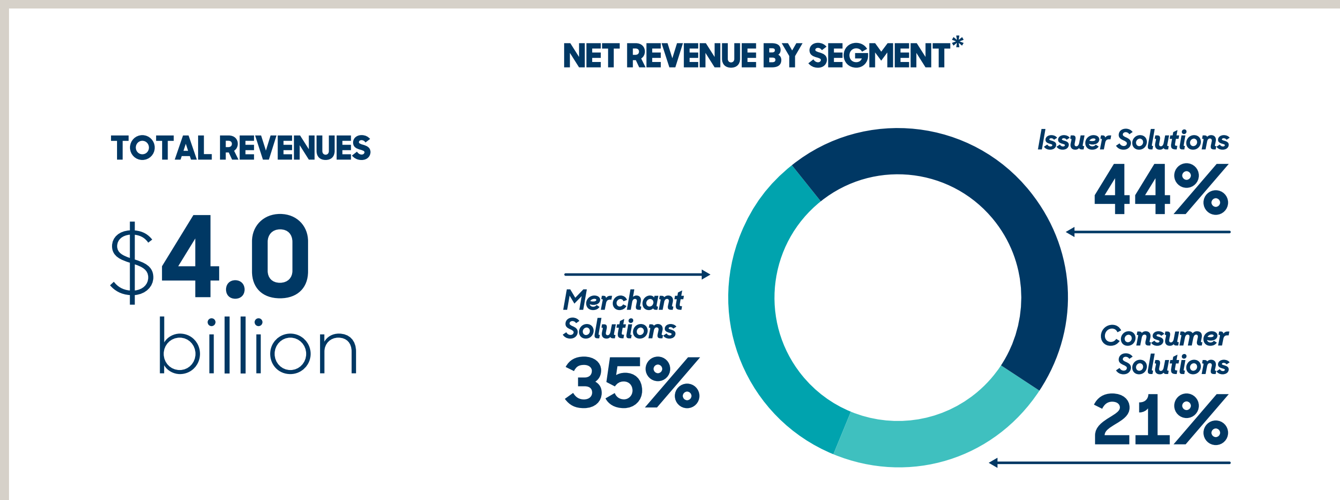
We Keep Money Moving℠

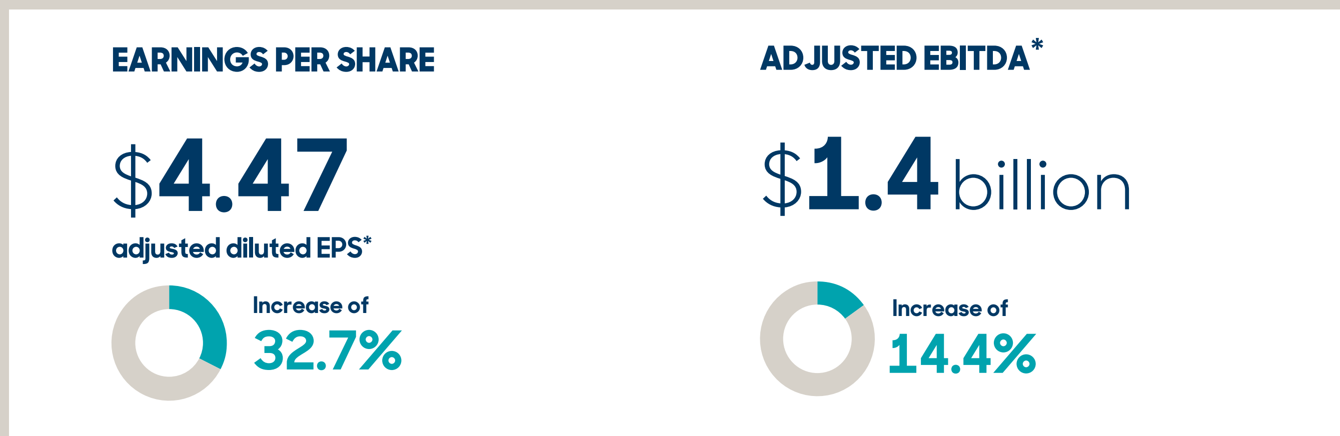
2018 Annual Report

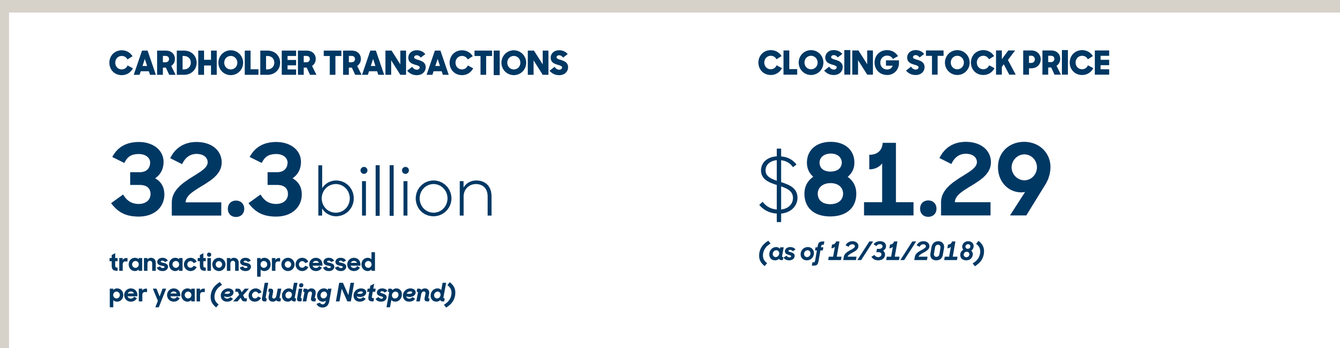
TSYS®

We're people-centered and performance-driven.

The way we do things shapes our success and helps us meet the challenges of tomorrow, unlocking payment possibilities for even more people.







*Net revenue, adjusted EBITDA and adjusted diluted earnings per share are non-GAAP financial measures, which are explained further on pages 26-28 of this report.

Dear Shareholders and Friends,

You've surely heard the expression that money makes the world go round? Well, we're the people who make the money go round — by making electronic payments possible.

In fact, the entire payments industry is marked by movement and momentum, and TSYS is an integral part of this industry's global, fast-moving ecosystem. Customers can choose from a variety of payment options, and we'll get their money wherever it needs to go.

2018 was one of the most exceptional years in our history. We bolstered our product strategy for issuers with open APIs and entered promising new territory in the prepaid business. And with our Cayan® integration on track, the acquisition of iMobile3™, and the recent launch of our Vital® product suite, our merchant business is in an increasingly stronger position.

It's never been more exciting to be part of the payments business. We're on the cusp of a moment that only happens once in a lifetime, fueled by new innovations in cloud services, connected devices and artificial intelligence. We're now in lockstep with the customer before, during and after a transaction.

And companies like TSYS are winning, because we have a deep understanding of the customer — most of whom want their retail, social and financial lives all in one place. We are extremely bullish on the industry spaces in which we compete, and we continue to be encouraged by positive trends that indicate a continued rise in consumer spending and sustained low unemployment rates.

But how do you keep money moving while also keeping an eye on the future? The short answer: we live and breathe our brand and culture every day. This is how we work together to unlock the many possibilities of people-centered payments. Our culture of putting people first propels us forward, helping us improve people's lives in new ways.

By that same token, we're also driven by performance: the desire to do more today than we did yesterday and to push even further tomorrow. These dual components of being people-centered and performance-driven remind us that while we're always dedicated to treating people well — customers, fellow team members and community members — it's not enough to simply establish and maintain good relationships. We must also *perform* by delivering innovative products, platforms, solutions and services to meet customer requirements and achieve success.

Looking ahead to the remainder of 2019, I'd like to share with you where we're headed, what we've learned from the past year and how we'll keep building even more momentum for our business.

But first, let's take a look at the numbers from last year.

Financial Information

In 2018, we attribute our strong financial performance to three strategic plays. First, we continued to leverage a very strong balance sheet. We made strategic investments in our product suite by funding crucial internal projects and making acquisitions. And finally, we continued to prioritize returning capital to our shareholders.

This financial strategy is centered around our pursuit of growth. And in order to achieve growth in terms of revenue, earnings and free cash flow, we strategically allocate and deploy capital. As a result of growing the business and winning in the market, we have delivered outstanding returns to our shareholders. TSYS' total shareholder return outperformed the S&P 500 for the last one, three and five year periods, cumulating in a 155 percent return over the last five years.

In addition to a very attractive market profile, we also have a highly unique differentiator in our business mix. Our three business segments — issuer, merchant and consumer — provide a significant amount of recurring revenue. By operating all three segments under one umbrella, TSYS is able to generate revenue and expense synergies.

Within each of our segments, there are attractive adjacent market opportunities to expand our potential addressable market and provide even more runway for accelerating growth. A few examples include playing a broader role in B2B payments within our Issuer Solutions segment, expanding further into payments software within our Merchant Solutions segment, and continuing to add new products in our Consumer Solutions segment that help consumers better navigate their daily financial lives.

In short, our business mix, our investment-grade balance sheet, and our increasing free cash flow allow us to continue to grow our investments in capabilities for the future. As the momentum in our company continues, we're proud of our strong financial performance in 2018.

Revenue and Income: Total revenues were $4.0 billion, a decrease of 18.3 percent. Net revenue was $3.8 billion, an increase of 12.2 percent.

Adjusted EBITDA: Adjusted EBITDA was $1.4 billion, an increase of 14.4 percent.

Earnings Per Share (EPS): Basic EPS was $3.17, a decrease of 0.7 percent. Diluted EPS was $3.14, a decrease of 0.8 percent. Adjusted diluted EPS was $4.47, an increase of 32.7 percent.

Return to Shareholders: Our closing stock price at year end was $81.29. We purchased 2.0 million shares, totaling $171.9 million. These purchases, along with our dividends of $94.6 million, returned $266.5 million to our shareholders.

Revenue Diversification: As our three segments continue to evolve, so does our overall net revenue mix. In 2018, issuer contributed 44 percent of revenue, with merchant at 35 percent and consumer with 21 percent.

These financial milestones represent the fruition of many years of collective effort. We take none of them for granted, and look forward to continuing to be the ones who keep money moving.

(dollars in thousands, except per share data)	2018	2017	% Change
Total revenues	$4,028,211	$4,927,965	(18.3)
Net revenue*	$3,815,900	$3,400,332	12.2
Operating income	$822,738	$734,044	12.1
Net income attributable to TSYS common shareholders	$576,656	$586,185	(1.6)
Basic earnings per share attributable to TSYS common shareholders	$3.17	$3.19	(0.7)
Diluted earnings per share attributable to TSYS common shareholders	$3.14	$3.16	(0.8)
Adjusted EBITDA*	$1,370,453	$1,197,673	14.4
Adjusted diluted EPS*	$4.47	$3.37	32.7

***Net revenue, adjusted EBITDA and adjusted diluted earnings per share are non-GAAP financial measures, which are explained further on pages 26-28 of this report.**

Pushing *for excellence.*

What's the key to building excellent customer relationships?

That's the question Andrea and her team answer every day, as they oversee one of our biggest credit card issuing customers in the United Kingdom, Nationwide Building Society. Thanks to this attitude, Andrea and her team were awarded the inaugural Arthur Webb Partner Shield award, which recognized TSYS as Nationwide's very best supplier in 2018.

Andrea attributes this success to the TSYS culture. "Everyone is pushing themselves to do even better," she says. "We're proactive. We always try to get ahead of problems, so we can fix them before they happen."

Andrea Litchfield
Head of Site, Coventry | **TSYS ISSUER SOLUTIONS**

Issuer Solutions

Over the last few years, our issuing segment has shifted dramatically. Our team has taken this business beyond a "processing vendor" approach, and moved it into the realm of serving as a trusted advisor with a robust product strategy. We strive to have a deep knowledge about every aspect of our clients' businesses, so we're capable of and ready to anticipate their business needs.

These efforts have positioned us as an industry leader with substantial scale. As it pertains to net revenues derived from providing processing and related solutions to credit card issuers, our issuer solutions business is No. 1 in the United States, Canada, United Kingdom and Ireland, and No. 2 across all of Western Europe.

In the United States, we saw great traction in the commercial issuing business throughout the year including new business from Regions Bank. JP Morgan also began offering our strategic commercial card payables solution — called TSYS Virtual Payment Precept℠ — to companies.

Our consumer issuing business also saw a number of highly competitive new contract wins and renewals last year. CreditShop was among the wins, while the renewals included Allied Irish Bank, Capital One UK, Navy Federal Credit Union and Regions Bank. We also announced the renewal of our agreement with Nationwide Building Society, which came on the heels of celebrating the 10-year anniversary of Nationwide being a client.

And we're not only attracting the world's leading financial institutions, but also the world's leading retailers. Last year, we announced an agreement with a major mega-retailer to implement our TSYS Advanced AuthControl℠ product at its thousands of storefront locations in the United States. That's in addition to Capital One telling us that they'll be adding two retail portfolios to their existing contract in the coming year.

Looking eastward, we're also No. 1 in China through our joint venture with China UnionPay (CUP Data). Our perspective on the Chinese market remains confident. This market continues to see tremendous growth in the payments arena. Of course, there are uncertainties involved in this region, but we continue to be encouraged by the performance of CUP Data and believe our partnership will continue to deliver strong bottom-line results.

We excel in our global markets, not only because we secure long-term renewals with existing customers, but also from winning new business with existing customers — and expanding market share with new customers that have not processed with TSYS. This position of leadership — and our massive scale — equips us to invest in the business, offer market-leading pricing and efficiencies for our clients, and of course, provide the superior service for which TSYS is known.

So where to next? From a product standpoint, we continue to see strong demand for the solutions we're bringing to market, especially those involving customer service, communications and digital engagement. We saw significant interest from large issuers in TSYS Foresight Score℠, our fraud- and risk-management scoring tool that incorporates innovative machine learning. We also rolled out our TSYS Communications Platform℠ to some of our largest international clients, who are now better equipped to send compliance notifications to their customers. We feel confident that we not only have the winning technology, but also the institutional readiness to deliver it.

From a regulatory standpoint, our systems are designed to comply with the European Union's General Data Protection Regulation (GDPR) that went into effect last May. GDPR also ushers in an era of "unbundling the customer." Rather than owning the entire customer relationship, many banks will offer products and services through integrated third parties where data is used from and across multiple sources. And this is precisely why TSYS has opened its ecosystem to enable it to work with third parties and partners of all types.

We're continuing to focus on our open API-based platforms that bring our products and solutions into one powerful, cohesive ecosystem. By taking an API-first development approach with data and analytics integrated from day one, we're enabling our clients to achieve greater speed to market than ever before in an era that demands it.

Merchant Solutions

Being in the merchant business these days is incredibly exciting. It is software-driven, innovation-rich and data-centric, with a laser-focus on payment solutions to serve small- and medium-sized businesses (SMBs) in the United States.

As a result of this unique market, we're well aware of the need to stay hyper-focused to take on both the major players that remain alongside us, as well as a number of rapidly rising, nimble competitors. This will help us keep building momentum toward our goal of being the No. 1 SMB payments player in the United States.

The acquisition of Cayan in early 2018 was a game changer for TSYS, adding to our already great collection of distribution capabilities and partners within the merchant segment — now nearly 1,400 partners. TSYS made a bold move further into retail and other verticals by acquiring Cayan and its omnichannel Genius® platform.

The Cayan integration is on track, on budget and going according to plan. It's been a true integration in every sense of the word, involving organizations, platforms and people. More than 60,000 merchants were converted from competitive platforms during the first eight months of the integration effort.

Innovation comes *from everywhere.*

Innovation put TSYS where it is today.

And to be where we want to be tomorrow, we have to keep pushing forward. Gavin's job is to make sure our products solve real-world problems for customers. He points to the Genius and Vital platforms as two examples of how we're doing this.

"We're going through an evolution in how we use technology to solve problems," Gavin says. "It's driven by user experiences. Suddenly, the payment tools they need are all in one place — so they can get on with running their business."

Gavin Rosenberg
Vice President, Product Marketing | **TSYS MERCHANT SOLUTIONS**

In June 2018, we announced the acquisition of iMobile3, a provider of private-label, small business solutions within the payments industry. We sought out iMobile3 for its unique and customizable payment solutions, including award-winning mobile and tablet point-of-sale (POS) products, integrated with value-added services.

The perfect mix of all of these assets came together early in 2019 with the launch of Vital®, a new set of hardware and software POS products targeted predominantly at SMBs. With Vital POS, merchants can gain a much clearer understanding of the dynamics of their business. Robust analytics and reporting are available across the entire product line — including Vital Mobile, a mobile payments solution that works with a business owner's phone or tablet; Vital Plus, a payment terminal designed for countertops; and Vital Select, a payments system that can support multiple business locations.

Vital POS offers everything one would expect from a new generation of cloud-based software providers, but surpasses them with extraordinary back-office and business management capabilities. For example, merchants can use Vital POS to evaluate which employees are performing best, which days are the busiest, which items in their inventory are selling fastest — and more.

Based on net revenue, we're the fifth-largest SMB player in the United States. Perhaps more importantly, we're the third-largest integrated player. TSYS is well-positioned to succeed in this market, because we already have relationships with more than 800,000 merchants across the United States — 225,000 of which were added in 2018.

Consumer Solutions

When you think Netspend®, you may instinctively think "prepaid." After all, our Netspend brand got its start in this segment of the payments market, focusing on the underbanked and unbanked consumers who often lack access to traditional financial services. Since our inception, Netspend has done well in this space, finding ourselves as one of the largest prepaid players in the United States based on revenue and gross dollar volume.

However, we believe this market is really about a broader lifestyle, and fundamental needs, of the consumers we serve. Helping enrich the lives of our customers through economic mobility is part of Netspend's core mission. And in 2018, we continued to expand beyond a "prepaid mindset" and simplistic products to offer a wider range of payment solutions tailored for individuals who are seeking alternative options in the payments marketplace.

In our Consumer Solutions segment, we're enhancing our offerings beyond general-purpose reloadable (GPR) propositions to a variety of expanded digital, financial and self-banking solutions tailored to helping consumers better manage their daily financial lives and make purchases where they live, work, shop and play.

