December 15, 2018, and interim periods therein. While we are currently assessing the guidance, we do not expect it to impact our financial statements other than our fair value disclosures.

2. Business Acquisitions

Callcredit Acquisition

On June 19, 2018, we acquired 100% of the equity of Callcredit Information Group, Ltd. ("Callcredit") for $1,408.2 million in cash, funded primarily by additional borrowings against our Senior Secured Credit Facility. See Note 11, "Debt," for additional information about our Senior Secured Credit Facility. There was no contingent consideration resulting from this transaction. Callcredit, founded in 2000, is an U.K.-based information solutions company that, like TransUnion, provides data, analytics and technology solutions to help businesses and consumers make informed decisions. International expansion is a key growth strategy for TransUnion, and we expect to leverage strong synergies across TransUnion's and Callcredit's business models and solutions.

We have included Callcredit revenue of $71.3 million and an operating loss of $28.2 million since the date of acquisition as part of the International segment in the accompanying consolidated statements of income.

For the twelve months ended December 31, 2018 and 2017, on a pro-forma basis assuming the transaction occurred on January 1, 2017, combined pro-forma revenue of TransUnion and Callcredit was $2,405.0 million and $2,066.0 million, respectively, and combined pro-forma net income from continuing operations was $267.5 million and $283.1 million, respectively. For the twelve months ended December 31, 2018, combined pro-forma net income from continuing operations was adjusted to exclude $19.4 million of acquisition-related costs and $9.4 million of financing costs expensed in 2018. For the twelve months ended December 31, 2017, combined pro-forma net income from continuing operations was adjusted to include these charges, as well as $0.5 million of acquisition-related costs incurred in the fourth quarter of 2017.

We have identified and categorized certain operations of Callcredit that we do not consider core to our business as discontinued operations of our International segment as of the date of acquisition. These discontinued operations consist of businesses that do not align with our stated strategic objectives. We have sold one of the businesses and have signed an agreement for the sale of another business that is pending regulatory approval, and expect to sell the remaining businesses within one year of our acquisition date. We do not expect to have a significant continuing involvement with any of these operations after the date of disposal. We have categorized the assets and liabilities of these discontinued operations on separate lines on the face of our balance sheet and in the table below. These amounts are based on estimates that will be refined as we complete the fair-value allocation of the purchase price of Callcredit.

Purchase Price Allocation

The allocation of the purchase price to the identifiable assets acquired and liabilities assumed is preliminary pending finalization of our fair value assessment, which we expect to complete within one year from the date of acquisition. Any changes to these preliminary estimates could be significant. Our current estimated acquisition-date fair value of the assets acquired and liabilities assumed, consisted of the following:

(in millions)	Fair Value
Trade accounts receivable	$ 19.7
Property and equipment	3.2
Goodwill[(1)]	744.2
Identifiable intangible assets	725.1
All other assets	51.8
Assets of discontinued operations[(2)]	58.4
Total assets acquired	1,602.4
Existing debt	—
All other liabilities	(174.6)
Liabilities of discontinued operations[(2)]	(19.6)
Net assets of the acquired company	$ 1,408.2

(1) For tax purposes, we estimate that none of goodwill is tax deductible.

(2) We have categorized certain businesses of Callcredit as discontinued operations in our consolidated financial statements. The preliminary fair value of assets and liabilities of these discontinued operations include an estimate of the fair value of the identifiable intangible assets and goodwill acquired. We will revise these estimates as we finalize our analysis of these discontinued operations and purchase price allocation.

We recorded the excess of the purchase price over the preliminary fair value of the net tangible and identifiable intangible assets acquired and liabilities assumed as goodwill in a new reporting unit in our International segment. The purchase price of Callcredit exceeded the preliminary fair value estimate of the net assets acquired primarily due to growth opportunities, the assembled workforce, synergies associated with internal use software and other technological and operational efficiencies.

Identifiable Amortizable Intangible Assets

The preliminary fair values of the amortizable intangible assets acquired consisted of the following as of December 31, 2018:

(in millions)	Estimated Useful Life	Fair Value
Database and credit files	15 years	$ 502.0
Customer relationships	15 years	155.0
Technology and software	5 years	67.4
Trademarks	2 years	0.7
Total identifiable assets		$ 725.1

We estimate the preliminary weighted-average useful life of the identifiable intangible assets to be approximately 14.1 years, resulting in an approximate amortization of $51.6 million per year.

Acquisition Costs

As of December 31, 2018, we have incurred approximately $19.9 million of acquisition-related costs, including $0.5 million incurred in 2017. These costs include investment banker fees, legal fees, due diligence and other external costs that we have recorded in other income and expense. The Company may incur additional acquisition-related costs, including legal fees, valuation fees and other professional fees in the next few quarters that we will record in other income and expense.

iovation, Inc.; Healthcare Payment Specialists, LLC; and Rubixis, Inc. Acquisitions

During the second quarter of 2018, we acquired 100% of the equity of iovation, Inc. ("iovation") and Healthcare Payment Specialists, LLC ("HPS"). During the fourth quarter of 2018, we acquired 100% of the equity of Rubixis, Inc ("Rubixis"). iovation is a provider of advanced device identity and consumer authentication services that helps businesses and consumers safely transact in a digital world. HPS provides expertise and technology solutions to help medical care providers maximize Medicare reimbursements. Rubixis is an innovative healthcare revenue cycle solutions company that helps providers maximize reimbursement from insurance payers. The results of operations of iovation, HPS, and Rubixis, which are not material to our consolidated financial statements, and have been included as part of our USIS segment in our consolidated statements of income since the date of acquisition. The allocation of the purchase price to the identifiable assets acquired and liabilities assumed for each of these acquisitions is preliminary pending full fair value assessments, which we expect to complete within one year of the acquisition dates.

Based on the preliminary purchase price allocations for these acquisitions, we recorded approximately $230.1 million of goodwill and $243.5 million of amortizable intangible assets in addition to what we recorded for Callcredit. We estimate the weighted-average useful lives of the iovation, HPS, and Rubixis amortizable intangible assets to be approximately 15.3 years.

3. Other Current Assets

Other current assets consisted of the following:

(in millions)	December 31, 2018	December 31, 2017
Prepaid expenses	$ 77.1	$ 59.0
Other investments	23.6	18.3
Other receivables	14.3	16.5
Income taxes receivable	5.5	23.7
Marketable securities	2.9	3.3
Contract assets	1.0	—
Deferred financing fees	0.6	0.6
CFPB escrow deposit	—	13.9
Other	11.5	10.9
Total other current assets	$ 136.5	$ 146.2

The increase in prepaid expenses is due primarily to prepaid assets of the businesses we acquired in 2018. Other receivables include amounts recoverable under insurance policies for certain litigation costs. Other investments include non-negotiable certificates of deposit that are recorded at their carrying value. The decrease in income taxes receivable was due to our 2017 federal tax overpayment being used to offset the one-time mandatory repatriation tax that resulted from the passage of the 2017 tax Act. Upon adoption of ASC Topic 606, we have recorded contract assets, which are not significant and are included in the "other" line above. See Note 13, "Revenue," for a further discussion about our contract assets.

4. Property, Plant and Equipment

Property, plant and equipment, including those acquired by capital lease, consisted of the following:

(in millions)	December 31, 2018	December 31, 2017
Computer equipment and furniture	$ 341.0	$ 276.1
Purchased software	134.4	119.4
Building and building improvements	107.9	99.2
Land	3.2	3.2
Total cost of property, plant and equipment	586.5	497.9
Less: accumulated depreciation	(366.2)	(299.3)
Total property, plant and equipment, net of accumulated depreciation	$ 220.3	$ 198.6

Depreciation expense, including depreciation of assets recorded under capital leases, for the years ended December 31, 2018, 2017 and 2016, was $76.6 million, $67.9 million and $67.7 million, respectively.

5. Goodwill

Goodwill is tested for impairment at the reporting unit level on an annual basis, in the fourth quarter, or on an interim basis if changes in circumstances could reduce the fair value of a reporting unit below its carrying value. Our reporting units consist of USIS and Healthcare within the U.S. Information Services ("USIS") reportable segment, Consumer Interactive, and the geographic regions of the United Kingdom, Africa, Canada, Latin America, India, and Asia Pacific within our International reportable segment.

For 2018, we performed the qualitative test for each of our reporting units and the results of our tests indicated that it was not more likely than not that the goodwill in any reporting unit was impaired, with the exception of Africa and Latin America. For Africa and Latin America, we also performed the quantitative test and determined that no impairment existed. Further, a 10% decrease in the estimated cash flows or a 10% increase in the discount rate would not result in an impairment. In prior years, the India and Asia-Pacific reporting units were combined. We separated them this year and performed a quantitative test on each of the reporting units and determined there was no impairment for either reporting unit. The goodwill impairment tests we performed during 2017 and 2016 also resulted in no impairment. At December 31, 2018, there was no accumulated goodwill impairment loss.

Goodwill allocated to our reportable segments as of December 31, 2018, 2017 and 2016, and the changes in the carrying amount of goodwill during those periods, consisted of the following:

(in millions)	USIS	International	Consumer Interactive	Total
Balance, December 31, 2016	$ 1,245.7	$ 687.0	$ 241.2	$ 2,173.9
Purchase accounting adjustments	14.2	—	—	14.2
Acquisitions	161.4	—	—	161.4
Foreign exchange rate adjustment	—	19.3	—	19.3
Balance, December 31, 2017	$ 1,421.3	$ 706.3	$ 241.2	$ 2,368.8
Purchase accounting adjustments	33.0	—	—	33.0
Acquisitions	230.1	744.2	—	974.3
Disposals	—	(0.1)	—	(0.1)
Foreign exchange rate adjustment	—	(82.4)	—	(82.4)
Balance, December 31, 2018	$ 1,684.4	$ 1,368.0	$ 241.2	$ 3,293.6

6. Intangible Assets

Intangible assets are initially recorded at their acquisition cost, or fair value if acquired as part of a business combination, and amortized over their estimated useful lives. The gross amount of intangible assets during 2018 increased $935.4 million due primarily to our 2018 business acquisitions of Callcredit, iovation, Rubixis and HPS, and expenditures to develop internal use software, partially offset by the impact of foreign exchange rate adjustments.

Intangible assets consisted of the following:

(in millions)	December 31, 2018 Gross	Accumulated Amortization	Net	December 31, 2017 Gross	Accumulated Amortization	Net
Database and credit files	$ 1,380.4	$ (375.7)	$ 1,004.7	$ 854.8	$ (302.0)	$ 552.8
Internal use software	1,163.6	(582.6)	581.0	946.2	(489.4)	456.8
Customer relationships	632.3	(143.9)	488.4	439.5	(114.4)	325.1
Trademarks, copyrights and patents	571.7	(99.4)	472.3	572.1	(84.2)	487.9
Noncompete and other agreements	6.8	(5.1)	1.7	6.8	(3.6)	3.2
Total intangible assets	$ 3,754.8	$ (1,206.7)	$ 2,548.1	$ 2,819.4	$ (993.6)	$ 1,825.8

All amortizable intangibles are amortized on a straight-line basis over their estimated useful lives. Database and credit files are generally amortized over a twelve to fifteen year period. Internal use software is generally amortized over three to seven year period. Customer relationships are amortized over a ten to twenty year period. Trademarks are generally amortized over a forty year period. Copyrights, patents, noncompete and other agreements are amortized over varying periods based on their estimated economic life. The weighted average lives of our intangibles is approximately fifteen years.

Amortization expense related to intangible assets for the years ended December 31, 2018, 2017 and 2016, was $230.3 million, $170.1 million and $197.5 million, respectively. Estimated future amortization expense related to intangible assets at December 31, 2018, is as follows:

(in millions)	Annual Amortization Expense
2019	$ 258.5
2020	239.1
2021	223.0
2022	214.1
2023	193.0
Thereafter	1,420.4
Total future amortization expense	$ 2,548.1

7. Other Assets

Other assets consisted of the following:

(in millions)	December 31, 2018	December 31, 2017
Investments in affiliated companies	$ 81.9	$ 79.2
Interest rate caps	16.5	9.4
Other investments	12.4	13.5
Marketable securities	12.4	12.7
Deposits	3.8	14.6
Deferred financing fees	1.6	2.0
Other	7.7	5.2
Total other assets	$ 136.3	$ 136.6

See Note 8, “Investments in Affiliated Companies,” for additional information about investment in affiliated companies. See Note 10, “Other Liabilities” and Note 11, “Debt,” for additional information about the interest rate caps. Other investments include non-negotiable certificates of deposit that are recorded at their carrying value.

8. Investments in Affiliated Companies

Investments in affiliated companies represent our investment in non-consolidated domestic and foreign entities. These entities are in businesses similar to ours, such as credit reporting, credit scoring and credit monitoring services.

We use the equity method to account for investments in affiliates where we are able to exercise significant influence. For these investments, we adjust the carrying value for our proportionate share of the affiliates' earnings, losses and distributions, as well as for purchases and sales of our ownership interest.

We account for nonmarketable investments in equity securities in which we are not able to exercise significant influence, our Cost Method Investments, at our initial cost, minus any impairment, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. For these investments, we adjust the carrying value for any purchases or sales of our ownership interests. We record any dividends received from these investments as other income in non-operating income and expense.

For all investments, we adjust the carrying value if we determine that an other-than-temporary impairment has occurred and include the gain or loss adjustment in other income and expense in the consolidated statements of income. During 2018, 2017 and 2016, there were no material gain or loss adjustments recorded.