One of the most promising new services is our demand deposit account (DDA) product offering. We've been establishing a solid foundation around our DDA solution for the last few years, and our DDA product has now been rolled out as an upgrade offering across all of our sales channels with multiple partners and brands. While it is still early, we are pleased to see so many GPR customers upgrading to our DDA product — we had more than 500,000 debit active cards as of year end 2018. During 2019, the market will see an expansion of our DDA propositions under the Netspend brand, as well as those of our partners across our expansive distribution network.

In our retail and partner channels, we had a strong year and signed extensions with several key partners including Walmart, Liberty Tax and Family Dollar. We also implemented swipe reloads for the nation's largest grocery store chain, and we are encouraged by the initial take-up of this valuable service offering.

In late 2017, our direct channel signed a deal with Major League Baseball (MLB), which is our first relationship within the professional sports vertical. During 2018, we expanded our partnership with MLB to offer prepaid products with MLB team logos in retail environments, including a team-specific agreement with the Houston Astros. Additionally, we extended our longstanding relationship with PayPal and we will continue to provide an assortment of services leveraging one of the world's most familiar payments brands.

Building relationships *that change lives.*

How would you choose to give away tens of thousands of dollars?

That's the incredible job Lynda has every holiday season as a leader of Community Connect, an event where our Netspend team spends one day each year doing good deeds for local residents — from buying groceries to filling gas tanks — using Netspend prepaid cards.

Lynda's big-hearted team also awards life-changing scholarships and supports a range of local charities. It makes an incredible difference to the community — and to the team. "Happy team members make happy customers," says Lynda. "I see it over and over again. We're a bright light in the community."

Lynda Lerma
Manager, Employee & Community Engagement
TSYS CONSUMER SOLUTIONS (NETSPEND)

Our commercial prepaid channel is where we deliver financial services to an employer's workforce. In 2018, we signed several key renewals and continued to expand our footprint by establishing relationships with several strong national brands. Key multi-year renewals included Cracker Barrel, Staffmark and Brookdale Senior Living. Additionally, we signed new partnerships with a significant retailer, a regional bank and a large human capital management software business. We are confident that as demand for commercial solutions related to payroll services continue to grow, these strategic partnerships will be the catalyst for a strong pipeline of new business in 2019 and beyond.

Netspend is well positioned to meet the new rules established by the Consumer Financial Protection Bureau (CFPB) going into effect on April 1, 2019. When a business goes through an intensive regulatory review process, it can be challenging; however, we are confident with our preparation, and readiness, and of our implementation and delivery program. And we're encouraged by how this process has strengthened the long-term competitive impact of our innovation agenda specific to both products and services.

As we noted earlier, our relationships and active engagement models, with our diverse set of distribution partners, remain robust. Exiting 2018, we now offer Netspend products through more than 120,000 distributing locations and employers, and more than 130,000 reload locations across the United States. Based on market metrics, this equates to more distribution points than the top 2,000-plus banks across the United States.

Due to a diverse set of products, deep domain expertise in the underbanked and underserved customer segments, and a robust distribution network, Netspend grew our core business organically at levels faster than the market and at levels higher than most of our peers.

We finished 2018 with more than $800 million in net revenue — up 8.0 percent from 2017 — and 5.0 million debit active cards across our key product offerings, including prepaid, DDA, payroll and incentive and disbursement accounts.

Looking Ahead

Just like money moves at a rapid pace, the world of payments will keep evolving at an even faster one. Here's what we need to do to stay at the forefront:

Stay True to Our Culture and Values: In a fast-moving world, some companies tend to lose sight of who they are. To avoid this, we'll always put the things we stand for — like our culture — front and center. We conduct our business with integrity and fairness to strengthen our competitive position — and because it's the right thing to do.

Deploy Leading Technology: Innovation made TSYS what it is today — and it's the key to our future. That's why we'll keep investing in tomorrow's payments technology.

Integrity: *The power of doing the right thing.*

Integrity is fundamental to all that we do at TSYS.

And it always has been. Ethics is a huge part of this. For several consecutive years, we've been named to the Ethisphere Institute's list of the World's Most Ethical Companies, which recognizes businesses that drive positive change within themselves and their community.

As Will explains, this is about doing the right thing — but it also makes good business sense. "Marketing, sales and growth all benefit," he says. "By focusing on integrity, we're making TSYS stronger."

Will Land
Senior Risk & Compliance Analyst | **TSYS**

Accelerate Product Development: Some companies fear competition. We thrive on it. Guided by our values, we'll anticipate disruption and take on challenges in the ever-evolving payments industry.

Enhance the Customer Experience: Some customers may still think of us as just a payments technology company. But a closer look will show them we can offer so much more. We'll keep building deeper partnerships with every customer, providing expert advice and guidance to help drive their performance forward.

Focus on Partner-Centric Business Development: We believe we will continue to win in the marketplace by being the partner of choice for customers and product partners, by being easy to connect and to do business with, and by broadening our offerings to address more of our customers' needs.

Represent a Variety of Voices: We recognize that our team members and their unique talents, perspectives, insights, and capabilities are critical to the growth and success of our customers. This ability to feel comfortable regardless of gender, race, religion and cultural or generational perspectives, improves our productivity as a team — ultimately enhancing the bottom line.

In Closing

For the sixth time in the past seven years, TSYS was named by the Ethisphere Institute as one of the 2018 World's Most Ethical Companies in the payment services category. We were also named to the Civic 50 for the fifth consecutive time, being honored among the ranks of the 50 most community-minded companies in the United States.

This year, we appointed Joia M. Johnson, chief administrative officer, general counsel and corporate secretary for Hanesbrands, Inc., to our board of directors. She brings an impressive array of skills that will be an asset to TSYS moving forward as we continue to grow.

I want to give a special word of appreciation to Philip W. Tomlinson, Richard W. Ussery, Mason H. Lampton and William M. Isaac, all of whom will retire from the TSYS Board of Directors this year. All four of these directors have brought invaluable knowledge and expertise during their tenure on our board, and we couldn't be more appreciative of their service.

Diversity creates a competitive advantage for companies.

Growth happens when *everyone at TSYS can thrive.*

As our senior diversity and inclusion manager, Gail champions our open and supportive workplace culture. The result is a workplace in which everyone feels valued, supported and empowered.

"We all need to consider how our actions impact those around us and work toward positive change," Gail explains. "Diversity creates a competitive advantage for companies, and paves the way to greater growth and prosperity – not only for the organization, but also for team members."

Gail Burgos
Senior Diversity & Inclusion Manager | **TSYS**

In regards to Rick and Phil, both former Chairmen of the Board and Chief Executive Officers of TSYS, we've had the benefit of their truly transformational leadership that has shaped this company from its very foundation. On a personal note, I'd like to express my gratitude on behalf of all the TSYS leaders that they have helped and for whom they've served as mentors through the years. These two were influential in developing the TSYS culture that we so proudly carry on today.

This year marks the 36th year we've been in business as a public company, and our core values and approach to doing business remain unchanged – we keep money moving. We continue to aspire to put people at the center of payments – certainly no small or easy challenge. Yet, we trust the successes we've experienced this year will carry us forward to confront the challenges and seize the opportunities that lie before us.

Thank you to our customers, our partners, our team members and our shareholders for your support.

Sincerely,

M. Troy Woods
Chairman, President and Chief Executive Officer, TSYS

EXECUTIVE LEADERSHIP

Our Leadership

M. Troy Woods
Chairman of the Board,
President & Chief Executive Officer

Paul M. Todd
Senior Executive Vice President
& Chief Financial Officer

Patricia A. Watson
Senior Executive Vice President
& Chief Information Officer

Gaylon Jowers Jr.
Senior Executive Vice President
& President, Issuer Solutions

Kelley C. Knutson
Senior Executive Vice President
& President, Consumer Solutions

Philip C. McHugh
Senior Executive Vice President
& President, Merchant Solutions

G. Sanders Griffith III
Senior Executive Vice President,
General Counsel & Secretary

Ryland L. Harrelson
Senior Executive Vice President
& Chief Human Resource Officer,
Administrative Services

W. Allen Pettis
Executive Vice President
& Chief Customer Officer,
Issuer Solutions

Our Board Of Directors

Thaddeus Arroyo
Chief Executive Officer
AT&T Business

Kriss Cloninger III
President, retired
Aflac® Incorporated

Walter W. Driver Jr.
Chairman-Southeast
Goldman, Sachs & Co.

Sidney E. Harris
Professor and Dean, retired
Georgia State University,
J. Mack Robinson
College of Business

William M. Isaac
Senior Managing Director
FTI Consulting®
Chairman of the Board, retired
Fifth Third Bancorp
Former Chairman
FDIC

Joia M. Johnson
Chief Administrative Officer,
General Counsel and
Corporate Secretary
Hanesbrands Inc.

Mason H. Lampton
Chairman of the Board
Standard Concrete Products

Connie D. McDaniel
Vice President &
Chief of Internal Audit, retired
The Coca-Cola Company

Richard A. Smith
Chairman of the Board, President
& Chief Executive Officer, retired
Realogy Holdings Corp.

Philip W. Tomlinson
Chairman of the Board &
Chief Executive Officer, retired
TSYS

John T. Turner
Chairman of the Board
W.C. Bradley Co.

Richard W. Ussery
Chairman of the Board &
Chief Executive Officer, retired
TSYS

M. Troy Woods
Chairman of the Board, President
& Chief Executive Officer
TSYS

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Selected Financial Data

The following financial data should be read in conjunction with the Consolidated Financial Statements and Notes thereto and Financial Review sections of the Annual Report. The historical trends in Total System Services, Inc.'s ("TSYS'" or "the Company's") results of operations and financial position over the last five years are presented below.

	Years Ended December 31,				
(in thousands, except per share data)	**2018**	2017	2016	2015	2014
Income Statement Data:					
Total revenues	**$ 4,028,211**	4,927,965	4,170,077	2,779,541	2,446,877
Operating income	**$ 822,738**	734,044	573,382	534,107	431,640
Income from continuing operations, net of tax	**$ 577,917**	592,216	325,972	367,630	280,751
Income from discontinued operations, net of tax	**—**	—	—	1,411	48,655
Net income	**$ 577,917**	592,216	325,972	369,041	329,406
Net income attributable to noncontrolling interests	**(1,261)**	(6,031)	(6,334)	(4,997)	(6,534)
Net income attributable to TSYS common shareholders	**$ 576,656**	586,185	319,638	364,044	322,872
Basic earnings per share (EPS)* attributable to TSYS common shareholders:					
Income from continuing operations	**$ 3.17**	3.19	1.74	1.97	1.48
Gain from discontinued operations**	**—**	—	—	0.01	0.26
Net income	**$ 3.17**	3.19	1.74	1.98	1.73
Diluted EPS* attributable to TSYS common shareholders:					
Income from continuing operations	**$ 3.14**	3.16	1.73	1.96	1.47
Gain from discontinued operations**	**—**	—	—	0.01	0.25
Net income	**$ 3.14**	3.16	1.73	1.97	1.72
Cash dividends declared per share	**$ 0.52**	0.46	0.40	0.40	0.40

**Basic and diluted EPS amounts for continuing operations and net income may not total due to rounding.*

** The Company sold all of its stock of GP Network Corporation (representing 54% ownership of the company) and all of its stock of TSYS Japan Godo Kaisha (representing 100% ownership of the company) in April 2014. In 2015, the Company recorded an additional gain of $1.4 million, net of tax, related to the return of cash that was placed in escrow during closing and tax adjustments associated with the transaction.

	As of December 31,				
(in thousands)	**2018**	2017	2016	2015	2014
Balance Sheet Data:					
Total assets	**$ 7,468,709**	6,331,689	6,366,177	3,877,895	3,725,652
Obligations under long-term borrowings, capital leases and license agreements, excluding current portion	**$ 3,889,541**	2,628,002	3,313,276	1,377,541	1,397,483

Financial Overview

TSYS' revenues are derived from providing payment processing, merchant services and related payment services to financial and nonfinancial institutions, generally under long-term processing contracts. The Company also derives revenues by providing general-purpose reloadable ("GPR") prepaid debit and payroll cards, demand deposit accounts and other financial service solutions to the underbanked and other consumers and businesses. The Company's services are provided through three operating segments: Issuer Solutions, Merchant Solutions and Consumer Solutions.

Through the Company's Issuer Solutions segment, TSYS processes information through its cardholder systems to financial and nonfinancial institutions throughout the United States and internationally. The Company's Merchant Solutions segment provides merchant services to merchant acquirers and merchants primarily in the United States. The Company's Consumer Solutions segment provides financial service solutions to consumers and businesses in the United States.

The following table sets forth each segment's revenues as a percentage of the Company's total revenues:

	Years Ended December 31,		
	2018[1]	2017	2016
Issuer Solutions	**46 %**	36 %	40 %
Merchant Solutions	**34**	49	44
Consumer Solutions	**20**	15	16
Total revenues	**100 %**	100 %	100 %

[1] *The change in the mix for each segment's revenues as a percentage of the Company's total revenues in 2018 is primarily the result of the Company's adoption of ASC 606 as of January 1, 2018.*

As discussed in Note 1 to the Consolidated Financial Statements, TSYS has updated its revenue recognition policies in conjunction with the adoption of Accounting Standards Update ("ASU") 2014-09 *Revenue from Contracts with Customers* (Topic 606) and related ASUs ("ASC 606") as of January 1, 2018. The most significant impact of adopting ASC 606 in 2018 is primarily the result of gross versus net presentation of interchange and payment network fees. In 2018, these fees collected on behalf of the payment networks and card issuers are presented "net" of the amounts paid to them, as opposed to the "gross" presentation for certain of these fees in 2017 and 2016.

Due to the somewhat seasonal nature of the payments industry, TSYS' revenues and results of operations have generally increased in the fourth quarter of each year because of increased transaction and authorization volumes during the traditional holiday shopping season. Furthermore, growth or declines in card and merchant portfolios of existing clients, the conversion of cardholder and merchant accounts of new clients to the Company's processing platforms, the receipt of fees for early contract termination and the loss of cardholder and merchant accounts either through purges or deconversions impact the results of operations from period to period.

Another factor which may affect TSYS' revenues and results of operations from time to time is consolidation in the financial services or retail industries either through the sale by a client of its business, its card portfolio or a segment of its accounts to a party which processes cardholder or merchant accounts internally or uses another third-party processor. A change in the economic environment in the retail sector, or a change in the mix of payments between cash and cards could favorably or unfavorably impact TSYS' financial position, results of operations and cash flows in the future.

TSYS acquires other companies as part of its strategy for growth. The Company acquired Cayan Holdings, LLC ("Cayan") in January 2018 and substantially all of the assets of iMobile3, LLC in June 2018. In April 2016, the Company completed the acquisition of all of the outstanding stock of TransFirst Holdings Corp. ("TransFirst"). These acquisitions are part of the Merchant Solutions segment. Refer to Note 23 in the Notes to Consolidated Financial Statements for more information regarding the Company's acquisitions.

TSYS' reported financial results will also be impacted by significant shifts in currency conversion rates. TSYS does not view foreign currency as an economic event for the Company but as a financial reporting consideration. Because changes in foreign currency exchange rates distort the operating growth rates, TSYS discloses the impact of foreign currency translation on its financial performance.

A significant amount of the Company's revenues are derived from long-term contracts with large clients. Processing contracts with large clients, representing a significant portion of the Company's total revenues, generally provide for discounts on certain services based on the size and activity of clients' portfolios. Therefore, revenues and the related margins are influenced by the client mix relative to the size of client portfolios, as well as the number and activity of individual cardholder or merchant accounts processed for each client. The revenue contracts can be highly complex and customized between customers.

Regulation

Government regulation affects key areas of TSYS' business, in the United States of America ("U.S.") as well as internationally. TSYS, along with the rest of the financial services industry, continues to experience increased legislative and regulatory scrutiny, including the enactment of additional legislative and regulatory initiatives such as the Dodd-Frank Wall Street Reform and Consumer Protection Act ("Financial Reform Act") in 2010. This legislation, which provides for sweeping financial regulatory reform, may have a significant and negative impact on the Company and its clients, which could impact TSYS' earnings through fee reductions, higher costs (both regulatory and implementation) and new restrictions on operations. The Financial Reform Act may also impact the competitive dynamics of the financial services industry in the U.S. by more adversely impacting large financial institutions, some of which are TSYS clients, and by adversely impacting the competitive position of U.S. financial institutions in comparison to foreign competitors in certain businesses.

The Financial Reform Act created the Consumer Financial Protection Bureau (“CFPB”) with responsibility for regulating consumer financial products and services and enforcing most federal consumer protection laws in the area of financial services, including consumer credit and the prepaid card industry. For example, the CFPB has promulgated a new rule regarding prepaid financial products, which, among other things, will establish new disclosure requirements specific to prepaid accounts, eliminate certain fees that may currently be imposed on prepaid accounts, and make it more difficult for a prepaid provider such as the Company’s Consumer Solutions business to offer courtesy overdraft protection on prepaid accounts. The rule is scheduled to become effective on April 1, 2019. Similarly, other future actions of the CFPB may make payment card or product transactions generally less attractive to card issuers, acquirers, consumers and merchants, and thus negatively impact the Company’s business.

On June 23, 2016, the United Kingdom (“U.K.”) held a referendum in which voters approved an exit from the European Union (“E.U.”), commonly referred to as “Brexit.” The U.K. is currently negotiating the terms of its expected exit from the European Union which is scheduled for March 29, 2019. In November 2018, the U.K. and the European Union agreed upon a draft Withdrawal Agreement that sets out the terms of the U.K.’s departure, including a transition period from March 29, 2019 through December 31, 2020 to allow time for the U.K. and the European Union to agree upon a future trade deal. On January 15, 2019, the draft Withdrawal Agreement was rejected by the U.K. Parliament creating significant uncertainty about the terms (and timing) under which the U.K. will leave the European Union and the terms of U.K.’s future relationship with the European Union. TSYS continues to monitor Brexit and its potential impact across key areas including service continuity, contracts, regulatory (including data privacy), the economy and freedom of movement of people.

Financial Review

This Financial Review provides a discussion of critical accounting policies and estimates, related party transactions and off-balance sheet arrangements. This Financial Review also discusses the results of operations, financial position, and liquidity and capital resources of TSYS and outlines the factors that have affected its recent earnings, as well as those factors that may affect its future earnings. The accompanying Consolidated Financial Statements and related Notes are an integral part of this Financial Review and should be read in conjunction with it.

Critical Accounting Policies and Estimates

Risk factors that could affect the Company's future operating results and cause actual results to vary materially from expectations are listed in the Company's forward-looking statements. Negative developments in these or other risk factors could have a material adverse effect on the Company's financial position, results of operations and cash flows.

TSYS' financial position, results of operations and cash flows are impacted by the accounting policies the Company has adopted. Refer to Note 1 in the Notes to Consolidated Financial Statements for more information on the Company's basis of presentation and a summary of significant accounting policies.

Management believes that the following accounting policies are the most critical to fully understand and evaluate the Company's results. Within each critical policy, the Company makes estimates that require management's subjective or complex judgments about the effects of matters that are inherently uncertain.

A summary of the Company's critical accounting estimates applicable to the reportable operating segments follows:

Acquisitions — Purchase Price Allocation

TSYS' purchase price allocation methodology requires the Company to make assumptions and to apply judgment to estimate the fair value of acquired assets and liabilities. TSYS estimates the fair value of assets and liabilities based upon appraised values, the carrying value of the acquired assets and widely accepted valuation techniques, including the cost approach, discounted cash flows and market multiple analyses. TSYS adjusts the purchase price allocation, as necessary, up to one year after the acquisition closing date as TSYS obtains more information regarding asset valuations and liabilities assumed. Unanticipated events or circumstances may occur which could affect the accuracy of the Company's fair value estimates, including assumptions regarding industry economic factors and business strategies, and may result in an impairment or a new allocation of purchase price. Refer to Note 23 in the Notes to Consolidated Financial Statements for more information about acquisitions.

Goodwill

In accordance with the provisions of U.S. Generally Accepted Accounting Principles ("GAAP"), goodwill is required to be tested for impairment at least annually. The Company tests goodwill for impairment during the second quarter or more frequently whenever events or changes in circumstances indicate that the carrying amount of goodwill may not be recoverable. Examples of potential triggering events include, but are not limited to, a deterioration in general economic conditions, industry and market considerations such as a deterioration in the environment in which the Company operates, cost factors such as increases in labor or other costs, overall financial performance such as negative or declining cash flows, other relevant entity-specific factors, events affecting a reporting unit or a sustained decrease in share price.

In evaluating goodwill for recoverability, the Company has the option to perform a qualitative assessment to determine whether further impairment testing is necessary or to perform a quantitative assessment using discounted net cash flows for future periods estimated by management. The combination of the income approach, utilizing the discounted cash flow ("DCF") method, and the market approach, utilizing readily available market valuation multiples, is used to estimate the fair value of each reporting unit. Under the DCF method, the fair value of the asset reflects the present value of the projected earnings that will be generated by each asset after taking into account the revenues and expenses associated with the asset, the relative risk that the cash flows will occur, the contribution of other assets, and an appropriate discount rate to reflect the value of invested capital. To the extent the carrying amount of goodwill exceeds its fair value, an impairment charge is measured and recognized. Cash flows are estimated for future periods based on historical data and projections provided by management. If the actual cash flows are not consistent with the Company's estimates, a material impairment charge may result and net income may be materially different than was initially recorded. Note 6 in the Notes to Consolidated Financial Statements contains a discussion of goodwill. The net carrying value of goodwill on the Company's Consolidated Balance Sheet as of December 31, 2018 was $4.1 billion. The Company did not recognize any goodwill impairment charges during the years ended December 31, 2018, 2017 and 2016.

Long-lived Assets other than Goodwill

The Company reviews long-lived assets, such as property and equipment, intangibles subject to amortization, computer software, contract assets and contract cost assets, for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Examples of potential triggering events include, but are not limited to, a significant decrease in the market price of a long-lived asset or asset group, a significant adverse change in the extent or manner in which a long-lived asset or asset group is being used, a significant adverse change in legal factors or business climate, an accumulation of costs significantly in excess of the originally expected amount, continuing losses associated with the use of a long-lived asset or asset group, or a current expectation that a long-lived asset or asset group will be sold or otherwise disposed of significantly before its previously estimated useful life.

In evaluating long-lived assets other than goodwill for recoverability, expected undiscounted future operating cash flows are estimated by management. To the extent the carrying amount of a long-lived asset exceeds its fair value, an impairment charge is measured and recognized. Assumptions and estimates about future cash flows and remaining useful lives are complex and subjective. They can be affected by a variety of factors, including industry and economic trends, changes in the Company's business strategy and changes in internal forecasts. If the actual cash flows are not consistent with the Company's estimates, a material impairment charge may result and net income may be materially different than was initially recorded. The Company did not recognize any material impairment charges during the years ended December 31, 2018, 2017 and 2016.

Revenue Recognition

As discussed in Note 1 in the Notes to Consolidated Financial Statements, TSYS has updated its revenue recognition policies in conjunction with the adoption of ASC 606 as of January 1, 2018. The most significant impact of adopting ASC 606 in 2018 is primarily the result of gross versus net presentation of interchange and payment network fees. In 2018, these fees collected on behalf of the payment networks and card issuers are presented "net" of the amounts paid to them, as opposed to the "gross" presentation for certain of these fees in 2017 and 2016.

Interchange and payment network fees are charged by the card associations or payment networks and relate primarily to the Company's Merchant Solutions segment. With respect to interchange and payment network fees, the Company evaluated whether it is the principal or the agent in the arrangement. With the adoption of ASC 606, the Company determined that interchange and payment network fees are not provided in return or exchange for services that the Company controls or acts as the principal, and, therefore, are not part of the consideration paid for its services. Accordingly, the Company is acting as an agent and presents the fees collected from merchants on behalf of the payment networks and card issuers net of the

amounts paid to them. In reaching this determination, the Company considered a number of factors including indicators of control such as the party primarily responsible and the party who has discretion in establishing prices.

The Company also applies judgment in the determination of performance obligations in accordance with ASC 606. Performance obligations promised in a contract are identified based on the goods or services that will be transferred to the customer that are both capable of being distinct, whereby the customer can benefit from the service either on its own or together with other resources that are readily available from third parties or from the Company, and are distinct in the context of the contract, whereby the transfer of the services is separately identifiable from other promises in the contract. To the extent a contract includes multiple promised services, the Company must apply judgment to determine whether promised services are capable of being distinct and are distinct in the context of the contract. If these criteria are not met, the promised services are accounted for as a combined performance obligation.

Income Taxes

In calculating its effective tax rate, the Company makes decisions regarding certain tax positions, including the timing and amount of deductions and allocations of income among various tax jurisdictions. The Company has various tax filing positions, including the timing and amount of deductions and credits, the establishment of reserves for audit matters and the allocation of income among various tax jurisdictions.

The Company makes estimates as to the amount of deferred tax assets and liabilities and records valuation allowances to reduce its deferred tax assets to reflect the amount that is more likely than not to be realized. The Company considers projected future taxable income and ongoing tax planning strategies in assessing the need for the valuation allowance. Actual results may differ from the Company's estimates. If the Company realizes a deferred tax asset or the Company was unable to realize a net deferred tax asset, an adjustment to the deferred tax asset would increase or decrease earnings, respectively, in the period the difference is recognized.

On December 22, 2017, the President signed into law the Tax Cuts and Jobs Act of 2017 (“Tax Act”). A key provision of this law that impacted TSYS was the reduction of the Federal corporate income tax rate from 35% to 21%. The Company’s Consolidated Financial Statements reflect the impact of this rate reduction.

Pursuant to the Tax Act, some amounts related to repatriation of foreign accumulated earnings and related to executive compensation may be considered provisional amounts pursuant to Securities and Exchange Commission (“SEC”) Staff Accounting Bulletin No. 118. As such, these amounts were subject to adjustment during the measurement period ended December 22, 2018.

Off-Balance Sheet Arrangements

Operating Leases

As a method of funding its operations, TSYS employs noncancelable operating leases for computer equipment and facilities. These leases allow the Company to use the latest technology while avoiding the risk of ownership. Neither the assets nor obligations related to these leases are included on the Consolidated Balance Sheets. As discussed in Note 1 in the Notes to Consolidated Financial Statements, the Company adopted ASU 2016-02 *Leases (Topic 842)* (ASU 2016-02) as of January 1, 2019. ASU 2016-02 introduces a lessee model that brings most operating leases on the Consolidated Balance Sheets. Refer to Notes 1 and 15 in the Notes to Consolidated Financial Statements for further information on operating lease commitments.

Contractual Obligations

The Company has long-term obligations which consist of required minimum future payments under contracts with the Company’s distributors and other service providers.

Recent Accounting Pronouncements

For a discussion of recent accounting pronouncements, refer to Note 1 in the Notes to Consolidated Financial Statements.

Results of Operations

Revenues

The Company generates revenues by providing transaction processing and other payment-related services. The Company's pricing for transactions and services is complex. Each category of revenue has numerous fee components depending on the types of transactions processed or services provided. TSYS reviews its pricing and implements pricing changes on an ongoing basis. In addition, standard pricing varies among its regional businesses, and such pricing can be customized further for customers through tiered pricing of various thresholds for volume activity. The revenue contracts can be highly complex and customized between customers. TSYS' revenues are based upon transactional information accumulated by its systems. The Company's revenues are impacted by currency translation of foreign operations, as well as doing business in the current economic environment.

The Company reviews revenue performance on a net revenue basis which is a non-generally accepted accounting principle ("non-GAAP") measure. Net revenue is defined as total revenues less reimbursable items (such as postage), as well as, merchant acquiring interchange and payment network fees charged by the card associations or payment networks that are recorded by TSYS as expense and are mainly related to the Merchant Solutions segment. The Company has included reimbursements received for out-of-pocket expenses as revenues and expenses. The largest reimbursable expense items for which TSYS is reimbursed by clients are postage fees. The Company's reimbursable items are impacted with changes in postal rates and changes in the volumes of mailing activities by its clients. Reimbursable items for the year ended December 31, 2018 were $212.3 million, a decrease of $47.9 million or 18.4%, compared to $260.2 million for the same period last year, primarily due to the Company's adoption of ASC 606 as of January 1, 2018. See Note 1 in the Notes to Consolidated Financial Statements for further discussion. Reimbursable items for the year ended December 31, 2017 increased $0.7 million, or 0.3%, compared to $259.5 million for the same period in 2016. Interchange and payment network fees related to the TransFirst business were $1.3 billion and $868.7 million for the years ended December 31, 2017 and 2016, respectively.

TSYS' revenues in its Issuer Solutions segment are influenced by several factors, including volumes related to accounts on file ("AOF") and transactions. TSYS estimates that approximately 49.3% of the segment's net revenue is AOF and transaction volume driven. The remaining 50.7% of net revenue is not AOF and transaction volume driven, and is derived from production and optional services TSYS considers to be value added products and services, custom programming and licensing arrangements.

TSYS' revenues in its Merchant Solutions segment are influenced by several factors, including volumes related to transactions, dollar sales volume, value added services, monthly statement fees, compliance fees and miscellaneous services.

TSYS' revenues in its Consumer Solutions segment primarily consist of a portion of the service fees collected from cardholders and interchange revenues received by Consumer Solutions' issuing banks in connection with the programs managed by Consumer Solutions.

Total revenues decreased $899.7 million for the year ended December 31, 2018, compared to the year ended December 31, 2017, which increased $757.9 million compared to the year ended December 31, 2016. As discussed in Note 1 in the Notes to Consolidated Financial Statements, the most significant impact of the Company's adoption of ASC 606 as of January 1, 2018 is primarily the result of gross versus net presentation of interchange and payment network fees. In 2018, these fees collected on behalf of the payment networks and card issuers are presented "net" of the amounts paid to them, as opposed to the "gross" presentation for certain of these fees in 2017 and 2016. The impact of acquisitions on total revenues was a year-over-year increase of $179.0 million in 2018 and $419.7 million in 2017. The decrease in revenues for 2018 was partially offset by an increase of $10.3 million related to the effects of currency translation of the Company's foreign-based subsidiaries and branches. The increase in revenues for 2017 includes a decrease of $15.5 million related to the effects of currency translation of the Company's foreign-based subsidiaries and branches.

Net revenue increased 12.2%, or $415.6 million, for the year ended December 31, 2018, compared to the year ended December 31, 2017, which increased 11.8.%, or $358.5 million, compared to the year ended December 31, 2016. The increase in net revenue for the year ended December 31, 2018, as compared to the same period in 2017, is primarily the result of organic growth and $179.0 million of revenues related to acquisitions and an increase associated with currency translation. The increase in net revenue for the year ended December 31, 2017, as compared to the same period in 2016, is primarily the result of the acquisition of TransFirst in April 2016, as well as organic growth, partially offset by decreases associated with currency translation.

A summary of the consolidated financial highlights is provided below:

(in thousands, except per share data)	Years Ended December 31, 2018	2017	2016	Percent Change 2018 vs. 2017	2017 vs. 2016
Total revenues	**$ 4,028,211**	4,927,965	4,170,077	**(18.3)%**	18.2 %
Net revenue[1]	**$ 3,815,900**	3,400,332	3,041,876	**12.2**	11.8
Operating income	**$ 822,738**	734,044	573,382	**12.1**	28.0
Net income attributable to TSYS common shareholders	**$ 576,656**	586,185	319,638	**(1.6)**	83.4
Basic earnings per share (EPS) attributable to TSYS common shareholders[2]	**$ 3.17**	3.19	1.74	**(0.7)**	83.3
Diluted EPS attributable to TSYS common shareholders[2]	**$ 3.14**	3.16	1.73	**(0.8)**	82.4
Adjusted earnings before interest, taxes, depreciation and amortization (Adjusted EBITDA)[3]	**$ 1,370,453**	1,197,673	1,040,551	**14.4**	15.1
Adjusted earnings[4]	**$ 821,292**	624,183	516,419	**31.6**	20.9
Adjusted diluted EPS[5]	**$ 4.47**	3.37	2.80	**32.7**	20.2
Cash flows from operating activities	**$ 1,041,667**	857,049	718,284	**21.5**	19.3
Free cash flow[6]	**$ 799,483**	661,023	575,711	**20.9**	14.8

Refer to the reconciliation of GAAP to non-GAAP measures later in this section.

1 *Net revenue is defined as total revenues less reimbursable items, as well as, merchant acquiring interchange and payment network fees charged by credit card associations or payment networks that are recorded by TSYS as expense.*

2 *Under GAAP, entities that have participating securities must compute basic EPS using the two-class method and compute diluted EPS using the more dilutive approach of either the two-class method or the treasury stock method. Refer to Note 25 in the Notes to Consolidated Financial Statements for more information on EPS.*

3 *Adjusted EBITDA is defined as net income excluding equity in income of equity investments, interest expense (net of interest income), nonoperating income/(expense), income taxes, depreciation, amortization, foreign currency translation gains/(losses), share-based compensation expenses, litigation, claims, judgments or settlements, and TransFirst and Cayan merger and acquisition expenses.*

4 *Adjusted earnings is net income excluding noncontrolling interests, the after-tax impact of share-based compensation expenses, amortization of acquisition intangibles and other items.*

5 *Adjusted diluted EPS is defined as adjusted earnings divided by weighted average diluted shares outstanding used for diluted EPS calculations.*

6 *Free cash flow is net cash provided by operating activities less capital expenditures.*

Major Customer

The Company works to maintain a large and diverse customer base across various industries. Although the Company does not have a major customer on a consolidated basis, a significant amount of the Company's revenues are derived from long-term contracts with large clients. TSYS derives revenues from providing various processing and other services to these clients, including processing of consumer and commercial accounts, as well as revenues for reimbursable items. The loss of one of the Company's large clients could have a material adverse effect on the Company's financial position, results of operations and cash flows.

Operating Segments

TSYS' services are provided through three operating segments: Issuer Solutions, Merchant Solutions and Consumer Solutions.

Issuer Solutions

The Company’s Issuer Solutions segment has many long-term customer contracts with card issuers providing account processing and output services for printing and embossing items. These contracts generally require advance notice prior to the end of the contract if a client chooses not to renew. Additionally, some contracts may permit early termination upon the occurrence of certain events such as a change in control. The termination fees paid upon the occurrence of such events are designed primarily to cover balance sheet exposure related to items such as contract cost assets or contract assets associated with the contract and, in some cases, may cover a portion of lost future revenue and profit. Although these contracts may be terminated upon certain occurrences, the contracts provide the segment with a steady revenue stream since a vast majority of the contracts are honored through the contracted expiration date.

These services are provided throughout the period of each account's use, starting from a card-issuing client processing an application for a card. Services may include processing the card application, initiating service for the cardholder, processing each card transaction for the issuing retailer or financial institution and accumulating the account's transactions. Fraud management services monitor the unauthorized use of accounts which have been reported to be lost, stolen, or which exceed credit limits. Fraud detection systems help identify fraudulent transactions by monitoring each account holder's purchasing patterns and flagging unusual purchases. Other services provided include customized communications to cardholders, information verification associated with granting credit, debt collection and customer service.

Issuer Solutions revenues are generated from charges based on the number of AOF, transactions and authorizations processed, statements mailed, cards embossed and mailed, and other processing services for cardholder AOF. Cardholder AOF includes active and inactive consumer credit, retail, prepaid, stored value, government services and commercial card accounts. TSYS' clients also have the option to use fraud and portfolio management services. Collectively, these services are considered volume-based revenues.

Whether or not an account on file is active can impact TSYS' revenues differently. Active accounts are accounts that have had monetary activity either during the current month or in the past 90 days based on contractual definition. Inactive accounts are accounts that have not had a monetary transaction (such as a purchase or payment) in the past 90 days. The more active an account is, the more revenue is generated for TSYS (i.e. the more transactions and authorizations processed, statements billed and services driven by these activities, the more revenue is generated).

Occasionally, a client will purge inactive accounts from its portfolio. An inactive account typically will only generate an AOF charge. A processing client will periodically review its cardholder portfolio based upon activity and usage. Each client, based upon criteria individually set by the client, will flag an account to be "purged" from TSYS' system and deactivated.