Investments in affiliated companies consisted of the following:

(in millions)	December 31, 2018	December 31, 2017
Total equity method investments	$ 44.0	$ 42.8
Cost Method investments	37.9	36.4
Total investments in affiliated companies	$ 81.9	$ 79.2

These balances are included in other assets in the consolidated balance sheets.

Earnings from equity method investments, which are included in other non-operating income and expense, and dividends received from equity method investments consisted of the following:

	Twelve Months Ended December 31,		
(in millions)	2018	2017	2016
Earnings from equity method investments	$ 9.9	$ 9.1	$ 8.6
Dividends received from equity method investments	$ 9.8	$ 7.4	$ 8.0

Dividends received from Cost Method Investments were $1.1 million, $1.0 million and $0.9 million in 2018, 2017 and 2016, respectively. Dividends received from Cost Method Investments are included in other income and expense.

9. Other Current Liabilities

Other current liabilities consisted of the following:

(in millions)	December 31, 2018	December 31, 2017
Accrued payroll	$ 102.5	$ 84.6
Deferred revenue	73.1	13.2
Accrued employee benefits	35.1	34.1
Accrued legal and regulatory	33.2	46.3
Income taxes payable	17.0	8.5
Accrued interest	2.5	1.5
Contingent consideration	1.2	1.1
Other	19.5	18.5
Total other current liabilities	$ 284.1	$ 207.8

The increase in accrued payroll is due primarily to the accrued payroll of businesses acquired in 2018. The increase in deferred revenue is due primarily to the deferred revenue of businesses acquired in 2018 and the impact of adopting ASC Topic 606. See Note 13, “Revenue,” for additional information about our deferred revenue. See Note 17, “Fair Value,” for additional information related to our contingent consideration obligations.

10. Other Liabilities

Other liabilities consisted of the following:

(in millions)	December 31, 2018	December 31, 2017
Unrecognized tax benefits	$ 19.6	$ 12.3
Interest rate swap	10.7	—
Retirement benefits	10.2	12.2
Income tax payable	5.0	25.6
Deferred revenue	0.9	—
Contingent consideration	0.1	—
Purchase consideration payable	—	12.2
Other	8.2	8.5
Total other liabilities	$ 54.7	$ 70.8

We entered into an interest rate swap in December 2018. See Note 11, “Debt,” for further information about the swap. The decrease in income taxes payable was due to our 2017 federal tax overpayment being used to offset the one-time mandatory repatriation tax that resulted from the passage of the 2017 tax Act. In 2018, purchase consideration payable was released to the sellers of two businesses acquired in 2017.

11. Debt

Debt outstanding consisted of the following:

(in millions)	December 31, 2018	December 31, 2017
Senior Secured Term Loan B-3, payable in quarterly installments through April 9, 2023, and periodic variable interest at LIBOR or alternate base rate, plus applicable margin (4.52% at December 31, 2018 and 3.57% at December 31, 2017), including original issue discount and deferred financing fees of $5.0 million and $4.6 million, respectively, at December 31, 2018, and original issue discount and deferred financing fees of $6.2 million and $3.7 million, respectively, at December 31, 2017	$ 1,892.0	$ 1,971.5
Senior Secured Term Loan A-2, payable in quarterly installments through August 9, 2022, and periodic variable interest at LIBOR or alternate base rate, plus applicable margin (4.27% at December 31, 2018 and 3.07% at December 31, 2017), including original issue discount and deferred financing fees of $2.8 million and $3.6 million, respectively, at December 31, 2018, and original issue discount and deferred financing fees of $1.4 million and $0.3 million, respectively, at December 31, 2017	1,166.0	395.8
Senior Secured Term Loan B-4, payable in quarterly installments through June 19, 2025, with periodic variable interest at LIBOR or alternate base rate, plus applicable margin (4.52% at December 31, 2018), net of original issue discount and deferred financing fees of $2.3 million and $10.7 million, respectively, at December 31, 2018	982.0	—
Senior Secured Revolving Line of Credit	—	85.0
Other notes payable	7.3	11.0
Capital lease obligations	0.8	1.3
Total debt	4,048.1	2,464.6
Less short-term debt and current portion of long-term debt	(71.7)	(119.3)
Total long-term debt	$ 3,976.4	$ 2,345.3

Excluding any potential additional principal payments which may become due on the senior secured credit facility based on excess cash flows of the prior year, scheduled future maturities of total debt at December 31, 2018, were as follows:

(in millions)	December 31, 2018
2019	$ 71.7
2020	93.5
2021	89.9
2022	1,044.9
2023	1,832.1
Thereafter	945.0
Unamortized original issue discounts and deferred financing fees	(29.0)
Total debt	$ 4,048.1

Senior Secured Credit Facility

On June 15, 2010, we entered into a senior secured credit facility with various lenders. This facility has been amended several times and currently consists of the Senior Secured Term Loan B-3, Senior Secured Term Loan A-2, the Senior Secured Term Loan B-4 and the Senior Secured Revolving Line of Credit.

On May 2, 2018, we amended certain provisions of our senior secured credit facility. This amendment among other things, allowed us the option to elect between two testing dates for the calculation of ratio requirements to enter into certain transactions. This amendment resulted in $0.1 million of fees expensed and recorded in other income and expense in the consolidated statements of income for the twelve months ended December 31, 2018, and $2.6 million of refinancing fees deferred on the balance sheet to be amortized into interest expense over the life of the loans.

On June 19, 2018, we borrowed an additional $800.0 million against our Senior Secured Term Loan A-2 and $600.0 million against a new tranche 4 of our Senior Secured Term Loan B ("Senior Secured Term Loan B-4") to fund the acquisition of Callcredit. On June 29, 2018, we borrowed an additional $400.0 million of our Senior Secured Term Loan B-4 to fund another acquisition and to repay a portion of our Senior Secured Revolving Line of Credit. The new financing resulted in $12.0 million of fees expensed

and recorded in other income and expense in the consolidated statements of income for the twelve months ended December 31, 2018, and $19.7 million of financing fees deferred on the balance sheet to be amortized into interest expense over the life of the loans.

Interest rates on the Senior Secured Term Loan B-3 are based on the London Interbank Offered Rate ("LIBOR"), unless otherwise elected, plus a margin of 2.00%. The Company is required to make principal payments at the end of each quarter of 0.25% of the 2017 refinanced principal balance plus additional borrowings with the remaining balance due April 9, 2023. The Company is required to make additional payments based on excess cash flows, as defined in the agreement, of the prior year. Depending on the senior secured net leverage ratio for the year, a principal payment of between zero and fifty percent of the excess cash flows will be due the following year. There were no excess cash flows for 2018 and therefore no payment is required in 2019. Additional payments based on excess cash flows could be due in future years.

On December 31, 2018, we made a prepayment of $60.0 million towards our Senior Secured Term Loan B-3, funded from our cash on hand.

Interest rates on Senior Secured Term Loan A-2 are based on LIBOR, unless otherwise elected, plus a margin of 1.25%, 1.50% or 1.75% depending on our total net leverage ratio. The Company is required to make principal payments of 0.625%, of the 2017 refinanced principal balance plus additional borrowings, at the end of each quarter through September 2019, increasing to 1.25% each quarter thereafter, with the remaining balance due August 9, 2022.

Interest rates on the new Senior Secured Term Loan B-4 are based on LIBOR, unless otherwise elected, plus a margin of 2.00%. We are required to make principal payments on the Senior Secured Term Loan B-4 at the end of each quarter of 0.25% starting in the third quarter of 2018, with the remaining balance due June 19, 2025.

Interest rates on the Senior Secured Revolving Line of Credit are based on LIBOR, unless otherwise elected, plus a margin of 1.25%, 1.50% or 1.75% depending on our total net leverage ratio. There is a 0.20%, 0.25% or 0.30% annual commitment fee, depending on our total net leverage ratio, payable quarterly based on the undrawn portion of the Senior Secured Revolving Line of Credit. The commitment under the Senior Secured Revolving Line of Credit expires on August 9, 2022.

During 2018, we borrowed $125.0 million under the Senior Secured Revolving Line of Credit to partially fund various acquisitions and for general corporate purposes. During the year, we repaid $210.0 million of the borrowing on the Senior Secured Revolving Line of Credit. As of December 31, 2018, the full amount of the $300.0 million revolving credit facility was available for use.

TransUnion also has the ability to request incremental loans on the same terms under the existing senior secured credit facility up to the greater of an additional $675.0 million and 100% of Consolidated EBITDA. Consolidated EBITDA is reduced to the extent that the senior secured net leverage ratio is above 4.25-to-1. In addition, so long as the senior secured net leverage ratio does not exceed 4.25-to-1, we may incur additional incremental loans, subject to certain additional conditions and commitments by existing or new lenders to fund any additional borrowings.

With certain exceptions, the senior secured credit facility obligations are secured by a first-priority security interest in substantially all of the assets of Trans Union LLC, including its investment in subsidiaries. The senior secured credit facility contains various restrictions and nonfinancial covenants, along with a senior secured net leverage ratio test. The nonfinancial covenants include restrictions on dividends, investments, dispositions, future borrowings and other specified payments, as well as additional reporting and disclosure requirements. The senior secured net leverage test must be met as a condition to incur additional indebtedness, make certain investments, and may be required to make certain restricted payments. The senior secured net leverage ratio must not exceed 5.5-to-1 at any such test date. TransUnion may make dividend payments up to an unlimited amount under the terms of the senior secured credit facility provided that no default or event of default exists and so long as the total net leverage ratio does not exceed 4.75-to-1. As of December 31, 2018, we were in compliance with all debt covenants.

On December 17, 2018, we entered into interest rate swap agreements with various counter-parties that effectively fixes our LIBOR exposure on a portion of our existing senior secured term loans or similar replacement debt at approximately 2.647% to 2.706%. We have designated these swap agreements as cash flow hedges. The current aggregate notional amount under these agreements is $1,450.0 million, decreasing each quarter until the second agreement terminates on December 30, 2022.

On December 18, 2015, we entered into interest rate cap agreements with various counter-parties that effectively cap our LIBOR exposure on a portion of our existing senior secured term loans or similar replacement debt at 0.75% beginning June 30, 2016. We have designated these cap agreements as cash flow hedges. The current aggregate notional amount under these agreements is $1,451.8 million and will continue to decrease each quarter until the agreement terminates on June 30, 2020. In July 2016, we began to pay the various counter-parties a fixed rate on the outstanding notional amounts of between 0.98% and 0.994% and receive payments to the extent LIBOR exceeds 0.75%.

Both the interest rate swaps and interest rate caps are recorded on the balance sheet at fair value. The effective portion of changes in the fair value of the interest rate swaps and interest rate caps is recorded in other comprehensive income (loss). The ineffective portion of changes in the fair value of the swaps and caps is recorded in other income and expense. The ineffective portion of the

changes in fair value of the caps, which is due to, and will continue to result from, the cost of financing the cap premium. The effective portion of the change in the fair value of the swaps resulted in an unrealized loss of $8.1 million for the year ended December 31, 2018 recorded in other comprehensive income. We expect to recognize a loss of approximately $1.5 million into interest expense related to the expected LIBOR exceeding the fix rates over the next twelve months. There was no ineffectiveness on the swap for the year. The effective portion of the change in the fair value of the caps resulted in an unrealized gain of $5.7 million, an unrealized gain of $6.2 million, and an unrealized loss of $7.5 million, net of tax, for the years ended December 31, 2018, 2017 and 2016, respectively, recorded in other comprehensive income. The ineffective portion of the change in the fair value of the caps resulted in a gain of $0.7 million, and a loss of $0.3 million and $0.5 million for the years ended December 31, 2018, 2017 and 2016, respectively, recorded in other income and expense.

In accordance with ASC 815, the fair value of the interest rate caps at inception is reclassified from other comprehensive income to interest expense in the same period the interest expense on the underlying hedged debt impacts earnings. Based on how the fair value of interest rate caps are determined, the earlier interest periods have lower fair values at inception than the later interest periods, resulting in less interest expense being recognized in the earlier periods compared with the later periods. Any payments we receive to the extent LIBOR exceeds 0.75% is also reclassified from other comprehensive income to interest expense in the period received. Interest expense reclassified from other comprehensive income to interest expense related to the fair value of the portion of the caps expiring in the twelve-month period of 2018, 2017 and 2016 was a gain of $2.4 million ($1.5 million net of tax), and a loss of $4.3 million ($2.8 million net of tax) and $1.6 million ($1.0 million net of tax), respectively. We expect to reclassify a gain of approximately $6.2 million from other comprehensive income to interest expense related to the fair value of the portion of the caps expiring and payments received to the extent LIBOR exceeds 0.75% in the next twelve months.

Fair Value of Debt

As of December 31, 2018, the fair value of our variable-rate Senior Secured Term Loan A-2, excluding original issue discounts and deferred fees, approximates the carrying value. As of December 31, 2018, the fair value of our Senior Secured Term Loan B-3 and B-4, excluding original issue discounts and deferred fees, was approximately $1,837.4 million and $958.9 million, respectively. The fair values of our variable-rate term loans are determined using Level 2 inputs, and quoted market prices for the publicly traded instruments.

12. Stockholders' Equity

Common Stock Dividends

On February 13, 2018, we announced that our board of directors approved a dividend policy pursuant to which we intend to pay quarterly cash dividends on our common stock. During 2018, the board of directors declared three quarterly dividends in May, August and November of $0.075 per share, that we paid in June, September and December. In total, we declared $42.6 million of dividends and paid $41.6 million, with the remainder dues as dividend equivalents to employees who hold restricted stock units when and if those units vest.