A deconversion involves a client migrating all of its accounts to an in-house solution or another processor. Account deconversions include active and inactive accounts and can impact the Company's revenues significantly more than an account purge.

A sale of a portfolio typically involves a client selling a portion of its accounts to another party. A sale of a portfolio and a deconversion impact the Company's financial statements in a similar fashion, although a sale usually has a smaller financial impact due to the number of accounts typically involved.

Below is a summary of AOF for the Company's Issuer Solutions segment:

(in millions)	As of December 31,			Percent Change	
AOF	**2018**	2017	2016	**2018 vs. 2017**	2017 vs. 2016
Consumer	**514.6**	481.3	442.9	**6.9 %**	8.7 %
Commercial	**57.8**	54.2	47.9	**6.5**	13.2
Other	**41.6**	36.4	31.0	**14.1**	17.4
Traditional AOF[1]	**614.0**	571.9	521.8	**7.4**	9.6
Prepaid/Stored Value[2]	**11.8**	38.6	57.8	**(69.2)**	(33.3)
Government Services[3]	**—**	95.0	88.7	**(100.0)**	7.2
Commercial Card Single-Use[4]	**113.5**	92.0	83.2	**23.3**	10.7
Total AOF	**739.3**	797.5	751.5	**(7.3)**	6.1

1 *Traditional accounts include consumer, retail, commercial, debit and other accounts. These accounts are grouped together due to the tendency to have more transactional activity than prepaid, government services and single-use accounts.*

2 *Prepaid does not include Consumer Solutions accounts. These accounts tend to have less transactional activity than the traditional accounts. Prepaid and stored value cards are issued by firms through retail establishments to be purchased by consumers to be used at a later date. These accounts tend to be the least active of all accounts on file.*

3 *Government services accounts are disbursements of student loan accounts issued by the Department of Education, which have minimal activity. This portfolio of AOF had deconverted by December 31, 2018.*

4 *Commercial card single-use accounts are one-time use accounts issued by firms to book lodging and other travel related expenses.*

Non-volume related revenues include processing fees which are not directly associated with AOF and transactional activity, such as value-added products and services, custom programming and certain other services, which are offered to TSYS' processing clients.

Additionally, certain clients license the Company's processing systems and process in-house. Since the accounts are processed outside of TSYS for licensing arrangements, the AOF and other volumes are not available to TSYS. Thus, volumes reported by TSYS do not include volumes associated with licensing.

Output and managed services include offerings such as card production, statement production, correspondence and call center support services.

The Issuer Solutions segment provides payment processing and related services to clients in North America and internationally. Growth in revenues and operating profit in this segment is derived from retaining and growing the core business and improving the overall cost structure. Growing the core business comes primarily from an increase in account usage, growth from existing clients and sales to new clients and the related account conversions. This segment's financial results are impacted by foreign currency. Movements in foreign currency exchange rates as compared to the U.S. dollar can result in foreign denominated financial statements being translated into more or fewer U.S. dollars, which impacts the

comparison to prior periods when the U.S. dollar was stronger or weaker. This segment had two major customers for the year ended December 31, 2018.

Below is a summary of the Issuer Solutions segment:

(in thousands, except key indicators)	Years Ended December 31, 2018	2017	2016	Percent Change 2018 vs. 2017	2017 vs. 2016
Volume-based revenues	**$ 846,259**	794,099	749,211	**6.6 %**	6.0 %
Non-volume related revenues:					
Processing fees	**$ 316,520**	309,746	296,021	**2.2**	4.6
Value-added, custom programming, licensing and other	**291,241**	254,847	233,424	**14.3**	9.2
Output and managed services	**264,157**	236,267	236,806	**11.8**	(0.2)
Total non-volume related revenues	**$ 871,918**	800,860	766,251	**8.9**	4.5
Net revenue[1]	**$ 1,718,177**	1,594,959	1,515,462	**7.7**	5.2
Adjusted segment operating income[2]	**$ 608,392**	574,580	525,025	**5.9**	9.4
Adjusted segment operating margin[3]	**35.4 %**	36.0 %	34.6 %		
Key indicators *(in millions)*:					
AOF	**739.3**	797.5	751.5	**(7.3)**	6.1
Traditional AOF	**614.0**	571.9	521.8	**7.4**	9.6
Transactions	**24,350.0**	21,575.6	19,858.1	**12.9**	8.6

1 *Net revenue is defined as total revenues less reimbursable items (such as postage), as well as, merchant acquiring interchange and assessment fees charged by the card associations or payment networks that are recorded by TSYS as expense.*

2 *Adjusted segment operating income excludes acquisition intangible amortization and expenses associated with Corporate Administration and Other.*

3 *Adjusted segment operating margin equals adjusted segment operating income divided by net revenue.*

Net revenues increased $123.2 million for 2018, as compared to 2017. The increase was driven by organic growth, partially offset by a decrease in net revenue associated with the adoption of ASC 606. Net revenues increased $79.5 million for 2017, as compared to 2016. The increase was attributable to an increase in new business and internal growth, partially offset by client deconversions and price reductions.

Movements in foreign currency exchange rates as compared to the U.S. dollar can result in foreign denominated financial statements being translated into more or fewer U.S. dollars, which impacts the comparison to prior periods when the U.S. dollar was stronger or weaker.

Net revenue for the years ended December 31, 2018 and 2017, as compared to the same periods in 2017 and 2016, respectively, included an increase of $9.4 million and a decrease of $15.4 million, respectively, associated with currency translation.

Merchant Solutions

The Merchant Solutions segment provides merchant services and related services to clients based primarily in the United States. Merchant Solutions revenues are derived from providing processing services, acquiring solutions, related systems and integrated support services to merchant acquirers and merchants. Revenues from merchant services include processing all payment forms including credit, debit, prepaid, electronic benefit transfer and electronic check for merchants of all sizes across a wide array of market verticals. Merchant services include authorization and capture of transactions; clearing and settlement of transactions; information reporting services related to transactions; and merchant billing services. This segment had no major customers for the year ended December 31, 2018.

The Merchant Solutions segment results are driven by dollar sales volume and the authorization and capture transactions processed at the point-of-sale (“POS”). This segment's authorization and capture transactions are primarily through internet connectivity.

Below is a summary of the Merchant Solutions segment:

(in thousands, except key indicators)	Years Ended December 31,			Percent Change	
	2018	2017	2016	**2018 vs. 2017**	2017 vs. 2016
Net revenue[1]	**$ 1,344,718**	1,103,682	898,533	**21.8 %**	22.8 %
Adjusted segment operating income[2]	**$ 484,197**	391,466	307,595	**23.7**	27.3
Adjusted segment operating margin[3]	**36.0 %**	35.5 %	34.2 %		
Key indicators:					
Dollar sales volume (*in millions*)	**$ 159,642.8**	124,165.1	97,735.1	**28.6**	27.0
POS transactions (*in millions*)	**5,874.6**	4,844.1	4,548.1	**21.3**	6.5
Net revenue per POS transaction	**$ 0.229**	0.228	0.198	**0.5**	15.3

1 Net revenue is defined as total revenues less reimbursable items (such as postage), as well as, merchant acquiring interchange and payment network fees charged by the card associations or payment networks that are recorded by TSYS as expense.

2 Adjusted segment operating income excludes acquisition intangible amortization and expenses associated with Corporate Administration and Other.

3 Adjusted segment operating margin equals adjusted segment operating income divided by net revenue.

With the acquisition of TransFirst in April 2016, TSYS included nine months for 2016 of TransFirst's results as part of the Merchant Solutions segment. Merchant Solutions net revenue is defined as total revenues less merchant acquiring interchange and payment network fees charged by the card associations or payment networks that are recorded by TSYS as expense.

For the year ended December 31, 2018, approximately 93.6% of TSYS' Merchant Solutions net revenue was influenced by several factors, including volumes related to transactions and dollar sales volume. The remaining 6.4% of net revenue was derived from value added services, chargebacks, managed services, investigation, risk and collection services performed.

The increase in net revenue and adjusted segment operating income for 2018, as compared to 2017, was driven by $179.0 million of revenues related to acquisitions and higher processing volumes, product fees and processing fees, as well as a gain on the sale of a merchant portfolio in December 2018. The increase in adjusted segment operating income for 2017, as compared to 2016, was driven primarily by the acquisition of TransFirst in April 2016 as well as operating cost reduction in connection with the integration.

Consumer Solutions

Consumer Solutions provides GPR prepaid debit and payroll cards, demand deposit accounts and other financial service solutions to the underbanked and other consumers and businesses in the United States. Consumer Solutions' products provide customers with access to depository accounts insured by the Federal Deposit Insurance Corporation ("FDIC") with a menu of pricing and features specifically tailored to their needs. Consumer Solutions has an extensive distribution and reload network comprising financial service centers and other retail locations throughout the United States, and is a program manager for FDIC-insured depository institutions that issue the products that Consumer Solutions develops, promotes and distributes. Consumer Solutions currently has active agreements with five issuing banks.

The Consumer Solutions segment markets its products through multiple distribution channels, including alternative financial service providers, traditional retailers, direct-to-consumer and online marketing programs and contractual relationships with corporate employers. This segment had no major customers and one major third-party distributor for the year ended December 31, 2018.

The Consumer Solutions segment's revenues primarily consist of a portion of the service fees collected from cardholders and interchange revenues received by Consumer Solutions' issuing banks and others in connection with the programs managed by this segment. Customers are charged fees for transactions including fees for Personal Identification Number ("PIN") and signature-based purchase transactions made using their cards, for Automated Teller Machine ("ATM") withdrawals or other transactions conducted at ATMs, for balance inquiries, and monthly maintenance fees among others. Customers are also charged fees associated with additional features and services offered in connection with certain products including the use of courtesy overdraft protection, bill payment options, card replacement, foreign exchange and card-to-card transfers of funds initiated through call centers. The Consumer Solutions segment also earns revenues from a portion of the interchange fees remitted by merchants when customers make purchase transactions using their products. Subject to applicable law, interchange fees are fixed by card associations and network organizations.

Below is a summary of the Consumer Solutions segment:

(in thousands, except key indicators)	Years Ended December 31,			Percent Change	
	2018	2017	2016	**2018 vs. 2017**	2017 vs. 2016
Net revenue[1]	**$ 806,430**	746,870	663,579	**8.0 %**	12.6 %
Adjusted segment operating income[2]	**$ 193,472**	182,082	160,371	**6.3**	13.5
Adjusted segment operating margin[3]	**24.0 %**	24.4 %	24.2 %		
Key indicators *(in millions)*:					
Gross dollar volume[4]	**$ 34,465.5**	32,034.8	28,722.3	**7.6**	11.5
Number of active cards[5]	**5.0**	4.9	4.3	**2.5**	14.2
Number of active cards with direct deposit[6]	**2.5**	2.4	2.1	**4.9**	12.1
Percentage of active cards with direct deposit	**50.0 %**	48.9 %	49.7 %		

1 *Net revenue is defined as total revenues less reimbursable items (such as postage), as well as merchant acquiring interchange and payment network fees charged by the card associations or payment networks that are recorded by TSYS as expense.*
2 *Adjusted segment operating income excludes acquisition intangible amortization and expenses associated with Corporate Administration and Other.*
3 *Adjusted segment operating margin equals adjusted segment operating income divided by net revenue.*
4 *Gross dollar volume represents the total dollar volume of debit transactions and cash withdrawals made using Consumer Solutions products.*
5 *Number of active cards represents the total number of cards that have had a PIN or signature-based purchase transaction, a POS load transaction or an ATM withdrawal within three months of the date of determination, adjusted to remove prepaid cards that consumers upgraded to a demand deposit account during the period.*
6 *Number of active cards with direct deposit represents the number of active cards that have had a direct deposit load within three months of the date of determination, adjusted to remove prepaid cards that consumers upgraded to a demand deposit account during the period.*

For the year ended December 31, 2018, 71.3% of revenues were derived from service fees charged to customers and 28.7% of revenues were derived from interchange and other revenues. Service fee revenues are driven by the number of active cards and in particular by the number of cards with direct deposit. Customers with direct deposit generally initiate more transactions and generate more revenues than those that do not take advantage of this feature. Interchange revenues are driven by gross dollar volume. Substantially all of the Consumer Solutions segment revenues were volume driven as they were driven by the active card and gross dollar volume indicators.

Consumer Solutions net revenue for 2018 increased $59.6 million compared to 2017. This increase was comprised of $55.9 million increase in service fee revenues and $3.7 million increase in interchange and other revenues. Consumer Solutions segment net revenue increased $83.3 million for 2017, as compared to 2016. This increase was comprised of $48.6 million increase in service fee revenues and $34.7 million increase in interchange and other revenues.

On January 25, 2018, the CFPB announced that it had finalized updates to its 2016 prepaid rule. The CFPB’s 2016 prepaid rule put in place requirements for treatment of funds on lost or stolen cards, error resolution and investigation, upfront fee disclosures, access to account information, and overdraft features if offered in conjunction with prepaid accounts. The changes announced by the CFPB adjust requirements for resolving errors on unregistered accounts, provide greater flexibility for credit cards linked to digital wallets, and extend the effective date of the rule by one year to April 1, 2019. Assuming no changes to the rule and before taking into consideration the mitigating effects of TSYS’ business expansion and product diversification strategies for the Consumer Solutions segment, the Company currently expects that the Company’s 2019 net revenue will be negatively impacted by approximately $60 to 65 million, with an estimated negative impact to adjusted diluted EPS of $0.17 to $0.19. TSYS expects to offset one-third to one-half of the expected negative financial impact of the rule, from both a net revenue and an adjusted diluted EPS perspective. TSYS will continue to review and interpret the rule and analyze its expected impact on the Consumer Solutions segment’s business. The estimated net revenue and adjusted diluted EPS impact set forth above is subject to risks and uncertainties such as the success of TSYS’ business expansion and product diversification strategies for the Consumer Solutions segment which success will depend on, among other things, the rate of adoption of the Company’s new products (both by consumers and the Company’s distribution partners), the rate of utilization of the various product features by cardholders, and overall market and regulatory dynamics. The estimated impact of the rule on the Company’s 2019 financial performance could vary based on these and other factors.

Operating Expenses

The Company’s operating expenses were $3.2 billion, $4.2 billion and $3.6 billion in 2018, 2017 and 2016, respectively. Operating expenses consist of cost of services and selling, general and administrative expenses. Cost of services describes the direct expenses incurred in performing a particular service for customers, including the cost of direct labor expense in putting the service in saleable condition. Selling, general and administrative expenses are incurred in selling or marketing and for the direction of the enterprise as a whole, including accounting, legal fees, sales, investor relations and mergers and acquisitions.

Operating expenses for the year ended December 31, 2018 decreased $988.4 million, mainly due to the adoption of ASC 606 and the net presentation of interchange and payment network fees. See Notes 1 and 2 in the Notes to Consolidated Financial Statements for further discussion of the Company's adoption of ASC 606 as of January 1, 2018. The decrease was partially offset by an increase in operating expenses related to acquisitions as well as increased acquisition expenses and amortization of acquisition intangibles. Operating expenses for the year ended December 31, 2017 included a decrease of $7.0 million, related to the effects of currency translation of the Company's foreign-based subsidiaries. TransFirst had an incremental year-over-year impact on operating expenses of $417.3 million in 2017. Operating expenses for the year ended December 31, 2016 were also impacted by the TransFirst acquisition. Operating expenses increased $1.3 billion due to the acquisition of TransFirst in 2016. Operating expenses in 2017 and 2016 were also impacted by $1.9 million and $21.7 million, respectively, of litigation settlement, settlement discussions and related legal expenses. In 2017, TSYS incurred an expense associated with a special one-time cash bonus of $1,000 to certain employees as a result of the Company's continued success and to share some of the savings that resulted from the Tax Act legislation passed in December 2017.

The Company's cost of services were $2.5 billion, $3.6 billion and $3.0 billion in 2018, 2017 and 2016, respectively. The decrease in cost of services for 2018, as compared to 2017, is due to the adoption of ASC 606 and the presentation of interchange and payment network fees on a net basis. The increases in cost of services for 2017, as compared to 2016, are due to increases in employment, severance, technology and facilities and other costs to support revenue growth and the acquisition of TransFirst. The Company's selling, general and administrative expenses were $713.0 million, $616.6 million and $603.6 million in 2018, 2017 and 2016, respectively. The increase in selling, general and administrative costs in 2018 is the result of an increase in acquisition expenses and amortization for acquisition intangibles. The increase in selling, general and administrative costs in 2017 were due primarily to the acquisition of TransFirst in April 2016.

The Company's merger and acquisition ("M&A") and integration expenses include transaction-related and integration-related expenses associated with acquisitions. These expenses consist of costs pertaining to the completion of the acquisition such as legal, accounting and professional fees, share-based compensation, as well as, third-party support fees, systems integration costs and personnel costs for severance and retention. M&A and integration expenses were $29.0 million, $13.4 million and $32.3 million for the year ended December 31, 2018, 2017 and 2016, respectively.

Operating Income

Operating income increased 12.1% for the year ended December 31, 2018, compared to 2017. The Company's operating profit margin for the year ended December 31, 2018 was 20.4%, compared to 14.9% in 2017. TSYS' operating margins increased for the year ended December 31, 2018, as compared to 2017, due primarily to the adoption of ASC 606 and the presentation of interchange and payment network fees on a net basis. TSYS' operating margins increased for the year ended December 31, 2017, as compared to 2016, due primarily to a decrease in the amount of acquisition and integration expenses.

Nonoperating Income (Expense)

Nonoperating income (expense) consists of interest income, interest expense, and gains and losses on currency transactions. Nonoperating expense increased in 2018 as compared to 2017, and increased in 2017 as compared to 2016 primarily due to the increase in interest expense.

The following table provides a summary of nonoperating expense:

	Years Ended December 31,			Percent Change	
(in thousands)	**2018**	2017	2016	**2018 vs. 2017**	2017 vs. 2016
Interest expense[1]	**$ (163,357)**	(118,221)	(115,363)	**38.2 %**	2.5 %
Interest income	**4,476**	2,193	1,840	**nm**	19.2
Currency translation and transaction gains (losses), net	**109**	(907)	1,748	**nm**	nm
Other	**(4,202)**	453	(575)	**nm**	nm
Total	**$ (162,974)**	(116,482)	(112,350)	**39.9**	3.7

nm = not meaningful

[1] *Interest expense includes interest and related costs on Senior Notes of $121.6 million, $102.0 million and $87.7 million, respectively, for the years ended December 31, 2018, 2017 and 2016.*

Interest expense for the year ended December 31, 2018 increased $45.1 million compared to 2017. The increase in interest expense in 2018 compared to 2017 is primarily due to the debt financing of the acquisition of Cayan. Interest expense for the year ended December 31, 2017 increased $2.9 million compared to 2016. The increase in interest expense in 2017 compared

to 2016 is due to the debt financing of the acquisition of TransFirst in April 2016. Refer to Notes 12 and 23 in the Notes to Consolidated Financial Statements for more information on long-term borrowings and acquisitions.

Income Taxes

Below is a summary of income tax expense:

	Years Ended December 31,			Percent Change	
(in thousands)	**2018**	2017	2016	**2018 vs. 2017**	2017 vs. 2016
Income tax expense	**$ 127,003**	65,878	161,175	**92.8 %**	(59.1)%
Effective income tax rate	**19.3 %**	10.7 %	35.0 %		

During 2018, the Company experienced a net decrease in its valuation allowance for deferred income tax assets of $1.7 million primarily as a result of the utilization of income tax credit carryforwards against the one-time transition tax that was enacted as part of the Tax Cuts and Jobs Act of 2017 (the “Tax Act”).

As a result of the Tax Act, the Company realized a net tax benefit of $135.9 million. This was primarily the result of remeasuring deferred tax assets and deferred tax liabilities.

In 2018, TSYS reassessed its uncertain tax positions for all jurisdictions. As a result, the Company decreased unrecognized tax benefits by $1.5 million.

Refer to Note 14 in the Notes to Consolidated Financial Statements for more information on income taxes.

Equity in Income of Equity Investments

Below is a summary of TSYS' share of income from its interest in equity investments:

	Years Ended December 31,			Percent Change	
(in thousands)	**2018**	2017	2016	**2018 vs. 2017**	2017 vs. 2016
Equity in income of equity investments, net of tax	**$ 45,156**	40,532	26,115	**11.4 %**	55.2 %

The increases in equity income in 2018 and 2017 are primarily the result of organic growth in China Union Pay Data Co., Ltd (“CUP Data”). Refer to Note 11 in the Notes to Consolidated Financial Statements for more information on equity investments.

Net Income

The following table provides a summary of net income and EPS:

	Years Ended December 31,			Percent Change	
(in thousands, except per share data)	**2018**	2017	2016	**2018 vs. 2017**	2017 vs. 2016
Net income	**$ 577,917**	592,216	325,972	**(2.4)%**	81.7 %
Net income attributable to noncontrolling interests	**(1,261)**	(6,031)	(6,334)	**79.1**	4.8
Net income attributable to TSYS common shareholders	**$ 576,656**	586,185	319,638	**(1.6)**	83.4
Basic EPS attributable to TSYS common shareholders[1]	**$ 3.17**	3.19	1.74	**(0.7)**	83.3
Diluted EPS attributable to TSYS common shareholders[1]	**$ 3.14**	3.16	1.73	**(0.8)**	82.4

[1] *Basic and diluted EPS is computed based on the two-class method in accordance with the guidance under GAAP. Refer to Note 25 in the Notes to Consolidated Financial Statements for more information on EPS.*

Net income attributable to noncontrolling interests in 2018 decreased by $4.7 million from 2017 and decreased $0.3 million in 2017 from 2016. The decrease in 2018 compared to 2017 is the result of TSYS acquiring the remaining 15% equity interest in Central Payment Co., LLC (“CPAY”) in April 2018. The decrease in 2017 compared to 2016 is the result of TSYS acquiring an additional 10% ownership in CPAY in February 2017 partially offset by an increase in operating results of CPAY. Refer to Note 23 in the Notes to Consolidated Financial Statements for more information.

Non-GAAP Financial Measures

Management evaluates the Company's operating performance based on a constant currency basis, operating margin on a net revenue basis, adjusted EBITDA, adjusted earnings, adjusted diluted EPS and free cash flow which are non-GAAP measures. TSYS also uses these non-GAAP financial measures to evaluate and assess TSYS' financial performance against budget.

Although non-GAAP financial measures are often used to measure TSYS' operating results and assess its financial performance, they are not necessarily comparable to similarly titled measures of other companies due to potential inconsistencies in the method of calculation.

TSYS believes that its provision of non-GAAP financial measures provides investors with important key financial performance indicators that are utilized by management to assess TSYS' operating results, evaluate the business and make operational decisions on a prospective, going-forward basis. Hence, management provides disclosure of non-GAAP financial measures to give shareholders and potential investors an opportunity to see TSYS as viewed by management, to assess TSYS with some of the same tools that management utilizes internally and to be able to compare such information with prior periods. TSYS believes that inclusion of non-GAAP financial measures provides investors with additional information to help them better understand its financial statements just as management utilizes these non-GAAP financial measures to understand the business, manage budgets and allocate resources.

The following tables provide a reconciliation of GAAP to non-GAAP financial measures:

Constant Currency Comparison

(in thousands)	Years Ended December 31,	
Consolidated	**2018**	2017
Total revenues (GAAP)	**$ 4,028,211**	4,927,965
Foreign currency impact[1]	**(10,325)**	—
Constant currency[2] (non-GAAP)	**$ 4,017,886**	4,927,965
Net revenue (non-GAAP)	**$ 3,815,900**	3,400,332
Foreign currency impact[1]	**(9,704)**	—
Constant currency[2] (non-GAAP)	**$ 3,806,196**	3,400,332
Operating income (GAAP)	**$ 822,738**	734,044
Foreign currency impact[1]	**(4,828)**	—
Constant currency[2] (non-GAAP)	**$ 817,910**	734,044
Issuer Solutions		
Segment net revenue (GAAP)	**$ 1,718,177**	1,594,959
Foreign currency impact[1]	**(9,446)**	—
Constant currency[2] (non-GAAP)	**$ 1,708,731**	1,594,959

Constant Currency Comparison

(in thousands)	Years Ended December 31,	
Consolidated	2017	2016
Total revenues (GAAP)	$ 4,927,965	4,170,077
Foreign currency impact[1]	15,468	—
Constant currency[2] (non-GAAP)	$ 4,943,433	4,170,077
Net revenue (non-GAAP)	$ 3,400,332	3,041,876
Foreign currency impact[1]	14,417	—
Constant currency[2] (non-GAAP)	$ 3,414,749	3,041,876
Operating income (GAAP)	$ 734,044	573,382
Foreign currency impact[1]	8,922	—
Constant currency[2] (non-GAAP)	$ 742,966	573,382
Issuer Solutions		
Segment net revenue (GAAP)	$ 1,594,959	1,515,462
Foreign currency impact[1]	14,326	—
Constant currency[2] (non-GAAP)	$ 1,609,285	1,515,462

[1] *Reflects the impact of calculated changes in foreign currency rates from the comparable period.*

[2] *Reflects current period results on a non-GAAP basis as if foreign currency rates did not change from the comparable prior year period.*

Net Revenue and Operating Margin on a Net Revenue Basis

(in thousands)	Years Ended December 31, 2018	2017	2016
Operating income (GAAP) (a)	$ **822,738**	734,044	573,382
Total revenues (GAAP) (b)	$ **4,028,211**	4,927,965	4,170,077
Less: reimbursable items, interchange and payment network fees	**212,311**	1,527,633	1,128,201
Net revenue (non-GAAP) (c)	$ **3,815,900**	3,400,332	3,041,876
Operating margin (as reported) (GAAP) (a)/(b)	**20.4 %**	14.9 %	13.8 %
Operating margin on a net revenue basis (non-GAAP) (a)/(c)	**21.6 %**	21.6 %	18.9 %

Adjusted EBITDA

(in thousands)	Years Ended December 31, 2018	2017	2016
Net income (GAAP) (a)	$ **577,917**	592,216	325,972
Adjust for:			
Less: Equity in income of equity investments	**(45,156)**	(40,532)	(26,115)
Add: Income tax expense	**127,003**	65,878	161,175
Add: Interest expense, net	**158,881**	116,028	113,523
Add: Depreciation and amortization	**408,573**	405,906	373,546
Add: Client incentive/contract asset amortization[1]	**28,105**	—	—
Add: Contract cost asset amortization[1]	**35,729**	—	—
Less/Add: (Gain)/loss on foreign currency translation and transaction (gains) losses	**(109)**	907	(1,748)
Add/Less: Other nonoperating expenses (income)	**4,202**	(453)	575
Add: Share-based compensation	**48,758**	42,409	43,728
Add: Cayan and TransFirst M&A and integration expenses[2]	**26,550**	13,367	28,176
Add: Litigation, claims, judgments or settlements[3]	**—**	1,947	21,719
Adjusted EBITDA (non-GAAP) (b)	$ **1,370,453**	1,197,673	1,040,551
Total revenues (GAAP) (c)	$ **4,028,211**	4,927,965	4,170,077
Net income margin on total revenues (GAAP) (a)/(c)	**14.3** %	12.0 %	7.8 %
Net revenue (non-GAAP) (d)	$ **3,815,900**	3,400,332	3,041,876
Adjusted EBITDA margin on net revenue (non-GAAP) (b)/(d)	**35.9** %	35.2 %	34.2 %

[1] Client incentive and contract asset amortization are no longer included in depreciation and amortization due to the adoption of ASC 606 on January 1, 2018.
[2] Costs associated with the Cayan and TransFirst acquisitions which are included in selling, general and administrative expenses and nonoperating expenses.
[3] Litigation settlement or settlement discussions with counterparties and related legal expenses.

Adjusted Earnings and Adjusted Diluted Earnings Per Share

(in thousands, except per share data)	Years Ended December 31, 2018	2017	2016
Income attributable to TSYS common shareholders from continuing operations (GAAP)	$ **576,656**	586,185	319,638
Adjust for amounts attributable to TSYS common shareholders:			
Add: Acquisition intangible amortization	**236,707**	207,172	188,887
Add: Share-based compensation	**48,757**	42,399	43,691
Add: Cayan and TransFirst M&A and integration expenses[1]	**26,550**	13,306	37,957
Add: Litigation, claims, judgments or settlements[2]	**—**	1,947	19,913
Less: Tax impact of adjustments[3]	**(68,655)**	(90,955)	(93,667)
Less: Impact of Tax Cuts and Jobs Act[4]	**1,277**	(135,871)	—
Adjusted earnings (non-GAAP)	$ **821,292**	624,183	516,419
Diluted EPS - Net income attributable to TSYS common shareholders:			
As reported (GAAP)	$ **3.14**	3.16	1.73
Adjusted diluted EPS (non-GAAP)	$ **4.47**	3.37	2.80
Weighted average diluted shares	**183,919**	185,430	184,448

[1] Costs associated with the Cayan and TransFirst acquisitions which are included in selling, general and administrative expenses and nonoperating expenses.
[2] Litigation settlement or settlement discussions and related legal expenses.
[3] Certain of these merger and acquisition costs are nondeductible for income tax purposes. Income tax impact includes a discrete item as a result of the acquisition.
[4] On December 22, 2017, President Trump signed into law the Tax Act. In addition to the reduction in the federal corporate income tax rate, TSYS realized a non-recurring income tax expense/(benefit) of $1.3 million and ($135.9) million for the years ended December 31, 2018 and 2017, respectively, due to the reduction of certain deferred tax assets and liabilities and the repatriation of foreign earnings as a result of the Tax Act.

Free Cash Flow

(in thousands)	2018	2017[1]	2016[1]
	Years Ended December 31,		
Net cash provided by operating activities (GAAP)	**$ 1,041,667**	857,049	718,284
Capital expenditures	**(242,184)**	(196,026)	(142,573)
Free cash flow (non-GAAP)	**$ 799,483**	661,023	575,711

[1] *As result of adopting ASU 2016-18 in 2018, TSYS recasted prior periods for changes related to restricted cash.*

Capital expenditures include purchases of property and equipment, additions to licensed computer software from vendors and additions to internally developed computer software and additions to contract acquisition costs.

Financial Position, Liquidity and Capital Resources

The Consolidated Statements of Cash Flows detail the Company's cash flows from operating, investing and financing activities. TSYS' primary methods for funding its operations and growth have been cash generated from current operations, the use of leases and the occasional use of borrowed funds to supplement financing of capital expenditures.

Cash Flows from Operating Activities

(in thousands)	2018	2017[1]	2016[1]
	Years Ended December 31,		
Net income	**$ 577,917**	592,216	325,972
Depreciation and amortization	**408,573**	405,906	373,546
Provisions for cardholder losses	**65,108**	51,194	49,363
Share-based compensation	**48,758**	42,409	43,728
Provisions for bad debt expenses and billing adjustments	**10,313**	10,169	7,584
Charges for transaction processing provisions	**7,163**	11,716	5,351
Amortization of debt issuance costs	**4,982**	4,307	13,570
Deferred income tax expense (benefit)	**21,400**	(172,488)	7,435
Equity in income of equity investments	**(45,156)**	(40,532)	(26,115)
Other noncash items and charges, net	**25,923**	26,008	5,117
Net change in current and other assets and current and other liabilities	**(83,314)**	(73,856)	(87,267)
Net cash provided by operating activities	**$ 1,041,667**	857,049	718,284

[1] *As result of adopting ASU 2016-18 in 2018, TSYS recasted prior periods for changes related to restricted cash.*

TSYS' main source of funds is derived from operating activities, specifically net income. The change in depreciation and amortization is mainly the result of acquisitions partially offset by the adoption of ASC 606. Net change in current and other assets includes accounts receivable, contract assets, contract cost assets, prepaid expenses, other current assets and other long-term assets. Net change in current and other liabilities includes accounts payable, accrued salaries and employee benefits, and other current liabilities and other long-term liabilities. The change in accounts receivable as of December 31, 2018, as compared to 2017, is the result of timing of collections. The change in accounts payable and other liabilities for the same period is the result of the timing of payments of vendor invoices. The change in accrued salaries and employee benefits is due primarily to changes in incentive bonuses and benefits paid during the year ended December 31, 2018 compared to the same period in 2017. The increase in 2017, as compared to 2016, in net cash provided by operating activities was primarily the result of the combined increase of the net earnings of the Company and the impact of TransFirst.

Impact of adoption of ASC 606

TSYS makes cash payments for processing rights, third-party development costs and other direct salary-related costs in connection with converting new clients to the Company’s processing systems. Upon the Company’s adoption of ASC 606 as of January 1, 2018, costs to obtain or fulfill a contract are classified as contract cost assets and payments for processing rights or signing incentives are classified as contract assets in the Company’s Consolidated Balance Sheets. See Notes 1, 2 and 10 in the Notes to Consolidated Financial Statements.

The decrease in additions to contract costs assets for 2018, as compared to 2017, is primarily attributable to payments for processing rights that are included in the changes in contract assets and liabilities in the operating activities section of the Company’s Consolidated Statements of Cash Flows upon the Company’s adoption of ASC 606 as of January 1, 2018.

Cash Flows from Investing Activities

(in thousands)	2018	2017	2016
	Years Ended December 31,		
Cash used in acquisitions, net of cash acquired	$ **(1,051,629)**	-	(2,345,493)
Purchases of property and equipment	**(113,266)**	(70,039)	(51,132)
Additions to licensed computer software from vendors	**(89,756)**	(25,916)	(11,551)
Additions to internally developed computer software	**(39,162)**	(30,265)	(34,043)
Proceeds from sale of acquisition intangibles	**3,847**	**-**	**-**
Other investing activities	**(4,183)**	(2,718)	(4,930)
Additions to contract acquisition costs	**-**	(69,806)	(45,847)
Net cash used in investing activities	$ **(1,294,149)**	(198,744)	(2,492,996)

The major uses of cash for investing activities in 2018 were for acquisitions, purchases of property and equipment, the purchase of licensed computer software and internal development of computer software. The primary uses of cash for investing activities in 2017 and 2016 were for acquisitions, purchases of property and equipment, additions to contract acquisition costs, internally developed computer software and licensed computer software from vendors.

Cash Used in Acquisitions

In 2018, the Company completed the acquisition of Cayan in an all cash transaction valued at approximately $1.05 billion. In 2016, the Company used cash of $2.3 billion in connection with the acquisition of TransFirst.

Property and Equipment

Capital expenditures for property and equipment were $113.3 million in 2018, compared to $70.0 million in 2017 and $51.1 million in 2016. The majority of capital expenditures in 2018, 2017 and 2016 related to computer processing hardware. Additionally, 2018 capital expenditures included TSYS' interest in corporate assets purchased as part of the collaborative arrangement discussed in Note 24.

Internally Developed Computer Software Costs

Additions to capitalized software development costs, including enhancements to, and development of, processing systems were $39.2 million in 2018, $30.3 million in 2017 and $34.0 million in 2016. The changes in capitalized software development costs in 2018, as compared to 2017, were the result of an increase in the level of activity of initiatives that consist of enhancing TSYS' Consumer Solutions and Issuer Solutions platforms. The changes in capitalized software development costs in 2017, as compared to 2016, were the result of a decrease in the level of activity in a multi-year, multi-phase initiative that consists of enhancing TSYS' issuing processing platforms.

Licensed Computer Software from Vendors

Capital expenditures for licensed computer software from vendors for increases in processing capacity were $89.8 million in 2018, compared to $25.9 million in 2017 and $11.6 million in 2016. The increase in expenditures during 2018 relate to new or extended software agreements with certain vendors.

Contract Cost Assets

TSYS makes cash payments for processing rights, third-party development costs and other direct salary-related costs in connection with converting new customers to the Company's processing systems. As discussed earlier, upon the Company's adoption of ASC 606 as of January 1, 2018, costs to obtain or fulfill a contract are classified as contract cost assets and payments for processing rights or signing incentives are classified as contract assets in the Company's Consolidated Balance Sheets. Prior to the Company's adoption of ASC 606, contract cost assets were referred to as contract acquisition costs and included both conversion costs and payments for processing rights (signing incentives).