Treasury Stock

On February 13, 2017, our board of directors authorized the repurchase of up to $300.0 million of our common stock over the next 3 years. Our board of directors removed the three-year time limitation on February 8, 2018. On February 22, 2017, the Company purchased 1.85 million shares of common stock for a total of $68.3 million from the underwriters of a secondary offering of shares of our common stock by certain of our stockholders. On May 2, 2017, the Company purchased an additional 1.65 million shares of common stock for a total of $65.2 million from the underwriters of a secondary offering of shares of our common stock by certain of our stockholders.

Preferred Stock

As of December 31, 2018 and 2017, we had 100.0 million shares of preferred stock authorized and no preferred stock issued or outstanding

13. Revenue

All of our revenue is derived from contracts with customers and is reported as revenue in the Consolidated Statement of Income generally as, or at the point in time, the performance obligation is satisfied. A performance obligation is a promise in a contract to transfer a distinct good or service to a customer, and is the unit of account under ASC Topic 606. We have contracts with two general groups of performance obligations; those that require us to stand ready to provide goods and services to a customer to use as and when requested ("Stand Ready Performance Obligations") and those that do not require us to stand ready ("Other Performance Obligations"). Our Stand Ready Performance Obligations include obligations to stand ready to provide data, process transactions, access our databases, software-as-a-service and direct-to-consumer products, rights to use our intellectual property and other services. Our Other Performance Obligations include the sale of certain batch data sets and various professional and other services.

Most of our Stand Ready Performance Obligations consist of a series of distinct goods and services that are substantially the same and have the same monthly pattern of transfer to our customers. We consider each month of service in this time series to be a distinct performance obligation and, accordingly, recognize revenue over time. For a majority of these Stand Ready Performance Obligations the total contractual price is variable because our obligation is to process an unknown quantity of transactions, as and when requested by our customers, over the contract period. We allocate the variable price to each month of service using the time-series concept and recognize revenue based on the most likely amount of consideration to which we will be entitled to**,** which is generally the amount we have the right to invoice. This monthly amount can be based on the actual volume of units delivered or any guaranteed minimum, if higher. Occasionally we have contracts where the amount we will be entitled to for the transactions processed is uncertain, in which case we estimate the revenue based on what we consider to be the most likely amount of consideration we will be entitled to, and true-up any estimates as facts and circumstances evolve.

Certain Stand Ready Performance Obligation fees result from contingent fee based contracts that require us to provide services before we have an enforceable right to payment. For these performance obligations, we recognize revenue at the point in time the contingency is met and we have an enforceable contract and right to payment.

Certain of our Stand Ready Performance Obligation contracts include non-recurring, non-refundable up-front fees to cover our costs of setting up files or configuring systems to enable our customers to access our services. These fees are not fees for distinct performance obligations. When these fees are insignificant in relation to the total contract value we recognize such fees as revenue when invoiced. If such fees are significant we recognize them as revenue over the duration of the contract, the period of time for which we have contractually enforceable rights and obligations. For contracts where such fees are for a distinct performance obligation, we recognize revenue as or when the performance obligation is satisfied.

Certain of our Other Performance Obligations, including certain batch data sets and certain professional and other services, are delivered at a point in time. Accordingly, we recognize revenue upon delivery, once we have satisfied that obligation. For certain Other Performance Obligations, including certain professional and other services, we recognize revenue over time, based on an estimate of progress towards completion of that obligation.

For all contracts that include a Stand Ready Performance Obligation with variable pricing, we are unable to estimate the variable price attributable to future performance obligations because the number of units to be purchased is not known. As a result, we use the exception available to forgo disclosures about revenue attributable to the future performance obligations where we recognize revenue using the time-series concept as discussed above, including those qualifying for the right to invoice practical expedient. We also use the exception available to forgo disclosures about revenue attributable to contracts with expected durations of one year or less.

During 2018, we recognized $20.2 million of revenue that was included in the balance of our deferred revenue at the beginning of the year as adjusted for the cumulative effect of adopting ASC Topic 606.

In certain circumstances we apply the guidance in ASC Topic 606 to a portfolio of contracts with similar characteristics. We use estimates and assumptions when accounting for a portfolio that reflect the size and composition of the portfolio of contracts.

Our contracts generally include standard commercial payment terms generally acceptable in each region, and do not include financing with extended payment terms. We have no significant obligations for refunds, warranties, or similar obligations. Our revenue does not include taxes collected from our customers.

Accounts receivable are shown separately on our balance sheet. Contract assets and liabilities result due to the timing of revenue recognition, billings and cash collections. Contract assets include our right to payment for goods and services already transferred to a customer when the right to payment is conditional on something other than the passage of time, for example contracts where we recognize revenue over time but do not have a contractual right to payment until we complete the contract. Contract assets are included in our other current assets and are not material as of December 31, 2018. Contract liabilities consist of deferred revenue that is primarily short-term in nature, the long-term portion is not significant. These amounts are included in other current liabilities and other liabilities.

For additional disclosures about the disaggregation of our revenue see Note 18, “Reportable Segments”.

14. Earnings Per Share

Basic earnings per share represents income available to common stockholders divided by the weighted average number of common shares outstanding during the reported period. Diluted earnings per share reflects the effect of the increase in shares outstanding determined by using the treasury stock method for awards issued under our incentive stock plans.

As of December 31, 2018, there were 0.1 million anti-dilutive stock-based awards outstanding. In addition, there were 1.1 million contingently issuable performance- and market-based stock awards outstanding that were excluded from the diluted earnings per share calculation because the contingencies had not been met. As of December 31, 2017, there were 0.1 million anti-dilutive stock-

based awards outstanding. In addition, there were no contingently performance- and market-based issuable stock awards outstanding As of December 31, 2016, there were 0.1 million anti-dilutive stock-based awards outstanding. In addition, there were 5.9 million contingently issuable market-based stock awards outstanding that were excluded from the diluted earnings per share calculations because the contingencies had not been met.

Basic and diluted weighted average shares outstanding and earnings per share were as follows:

	Twelve Months Ended December 31,		
(in millions, except per share data)	2018	2017	2016
Income from continuing operations	$ 289.0	$ 451.6	$ 131.4
Less: income from continuing operations attributable to noncontrolling interests	(10.9)	(10.4)	(10.8)
Income from continuing operations attributable to TransUnion	$ 278.1	$ 441.2	$ 120.6
Discontinued operations, net of tax[1]	(1.5)	—	—
Net income attributable to TransUnion	$ 276.6	$ 441.2	$ 120.6
Basic earnings per common share from:			
Income from continuing operations attributable to TransUnion	$ 1.51	$ 2.42	$ 0.66
Discontinued operations, net of tax	(0.01)	—	—
Net Income attributable to TransUnion	$ 1.50	$ 2.42	$ 0.66
Diluted earnings per common share from:			
Income from continuing operations attributable to TransUnion	$ 1.46	$ 2.32	$ 0.65
Discontinued operations, net of tax[1]	(0.01)	—	—
Net Income attributable to TransUnion	$ 1.45	$ 2.32	$ 0.65
Weighted-average shares outstanding:			
Basic	184.6	182.4	182.6
Dilutive impact of stock based awards	6.2	7.4	2.0
Diluted	190.9	189.9	184.6

(1) Discontinued operations for the twelve months ended December 31, 2017 and 2016 is zero.

15. Income Taxes

The provision (benefit) for income taxes consisted of the following:

	Twelve Months Ended December 31,		
(in millions)	2018	2017	2016
Federal			
Current	$ 62.7	$ 82.3	$ 53.9
Deferred	(57.0)	(221.8)	(21.3)
State			
Current	11.9	8.4	6.9
Deferred	(3.9)	9.9	10.6
Foreign			
Current	48.9	43.0	35.4
Deferred	(8.1)	(0.9)	(11.5)
Total provision (benefit) for income taxes	$ 54.5	$ (79.1)	$ 74.0

The components of income before income taxes consisted of the following:

	Twelve Months Ended December 31,		
(in millions)	2018	2017	2016
Domestic	$ 256.5	$ 265.7	$ 128.0
Foreign	87.0	106.8	77.4
Income before income taxes	$ 343.5	$ 372.5	$ 205.4

The effective income tax rate reconciliation consisted of the following:

	Twelve Months Ended December 31,					
(in millions)	2018		2017		2016	
Income taxes at statutory rate	$ 72.1	21.0 %	$ 130.4	35.0 %	$ 71.9	35.0 %
Increase (decrease) resulting from:						
State taxes, net of federal benefit	10.2	3.0 %	5.6	1.5 %	15.4	7.5 %
Foreign rate differential	9.7	2.8 %	(5.3)	(1.4)%	(1.8)	(0.9)%
Tax impact of unremitted foreign earnings	5.7	1.7 %	2.1	0.6 %	(6.4)	(3.1)%
U.S. tax impact of foreign earnings	(24.2)	(7.0)%	6.5	1.8 %	4.7	2.3 %
R&D & DPAD tax credit	(2.2)	(0.7)%	(3.8)	(1.0)%	(5.0)	(2.4)%
One-time impacts of U.S. tax reform	5.3	1.5 %	(175.3)	(47.1)%	—	— %
Excess Tax Benefit on stock-based compensation	(30.2)	(8.8)%	(39.3)	(10.5)%	—	— %
Nondeductible transaction costs	3.1	0.9 %	1.1	0.3 %	0.7	0.4 %
Other	5.0	1.5 %	(1.1)	(0.4)%	(5.5)	(2.8)%
Total	$ 54.5	15.9 %	$ (79.1)	(21.2)%	$ 74.0	36.0 %

We finalized the accounting impacts of the Act in connection with filing our 2017 U.S. federal income tax return during the fourth quarter 2018. This resulted in an increase to income tax expense of $5.3 million, offsetting our original $175.3 million tax benefit estimated under SAB 118 during the fourth quarter 2017. We also elected to report Global Intangible Low Taxed Income ("GILTI") in income tax expense as part of the current income tax provision.

For 2018, we reported an effective tax rate of 15.9%, which is lower than the 21.0% U.S. federal statutory rate due primarily from the release of valuation allowances on foreign tax credit carryforwards and excess tax benefits on stock based compensation that is now recorded to tax expense due to our adoption of ASU 2016-09 on January 1, 2017, partially offset by state taxes and foreign taxes in jurisdictions which have tax rates that are higher than the U.S. corporate tax rate.

For 2017, we reported a negative 21.2% effective tax rate, which is lower than the 35.0% U.S. federal statutory rate due primarily to the one-time decreases resulting from enactment of the Act in December 2017 and the excess tax benefits on stock-based compensation that is now recorded to tax expense upon our adoption of ASU 2016-09 on January 1, 2017.

For 2016, we reported a 36.0% effective tax rate, which is higher than the 35.0% U.S. federal statutory rate due primarily to increases resulting from changes to our state tax assumptions and tax on our foreign earnings that are not considered permanently reinvested outside the United States, partially offset by decreases resulting from the impact of international restructuring and Internal Revenue Code Section 199 Domestic Productions Activities Deduction ("DPAD") and Research and Development ("R&D") tax credits.

Components of net deferred income tax consisted of the following:

(in millions)	December 31, 2018	December 31, 2017
Deferred income tax assets:		
Compensation	$ 24.1	$ 16.4
Employee benefits	13.1	2.5
Legal reserves and settlements	3.9	5.2
Hedge investments	1.2	1.1
Financing related costs	2.5	—
Loss and credit carryforwards	103.7	105.7
Other	11.8	7.7
Gross deferred income tax assets	160.3	138.6
Valuation allowance	(51.9)	(85.3)
Total deferred income tax assets, net	$ 108.4	$ 53.3
Deferred income tax liabilities:		
Depreciation and amortization	$ (568.8)	$ (454.7)
Taxes on undistributed foreign earnings	(11.0)	(7.3)
Other	(4.2)	(8.8)
Total deferred income tax liability	(584.0)	(470.8)
Net deferred income tax liability	$ (475.6)	$ (417.5)

Deferred tax assets and liabilities result from temporary differences between tax and accounting policies. Our balance sheet includes a deferred tax asset of $2.4 million and $1.9 million at December 31, 2018 and 2017, respectively, that is included in other assets.

If certain deferred tax assets are not likely to be recovered in future years, a valuation allowance is recorded. During 2018, we released $33.4 million of valuation allowances on foreign tax credit carryforwards, which are more likely than not projected to be realized prior to their expiration. This was primarily a result of recently issued Treasury Regulations applicable to the Act. As of December 31, 2018 and 2017, a valuation allowance of $51.9 million and $85.3 million, respectively, reduced deferred tax assets generated by capital losses, U.S. federal net operating losses, foreign losses, foreign tax credits and certain state net operating loss and credit carryforwards. Capital loss carryforwards expire over one to three years, U.S. federal net operating losses over twelve to sixteen years, foreign loss carryforward over six to an indefinite numbers of years, foreign tax credit carryforward over the next ten years, state net operating loss and credit carryforwards over the next two to eighteen years.

The total amount of unrecognized tax benefits as of December 31, 2018 and 2017, was $19.6 million and $12.3 million, respectively. The amounts that would affect the effective tax rate if recognized are $12.3 million and $8.2 million, respectively.