The Company's investments in contract acquisition costs were $69.8 million in 2017 and $45.8 million in 2016. The Company made cash payments for processing rights of $48.6 million and $25.8 million in 2017 and 2016, respectively. Conversion cost additions were $21.3 million and $20.0 million in 2017 and 2016, respectively.

Purchases of Private Equity Investments

The Company is a party to partnership agreements in connection with investing in two Atlanta-based venture capital funds focused exclusively on investing in technology-enabled financial services companies. Pursuant to each limited partnership agreement, the Company has committed to invest up to $20.0 million in each fund so long as its ownership interest in each fund does not exceed 50%. The Company made investments in the funds of $6.6 million, $2.7 million and $4.9 million in 2018, 2017 and 2016, respectively.

Cash Flows from Financing Activities

	Years Ended December 31,		
(in thousands)	**2018**	2017	2016
Principal payments on long-term borrowings, capital lease obligations and license agreements	**$ (2,812,366)**	(421,306)	(724,084)
Repurchases of common stock under plans and tax withholding	**(172,966)**	(284,237)	(30,275)
Purchase of noncontrolling interests	**(126,000)**	(70,000)	(5,878)
Dividends paid on common stock	**(94,557)**	(79,017)	(73,378)
Debt issuance costs	**(16,004)**	-	(26,555)
Subsidiary dividends paid to noncontrolling shareholders	**(3,777)**	(5,997)	(5,548)
Proceeds from borrowings of long-term debt	**3,477,000**	200,000	2,666,295
Proceeds from exercise of stock options	**31,177**	21,832	11,708
Excess tax benefit from share-based payment arrangements	**-**	-	9,905
Net cash provided by (used in) financing activities	**$ 282,507**	(638,725)	1,822,190

Net cash used in financing activities for the year ended December 31, 2018 was primarily related to principal payments on long-term borrowings, repurchases of common stock, the purchase of the remaining fifteen percent interest in CPAY, payment of dividends and capital lease obligations and license agreements. The main source of cash provided by financing activities in 2018 is the proceeds from borrowing of long-term debt and exercises of stock options. Cash provided by financing activities for the year ended December 31, 2018 primarily related to proceeds from long-term borrowings in connection with the Cayan acquisition.

TSYS continues to monitor developments related to the anticipated transition from the London Interbank Offered Rate (“LIBOR”) to an alternative benchmark reference rate, such as the Secured Overnight Financing Rate (“SOFR”), beginning January 1, 2022. Additionally, TSYS maintains contact with its lenders and other stakeholders to evaluate the potential impact of these changes on TSYS’ future financing activities.

Net cash used in financing activities for the year ended December 31, 2017 was primarily related to principal payments on long-term borrowings and capital lease obligations, repurchase of common stock, dividends paid on common stock, as well as the purchase of noncontrolling interests. Cash provided by financing activities for the year ended December 31, 2017 primarily relate to proceeds from long-term borrowings.

Net cash used in financing activities for the year ended December 31, 2016 was primarily related to principal payments on long-term borrowings and capital lease obligations, as well as dividends paid on common stock. Cash provided by financing activities for the year ended December 31, 2016 primarily related to proceeds from long-term borrowings in connection with the TransFirst acquisition.

Refer to Notes 12 and 23 in the Notes to Consolidated Financial Statements for more information on the long-term debt financing and acquisitions.

Borrowings

Refer to Note 12 in the Notes to Consolidated Financial Statements for further information on borrowings.

Purchase of Noncontrolling Interest

In connection with the acquisition of CPAY, the Company was party to call and put arrangements with respect to the membership units that represent the remaining noncontrolling interest of CPAY. The call arrangement was exercisable by TSYS and the put arrangement was exercisable by the Seller. The put arrangement was outside the control of the Company by requiring the Company to purchase the Seller’s entire equity interest in CPAY at a put price at fair value. At the time of the

original acquisition, the redemption of the put option was considered probable based upon the passage of time of the second anniversary date. The put arrangement was recorded on the Consolidated Balance Sheet and was classified as redeemable noncontrolling interest in consolidated subsidiary outside of permanent equity.

In April 2018, the Company acquired the remaining 15% equity interest in CPAY from a privately-owned company for $126.0 million.

In February 2017, the Company acquired an additional 10% equity interest in CPAY from a privately owned company for $70.0 million. This purchase reduced the remaining redeemable noncontrolling interest in CPAY to 15% of its total outstanding equity and extended the put call arrangement until April 2018. The transaction resulted in a decrease to noncontrolling interest of $9.8 million and a decrease to additional paid-in-capital of $60.2 million.

The put option was not redeemable on December 31, 2017, but redemption was considered probable based upon the passage of time toward the April 2018 date. The Company's accounting policy is to accrete changes in the redemption value over the period from the date of issuance to the earliest redemption date. The Company recorded accretion in fair value of $101.4 million for the year ended December 31, 2017 using the effective interest method.

Refer to Note 23 in the Notes to Consolidated Financial Statements for more information on this purchase.

Stock Repurchase Plan

In January 2015, TSYS announced that its Board had approved a stock repurchase plan to repurchase up to 20 million shares of TSYS stock. The shares may be purchased from time to time at prices considered appropriate. There is no expiration date for the plan. Through December 31, 2018, the Company purchased 11.5 million shares for approximately $720.9 million at an average price of $62.69.

On January 31, 2019, TSYS executed an accelerated share repurchase ("ASR") agreement to repurchase $400 million of its outstanding common stock. Pursuant to the ASR Agreement, approximately 83% of the shares expected to be repurchased were received by the Company on February 5, 2019. The total number of shares ultimately repurchased under the ASR program will be determined upon final settlement and will be based on a discount to the volume-weighted average price of the Company's common stock during the ASR period. The Company anticipates that all repurchases under the ASR will be completed by the end of the first quarter of 2019.

Dividends

Dividends on common stock of $94.6 million were paid in 2018, compared to $79.0 million and $73.4 million in 2017 and 2016, respectively. For 2018, the Company declared dividends of $0.52 per share, compared to dividends of $0.46 per share in 2017 and $0.40 per share in 2016.

Significant Noncash Transactions

During 2018, 2017 and 2016, the Company issued 326,968, 329,051 and 362,804 shares of common stock, respectively, to certain key employees and non-management members of its Board of Directors. The grants to certain key employees were issued in the form of nonvested stock bonus awards for services to be provided in the future by such officers and employees. The market value of the common stock at the date of issuance is amortized as share-based compensation expense over the vesting period of the awards. The grants to the Board of Directors were fully vested on the date of grant.

The Company acquired computer equipment under capital leases and software under license agreements in the amount of $23.2 million, $40.8 million and $1.8 million in 2018, 2017 and 2016, respectively.

Refer to Notes 18 and 22 in the Notes to Consolidated Financial Statements for more information on share-based compensation and significant noncash transactions.

Additional Cash Flow Information

Off-Balance Sheet Financing

TSYS uses various operating leases in its normal course of business. These "off-balance sheet" arrangements obligate TSYS to make payments for computer equipment and facilities. These computer lease commitments may be replaced with new

lease commitments due to new technology. Management expects that, as these leases expire, they will be evaluated and renewed or replaced by similar leases based on need. As discussed in Note 1 in the Notes to Consolidated Financial Statements, the Company adopted ASU 2016-02 *Leases (Topic 842)* (ASU 2016-02) as of January 1, 2019. ASU 2016-02 introduces a lessee model that brings most operating leases on the balance sheet.

The following table summarizes future contractual cash obligations, including lease payments and software arrangements, as of December 31, 2018, for the next five years and thereafter:

	Contractual Cash Obligations Payments Due by Period				
(in thousands)	**Total**	**1 Year or Less**	**2-3 Years**	**4-5 Years**	**After 5 Years**
Debt obligations (principal)	$ 3,887,149	$ 20,807	761,342	1,905,000	1,200,000
Debt obligations (interest)[1]	836,265	158,756	294,628	213,437	169,444
Operating leases	254,381	54,818	105,532	61,137	32,894
Purchase commitments	131,788	59,182	39,463	12,330	20,813
Capital lease obligations	42,374	7,393	14,404	13,709	6,868
License agreements	18,146	2,939	15,168	39	—
Total contractual cash obligations	$ 5,170,103	$ 303,895	1,230,537	2,205,652	1,430,019

[1] *Amounts utilize prevailing interest rates as of December 31, 2018.*

Income Taxes

The total liability for uncertain tax positions as of December 31, 2018 is $22.3 million. Refer to Note 14 in the Notes to Consolidated Financial Statements for more information on income taxes. The Company is not able to reasonably estimate the amount by which the liability will increase or decrease over time; however, at this time, the Company does not expect any significant changes related to these obligations within the next twelve months.

Foreign Operations

TSYS operates internationally and is subject to adverse movements in foreign currency exchange rates. On June 23, 2016, the U.K. held a referendum in which voters approved an exit from the E.U., commonly referred to as “Brexit.” The U.K. is currently negotiating the terms of its expected exit from the European Union which is scheduled for March 29, 2019. In November 2018, the U.K. and the European Union agreed upon a draft Withdrawal Agreement that sets out the terms of the U.K.’s departure, including a transition period from March 29, 2019 through December 31, 2020 to allow time for the U.K. and the European Union to agree upon a future trade deal. On January 15, 2019, the draft Withdrawal Agreement was rejected by the U.K. Parliament creating significant uncertainty about the terms (and timing) under which the U.K. will leave the European Union and the terms of U.K.’s future relationship with the European Union. TSYS continues to monitor Brexit and its potential impact across key areas including service continuity, contracts, regulatory (including data privacy), the economy and freedom of movement of people. Uncertainty over the terms of the withdrawal of the U.K. from the E.U. may create global economic uncertainty, and have unknown social and geopolitical impact, which may adversely affect the Company’s business, results of operations and financial condition, as well as potentially affect TSYS’ relationships with its existing and future customers, vendors and employees. Additionally, the U.K. may be required to negotiate new terms of trade with various jurisdictions which could be disruptive and adversely affect TSYS’ tax benefits or liabilities in those jurisdictions. TSYS has not entered into foreign exchange forward contracts to reduce its exposure to foreign currency rate changes. TSYS continues to analyze potential hedging instruments to safeguard it from significant foreign currency translation risks.

TSYS maintains operating cash accounts outside the United States. Refer to Note 4 in the Notes to Consolidated Financial Statements for more information on cash, cash equivalents and restricted cash. TSYS has adopted the permanent reinvestment exception under GAAP with respect to future earnings of certain foreign subsidiaries. While some of the foreign cash is available to repay intercompany financing arrangements, some remaining amounts may not be presently available to fund domestic operations and obligations without paying withholding taxes upon its repatriation. Demand on the Company’s cash has increased as a result of its strategic initiatives. TSYS funds these initiatives through a balance of internally generated cash, external sources of capital and, when advantageous, access to foreign cash in a tax efficient manner. Where local regulations limit an efficient intercompany transfer of amounts held outside of the U.S., TSYS will continue to utilize these funds for local liquidity needs. Under current law, balances available to be repatriated to the U.S. may be subject to foreign withholding taxes. Pursuant to the Tax Act, TSYS has not provided for the U.S. federal tax liability on these amounts for financial statement purposes. TSYS utilizes a variety of tax planning and financing strategies with the objective of having its worldwide cash available in the locations where it is needed.

Impact of Inflation

Although the impact of inflation on its operations cannot be precisely determined, the Company believes that by controlling its operating expenses and by taking advantage of more efficient computer hardware and software, it can minimize the impact of inflation.

Working Capital

TSYS may seek additional external sources of capital in the future. The form of any such financing will vary depending upon prevailing market and other conditions and may include short-term or long-term borrowings from financial institutions or the issuance of additional equity and/or debt securities such as local industrial revenue bonds. However, there can be no assurance that funds will be available on terms acceptable to TSYS. Management expects that TSYS will continue to be able to fund a significant portion of its capital expenditure needs through internally generated cash in the future, as evidenced by TSYS' current ratio of 2.2:1. As of December 31, 2018, TSYS had working capital of $625.2 million, compared to $90.2 million in 2017 and $602.3 million in 2016.

Legal Proceedings

Refer to Note 15 in the Notes to Consolidated Financial Statements for information regarding the Company's commitments and contingencies, including legal proceedings.

Forward-Looking Statements

Certain statements contained in this filing which are not statements of historical fact constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act (“the Act”). These forward-looking statements include, among others: (i) TSYS’ expectation with respect to the effect of recent accounting pronouncements; (ii) TSYS’ expectation with respect to the impact of the CFPB’s new rule pertaining to prepaid financial products on its Consumer Solutions segment and the Company’s 2019 revenue and earnings; (iii) TSYS’ expectation that it will be able to fund a significant portion of its capital expenditure needs through internally generated cash in the future; (iv) TSYS’ belief with respect to lawsuits, claims and other complaints; (v) TSYS’ expectation with respect to certain tax matters; (vi) the Board’s intention to continue to pay cash dividends; and the assumptions underlying such statements. In addition, certain statements in future filings by TSYS with the Securities and Exchange Commission, in press releases, and in oral and written statements made by or with the approval of TSYS which are not statements of historical fact constitute forward-looking statements within the meaning of the Act. Examples of forward-looking statements include, but are not limited to: (i) projections of revenue, income or loss, earnings or loss per share, the payment or nonpayment of dividends, capital structure and other financial items; (ii) statements of plans and objectives of TSYS or its management or Board of Directors, including those relating to products or services; (iii) statements of future economic performance; and (iv) statements of assumptions underlying such statements. Words such as “believes,” “anticipates,” “expects,” “intends,” “targeted,” “estimates,” “projects,” “plans,” “may,” “could,” “should,” “would,” and similar expressions are intended to identify forward-looking statements but are not the exclusive means of identifying these statements.

These statements are based upon the current beliefs and expectations of TSYS’ management and are subject to significant risks and uncertainties. Actual results may differ materially from those contemplated by the forward-looking statements. A number of important factors could cause actual results to differ materially from those contemplated by the Company’s forward-looking statements. Many of these factors are beyond TSYS’ ability to control or predict. These factors include, but are not limited to:

- the material breach of security of any of TSYS’ systems and software;
- TSYS incurs expenses associated with the signing of a significant client;
- organic growth rates for TSYS’ existing clients are lower than anticipated whether as a result of unemployment rates, card delinquencies and charge off rates or otherwise or attrition rates of existing clients are higher than anticipated;
- conversions and deconversions of client portfolios may not occur as scheduled;
- risks associated with foreign operations, including (i) adverse developments with respect to foreign currency exchange rates, and in particular with respect to the current environment, adverse developments with respect to foreign currency exchange rates as a result of Brexit; and (ii) other adverse developments as a result of Brexit including its impact on service continuity, contracts, the regulatory environment, the economy and freedom of movement of people;

- adverse developments with respect to entering into contracts with new clients and retaining current clients;
- consolidation in the financial services and other industries, including the merger of TSYS clients with entities that are not TSYS processing clients, the sale of portfolios by TSYS clients to entities that are not TSYS processing clients and financial institutions which are TSYS clients otherwise ceasing to exist;
- the impact of the Dodd-Frank Wall Street Reform and Consumer Protection Act on TSYS and its clients;
- adverse developments with respect to the payment card industry in general, including a decline in the use of cards as a payment mechanism;
- the impact of potential and completed acquisitions, particularly the completed Cayan and TransFirst acquisitions, including the costs associated therewith, their being more difficult to integrate than anticipated, and the inability to achieve the anticipated growth opportunities and other benefits of the acquisitions;
- the costs and effects of litigation, investigations or similar matters or adverse facts and developments relating thereto;
- the impact of the application of and/or changes in accounting principles;
- TSYS' inability to timely, successfully and cost-effectively improve and implement processing systems to provide new products, increased functionality and increased efficiencies;
- TSYS' reliance on financial institution sponsors;
- changes occur in laws, rules, regulations, credit card association rules, prepaid industry rules, or other industry standards affecting TSYS and its clients that may result in costly new compliance burdens on TSYS and its clients and lead to a decrease in the volume and/or number of transactions processed or limit the types and amounts of fees that can be charged to customers, and in particular the CFPB's new rule regarding prepaid financial products;
- The success of TSYS' business expansion and product diversification strategies for the Consumer Solutions segment which success will depend on, among other things, the rate of adoption of the Company's new products (both by consumers and the Company's distribution partners), the rate of utilization of the various product features by cardholders, and overall market and regulatory dynamics;
- TSYS' ability to obtain and protect its own patents and intellectual property and also avoid liability for infringement of third-party rights;
- the effect of current domestic and worldwide economic and geopolitical conditions;
- the impact on TSYS' business, as well as on the risks set forth above, of various domestic or international military or terrorist activities or conflicts;
- one or more of the assumptions upon which our earnings guidance for 2019 is based is inaccurate;
- the potential for TSYS' systems and software to contain undetected errors, viruses or defects;
- other risk factors described in the "Risk Factors" and other sections of TSYS' Annual Report on Form 10-K for the fiscal year ended December 31, 2018 and other filings with the Securities and Exchange Commission; and
- TSYS' ability to manage the foregoing and other risks.

These forward-looking statements speak only as of the date on which they are made and TSYS disclaims any obligation to update any forward-looking statement as a result of new information, future developments or otherwise except as required by law.

Subsequent Events

Management performed an evaluation of the Company's activity as of the date these audited financial statements were issued and has concluded that there are no significant events requiring disclosure.