The total amount of unrecognized tax benefits consisted of the following:

(in millions)	December 31, 2018	December 31, 2017
Balance as of beginning of period	$ 12.3	$ 4.8
Increase in tax positions of prior years	7.6	2.8
Decrease in tax positions of prior years	(1.0)	—
Increase in tax positions of current year	0.7	4.7
Balance as of end of period	$ 19.6	$ 12.3

We classify interest on unrecognized tax benefits and income tax penalties as income tax expense in the consolidated statements of income. We classify any interest or income tax penalties related to unrecognized tax benefits as other liabilities in the consolidated balance sheets. There was no significant interest expense related to taxes for the years ended December 31, 2018, 2017 or 2016, and no significant liability recorded for interest payable as of December 31, 2018 or 2017. There was no significant expense recognized for tax penalties for the years ended December 31, 2018, 2017 or 2016, and no significant liability recorded for tax penalties as of December 31, 2018 or 2017.

We are regularly audited by federal, state and foreign taxing authorities. Given the uncertainties inherent in the audit process, it is reasonably possible that certain audits could result in a significant increase or decrease in the total amounts of unrecognized tax benefits. An estimate of the range of the increase or decrease in unrecognized tax benefits due to audit results cannot be made at this time. Tax years 2010 and forward remain open for examination some foreign jurisdictions, 2011 and forward in some state jurisdictions, and 2012 and forward for U.S. federal purposes.

16. Stock-Based Compensation

For the years ended December 31, 2018, 2017 and 2016, we recognized stock-based compensation expense of $61.4 million, $47.7 million and $31.2 million, respectively, with related income tax benefits of approximately $14.9 million, $16.3 million and $11.3 million, respectively. Of the stock-based compensation expense recognized in 2018, 2017 and 2016, $3.5 million, $14.6 million and $6.8 million, respectively, was from cash-settleable awards.

Under the TransUnion Holding Company, Inc. 2012 Management Equity Plan (the "2012 Plan"), stock-based awards could be issued to executive officers, employees and independent directors of the Company. A total of 10.1 million shares were authorized for grant under the 2012 Plan. Effective upon the closing of the IPO, the Company's board of directors and its stockholders adopted the TransUnion 2015 Omnibus Incentive Plan (the "2015 Plan") and no more shares can be issued under the 2012 Plan. A total of 5.4 million shares have been authorized for grant under the 2015 Plan. The 2015 Plan provides for the granting of stock options, restricted stock and other stock-based or performance-based awards to key employees, directors or other persons having a service relationship with the Company and its affiliates. As of December 31, 2018, there were approximately 2.7 million of unvested awards outstanding and approximately 0.1 million of awards have vested under the 2015 Plan.

For all equity-based plans, we estimate expected forfeitures and make adjustments during the year for actual forfeitures. We review our estimates at least annually to determine if adjustments are needed to our estimate.

Effective upon the closing of the IPO, the Company's board of directors and its stockholders adopted the TransUnion 2015 Employee Stock Purchase Plan (the "ESPP"). A total of 2.4 million shares have been authorized to be issued under the ESPP. The ESPP provides certain employees of the Company with an opportunity to purchase the Company's common stock at a discount. As of December 31, 2018, the Company has issued approximately 0.5 million shares of common stock under the ESPP.

2012 Plan

Stock Options

Stock options granted under the 2012 Plan have a ten year term. For stock options granted to employees, 40% generally vest based on the passage of time (service condition options), and 60% generally vest based on the passage of time, subject to meeting certain stockholder return on investment conditions (market condition options). These stockholder return on investment conditions were satisfied in February 2017, and all remaining outstanding stock options now vest solely on the passage of time. All stock options granted to independent directors vest based on the passage of time.

Service condition options were valued using the Black-Scholes valuation model and vest over a five year service period, with 20% generally vesting one year after the grant date, and 5% vesting each quarter thereafter. Compensation costs for the service condition options are recognized on a straight-line basis over the requisite service period for the entire award. Market condition options were valued using a risk-neutral Monte Carlo valuation model, with assumptions similar to those used to value the service condition

options, and vest over a five year service period now that the market conditions have been satisfied. There were no stock options granted during 2018, 2017, and 2016.

Stock option activity as of December 31, 2018 and 2017, and for the year ended December 31, 2018, consisted of the following:

	Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in millions)
Outstanding as of December 31, 2017	5,494,372	$ 7.42	5.4	$ 261.2
Granted	—	—		
Exercised	(2,335,312)	7.11		
Forfeited	(78,912)	13.59		
Expired	—	—		
Outstanding as of December 31, 2018	3,080,148	$ 7.49	4.4	$ 151.9
Expected to vest as of December 31, 2018	220,165	$ 12.87	5.8	$ 9.7
Exercisable as of December 31, 2018	2,854,770	$ 7.07	4.3	$ 142.0

As of December 31, 2018, stock-based compensation expense remaining to be recognized in future years related to options, excluding an estimate for forfeitures, was $0.9 million with a weighted-average recognition period of 1.2 years. During 2018, cash received from the exercise of stock options was $16.6 million and the tax benefit realized from the exercise of stock options was $32.3 million.

The intrinsic value of options exercised and the fair value of options vested for the periods presented are as follows:

	Twelve Months Ended December 31,		
(in millions)	2018	2017	2016
Intrinsic value of options exercised	$ 134.4	$ 120.3	$ 19.4
Total fair value of options vested	$ 10.3	$ 14.0	$ 3.9

Stock Appreciation Rights

The Company granted no stock appreciation rights ("SARs") during the years ended December 31, 2018, 2017 and 2016. The SARs have a ten year term, with 40% vesting over a five year service period and 60% vesting over a five year service period, subject to meeting certain stockholder return on investment conditions. These stockholder return on investment conditions were satisfied in February 2017, and all remaining outstanding SARs now vest solely on the passage of time. The SARs are cash-settleable and are accounted for as liability awards, with expense recognized based on our stock price and the percentage of requisite service rendered at the end of each reporting period.

During the year ended December 31, 2018, less than 0.1 million SARs vested, less than 0.1 million SARs were forfeited, and 0.1 million SARs were exercised. During years ended December 31, 2018, 2017, and 2016, $6.2 million, $13.5 million, and $1.8 million, respectively, of share-based liabilities were paid for SARs that were exercised during the year. Stock-based compensation expense remaining to be recognized in future years related to SARs was $0.4 million based on the fair value of the awards at December 31, 2018. As of December 31, 2018, there were 0.2 million SARs outstanding.

2015 Plan

Restricted Stock Units

During 2018, 2017 and 2016, restricted stock units were granted under the 2015 Plan. Restricted stock units issued to date generally consist of: 50% service-based restricted stock units that vest based on passage of time and 50% performance awards consisting of performance restricted stock units that vest based on the passage of time, subject to meeting certain 3-year revenue and Adjusted EBITDA cumulative annual growth rate ("CAGR") targets and market-based performance restricted stock units that vest based on the passage of time, subject to meeting certain relative total stockholder return ("TSR") targets. For the performance awards, including the market-based performance awards, between zero and 200% of the units granted may eventually vest, based upon the final CAGR and TSR achievement relative to the targets. Restricted stock units generally vest three years from the grant date, subject to meeting any performance and market conditions.

Service-based and performance-based restricted stock units are valued on the award grant date at the closing market price of our stock. Market-based awards are valued using a risk-neutral Monte-Carlo model, with assumptions similar to those used to value the 2012 Plan market-condition options, based on conditions that existed on the grant date of the award.

Restricted stock unit activity as of December 31, 2018 and 2017, and for the year ended December 31, 2018, consisted of the following:

	Shares	Weighted Average Grant Date Fair Value	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in millions)
Outstanding as of December 31, 2017	1,990,114	$ 32.89	1.5	$ 109.4
Granted	904,592	64.21		
Vested	(56,117)	44.07		
Forfeited	(145,594)	38.90		
Expired	—	—		
Outstanding as of December 31, 2018	2,692,995	$ 42.86	1.1	$ 153.0
Expected to vest as of December 31, 2018	3,374,991	$ 40.93	0.9	$ 191.7

The fair value and intrinsic value of restricted stock units that vested during the year ended December 31, 2018 was $2.5 million and $3.5 million, respectively. As of December 31, 2018, stock-based compensation expense remaining to be recognized in future years related to restricted stock units that we currently expect to vest, excluding an estimate for forfeitures, was $68.8 million, with weighted-average recognition periods of 1.9 years.

Restricted Stock

During 2016, the Company granted 24,800 shares of restricted stock under the 2015 Plan that vested during 2017. The weighted average grant date fair value was $30.24. During 2017, the Company granted 25,868 shares of restricted stock under the 2015 Plan that vested during 2018. The weighted average grant date fair value was $40.58. During 2018, the Company granted 19,372 shares of restricted stock under the 2015 Plan that vest one year from the grant date. The weighted average grant date fair value was $69.66. As of December 31, 2018, stock-based compensation expense remaining to be recognized in future years related to these shares of restricted stock was $0.5 million, with a weighted average recognition period of five months.

Other

In connection with the acquisition of iovation, TransUnion granted performance share unit (“PSU”) awards representing the right to receive, in the aggregate, a targeted 1.1 million shares of TransUnion common stock to certain employees of iovation. The actual number of PSUs that will vest can range from zero to 250% of the targeted shares, depending on actual 2020 revenue compared with targeted 2020 revenue. Employees forfeit their PSUs if they do not remain employed by TransUnion through December 31, 2020, but any forfeited shares are reallocated to a subset of employees under a last-man-standing provision. The PSU awards were approved by the Compensation Committee of the Board of Directors of TransUnion and were granted as employment inducement awards pursuant to New York Stock Exchange rules.

Performance share unit activity associated with the acquisition of iovation as of December 31, 2018 and 2017, and for the year ended December 31, 2018, consisted of the following:

	Shares	Weighted Average Grant Date Fair Value	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in millions)
Outstanding as of December 31, 2017	—	$ —	—	$ —
Granted	1,126,090	71.66		
Vested	—	—		
Forfeited	(9,769)	71.64		
Expired	—	—		
Outstanding as of December 31, 2018	1,116,321	$ 71.66	2.0	$ 63.4
Expected to vest as of December 31, 2018	653,293	$ 71.66	2.0	$ 37.1

Of the stock-based compensation expense recognized in 2018, $9.4 million was from the performance unit awards issued in connection with the acquisition of iovation. As of December 31, 2018, stock-based compensation expense remaining to be recognized in future years related to performance share units that we currently expect to vest in association with the acquisition of iovation, excluding an estimate for forfeitures, was $40.8 million, with weighted-average recognition periods of 2.0 years.

17. Fair Value

The following table summarizes financial instruments measured at fair value, on a recurring basis, as of December 31, 2018:

(in millions)	Total	Level 1	Level 2	Level 3
Assets				
Interest rate caps	$ 16.5	$ —	$ 16.5	$ —
Trading securities	12.4	7.8	4.6	—
Available-for-sale securities	2.9	—	2.9	—
Total	$ 31.8	$ 7.8	$ 24.0	$ —
Liabilities				
Interest rate swaps	$ (10.7)	$ —	$ (10.7)	$ —
Contingent consideration	(1.3)	—	—	(1.3)
Total	$ (12.0)	$ —	$ (10.7)	$ (1.3)

Level 1 instruments consist of exchange-traded mutual funds. Exchange-traded mutual funds are trading securities valued at their current market prices. These securities relate to a nonqualified deferred compensation plan held in trust for the benefit of plan participants.

Level 2 instruments consist of pooled separate accounts, foreign exchange-traded corporate bonds, interest rate caps and interest rate swaps. Pooled separate accounts are designated as trading securities valued at net asset values. These securities relate to the nonqualified deferred compensation plan held in trust for the benefit of plan participants. Foreign exchange-traded corporate bonds are available-for-sale securities valued at their current quoted prices. These securities mature between 2027 and 2033. The interest rate caps fair values are determined using the market standard methodology of discounting the future expected cash receipts that would occur if variable interest rates rise above the strike rate of the caps in conjunction with the cash payments related to financing the premium of the interest rate caps. The interest rate swaps fair values are determined using the market standard methodology of discounting the future expected net cash receipts or payments that would occur if variable interest rates rise above or fall below the fixed rates of the swaps. The variable interest rates used in the calculations of projected receipts on both the caps and swaps are based on an expectation of future interest rates derived from observable market interest rate curves and volatilities. See Note 11, “Debt” for additional information regarding interest rate caps and interest rate swaps.

Unrealized gains and losses on trading securities are included in net income, while unrealized gains and losses on available-for-sale securities are included in other comprehensive income. There were no significant realized or unrealized gains or losses on our securities for any of the periods presented.

Level 3 instruments consist of contingent consideration obligations related to companies we have acquired with remaining maximum payouts totaling $4.2 million. These obligations are contingent upon meeting certain quantitative or qualitative performance metrics through 2018 and are included in other current liabilities and other liabilities on our balance sheet. The fair values of the obligations are determined based on an income approach, using our expectations of the future expected earnings of the acquired entities. We assess the fair value of these obligations each reporting period with any changes reflected as gains or losses in selling, general and administrative expenses in the consolidated statements of income. During 2018, we recorded expenses of $0.4 million as a result of changes to the fair value of these obligations.

18. Reportable Segments

Over the past few years, we have completed a significant number of acquisitions that have transformed our business. We have also developed a significant number of new product offerings that have further diversified our portfolio of businesses. As a result of the evolution of our business, we have changed the disaggregated revenue and our measure of segment profit (Adjusted EBITDA) information that we provide to our chief operating decision makers (our "CODM") to better align with how we manage the business. Accordingly, our disclosures around the disaggregation of our revenue and the measure of segment profit have been recast for all periods presented to conform to the information used by our CODM. We have not changed our reportable segments and these changes do not impact our consolidated results.

We have three reportable segments, U. S. Information Services ("USIS"), International, and Consumer Interactive, and the Corporate unit, which provides support services to each of the segments. Our CODM uses the profit measure of Adjusted EBITDA, on both a consolidated and segment basis, to allocate resources and assess performance of our businesses. We use Adjusted EBITDA as our profit measure because it eliminates the impact of certain items that we do not consider indicative of operating performance, which is useful to compare operating results between periods. Our board of directors and executive management team also use Adjusted EBITDA as a compensation measure for both segment and corporate management under our incentive compensation plans. Adjusted EBITDA is also a measure frequently used by securities analysts, investors and other interested parties in their evaluation of the operating performance of companies similar to ours.

We define Adjusted EBITDA as net income (loss) attributable to each segment plus (less) loss (income) from discontinued operations, plus net interest expense, plus (less) provision (benefit) for income taxes, plus depreciation and amortization, plus (less) certain deferred revenue acquisition revenue-related adjustments, plus stock-based compensation, plus mergers, acquisitions, divestitures and business optimization-related expenses including Callcredit integration-related expenses, plus (less) certain other expenses (income).

The segment financial information below aligns with how we report information to our CODM to assess operating performance and how we manage the business. The accounting policies of the segments are the same as described in Note 1, "Significant Accounting and Reporting Policies" and Note 13, "Revenue."

The following is a more detailed description of our three reportable segments and the Corporate unit, which provides support services to each segment:

U.S. Information Services

U.S. Information Services ("USIS") provides consumer reports, risk scores, analytical and decisioning services to businesses. These businesses use our services to acquire new customers, assess consumers' ability to pay for services, identify cross-selling opportunities, measure and manage debt portfolio risk, collect debt, verify consumer identities and investigate potential fraud. The core capabilities and delivery methods in our USIS segment allow us to serve a broad set of customers across industries. We report disaggregated revenue of our USIS segment for the following verticals:

- ***Financial Services:*** The financial services vertical, which accounts for 53% of our 2018 USIS revenue, consists of our consumer lending, mortgage, auto and cards and payments lines of business. Our financial services clients consist of most banks, credit unions, finance companies, auto lenders, mortgage lenders, online-only lenders (FinTech), and other consumer lenders in the United States. We also distribute our solutions through most major resellers, secondary market players and sales agents. Beyond traditional lenders, we work with a variety of credit arrangers, such as auto dealers and peer-to-peer lenders. We provide solutions across every aspect of the lending lifecycle; customer acquisition and engagement, fraud and ID management, retention and recovery. Our products are focused on mitigating risk and include credit reporting, credit marketing, analytics and consulting, identity verification and authentication and debt recovery solutions.
- ***Emerging Verticals:*** Emerging verticals include healthcare, insurance, collections, property management, public sector and other diversified markets. Our solutions in these verticals are similar to the solutions in our financial services vertical and also address the entire customer lifecycle. We offer onboarding and retention solutions, transaction processing products, scoring products, marketing solutions, analytics and consulting, identity management and fraud solutions, and revenue optimization and collections solutions.

International

The International segment provides services similar to our USIS segment to businesses in select regions outside the United States. Depending on the maturity of the credit economy in each country, services may include credit reports, analytics and decisioning services, and other value-added risk management services. In addition, we have insurance, business and automotive databases in select geographies. These services are offered to customers in a number of industries including financial services, insurance, automotive, collections, and communications, and are delivered through both direct and indirect channels. The International segment also provides consumer services similar to those offered by our Consumer Interactive segment that help consumers proactively manage their personal finances.

We report disaggregated revenue of our International segment for the following regions: the United Kingdom, Canada, Latin America, Africa, India, and Asia Pacific.

Consumer Interactive

Consumer Interactive offers solutions that help consumers manage their personal finances and take precautions against identity theft. Services in this segment include credit reports and scores, credit monitoring, fraud protection and resolution, and financial management. Our products are provided through user-friendly online and mobile interfaces and are supported by educational content and customer support. Our Consumer Interactive segment serves consumers through both direct and indirect channels.

Corporate

In addition, Corporate provides support services for each of the segments, holds investments, and conducts enterprise functions. Certain costs incurred in Corporate that are not directly attributable to one or more of the segments remain in Corporate. These costs are typically enterprise-level costs and are primarily administrative in nature.

Selected segment financial information and disaggregated revenue consisted of the following:

(in millions)	Twelve Months Ended December 31, 2018	2017	2016
Gross revenue:			
U.S. Information Services:			
Financial Services	$ 765.1	$ 620.0	$ 551.7
Emerging Verticals	679.6	584.1	493.4
Total U.S. Information Services	$ 1,444.7	$ 1,204.1	$ 1,045.1
International:			
Canada	$ 96.0	$ 85.8	$ 73.9
Latin America	102.3	98.4	86.9
United Kingdom	71.3	—	—
Africa	64.2	61.3	60.6
India	81.8	64.6	47.5
Asia Pacific	56.7	51.9	45.0
Total International	$ 472.4	$ 361.9	$ 313.9
Total Consumer Interactive	$ 475.8	$ 432.1	$ 407.1
Total revenue, gross	$ 2,392.9	$ 1,998.1	$ 1,766.0
Intersegment revenue eliminations:			
U.S. Information Services	$ (70.0)	$ (59.3)	$ (57.0)
International	(5.1)	(4.8)	(4.0)
Consumer Interactive	(0.7)	(0.2)	—
Total intersegment eliminations	(75.7)	(64.2)	(61.1)
Total revenues, net	$ 2,317.2	$ 1,933.8	$ 1,704.9
Adjusted EBITDA:			
U.S. Information Services	$ 576.1	$ 492.3	$ 428.6
International	193.0	135.0	113.7
Consumer Interactive	237.6	211.0	181.6
Corporate	(89.8)	(90.2)	(87.2)
Consolidated Adjusted EBITDA	$ 916.9	$ 748.1	$ 636.8

As a result of displaying amounts in millions, rounding differences may exist in the tables above and below.

A reconciliation of net income attributable to TransUnion to Adjusted EBITDA for the periods presented is as follows:

	Twelve Months Ended December 31,		
(in millions)	2018	2017	2016
Net income attributable to TransUnion	$ 276.6	$ 441.2	$ 120.6
Discontinued operations	1.5	—	—
Net income from continuing operations attributable to TransUnion	278.1	441.2	120.6
Net interest expense	132.0	82.1	80.9
Provision (benefit) for income taxes	54.5	(79.1)	74.0
Depreciation and amortization	306.9	238.0	265.2
EBITDA	771.5	682.2	540.7
Adjustments to EBITDA:			
Acquisition-related revenue adjustments	28.1	—	—
Stock-based compensation	61.4	47.7	31.2
Mergers and acquisitions, divestitures and business optimization	38.7	8.5	18.5
Technology transformation	—	—	23.3
Other	17.2	9.7	23.1
Total adjustments to EBITDA	145.4	65.9	96.1
Adjusted EBITDA	$ 916.9	$ 748.1	$ 636.8

Earnings from equity method investments included in non-operating income and expense was as follows:

	Twelve Months Ended December 31,		
(in millions)	2018	2017	2016
U.S. Information Services	$ 2.6	$ 2.0	$ 1.9
International	7.3	7.1	6.7
Total	$ 9.9	$ 9.1	$ 8.6

Total assets, by segment, consisted of the following:

(in millions)	December 31, 2018	December 31, 2017
U.S. Information Services	$ 3,541.2	$ 3,070.9
International	2,991.4	1,538.0
Consumer Interactive	466.9	431.9
Corporate	40.3	77.7
Total	$ 7,039.8	$ 5,118.5

Cash paid for capital expenditures, by segment, was as follows:

	Twelve Months Ended December 31,		
(in millions)	2018	2017	2016
U.S. Information Services	$ 122.7	$ 88.8	$ 82.5
International	44.1	34.3	30.2
Consumer Interactive	11.2	9.6	9.1
Corporate	2.1	2.6	2.2
Total	$ 180.1	$ 135.3	$ 124.0

Depreciation and amortization expense by segment was as follows:

	Twelve Months Ended December 31,		
(in millions)	2018	2017	2016
U.S. Information Services	$ 191.2	$ 160.6	$ 191.0
International	98.4	61.5	57.2
Consumer Interactive	12.2	10.7	11.7
Corporate	5.1	5.2	5.3
Total	$ 306.9	$ 238.0	$ 265.2

Percentage of revenue based on where it was earned, was as follows:

	Twelve Months Ended December 31,		
	2018	2017	2016
Domestic	80%	82%	82%
International	20%	18%	18%

Percentage of long-lived assets, other than financial instruments and deferred tax assets, based on the location of the legal entity that owns the asset, was as follows:

	As of December 31,		
	2018	2017	2016
Domestic	60%	78%	78%
International	40%	22%	22%

The increase in the percentage of International long-lived assets in 2018 is a result of our Callcredit acquisition.

19. Commitments

Future minimum payments for noncancelable operating leases, purchase obligations and other liabilities in effect as of December 31, 2018, are payable as follows:

(in millions)	Operating Leases	Purchase Obligations and Other	Total
2019	$ 21.7	$ 251.3	$ 273.0
2020	18.9	45.7	64.6
2021	15.4	29.6	45.0
2022	10.5	4.1	14.6
2023	8.7	0.6	9.3
Thereafter	20.7	0.2	20.9
Totals	$ 95.9	$ 331.5	$ 427.4

Purchase obligations include $169.9 million of trade accounts payable that were included in our balance sheet as of December 31, 2018. Purchase obligations include commitments for outsourcing services, royalties, data licenses, and maintenance and other operating expenses. Rental expense related to operating leases was $19.6 million, $15.7 million, and $14.0 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Licensing agreements

We have agreements with Fair Isaac Corporation to license credit-scoring algorithms and the right to sell credit scores derived from those algorithms. Payment obligations under these agreements vary due to factors such as the volume of credit scores we sell, what type of credit scores we sell, and how our customers use the credit scores. There are no minimum payments required under these licensing agreements. However, we do have a significant level of sales volume related to these credit scores.

20. Contingencies

Litigation

In addition to the matters described below, we are routinely named as defendants in, or parties to, various legal actions and proceedings relating to our current or past business operations. These actions generally assert claims for violations of federal or state credit reporting, consumer protection or privacy laws, or common law claims related to privacy, libel, slander or the unfair treatment of consumers, and may include claims for substantial or indeterminate compensatory or punitive damages, or injunctive relief, and may seek business practice changes. We believe that most of these claims are either without merit or we have valid defenses to the claims, and we vigorously defend these matters or seek non-monetary or small monetary settlements, if possible. However, due to the uncertainties inherent in litigation, we cannot predict the outcome of each claim in each instance.

In the ordinary course of business, we also are subject to governmental and regulatory examinations, information-gathering requests, investigations and proceedings (both formal and informal), certain of which may result in adverse judgments, settlements, fines, penalties, injunctions or other relief. In connection with formal and informal inquiries by these regulators, we routinely receive requests, subpoenas and orders seeking documents, testimony, and other information in connection with various aspects of our activities.

In view of the inherent unpredictability of litigation and regulatory matters, particularly where the damages sought are substantial or indeterminate or when the proceedings or investigations are in the early stages, we cannot determine with any degree of certainty the timing or ultimate resolution of litigation and regulatory matters or the eventual loss, fines, penalties or business impact, if any, that may result. We establish reserves for litigation and regulatory matters when those matters present loss contingencies that are both probable and can be reasonably estimated. The actual costs of resolving litigation and regulatory matters, however, may be substantially higher than the amounts reserved for those matters, and an adverse outcome in certain of these matters could have a material adverse effect on our consolidated financial statements in particular quarterly or annual periods.

On a regular basis, we accrue reserves for litigation and regulatory matters based on our historical experience and our ability to reasonably estimate and ascertain the probability of any liability. However, for certain of the matters described below, we are not able to reasonably estimate our exposure because damages have not been specified and (i) the proceedings are in early stages, (ii) there is uncertainty as to the likelihood of a class being certified or the ultimate size of the class, (iii) there is uncertainty as to the outcome of similar matters pending against our competitors, (iv) there are significant factual issues to be resolved, and/or (v) there are legal issues of a first impression being presented. However, for these matters we do not believe based on currently available information that the outcomes will have a material adverse effect on our financial condition, though the outcomes could be material to our operating results for any particular period.

To reduce our exposure to an unexpected significant monetary award resulting from an adverse judicial decision, we maintain insurance that we believe is appropriate and adequate based on our historical experience. We regularly advise our insurance carriers of the claims (threatened or pending) against us in the course of litigation and generally receive a reservation of rights letter from the carriers when such claims exceed applicable deductibles. We are not aware of any significant monetary claim that has been asserted against us in the course of pending litigation that would not have some level of coverage by insurance after the relevant deductible, if any, is met.

As of December 31, 2018 and 2017, we accrued $33.2 million and $46.3 million, respectively, for anticipated claims. These amounts were recorded in other accrued liabilities in the consolidated balance sheets and the associated expenses were recorded in selling, general and administrative expenses in the consolidated statements of income. Legal fees incurred in connection with ongoing litigation are considered period costs and are expensed as incurred.