Consolidated Balance Sheets

(in thousands, except per share data)		**December 31, 2018**	December 31, 2017
Assets			
Current assets:			
Cash and cash equivalents (Note 4)	$	**471,156**	450,357
Accounts receivable, net of allowances for doubtful accounts and billing adjustments of $6.0 million and $5.9 million as of 2018 and 2017, respectively		**450,322**	412,322
Contract assets (Note 2)		**30,950**	-
Prepaid expenses and other current assets (Note 5)		**188,355**	216,565
Total current assets		**1,140,783**	1,079,244
Contract assets (Note 2)		**47,839**	-
Goodwill (Note 6)		**4,114,838**	3,264,071
Other intangible assets, net of accumulated amortization of $802.0 million and $600.9 million as of 2018 and 2017, respectively (Note 7)		**796,702**	727,146
Intangible assets - computer software, net of accumulated amortization of $893.4 million and $849.3 million as of 2018 and 2017, respectively (Note 8)		**534,536**	383,715
Property and equipment, net of accumulated depreciation and amortization of $522.7 million and $521.1 million as of 2018 and 2017, respectively (Note 9)		**383,074**	325,218
Contract cost assets, net of accumulated amortization (Notes 1 and 10)		**145,598**	258,665
Equity investments, net (Note 11)		**180,661**	163,518
Deferred income tax assets (Note 14)		**7,773**	6,091
Other assets		**116,905**	124,021
Total assets	$	**7,468,709**	6,331,689
Liabilities			
Current liabilities:			
Current portion of long-term borrowings (Note 12)	$	**20,807**	559,050
Accounts payable		**97,956**	62,310
Contract liabilities (Note 2)		**47,227**	52,913
Accrued salaries and employee benefits		**73,143**	82,135
Current portion of obligations under capital leases and license agreements (Note 12)		**8,318**	6,762
Other current liabilities (Note 13)		**268,150**	225,922
Total current liabilities		**515,601**	989,092
Long-term borrowings, excluding current portion (Note 12)		**3,843,394**	2,591,949
Deferred income tax liabilities (Note 14)		**380,278**	238,317
Contract liabilities (Note 2)		**21,489**	48,526
Obligations under capital leases and license agreements, excluding current portion (Note 12)		**46,147**	36,053
Other long-term liabilities		**75,894**	71,070
Total liabilities		**4,882,803**	3,975,007
Redeemable noncontrolling interest in consolidated subsidiary (Note 23)		**-**	115,689
Commitments and contingencies (Note 15)			
Shareholders' Equity			
Shareholders' equity:			
Common stock- $0.10 par value. Authorized 600,000 shares; 202,765 issued as of 2018 and 2017; 180,586 and 180,903 outstanding as of 2018 and 2017, respectively		**20,277**	20,277
Additional paid-in capital		**189,889**	162,806
Accumulated other comprehensive loss, net (Note 20)		**(60,223)**	(36,148)
Treasury stock, at cost (22,179 and 21,862 shares as of 2018 and 2017, respectively)(Note 19)		**(1,042,687)**	(909,960)
Retained earnings		**3,478,650**	3,004,018
Total shareholders' equity		**2,585,906**	2,240,993
Total liabilities and shareholders' equity	$	**7,468,709**	6,331,689

See accompanying Notes to Consolidated Financial Statements

Consolidated Statements of Income

(in thousands, except per share data)	Years Ended December 31, 2018	2017	2016
Total revenues (Notes 1, 2 and 21)	**$ 4,028,211**	4,927,965	4,170,077
Cost of services (Note 1)	**2,492,482**	3,577,320	2,993,062
Selling, general and administrative expenses	**712,991**	616,601	603,633
Total operating expenses	**3,205,473**	4,193,921	3,596,695
Operating income	**822,738**	734,044	573,382
Nonoperating expenses, net	**(162,974)**	(116,482)	(112,350)
Income before income taxes and equity in income of equity investments	**659,764**	617,562	461,032
Income taxes (Note 14)	**127,003**	65,878	161,175
Income before equity in income of equity investments	**532,761**	551,684	299,857
Equity in income of equity investments, net of tax	**45,156**	40,532	26,115
Net income	**$ 577,917**	592,216	325,972
Net income attributable to noncontrolling interests	**(1,261)**	(6,031)	(6,334)
Net income attributable to Total System Services, Inc. (TSYS) common shareholders	**$ 576,656**	586,185	319,638
Basic earnings per share (EPS) attributable to TSYS common shareholders (Note 25)	**$ 3.17**	3.19	1.74
Diluted EPS attributable to TSYS common shareholders (Note 25)	**$ 3.14**	3.16	1.73

See accompanying Notes to Consolidated Financial Statements

Consolidated Statements of Comprehensive Income

(in thousands)	Years Ended December 31, **2018**	2017	2016
Net income	**$ 577,917**	592,216	325,972
Other comprehensive (loss) income, net of tax:			
Foreign currency translation adjustments	**(20,326)**	22,018	(30,801)
Postretirement healthcare plan adjustments	**(716)**	(592)	496
Unrealized (loss) gain on available-for-sale securities	**(5,362)**	(1,416)	7,359
Other comprehensive (loss) income	**(26,404)**	20,010	(22,946)
Comprehensive income	**551,513**	612,226	303,026
Comprehensive income attributable to noncontrolling interests	**(1,261)**	(6,031)	(6,002)
Comprehensive income attributable to TSYS common shareholders	**$ 550,252**	606,195	297,024

See accompanying Notes to Consolidated Financial Statements

Consolidated Statements of Cash Flows

(in thousands)	Years Ended December 31, 2018	2017	2016
Cash flows from operating activities:			
Net income	$ **577,917**	592,216	325,972
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	**408,573**	405,906	373,546
Provisions for cardholder losses	**65,108**	51,194	49,363
Share-based compensation	**48,758**	42,409	43,728
Provisions for bad debt expenses and billing adjustments	**10,313**	10,169	7,584
Charges for transaction processing provisions	**7,163**	11,716	5,351
Amortization of debt issuance costs	**4,982**	4,307	13,570
Dividends received from equity investments	**24,921**	20,589	15,246
(Gain) loss on foreign currency	**(109)**	907	(1,748)
Amortization of bond discount	**1,027**	907	750
Loss on disposal of equipment, net	**84**	3,605	774
Excess tax benefit from share-based payment arrangements	**-**	-	(9,905)
Deferred income tax expense (benefit)	**21,400**	(172,488)	7,435
Equity in income of equity investments, net of tax	**(45,156)**	(40,532)	(26,115)
Changes in operating assets and liabilities, net of effects of acquisitions:			
Accounts receivable	**(34,834)**	(29,729)	(73,235)
Contract assets and contract liabilities	**(2,771)**	6,184	(2,262)
Contract cost assets	**3,316**	-	-
Prepaid expenses, other current assets and other long-term assets	**16,402**	3,089	(58,345)
Accounts payable	**2,718**	17,653	(12,562)
Accrued salaries and employee benefits	**(12,543)**	13,538	(2,597)
Other current liabilities and other long-term liabilities	**(55,602)**	(84,591)	61,734
Net cash provided by operating activities	**1,041,667**	857,049	718,284
Cash flows from investing activities:			
Purchases of property and equipment	**(113,266)**	(70,039)	(51,132)
Additions to contract acquisition costs	**-**	(69,806)	(45,847)
Additions to internally developed computer software	**(39,162)**	(30,265)	(34,043)
Additions to licensed computer software from vendors	**(89,756)**	(25,916)	(11,551)
Cash used in acquisitions, net of cash acquired	**(1,051,629)**	-	(2,345,493)
Proceeds from sale of acquisition intangibles	**3,847**	-	-
Other investing activities	**(4,183)**	(2,718)	(4,930)
Net cash used in investing activities	**(1,294,149)**	(198,744)	(2,492,996)
Cash flows from financing activities:			
Principal payments on long-term borrowings, capital lease obligations and license agreements	**(2,812,366)**	(421,306)	(724,084)
Purchase of noncontrolling interest	**(126,000)**	(70,000)	(5,878)
Dividends paid on common stock	**(94,557)**	(79,017)	(73,378)
Subsidiary dividends paid to noncontrolling shareholders	**(3,777)**	(5,997)	(5,548)
Repurchase of common stock under plans and tax withholding	**(172,966)**	(284,237)	(30,275)
Debt issuance costs	**(16,004)**	-	(26,555)
Excess tax benefit from share-based payment arrangements	**-**	-	9,905
Proceeds from borrowings of long-term debt	**3,477,000**	200,000	2,666,295
Proceeds from exercise of stock options	**31,177**	21,832	11,708
Net cash provided by (used in) financing activities	**282,507**	(638,725)	1,822,190
Cash, cash equivalents and restricted cash:			
Effect of exchange rate changes on cash, cash equivalents and restricted cash	**(7,116)**	5,980	(11,197)
Net increase in cash, cash equivalents and restricted cash	**22,909**	25,560	36,281
Cash, cash equivalents and restricted cash at beginning of period	**451,370**	425,810	389,529
Cash, cash equivalents and restricted cash at end of period	$ **474,279**	451,370	425,810
Supplemental cash flow information:			
Interest paid	$ **154,487**	112,705	84,420
Income taxes paid, net	$ **78,546**	269,113	87,428

See accompanying Notes to Consolidated Financial Statements

Consolidated Statements of Changes in Equity

(in thousands, except per share data)	Redeemable Noncontrolling Interests	TSYS Shareholders: Common Stock Shares	Common Stock Dollars	Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss), Net of Tax	Treasury Stock	Retained Earnings	Noncontrolling Interests	Total Equity
Balance as of December 31, 2015	$ 23,410	202,769	$ 20,277	241,891	(33,544)	(641,664)	2,256,058	5,664	$ 1,848,682
Net income	6,231	-	-	-	-	-	319,638	103	319,741
Other comprehensive loss (Note 20)	-	-	-	-	(22,614)	-	-	(332)	(22,946)
Common stock issued from treasury shares for exercise of stock options (Note 18)	-	-	-	1,824	-	9,884	-	-	11,708
Common stock unissued due to forfeiture of nonvested awards	-	(4)	(1)	1,197	-	(1,196)	-	-	-
Common stock issued from treasury shares for nonvested awards (Note 18)	-	-	-	(17,204)	-	17,204	-	-	-
Share-based compensation (Note 18)	-	-	-	42,457	-	-	-	-	42,457
Cash dividends declared ($0.40 per share)	-	-	-	-	-	-	(73,474)	-	(73,474)
Purchase of treasury shares (Note 19)	-	-	-	-	-	(30,275)	-	-	(30,275)
Subsidiary repurchase of noncontrolling interests	-	-	-	(443)	-	-	-	(5,435)	(5,878)
Subsidiary dividends paid to noncontrolling interests	(5,548)	-	-	-	-	-	-	-	-
Tax benefits associated with share-based compensation	-	-	-	9,905	-	-	-	-	9,905
Balance as of December 31, 2016	24,093	202,765	20,276	279,627	(56,158)	(646,047)	2,502,222	-	2,099,920
Net income	6,031	-	-	-	-	-	586,185	-	586,185
Other comprehensive income (Note 20)	-	-	-	-	20,010	-	-	-	20,010
Common stock issued from treasury shares for exercise of stock options (Note 18)	-	-	-	10,474	-	11,358	-	-	21,832
Common stock unissued due to forfeiture of nonvested awards	-	-	1	1,230	-	(1,231)	-	-	-
Common stock issued from treasury shares for nonvested awards (Note 18)	-	-	-	(10,197)	-	10,197	-	-	-
Share-based compensation (Note 18)	-	-	-	43,234	-	-	-	-	43,234
Cash dividends declared ($0.46 per share)	-	-	-	-	-	-	(84,389)	-	(84,389)
Purchase of treasury shares (Note 19)	-	-	-	-	-	(284,237)	-	-	(284,237)
Adjustments to redemption value of redeemable noncontrolling interest	101,405	-	-	(101,405)	-	-	-	-	(101,405)
Subsidiary repurchase of noncontrolling interests	(9,843)	-	-	(60,157)	-	-	-	-	(60,157)
Subsidiary dividends paid to noncontrolling interests	(5,997)	-	-	-	-	-	-	-	-
Balance as of December 31, 2017	115,689	202,765	20,277	162,806	(36,148)	(909,960)	3,004,018	-	2,240,993
Cumulative effect adjustment from adoption of ASU 2014-09 (Note 1)	**-**	**-**	**-**	**-**	**-**	**-**	**(4,445)**	**-**	**(4,445)**
Reclassification from adoption of ASU 2018-02 (Notes 1 and 20)	**-**	**-**	**-**	**-**	**2,329**	**-**	**(2,329)**	**-**	**-**
Net income	**1,261**	**-**	**-**	**-**	**-**	**-**	**576,656**	**-**	**576,656**
Other comprehensive loss (Note 20)	**-**	**-**	**-**	**-**	**(26,404)**	**-**	**-**	**-**	**(26,404)**
Common stock issued from treasury shares for exercise of stock options (Note 18)	**-**	**-**	**-**	**7,089**	**-**	**24,083**	**-**	**-**	**31,172**
Common stock unissued due to forfeiture of nonvested awards	**-**	**-**	**-**	**692**	**-**	**(692)**	**-**	**-**	**-**
Common stock issued from treasury shares for nonvested awards (Note 18)	**-**	**-**	**-**	**(16,839)**	**-**	**16,839**	**-**	**-**	**-**
Common stock issued from treasury shares for dividend equivalents	**-**	**-**	**-**	**925**	**-**	**9**	**-**	**-**	**934**
Share-based compensation (Note 18)	**-**	**-**	**-**	**48,044**	**-**	**-**	**-**	**-**	**48,044**
Cash dividends declared ($0.52 per share)	**-**	**-**	**-**	**-**	**-**	**-**	**(95,250)**	**-**	**(95,250)**
Purchase of treasury shares (Note 19)	**-**	**-**	**-**	**-**	**-**	**(172,966)**	**-**	**-**	**(172,966)**
Adjustments to redemption value of redeemable noncontrolling interest	**12,828**	**-**	**-**	**(12,828)**	**-**	**-**	**-**	**-**	**(12,828)**
Subsidiary dividends paid to noncontrolling interest	**(3,778)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Repurchase of noncontrolling interest	**(126,000)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Balance as of December 31, 2018	**$ -**	**202,765**	**$ 20,277**	**189,889**	**(60,223)**	**(1,042,687)**	**3,478,650**	**-**	**$ 2,585,906**

See accompanying Notes to Consolidated Financial Statements

Notes to Consolidated Financial Statements

Note 1: Basis of Presentation and Summary of Significant Accounting Policies

BUSINESS: Total System Services, Inc.'s ("TSYS'" or "the Company's") revenues are derived from providing payment processing, merchant services and related payment services to financial and nonfinancial institutions, generally under long-term processing contracts. The Company also derives revenues by providing general-purpose reloadable ("GPR") prepaid debit and payroll cards, demand deposit accounts and other financial services to underbanked and other consumers and businesses. The Company's services are provided through three operating segments: Issuer Solutions, Merchant Solutions and Consumer Solutions.

Through the Company's Issuer Solutions segment, TSYS processes information through its cardholder systems to financial and nonfinancial institutions throughout the United States and internationally. The Company's Merchant Solutions segment provides merchant services to merchant acquirers and merchants mainly in the United States. The Company's Consumer Solutions segment provides financial service solutions to consumers and businesses in the United States.

PRINCIPLES OF CONSOLIDATION AND BASIS OF PRESENTATION: The accompanying Consolidated Financial Statements, which are prepared in accordance with U.S. generally accepted accounting principles ("GAAP") include the accounts of TSYS and its wholly- and majority-owned subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation. In addition, the Company evaluates its relationships with other entities to identify whether they are variable interest entities and to assess whether it is the primary beneficiary of such entities. If the determination is made that the Company is the primary beneficiary, then that entity is included in the consolidated financial statements.

RISKS AND UNCERTAINTIES AND USE OF ESTIMATES: Factors that could affect the Company's future operating results and cause actual results to vary materially from expectations include, but are not limited to, lower than anticipated growth from existing clients, an inability to attract new clients and grow internationally, loss of a major customer or other significant client, loss of a major supplier, an inability to grow through acquisitions or successfully integrate acquisitions, an inability to control expenses, technology changes, the impact of the application of and/or changes in accounting principles, financial services consolidation, changes in regulatory requirements, a decline in the use of cards as a payment mechanism, disruption of the Company's international operations, breach of the Company's security systems, a decline in the financial stability of the Company's clients and uncertain economic conditions. Negative developments in these or other risk factors could have a material adverse effect on the Company's financial position, results of operations and cash flows.

The Company has prepared the accompanying consolidated financial statements in conformity with U.S. GAAP. The preparation of the consolidated financial statements requires management of the Company to make a number of estimates and assumptions relating to the reported amounts of assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the period. These estimates and assumptions are developed based upon all information available. Actual results could differ from estimated amounts.

ACQUISITIONS — PURCHASE PRICE ALLOCATION: TSYS' purchase price allocation methodology requires the Company to make assumptions and to apply judgment to estimate the fair value of acquired assets and liabilities. TSYS estimates the fair value of assets and liabilities based upon appraised market values, the carrying value of the acquired assets and widely accepted valuation techniques, including the cost approach, discounted cash flows and market multiple analyses. Management determines the fair value of fixed assets and identifiable intangible assets such as developed technology or customer relationships, and any other significant assets or liabilities. TSYS adjusts the purchase price allocation, as necessary, until the end of the measurement period, which is no longer than one year after the acquisition closing date as TSYS obtains more information regarding asset valuations and liabilities assumed. Unanticipated events or circumstances may occur which could affect the accuracy of the Company's fair value estimates, including assumptions regarding industry economic factors and business strategies, and may result in an impairment or a new allocation of purchase price.

CASH AND CASH EQUIVALENTS: Cash on hand and investments with a maturity of three months or less when purchased are considered to be cash equivalents.

ACCOUNTS RECEIVABLE: Accounts receivable balances are stated net of allowances for doubtful accounts and billing adjustments.

TSYS records an allowance for doubtful accounts when it is probable that the accounts receivable balance will not be collected. When estimating the allowance for doubtful accounts, the Company takes into consideration such factors as its day-to-day knowledge of the financial position of specific clients, the industry and size of its clients, the overall composition of its

accounts receivable aging, prior history with specific customers of accounts receivable write-offs and prior experience of allowances in proportion to the overall receivable balance. This analysis includes an ongoing and continuous communication with its largest clients and those clients with past due balances. A financial decline of any one of the Company's large clients could have a material adverse effect on collectability of receivables and thus the adequacy of the allowance for doubtful accounts.

Increases in the allowance for doubtful accounts are recorded as charges to bad debt expense and are reflected in selling, general and administrative expenses in the Company's Consolidated Statements of Income. Write-offs of uncollectible accounts are charged against the allowance for doubtful accounts.