OFAC Alert Service

As a result of a decision by the United States Third Circuit Court of Appeals (*Cortez v. Trans Union LLC*) in 2010, we modified one of our add-on services we offer to our business customers that was designed to alert our customer that the consumer, who was seeking to establish a business relationship with the customer, may potentially be on the Office of Foreign Assets Control, Specifically Designated National and Blocked Persons alert list (the "OFAC Alert"). The OFAC Alert service is meant to assist our customers with their compliance obligations in connection with the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism (USA PATRIOT) Act of 2001.

In *Ramirez v. Trans Union LLC*, (No. 3:12-cv-00632-JSC, United States District Court for the Northern District of California), filed in 2012, the plaintiff has alleged that: the OFAC Alert service does not comply with the *Cortez* ruling; we have willfully violated the Fair Credit Reporting Act ("FCRA") and the corresponding California state-FCRA based on the *Cortez* ruling by continuing to offer the OFAC Alert service; and there are one or more classes of individuals who should be entitled to statutory damages (i.e., $100 to $5,000 per person) based on the allegedly willful violations. In addition to the *Ramirez* action, the same lawyers representing *Ramirez* (who also represented the plaintiff in *Cortez*) filed two additional alleged class actions in 2012 (*Miller v. Trans Union, LLC*, No. 12-1715-WJN, United States District Court for the Middle District of Pennsylvania; and *Larson v. Trans Union, LLC*, No. 12-5726-JSC, United States District Court for the Northern District of California) and one in 2014 (*Amit*

Patel, et al. v. TransUnion LLC, TransUnion Rental Screening Solutions, Inc. and TransUnion Background Data Solutions, No. 14-cv-0522-LB, United States District Court for the Northern District of California) claiming that our process for disclosing OFAC information to consumers, or how we match OFAC information to a consumer's name or other identifying information, violates the FCRA and, in some instances, the corresponding California state-FCRA. In addition to the OFAC allegations, the plaintiff in the *Patel* action sought to collapse all TransUnion FCRA regulated entities into a single entity. In July 2014, the Court in *Ramirez* certified a class of approximately 8,000 individuals solely for purposes of statutory damages if TransUnion is ultimately found to have willfully violated the FCRA, and a sub-class of California residents solely for purposes of injunctive relief under the California Consumer Credit Reporting Agencies Act. While the Court noted that the plaintiff is not seeking any actual monetary damage, the class certification order was predicated on a disputed question of Ninth Circuit law (currently there is a conflict between the federal circuits) that was awaiting action by the United States Supreme Court. Our motions to stay the *Ramirez, Miller* and *Larson* proceedings were granted and the proceedings stayed pending action by the U.S. Supreme Court in *Spokeo v. Robins*. In June 2015, the Court in *Patel* certified a national class of approximately 11,000 individuals with respect to allegations that TransUnion willfully violated the FCRA by failing to maintain and follow reasonable procedures to ensure the maximum possible accuracy of their information, and a national subclass of approximately 3,000 individuals with respect to allegations that TransUnion willfully violated the FCRA by failing to provide consumers with all information in their files. In September 2015, our motion to stay the *Patel* proceedings was granted and the proceedings stayed pending action by the U.S. Supreme Court in *Spokeo v. Robins*.

On May 16, 2016, the U.S. Supreme Court issued its decision in *Spokeo v. Robins*, holding that the injury-in-fact requirement for standing under Article III of the United States Constitution requires a plaintiff to allege an injury that is both "concrete and particularized." The Court held that the Ninth Circuit's analysis failed to consider concreteness in its analysis and vacated the decision and remanded to the Ninth Circuit to consider both aspects of the injury-in-fact requirement. Following the U.S. Supreme Court's decision, the stays in the *Ramirez, Miller, Larson* and *Patel* matters were lifted. In August 2016, the Court in *Larson* certified a class of approximately 18,000. California residents with respect to allegations that TransUnion failed to provide consumers with all information in their files in violation of the Fair Credit Reporting Act. In October 2016, the Court in *Larson* denied our petition for permission to appeal the class certification decision to the Ninth Circuit, and the Courts in *Ramirez* and *Patel* denied our motions to decertify the classes based on the implications of *Spokeo*. In January 2017, the magistrate in *Miller* recommended that the Court find that the plaintiff has standing to bring suit in federal court, and that the motion for class certification should be granted.

As a result of mediation in May 2017 and without admitting any wrongdoing, we agreed, with the consent of our insurance carrier, to the terms of an $8.0 million settlement of all class, subclass and individual claims in the *Patel* matter, which was primarily accrued in the prior year. In March 2018, the Court granted final approval of the settlement and the final settlement was paid to the settlement administrator on May 17, 2018.

The *Miller* and *Larson* cases were consolidated in the United States District Court for the Northern District of California, and on May 1, 2018, we agreed to the terms of a settlement of all class and individual claims, pursuant to which we will pay attorneys' fees and representative plaintiffs' awards, which are not material, mail corrective disclosures to class members and provide them three years of single-bureau credit monitoring. On November 29, 2018, the Court granted final approval of the settlement and letters were mailed to all class members on December 19, 2018, containing information about credit monitoring services.

On June 21, 2017, the jury in *Ramirez* returned a verdict in favor of a class of 8,185 individuals in the amount of approximately $8.1 million ($984.22 per class member) in statutory damages and approximately $52.0 million ($6,353.08 per class member) in punitive damages. In November 2017, the trial court denied our post-trial motions for judgment as a matter of law, a new trial and a reduction on the jury verdict, and we appealed the *Ramirez* ruling to the United States Court of Appeals for the Ninth Circuit. Oral argument is scheduled for February 14, 2019. We have posted a bond at nominal cost to stay the execution of the judgment pending resolution of our appeal.

The timing and outcome of the ultimate resolution of this matter is uncertain. Despite the jury verdict, we continue to believe that we have not willfully violated any law and have meritorious grounds for seeking modification of the judgment on appeal. Given the complexity and uncertainties associated with the outcome of the current and any subsequent appeals, there is a wide range of potential results, from vacating the judgment in its entirety to upholding some or all aspects of the judgment. As of December 31, 2018, we have recorded a charge for this matter equal to our current estimate of probable losses and our cost of defending this matter, net of amounts we expect to receive from our insurance carriers, the impact of which is not material to our financial condition or results of operations. That charge does not include any accrual with respect to the punitive damages awarded by the jury since it is not probable, based on current legal precedent, that an award for punitive damages in conjunction with statutory damages for the alleged conduct will survive the post-judgment actions. We currently estimate, however, that the reasonably possible loss in future periods for punitive damages falls within a range from zero to something less than the amount of the statutory damages awarded by the jury. This estimate is based on currently available information. As available information changes, our estimates may change as well. We believe we will have full insurance coverage for our current estimate of probable losses and

the legal fees and expenses we have incurred and will incur for defending this matter should this matter be unfavorably resolved against us after exhaustion of our post-judgment options.

21. Related-Party Transactions

Data and Data Services

In 2018, 2017 and 2016, we entered into a series of transactions with affiliates of Goldman, Sachs & Co. ("GS") to license data and provide data services that we offer to all of our business customers. In connection with these transactions, we received aggregate fees of approximately $10.5 million, $5.0 million and $1.4 million in 2018, 2017 and 2016, respectively. From February 15, 2012 through March 8, 2018, investment funds affiliated with GS owned at least 10% of our outstanding common stock and had a least one designee serving on our board of directors.

Debt and Hedge Activities

As of December 31, 2018 and 2017, interest accrued on our debt and hedge owed to related parties was less than $0.1 million for each period. As of December 31, 2018 there was $1.6 million of our TLB-4 was owed to affiliates of GS. As of December 31, 2017, there was $57.1 million and $12.0 million of our TLA-2 and senior secured revolving line of credit, respectively, owed to affiliates of GS. As of December 31, 2018, there was no senior secured revolving line of credit outstanding and none of our TLA-4 was owed to affiliates of GS. During 2018, we entered into an interest rate swap agreement with one of the counter-parties being an affiliate of GS. As of December 31, 2018 the GS proportion of the fair value of the swap was a liability of $4.4 million. As of December 31, 2018 and 2017, the GS proportion of the fair value of the cap was an asset of $1.7 million and $2.4 million, respectively. For the years ended December 31, 2018, 2017 and 2016, affiliates of GS were paid $2.4 million, $6.4 million and $3.9 million respectively, of interest expense and fees related to debt and hedge instruments.

Investment in Affiliated Companies

During the normal course of business we enter into transactions with companies that we hold an equity interest in. These transactions include selling and purchasing software data and professional services.

Associated Organizations of Directors and Executive Officers

During the year ended December 31, 2018, TransUnion entered into a three-year contract with BMC Software Inc. (BMC) to provide us with ITSM SAAS (IT service management, software as a service) after a competitive bidding process. Robert Beauchamp, a Director of TransUnion as of June 20, 2018, was the Chairman of BMC's Board until October 12, 2018, at which time he resigned, and was formerly BMC's President and CEO. During the year ended December 31, 2018, TransUnion paid $2.8 million for services provided by BMC. Given that the services provided by BMC are easily obtainable/replaceable from a number of third parties and the services are for TransUnion's internal use and not used to generate revenue, the services are not considered to be qualitatively significant or material to TransUnion.

22. Quarterly Financial Data (Unaudited)

The quarterly financial data for 2018 and 2017 consisted of the following:

	Three Months Ended			
(in millions)	December 31, 2018	September 30, 2018	June 30, 2018	March 31, 2018
Revenue	$ 613.1	$ 603.6	$ 563.1	$ 537.4
Operating income	130.7	122.1	134.4	125.2
Income from continuing operations	105.5	50.8	57.3	75.4
Net income	105.4	49.4	57.3	75.4
Net income attributable to TransUnion	102.1	46.3	55.0	73.1
Basic earnings per common share from:				
Income from continuing operations attributable to TransUnion	$ 0.55	$ 0.26	$ 0.30	$ 0.40
Net Income attributable to TransUnion	$ 0.55	$ 0.25	$ 0.30	$ 0.40
Diluted earnings per common share from:				
Income from continuing operations attributable to TransUnion	$ 0.53	$ 0.25	$ 0.29	$ 0.38
Net Income attributable to TransUnion	$ 0.53	$ 0.24	$ 0.29	$ 0.38

	Three Months Ended			
(in millions)	December 31, 2017[1]	September 30, 2017	June 30, 2017	March 31, 2017
Revenue	$ 506.1	$ 498.0	$ 474.8	$ 455.0
Operating income	121.5	126.6	115.5	101.1
Income from continuing operations	247.9	71.9	67.3	64.5
Net income	247.9	71.9	67.3	64.5
Net income attributable to TransUnion	245.1	68.8	64.9	62.3
Basic earnings per common share from:				
Income from continuing operations attributable to TransUnion	$ 1.34	$ 0.38	$ 0.36	$ 0.34
Net Income attributable to TransUnion	$ 1.34	$ 0.38	$ 0.36	$ 0.34
Diluted earnings per common share from:				
Income from continuing operations attributable to TransUnion	$ 1.29	$ 0.36	$ 0.34	$ 0.33
Net Income attributable to TransUnion	$ 1.29	$ 0.36	$ 0.34	$ 0.33

(1) Net income, net income attributable to TransUnion, and basic and diluted earnings per share for the fourth quarter of 2017 included a significant tax provision benefit as a result of the impact of the Act. See Note 15, “Income Taxes,” for further information.

As a result of displaying amounts in millions, rounding differences compared to the annual totals may exist in the table above.

23. Accumulated Other Comprehensive Loss

The following table sets forth the changes in each component of accumulated other comprehensive loss, net of tax:

(in millions)	Foreign Currency Translation Adjustment	Net Unrealized Gain/(Loss) On Hedges	Net Unrealized Gain/(Loss) On Available-for-sale Securities	Accumulated Other Comprehensive Loss
Balance, December 31, 2015	$ (191.6)	$ (0.3)	$ 0.1	$ (191.8)
Change	24.0	(7.2)	0.2	17.0
Balance, December 31, 2016	$ (167.6)	$ (7.5)	$ 0.3	$ (174.8)
Change	33.1	6.5	(0.1)	39.5
Balance, December 31, 2017	$ (134.5)	$ (1.0)	$ 0.2	$ (135.3)
Change	(145.1)	(2.3)	—	(147.4)
Balance, December 31, 2018	$ (279.6)	$ (3.3)	$ 0.2	$ (282.7)

The change in foreign currency translation adjustment in 2018 includes the impact of foreign currency related to our acquisition of Callcredit in June 2018.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

Not applicable.

ITEM 9A. CONTROLS AND PROCEDURES

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures as of the end of the period covered by this report. The term "disclosure controls and procedures" as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms.

Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, as appropriate, to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of the end of the period covered by this report, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Management's Report on Financial Statements and Assessment of Internal Control over Financial Reporting

Financial Statements

Management of TransUnion is responsible for the preparation of the TransUnion financial information included in this Annual Report on Form 10-K. The accompanying consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles and include amounts that are based on the best estimates and judgments of management.

Assessment of Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. TransUnion'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 U.S. generally accepted accounting principles. Internal control over financial reporting includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of TransUnion;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with U.S. generally accepted accounting principles;
- provide reasonable assurance that receipts and expenditures of TransUnion are being made only in accordance with the authorizations of management and directors of TransUnion; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of assets that could have a material effect on the consolidated financial statements.

Because of the inherent limitations in any control, no matter how well designed, internal control over financial reporting may not prevent or detect misstatements. Accordingly, even effective internal control over financial reporting can only provide reasonable assurance with respect to financial statement preparation. 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 TransUnion's internal control over financial reporting as of December 31, 2018. Management based this assessment on the criteria for effective internal control over financial reporting described in *Internal Control—Integrated Framework* as issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013. Management's assessment of and conclusion on the effectiveness of internal control over financial reporting did not include the internal controls over financial reporting of Callcredit Information Group, Ltd. ("Callcredit"), which we acquired on June 19, 2018, and iovation, Inc. ("iovation"), which we acquired on June 29, 2018, and both of which are included in the 2018 consolidated financial statements of TransUnion and subsidiaries from the date of acquisition. Callcredit constituted approximately 22% and 67% of total and net assets, respectively, as of December 31, 2018, and approximately 3% and (6)% of revenues and net income from continuing operations attributable to TransUnion, respectively, for the year then ended. iovation constituted approximately 5% and 17% of total and net assets, respectively, as of December 31, 2018, and approximately 1% and (3)% of revenues and net income from continuing operations attributable to TransUnion, respectively, for the year then ended. Management's assessment included an evaluation of the design of TransUnion's internal control over financial reporting and testing of the operational effectiveness of its internal control over financial reporting. Management reviewed the results of its assessment with the Audit and Compliance Committee of TransUnion's Board of Directors. Our independent registered public accounting firm, Ernst & Young LLP, has issued an attestation report on TransUnion's internal control over financial reporting that is included in this Annual Report on Form 10-K.

Based on our assessment, management determined that, as of December 31, 2018, TransUnion's internal control over financial reporting was effective.

Changes in internal control over financial reporting

During the quarter ended December 31, 2018, there have been no changes in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this item is incorporated by reference to our Proxy Statement for the 2019 Annual Meeting of Stockholders to be held on May 8, 2019, which will be filed with the SEC within 120 days of the end of our fiscal year ended December 31, 2018.

Code of Business Conduct and Ethics

We have adopted a Code of Business Conduct and Ethics that applies to all directors, officers and employees. Our Code of Business Conduct and Ethics is available in the "Investor Relations" section of our website at www.transunion.com, under the tab "Leadership and Governance," and a copy of the Code of Business Conduct and Ethics may also be obtained free of charge upon a request directed to TransUnion, 555 West Adams Street, Chicago, Illinois 60661, Attn: Corporate Secretary. Our Code of Business Conduct and Ethics is a "code of ethics," as defined in Item 406(b) of Regulation S-K. We will make any legally required disclosures regarding amendments to, or waivers of, provisions of our code of ethics on our website.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item is incorporated by reference to our Proxy Statement for the 2019 Annual Meeting of Stockholders to be held on May 8, 2019, which will be filed with the SEC within 120 days of the end of our fiscal year ended December 31, 2018.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this item is incorporated by reference to our Proxy Statement for the 2019 Annual Meeting of Stockholders to be held on May 8, 2019, which will be filed with the SEC within 120 days of the end of our fiscal year ended December 31, 2018.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this item is incorporated by reference to our Proxy Statement for the 2019 Annual Meeting of Stockholders to be held on May 8, 2019, which will be filed with the SEC within 120 days of the end of our fiscal year ended December 31, 2018.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this item is incorporated by reference to our Proxy Statement for the 2019 Annual Meeting of Stockholders to be held on May 8, 2019, which will be filed with the SEC within 120 days of the end of our fiscal year ended December 31, 2018.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) **List of Documents Filed as a Part of This Report:**

(1) *Financial Statements*. The following financial statements are included in Item 8 of Part II:

- Consolidated Balance Sheets—December 31, 2018 and 2017;
- Consolidated Statements of Income for the years ended December 31, 2018, 2017 and 2016;
- Consolidated Statements of Comprehensive Income for the years ended December 31, 2018, 2017 and 2016;
- Consolidated Statements of Cash Flows for the years ended December 31, 2018, 2017 and 2016;
- Consolidated Statements of Stockholders' Equity for the years ended December 31, 2018, 2017 and 2016;
- Notes to Consolidated Financial Statements.

(2) *Financial Statement Schedules.*

- Schedule I - Condensed Financial Information of TransUnion;
- Schedule I - Notes to Financial Information of TransUnion; and
- Schedule II—Valuation and Qualifying Accounts.

(3) The following exhibits are filed with this Annual Report on Form 10-K for the fiscal year ended December, 31, 2018, or incorporated herein by reference.

Exhibit No.	Exhibit Name
2.1*†	Purchase Agreement Made as a Deed, dated December 9, 2015, by and among TransUnion Netherlands I B.V., Trustev Limited, the Non-Management Sellers Identified therein, the Management Sellers identified therein and the Management Seller Representative named therein (Incorporated by reference to Exhibit 2.1 to TransUnion's Current Report on Form 8-K filed December 15, 2015).
2.2*††	Agreement with respect to certain Shares and Options of Trustev Limited Made as a Deed, dated as of December 9, 2015, by and among Trustev Limited, TransUnion Netherlands I B.V., the Management Holders identified therein and the Management Holder Representative named therein (Incorporated by reference to Exhibit 2.2 to TransUnion's Current Report on Form 8-K filed December 15, 2015).
2.3*†	Share Purchase Sale Agreement, dated February 8, 2016, among TransUnion Netherlands II B.V., Bancolombia S.A., Banco Bilbao Vizcaya Argentaria Colombia S.A., Banco Davivienda S.A., Banco Corpbanca Colombia S.A., Banco de Bogota S.A., Banco de Occidente S.A., Banco GNB Sudameris S.A., Banco Colpatria Multibanca S.A., Banco Popular S.A., Banco Caja Social S.A., Corporacion Financiera Colombiana S.A., Banco Comercial AV Villas S.A., Citibank - Colombia S.A., Banco Compartir S.A., JP Morgan Corporacion Financiera S.A., Titularizadora Colombiana S.A., and Banco de las Microfinanzas-Banamia S.A., as Sellers, TransUnion, as guarantor, and Central de Informacion Financiera S.A. (Incorporated by reference to Exhibit 2.1 to TransUnion's Current Report on Form 8-K filed on February 12, 2016).
2.4*††	Purchase Agreement, dated September 21, 2016, by and among TransUnion Healthcare, Inc., RTech Healthcare Revenue Technologies, Inc., the Sellers identified therein, and the Seller Representative named therein (Incorporated by reference to Exhibit 2.1 to TransUnion's Current Report on Form 8-K filed on September 22, 2016).
2.5*††	Share Purchase Agreement, dated as of April 20, 2018 by and among Vail Holdings UK Ltd., Crown Acquisition Topco Limited, Crown Holdco S.À R.L., the EBT Beneficiary Sellers named therein, the Individual Sellers named therein, the EBT Seller named therein, each additional Seller who may become a party thereto, Crown Holdco S.À R.L., solely in its capacity as the Seller Representative and TransUnion, solely for purposes of Section 11.21 (Incorporated by reference to Exhibit 2.1 to TransUnion's Current Report on Form 8-K filed on April 25, 2018) .
3.1	Second Amended and Restated Certificate of Incorporation of TransUnion (Incorporated by reference to Exhibit 4.1 to TransUnion's Registration Statement on Form S-8 filed June 26, 2015).
3.2	Second Amended and Restated Bylaws of TransUnion (Incorporated by reference to Exhibit 4.2 to TransUnion's Registration Statement on Form S-8 filed June 26, 2015).
4.1	Form of Stock Certificate for Common Stock (Incorporated by reference to Exhibit 4.6 to TransUnion's Amendment No. 3 to Registration Statement on Form S-1 filed on June 15, 2015).
10.1	Amendment No. 12 to Credit Agreement, dated as of January 31, 2017, by and among TransUnion Intermediate Holdings, Inc., Trans Union LLC, the Guarantors, Deutsche Bank Securities Inc., Capital One, N.A., Goldman Sachs Lending Partners LLC, JPMorgan Chase Bank, N.A. Merrill Lynch, Pierce, Fenner & Smith Incorporated, RBC Capital Markets and Wells Fargo Securities, LLC, as joint lead arrangers, Deutsche Bank AG New York Branch, as administrative agent and collateral agent and each of the lenders party thereto (Incorporated by reference to Exhibit 10.1 to TransUnion's Current Report on Form 8-K filed on February 6, 2017).
10.2	Amendment No. 13 to Credit Agreement, dated as of August 9, 2017, by and among TransUnion Intermediate Holdings, Inc., Trans Union LLC, the Guarantors, Deutsche Bank Securities, Inc., Capital One, N.A., Goldman Sachs Lending Partners LLC, JP Morgan Chase Bank, N.A., Merrill Lynch, Pierce, Fenner & Smith Incorporated, RBC Capital Markets and Wells Fargo Securities, LLC, as joint lead arrangers, Deutsche Bank AG New York Branch, as administrative agent and collateral agent, and each of the lenders party thereto (incorporated by reference to Exhibit 10.1 to TransUnion's Quarterly Report on Form 10-Q filed on October 27, 2017).
10.3	Third Amended and Restated Credit Agreement, dated as of August 9, 2017, by and among TransUnion Intermediate Holdings, Inc., Trans Union LLC, the guarantors party thereto, Deutsche Bank AG New York Branch, as Administrative Agent and as Collateral Agent, Deutsche Bank AG New York Branch, as L/C Issuer, the other lenders from time to time party thereto and Deutsche Bank Securities, Inc., Capital One, N.A., Goldman Sachs Lending Partners LLC, JP Morgan Chase Bank, N.A., Merrill Lynch, Pierce, Fenner & Smith Incorporated, RBC Capital Markets and Wells Fargo Securities, LLC, as joint lead arrangers and joint bookrunners (Incorporated by reference to Exhibit 10.1 to TransUnion's Quarterly Report on Form 10-Q filed on October 27, 2017).

10.4	Amendment No. 14 to Credit Agreement, dated as of May 2, 2018, by and among TransUnion Intermediate Holdings, Inc. (f/k/a TransUnion Corp.), Trans Union LLC, the Guarantors, Deutsche Bank Securities Inc., Capital One, N.A., Merrill Lynch, Pierce, Fenner & Smith Incorporated and RBC Capital Markets, as joint lead arrangers, Deutsche Bank AG New York Branch, as administrative agent and collateral agent, and each of the other Lenders party thereto (Incorporated by reference to Exhibit 10.1 to TransUnion's Quarterly Report on Form 10-Q filed on July 25, 2018).
10.5	Amendment No. 15 to Credit Agreement, dated as of June 19, 2018, by and among TransUnion Intermediate Holdings, Inc. (f/k/a TransUnion Corp.), Trans Union LLC, the Guarantors, Deutsche Bank Securities Inc., RBC Capital Markets, Merrill Lynch, Pierce, Fenner & Smith Incorporated and Capital One, N.A., as joint lead arrangers, Deutsche Bank AG New York Branch, as administrative agent and collateral agent, and each of the other Lenders party thereto (Incorporated by reference to Exhibit 10.2 to TransUnion's Quarterly Report on Form 10-Q filed on July 25, 2018).
10.6	Amendment No. 16 to Credit Agreement, dated as of June 29, 2018, by and among TransUnion Intermediate Holdings, Inc. (f/k/a TransUnion Corp.), Trans Union LLC, the Guarantors, Deutsche Bank Securities Inc., RBC Capital Markets, Merrill Lynch, Pierce, Fenner & Smith Incorporated and Capital One, N.A., as joint lead arrangers, Deutsche Bank AG New York Branch, as administrative agent and collateral agent, and each of the other Lenders party thereto (Incorporated by reference to Exhibit 10.3 to TransUnion's Quarterly Report on Form 10-Q filed on July 25, 2018).
10.7†††	TransUnion Holding Company, Inc. 2012 Management Equity Plan (Effective April 30, 2012) (Incorporated by reference to Exhibit 10.1 to TransUnion's Registration Statement on Form S-4 filed July 31, 2012).
10.8†††	TransUnion Holding Company, Inc. 2012 Management Equity Plan Stock Option Agreement (Effective April 30, 2012) (Incorporated by reference to Exhibit 10.2 to TransUnion's Registration Statement on Form S-4 filed July 31, 2012).
10.9†††	Amendment No. 1 to TransUnion Holding Company, Inc. 2012 Management Equity Plan Stock Option Agreement, dated as of January 1, 2016 (Incorporated by reference to Exhibit 10.7 to TransUnion's Annual Report on Form 10-K for the year ended December 31, 2015).
10.10	Stockholders' Agreement made as of April 30, 2012, among TransUnion, the members of the management or other key persons of TransUnion or of TransUnion Intermediate Holdings, Inc., that are signatories thereto, any other person who becomes a party thereto, and the GS Investors (as defined therein) and the Advent Investor (as defined therein) (for specific purposes) (Incorporated by reference to Exhibit 10.4 to TransUnion's Registration Statement on Form S-4 filed July 31, 2012).
10.11	First Amendment to the Stockholders' Agreement, dated as of February 12, 2016, among TransUnion, The Advent Investor (as defined therein) and the GS Investor (as defined therein) (Incorporated by reference to Exhibit 10.9 to TransUnion's Annual Report on Form 10-K for the year ended December 31, 2015).
10.12	Second Amendment to the Stockholders' Agreement, dated as of December 16, 2016, among TransUnion, The Advent Investor (as defined therein) and the GS Investor (as defined therein) (Incorporated by reference to Exhibit 10.13 to TransUnion's Annual Report on Form 10-K for the year ended December 31, 2016).
10.13	Amended and Restated Major Stockholders' Agreement, dated as of June 23, 2015, among TransUnion, the Advent Investor (as defined therein) and the GS Investors (as defined therein) (Incorporated by reference to Exhibit 10.7 to TransUnion's Amendment No. 2 to Registration Statement on Form S-1/A filed May 29, 2015).
10.14	Registration Rights Agreement dated as of April 30, 2012, by and among TransUnion, the Advent Investors (as defined therein), the GS Investors (as defined therein), certain Key Individuals (as defined therein) and any other person who becomes a party thereto (Incorporated by reference to Exhibit 10.5 to TransUnion's Registration Statement on Form S-4 filed July 31, 2012).
10.15	First Amendment to Registration Rights Agreement, dated March 2, 2016, by and among TransUnion (successor to TransUnion Holding Company, Inc.), the Advent Investor (as defined therein), the GS Investors (as defined therein) and certain Key Individuals (as defined therein) (Incorporated by reference to Exhibit 10.4 to TransUnion's Quarterly Report on Form 10-Q for the quarter ended June 30, 2016).
10.16	Form of Director Indemnification Agreement for directors of TransUnion (Incorporated by reference to Exhibit 10.6 to TransUnion's Registration Statement on Form S-4 filed July 31, 2012).
10.17†††	Employment Agreement with James M. Peck, President and Chief Executive Officer of TransUnion and TransUnion Intermediate Holdings, Inc., dated December 6, 2012 (Incorporated by reference to Exhibit 10.15 to TransUnion's and TransUnion Intermediate Holdings, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2012).

10.18†††	Letter Agreement between TransUnion and Reed Elsevier with respect to the employment of James M. Peck as the President and Chief Executive Officer of TransUnion and TransUnion Intermediate Holdings, Inc., dated December 6, 2012 (Incorporated by reference to Exhibit 10.16 to TransUnion's and TransUnion Intermediate Holdings, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2012).
10.19†††	Employment Agreement, dated as of November 13, 2018, by and between TransUnion and Christopher A. Cartwright (Incorporated by reference to Exhibit 10.1 to TransUnion's Current Report on Form 8-K filed on November 14, 2018).
10.20†††	Employment Agreement, dated as of November 13, 2018, by and between TransUnion and James M. Peck (Incorporated by reference to Exhibit 10.2 to TransUnion's Current Report on Form 8-K filed on November 14, 2018).
10.21†††	TransUnion 2015 Omnibus Incentive Plan. (Incorporated by reference to Exhibit 4.4 to TransUnion's Registration Statement on Form S-8 filed June 26, 2015).
10.22†††	TransUnion 2015 Omnibus Incentive Plan Award Agreement with respect to Restricted Stock Units and Performance Share Units (U.S. Employees) (Incorporated by reference to Exhibit 10.2 to TransUnion's Quarterly Report on Form 10-Q for the quarter ended June 30, 2016).
10.23†††	TransUnion 2015 Omnibus Incentive Plan Award Agreement with respect to Restricted Stock (Outside Directors) (Incorporated by reference to Exhibit 10.3 to TransUnion's Quarterly Report on Form 10-Q for the quarter ended June 30, 2016).
10.24†††**	TransUnion 2015 Employee Stock Purchase Plan, as Amended and Restated, Effective November 6, 2018.
10.25	Consent Order Issued by the United States Consumer Financial Protection Bureau on January 3, 2017, Administrative Proceeding - File No. 2017-CFPB-0002, In the Matter of: TransUnion Interactive, Inc., Trans Union LLC and TransUnion (Incorporated by reference to Exhibit 10.25 to TransUnion's Annual Report on Form 10-K for the year ended December 31, 2016).
21**	Subsidiaries of TransUnion.
23.1**	Consent of Ernst & Young LLP.
24**	Power of Attorney - TransUnion (included on the signature page of this Form 10-K).
31.1**	Certification of Principal Executive Officer for TransUnion pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2**	Certification of Principal Financial Officer for TransUnion pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32**	Certification of Chief Executive Officer and Chief Financial Officer for TransUnion pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS**	XBRL Instance Document
101.SCH**	XBRL Taxonomy Extension Schema Document
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB**	XBRL Taxonomy Extension Label Linkbase Document
101.PRE**	XBRL Taxonomy Extension Presentation Linkbase Document

* Schedules have been omitted pursuant to Item 601(b)(2) of Regulation S-K. The Registrant hereby undertakes to furnish supplemental copies of any of the omitted schedules upon request by the Securities and Exchange Commission.

† English translation submitted. The Registrant hereby undertakes to furnish supplementally a copy of the foreign language document upon request of the Securities and Exchange Commission.

†† Confidential treatment has been granted for portions of this exhibit. These portions have been omitted and submitted separately to the Securities and Exchange Commission.

††† Identifies management contracts and compensatory plans or arrangement.

** Filed or furnished herewith.

(4) Valuation and qualifying accounts.

(b) **Exhibits.** See Item 15(a)(3).

(c) **Financial Statement Schedules**. See Item 15(a)(2)

ITEM 16. FORM 10-K SUMMARY

None.

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, on February 14, 2019.

TransUnion

By: /s/Todd M. Cello

Todd M. Cello
Executive Vice President and Chief Financial Officer

POWER OF ATTORNEY

The officers and directors whose signatures appear below constitute and appoint Heather J. Russell and Michael J. Forde as their true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for them in their name, place and stead, in any and all capacities, to sign and file, with the Securities and Exchange Commission, this Form 10-K and any and all amendments and exhibits thereto, and all documents in connection therewith, granting unto each such attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully and to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that such attorneys-in-fact and agents or their substitutes may lawfully do or cause to be done by virtue hereof.

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 14, 2019.

Signature	Title
/s/James M. Peck James M. Peck	President and Chief Executive Officer, Director *(Principal Executive Officer)*
/s/Todd M. Cello Todd M. Cello	Executive Vice President and Chief Financial Officer *(Principal Financial Officer)*
/s/Timothy Elberfeld Timothy Elberfeld	Vice President and Chief Accounting Officer *(Principal Accounting Officer)*
/s/George M. Awad George M. Awad	Director
/s/ Robert E. Beauchamp Robert E. Beauchamp	Director
/s/ Suzanne P. Clark Suzanne P. Clark	Director
/s/ Russell P. Fradin Russell P. Fradin	Director
/s/ Pamela A. Joseph Pamela A. Joseph	Director
/s/ Siddharth N. (Bobby) Mehta Siddharth N. (Bobby) Mehta	Director
/s/ Thomas L. Monahan III Thomas L. Monahan III	Director
/s/Leo F. Mullin Leo F. Mullin	Director
/s/ Andrew Prozes Andrew Prozes	Director

Schedule I—Condensed Financial Information of TransUnion

TRANSUNION
Parent Company Only
Balance Sheet
(in millions, except per share data)

	December 31, 2018	December 31, 2017
Assets		
Current assets:		
Other current assets	$ 0.5	$ 0.1
Total current assets	0.5	0.1
Investment in TransUnion Intermediate	1,928.0	1,739.4
Other assets	6.8	8.1
Total assets	$ 1,935.3	$ 1,747.6
Liabilities and stockholders' equity		
Current liabilities:		
Trade accounts payable	$ 0.3	$ —
Due to TransUnion Intermediate	42.6	18.9
Other current liabilities	0.5	—
Total current liabilities	43.4	18.9
Other liabilities	2.2	—
Total liabilities	45.6	18.9
Stockholders' equity:		
Common stock, $0.01 par value; 1.0 billion shares authorized at December 31, 2018 and December 31, 2017; 190.0 million and 187.4 million shares issued as of December 31, 2018 and December 31, 2017, respectively; and 185.7 million and 183.2 million shares outstanding as of December 31, 2018 and December 31, 2017, respectively	1.9	1.9
Additional paid-in capital	1,947.3	1,863.5
Treasury stock at cost; 4.2 million shares at December 31, 2018 and December 31, 2017	(139.9)	(138.8)
Retained earnings	363.1	137.4
Accumulated other comprehensive loss	(282.7)	(135.3)
Total stockholders' equity	1,889.7	1,728.7
Total liabilities and stockholders' equity	$ 1,935.3	$ 1,747.6

See accompanying notes to condensed financial statements.

Schedule I —Condensed Financial Information of TransUnion

TRANSUNION
Parent Company Only
Statement of Income
(in millions)

	Twelve Months Ended December 31,		
	2018	2017	2016
Revenue	$ —	$ —	$ —
Operating expenses			
Selling, general and administrative	3.2	2.5	1.8
Total operating expenses	3.2	2.5	1.8
Operating loss	(3.2)	(2.5)	(1.8)
Non-operating income and expense			
Equity Income from TransUnion Intermediate	279.3	448.1	124.3
Other income and (expense), net	(0.4)	(1.7)	(2.7)
Total non-operating income and expense	278.9	446.4	121.6
Income from continuing operations before income taxes	275.7	443.9	119.8
Benefit (provision) for income taxes	0.9	(2.7)	0.8
Net income	$ 276.6	$ 441.2	$ 120.6

See accompanying notes to condensed financial statements.

Schedule I —Condensed Financial Information of TransUnion

TRANSUNION
Parent Company Only
Statements of Comprehensive Income
(in millions)

	Twelve Months Ended December 31,		
	2018	2017	2016
Net income	$ 276.6	$ 441.2	$ 120.6
Other comprehensive income (loss):			
Foreign currency translation:			
Foreign currency translation adjustment	(145.1)	32.5	21.3
Benefit for income taxes	—	0.6	2.7
Foreign currency translation, net	(145.1)	33.1	24.0
Hedge instruments:			
Net change on interest rate cap	7.6	10.1	(12.0)
Net change on interest rate swap	(10.7)	—	—
Amortization of accumulated loss	—	0.4	0.4
Benefit (expense) for income taxes	0.8	(4.0)	4.4
Hedge instruments, net	(2.3)	6.5	(7.2)
Available-for-sale securities:			
Net unrealized (loss) gain	—	(0.1)	0.4
Expense for income taxes	—	—	(0.2)
Available-for-sale securities, net	—	(0.1)	0.2
Total other comprehensive (loss) income, net of tax	(147.4)	39.5	17.0
Comprehensive income attributable to TransUnion	$ 129.2	$ 480.7	$ 137.6

See accompanying notes to condensed financial statements.

Schedule I —Condensed Financial Information of TransUnion

TRANSUNION
Parent Company Only
Statement of Cash Flows
(in millions)

	Twelve Months Ended December 31,		
	2018	2017	2016
Cash provided by (used in) operating activities	$ 16.6	$ 106.4	$ (11.6)
Cash used in investing activities	—	—	—
Cash flows from financing activities:			
Proceeds from issuance of common stock and exercise of stock options	26.2	27.1	6.0
Dividends to stockholders	(41.6)	—	—
Treasury stock purchased	—	(133.5)	(0.7)
Excess tax benefit	—	—	6.3
Other	(1.2)	—	—
Cash (used in) provided by financing activities	(16.6)	(106.4)	11.6
Net change in cash and cash equivalents	—	—	—
Cash and cash equivalents, beginning of period	—	—	—
Cash and cash equivalents, end of period	$ —	$ —	$ —

See accompanying notes to condensed financial statements.

Schedule I —Condensed Financial Information of TransUnion

TRANSUNION
Parent Company Only
Notes to Financial Statements

Note 1. Basis of Presentation

In the TransUnion parent company only financial statements, the Company's investment in subsidiaries is stated at cost plus equity in the undistributed earnings of subsidiaries since the date of acquisition. The Company's share of net income of its subsidiaries is included in consolidated income using the equity method. The parent company only financial information should be read in conjunction with TransUnion's consolidated financial statements.

Note 2. Income tax

TransUnion entered into an intercompany tax allocation agreement with TransUnion Intermediate Holdings, Inc. in 2013, effective for all taxable periods from May 1, 2012, forward, in which they are members of the same consolidated federal or state tax groups. The agreement allocates the consolidated tax liability from those filings among the various members of the group.

Note 3. Dividends to Stockholders

On February 13, 2018, we announced that our board of directors has approved a dividend policy pursuant to which we intend to pay quarterly cash dividends on our common stock. During 2018, the board of directors declared three quarterly dividends in May, August and November of $0.075 per share, that we paid in June, September and December. In total, we declared $42.6 million of dividends and paid $41.6 million, with the remainder dues as dividend equivalents to employees who hold restricted stock units when and if those units vest.

Schedule II—Valuation and Qualifying Accounts

TRANSUNION

(in millions)	Balance at Beginning of Year	Charged to Costs and Expenses	Charged to Other Accounts	Deductions[1]	Balance at End of Year
Allowance for doubtful accounts:					
Year ended December 31,					
2018	$ 9.9	$ 4.6	$ —	$ (1.0)	$ 13.5
2017	$ 6.2	$ 5.1	$ —	$ (1.4)	$ 9.9
2016	$ 4.2	$ 4.3	$ —	$ (2.3)	$ 6.2
Allowance for deferred tax assets:					
Year ended December 31,					
2018	$ 85.3	$ 5.3	$ —	$ (38.7)	$ 51.9
2017	$ 59.2	$ 45.1	$ —	$ (19.0)	$ 85.3
2016	$ 46.7	$ 13.6	$ —	$ (1.1)	$ 59.2

[1] For the allowance for doubtful accounts, includes write-offs of uncollectable accounts.