TSYS records an allowance for billing adjustments for actual and potential billing discrepancies. When estimating the allowance for billing adjustments, the Company considers its overall history of billing adjustments, as well as its history with specific clients and known disputes. Increases in the allowance for billing adjustments are recorded as a reduction of revenues in the Company's Consolidated Statements of Income and actual adjustments to invoices are charged against the allowance for billing adjustments.

GOODWILL: Goodwill results from the excess of cost over the fair value of net assets of businesses acquired. Goodwill is tested for impairment at least annually. Equity investment goodwill, which is not reported as goodwill in the Company's Consolidated Balance Sheet, but is reported as a component of the equity investment, was $46.6 million and $48.8 million as of December 31, 2018 and 2017, respectively.

OTHER INTANGIBLE ASSETS: Identifiable intangible assets relate primarily to merchant relationships, customer relationships, databases, channel relationships, covenants-not-to-compete, trade names and trade associations resulting from acquisitions. These identifiable intangible assets are amortized using the straight-line method over periods not exceeding the estimated useful lives, which range from one to twelve years. Intangible assets with estimable useful lives are amortized over their respective estimated useful lives to their estimated residual values, and reviewed for impairment in accordance with GAAP. Amortization expenses are charged to selling, general and administrative expenses in the Company's Consolidated Statements of Income.

INTANGIBLE ASSETS- COMPUTER SOFTWARE, NET: Licensed computer software includes software the Company licenses from third parties that is for internal use and providing services to clients. Licensed software is obtained through perpetual licenses, term licenses, site licenses and through agreements based on processing capacity. Perpetual and site licenses are amortized using the straight-line method over their estimated useful lives which range from one to ten years. Term licenses are amortized over the term of the agreement. Mainframe software that is licensed based on processing capacity is amortized using either a straight-line or a units-of-production basis over the estimated useful life of the software, generally not to exceed ten years. At each balance sheet date, the Company evaluates impairment losses on long-lived assets used in operations in accordance with GAAP.

Acquisition technology intangibles are software technology assets resulting from acquisitions. These assets are amortized using the straight-line method over periods not exceeding their estimated useful lives, which range from three to eight years. GAAP requires that intangible assets with estimated useful lives be amortized over their respective estimated useful lives to their residual values, and reviewed for impairment. Acquisition technology intangibles' net book values are included in computer software, net in the accompanying Consolidated Balance Sheets. Amortization expenses are charged to cost of services in the Company's Consolidated Statements of Income.

Software development costs are costs of computer software to be sold, leased or otherwise marketed are capitalized once technological feasibility of the software product has been established. Costs incurred prior to establishing technological feasibility are expensed as incurred. Technological feasibility is established when the Company has completed a detailed program design and has determined that a product can be produced to meet its design specifications, including functions, features and technical performance requirements. Capitalization of costs ceases when the product is generally available to clients. In evaluating software development costs for recoverability, expected cash flows are estimated by management should events indicate a loss may have been triggered. Software development costs are amortized using the straight-line method over its estimated useful life, which ranges from one to ten years.

The Company also develops software that is used internally. Internal-use software development costs are capitalized once: (1) the preliminary project stage is completed, (2) management authorizes and commits to funding a computer software project, and (3) it is probable that the project will be completed and the software will be used to perform the function intended. Costs incurred prior to meeting the qualifications are expensed as incurred. Capitalization of costs ceases when the project is substantially complete and ready for its intended use. Internal-use software development costs are amortized using the straight-line method over its estimated useful life which ranges from three to ten years. Software development costs may

become impaired in situations where development efforts are abandoned due to the viability of the planned project becoming doubtful or due to technological obsolescence of the planned software product.

Based upon management’s review for potential impairment, no material impairment losses related to intangible assets – computer software were recorded in 2018, 2017 or 2016.

PROPERTY AND EQUIPMENT: Property and equipment are stated at cost less accumulated depreciation and amortization. Depreciation and amortization are computed using the straight-line method over the estimated useful lives of the assets. Buildings and improvements are depreciated over estimated useful lives of 5-40 years, computer and other equipment over estimated useful lives of 2-5 years, and furniture and other equipment over estimated useful lives of 3-15 years. The Company evaluates impairment losses on long-lived assets used in operations in accordance with the provisions of GAAP. All ordinary repairs and maintenance costs are expensed as incurred. Maintenance costs that extend the asset life are capitalized and amortized over the remaining estimated life of the asset.

EQUITY METHOD INVESTMENTS: TSYS' 49% investment in Total System Services de México, S.A. de C.V. (“TSYS de México”), an electronic payment processing support operation located in Toluca, México, is accounted for using the equity method of accounting, as is TSYS' 44.56% investment in China UnionPay Data Co., Ltd. (“CUP Data”) headquartered in Shanghai, China. The Company has entered into limited partnership agreements in connection with investing in two Atlanta-based venture capital funds focused exclusively on investing in technology-enabled financial services companies. TSYS' equity investments are recorded initially at cost and subsequently adjusted for equity in earnings, cash contributions and distributions, and foreign currency translation adjustments.

INCOME TAXES: Income taxes reflected in TSYS' consolidated financial statements are computed based on the taxable income of TSYS and its affiliated subsidiaries. A consolidated U.S. federal income tax return is filed for TSYS and its majority-owned U.S. subsidiaries. Additionally, income tax returns are also filed in states where TSYS and its subsidiaries have filing obligations and in foreign jurisdictions where TSYS has a foreign affiliate.

The Company accounts for income taxes in accordance with the asset and liability method. Deferred income tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax basis and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. Reserves against the carrying value of a deferred tax asset are established when necessary to reflect the decreased likelihood of realization of a deferred asset in the future. The effect on deferred income tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date.

Income tax provisions require the use of management judgments, which are subject to challenge by various taxing authorities. Contingency reserves are periodically established where the amount of the contingency can be reasonably determined and is likely to occur. Reductions in contingency reserves are recognized when tax disputes are settled or examination periods lapse.

Significant estimates used in accounting for income taxes relate to the determination of taxable income, the determination of temporary differences between book and tax basis, as well as estimates on the realizability of tax credits and net operating losses.

TSYS recognizes potential interest and penalties related to the underpayment of income taxes as income tax expense in the Consolidated Statements of Income.

UP-FRONT DISTRIBUTOR AND PARTNER PAYMENTS: The Company makes up-front contractual payments to third-party distributors and partners. The Company assesses each up-front payment to determine whether it meets the criteria of an asset as defined by U.S. GAAP. If these criteria are met, the Company capitalizes the up-front payment and recognizes the capitalized amount as expense ratably over the benefit period, which is generally the contract period. If the contract requires the distributor or partner to perform specific acts (i.e., achieve a sales goal) and no other conditions exist for the distributor or partner to earn or retain the up-front payment, then the Company capitalizes the payment and recognizes it as an expense when the performance conditions have been met. Up-front distributor and partner payments are classified on the Consolidated Balance Sheets as other current and non-current assets and recorded as a cost of services in the Consolidated Statements of Income.

IMPAIRMENT OF LONG-LIVED ASSETS: The Company reviews long-lived assets, such as property and equipment and intangibles subject to amortization, including contract assets, contract cost assets and certain computer software, for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be

recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If upon a triggering event the Company determines that the carrying amount of an asset exceeds its estimated undiscounted future cash flows, an impairment charge is recognized by the amount by which the carrying amount of the asset exceeds the fair value of the asset. Assets to be disposed of would be separately presented in the Consolidated Balance Sheets and reported at the lower of the carrying amount or fair value less costs to sell, and would no longer be depreciated. The assets and liabilities of a disposed group classified as held for sale would be presented separately in the appropriate asset and liability sections of the consolidated balance sheet.

TRANSACTION PROCESSING PROVISIONS: The Company has recorded an accrual for contract contingencies (performance penalties) and processing errors. A significant number of the Company's contracts with large clients contain service level agreements which can result in TSYS incurring performance penalties if contractually required service levels are not met. When providing for these accruals, the Company takes into consideration such factors as the prior history of performance penalties and processing errors incurred, actual contractual penalty charge rates in the Company's contracts, progress towards milestones and known processing errors. As of December 31, 2018 and 2017, the Company had transaction processing provisions of $3.6 million and $2.2 million, respectively. These accruals are included in other current liabilities in the accompanying Consolidated Balance Sheets. Increases and decreases in transaction processing provisions are charged to cost of services in the Company's Consolidated Statements of Income, and payments or credits for performance penalties and processing errors are charged against the accrual.

PROVISION FOR CARDHOLDER LOSSES: The Company is exposed to losses due to cardholder fraud, payment defaults and other forms of cardholder activity as well as losses due to non-performance of third parties who receive cardholder funds for transmittal to the issuing banks (banks that issue Mastercard International or Visa USA, Inc. branded cards to customers). The Company establishes a reserve for the losses it estimates will arise from processing customer transactions, debit card overdrafts, chargebacks for unauthorized card use and merchant-related chargebacks due to non-delivery of goods and services. These reserves are established based upon historical loss and recovery rates and cardholder activity for which specific losses can be identified. The provision for cardholder losses was approximately $13.1 million and $9.5 million as of December 31, 2018 and 2017, respectively. The charges to provisions for cardholder losses are included in cost of services in the Consolidated Statements of Income and other current liabilities in the Consolidated Balance Sheets. The Company regularly updates its reserve estimate as new facts become known and events occur that may impact the settlement or recovery of losses.

PROVISION FOR MERCHANT LOSSES: The Company has potential liability for losses resulting from disputes between a cardholder and a merchant that arise as a result of, among other things, the cardholder's dissatisfaction with merchandise quality or merchant services. Such disputes may not be resolved in the merchant's favor. In these cases, the transaction is "charged back" to the merchant, which means the purchase price is refunded to the customer by the card-issuing bank and charged to the merchant. If the merchant is unable to fund the refund, TSYS must do so. TSYS also bears the risk of reject losses arising from the fact that TSYS collects fees from its merchants after the monthly billing period. If the merchant has gone out of business during such period, TSYS may be unable to collect such fees. TSYS maintains cash deposits or requires the pledge of a letter of credit from certain merchants, generally those with higher average transaction size where the card is not present when the charge is made or the product or service is delivered after the charge is made, in order to offset potential contingent liabilities such as chargebacks and reject losses that would arise if the merchant went out of business. Most chargeback and reject losses are charged to cost of services as they are incurred. However, the Company also maintains a provision against losses, including major fraud losses, which are both less predictable and involve larger amounts. The loss provision was established using historical loss rates, applied to recent bankcard processing volume. The Company had a merchant loss provision in the amount $4.3 million for the years ended December 31, 2018 and 2017.

LEASES: The Company is obligated under noncancelable leases for computer equipment and facilities. As these leases expire, they will be evaluated and renewed or replaced by similar leases based on need. For purposes of applying the accounting and reporting standards, leases are classified from the standpoint of the lessee as capital or operating leases.

Rental payments on operating leases are charged to expense over the lease term. If rental payments are not made on a straight-line basis, rental expense nevertheless shall be recognized on a straight-line basis unless another systematic and rational basis is more representative of the time pattern in which use benefit is derived from the leased property, in which case that basis shall be used.

Certain of the Company's operating leases are for office space. The Company will make various alterations (leasehold improvements) to the office space and capitalize these costs as part of property and equipment. Leasehold improvements are amortized on a straight-line basis over the useful life of the improvement or the term of the lease, whichever is shorter.

TREASURY STOCK: The Company uses the cost method when it purchases its own common stock as treasury shares or issues treasury stock upon option exercises and displays treasury stock as a reduction of shareholders' equity.

FAIR VALUES OF FINANCIAL INSTRUMENTS: The Company uses financial instruments in the normal course of its business. The carrying values of cash equivalents, accounts receivable, accounts payable and employee benefits, and other current liabilities approximate their fair value due to the short-term maturities of these assets and liabilities. The fair values of the Company’s unsecured revolving loan and notes payable are considered to be level 2 measurements which are based on inputs other than quoted prices included within Level 1 that are observable for the liability, either directly or indirectly. Level 2 inputs may include quoted prices for similar liabilities in active or inactive markets, or other inputs that can be corroborated by observable market data. The carrying value of the Company’s unsecured revolving loan approximates fair value since the interest rate resets monthly and the balances are pre-payable at any time. With respect to the Company’s notes payable due March and December 2020, the carrying values approximate fair value due to their relatively short maturities. Refer to Note 12 for the estimated fair values of the Company’s Senior Notes.

Investments in equity method investments are accounted for using the equity method of accounting and pertain to privately held companies. The Company believes the fair values of its investments in equity method investments exceed their respective carrying values.

FOREIGN CURRENCY TRANSLATION: The Company maintains several different foreign operations whose functional currency is their local currency. Foreign currency financial statements of the Company's Mexican and Chinese equity investments, the Company's wholly-owned subsidiaries and the Company's majority-owned subsidiaries, as well as the Company's division and branches in the United Kingdom and China, are translated into U.S. dollars at current exchange rates, except for revenues, costs and expenses, and net income which are translated at the average exchange rates for each reporting period. Net gains or losses resulting from the currency translation of assets and liabilities of the Company's foreign operations, net of tax when applicable, are accumulated in a separate section of shareholders' equity titled accumulated other comprehensive income (loss). Gains and losses on transactions denominated in currencies other than the functional currencies are included in determining non-operating income (expense).

REVENUE RECOGNITION:

Revenue recognition for periods after the Company’s adoption of ASC 606 as of January 1, 2018

The Company adopted Accounting Standards Update (“ASU”) 2014-09 and related ASUs (“ASC 606”) as of January 1, 2018 using the modified retrospective method for all contracts not completed as of the date of adoption. For contracts that were modified before the effective date, the Company considered the effect of all modifications when identifying performance obligations and allocating transaction price, which did not have a material effect on the adjustment to retained earnings. The reported results for 2018 reflect the application of ASC 606 guidance while the reported results for 2017 were prepared under the guidance of ASC 605, *Revenue Recognition* (“ASC 605”), which is also referred to herein as "legacy GAAP" or the "previous guidance." In accordance with ASC 606, revenue is recognized when a customer obtains control of promised goods or services. The amount of revenue recognized reflects the consideration to which the Company expects to be entitled to receive in exchange for these services. To achieve this core principle, the Company applies the following five steps:

1. **Identify the contract with a customer.** A contract with a customer exists when (i) the Company enters into an enforceable contract with a customer that defines each party’s rights regarding the services to be transferred and identifies the payment terms related to these services, (ii) the contract has commercial substance and, (iii) the Company determines that collection of substantially all consideration for services that are transferred is probable based on the customer’s intent and ability to pay the promised consideration. The Company applies judgment in determining the customer’s ability and intention to pay, which is based on a variety of factors including the customer’s historical payment experience or, in the case of a new customer, published credit and financial information pertaining to the customer.

2. **Identify the performance obligations in the contract.** Performance obligations promised in a contract are identified based on the goods or services that will be transferred to the customer that are both capable of being distinct, whereby the customer can benefit from the service either on its own or together with other resources that are readily available from third parties or from the Company, and are distinct in the context of the contract, whereby the transfer of the services is separately identifiable from other promises in the contract. To the extent a contract includes multiple promised services, the Company must apply judgment to determine whether promised services are capable of being distinct and are distinct in the context of the contract. If these criteria are not met, the promised services are accounted for as a combined performance obligation.

3. **Determine the transaction price.** The transaction price is determined based on the consideration to which the Company will be entitled in exchange for transferring goods and services to the customer. To the extent the transaction price includes variable consideration, the Company estimates the amount of variable consideration that should be included in the transaction price utilizing either the expected value method or the most likely amount method depending on the nature of the variable consideration. Variable consideration is included in the transaction price if, in the Company's judgment, it is probable that a significant future reversal of cumulative revenue under the contract will not occur.

4. **Allocate the transaction price to performance obligations in the contract.** If the contract contains a single performance obligation, the entire transaction price is allocated to the single performance obligation. However, if a series of distinct services that are substantially the same qualifies as a single performance obligation in a contract with variable consideration, the Company must determine if the variable consideration is attributable to the entire contract or to a specific part of the contract. Contracts that contain multiple performance obligations require an allocation of the transaction price to each performance obligation based on a relative standalone selling price basis unless the transaction price is variable and meets the criteria to be allocated entirely to a performance obligation or to a distinct service that forms part of a single performance obligation. The Company determines standalone selling prices based on the price at which the performance obligation is sold separately. If the standalone selling price is not observable through past transactions, the Company estimates the standalone selling price taking into account available information such as market conditions and internally approved pricing guidelines related to the performance obligations.

5. **Recognize revenue when or as the Company satisfies a performance obligation.** The Company satisfies performance obligations either over time or at a point in time as discussed in further detail below. Revenue is recognized at the time the related performance obligation is satisfied by transferring a promised good or service to a customer.

Description of revenue recognition policies

Issuer Solutions

Issuer Solutions revenues typically include a performance obligation to provide processing services to financial and non-financial institutions. The Company has determined that these processing services represent a stand-ready series of distinct daily services that are substantially the same, with the same pattern of transfer to the customer. In many cases, Issuer Solutions arrangements may include additional performance obligations relating to loyalty redemption services and other professional services. Similar to processing services, the Company has determined that loyalty redemption services represent a stand-ready series of distinct daily services that are substantially the same, with the same pattern of transfer to the customer. Professional services represent performance obligations that are satisfied over time.

The Company has determined that the vast majority of performance obligations to provide processing services and loyalty redemption services meet the allocation of variable consideration exception criteria ("direct allocation") in that (a) the terms of a variable payment relate specifically to the entity's efforts to satisfy the performance obligation or transfer the distinct service and (b) allocating the variable amount of consideration entirely to the performance obligation or the distinct good or service is consistent with the allocation objective when considering all of the performance obligations and payment terms in the contract. As a result, for those performance obligations qualifying for direct allocation, the Company allocates and recognizes variable consideration in the period in which it has the contractual right to invoice the customer. In certain instances when a performance obligation does not meet the criteria for direct allocation, the Company recognizes revenue on either a straight-line basis or a blended rate method (i.e., an output method using the estimated per transaction fee based on estimated total contract consideration and volumes, multiplied by the actual monthly transaction volumes) over the term of the contract. A blended rate method is utilized for contracts that have estimates of significant growth over the contract term. The Company determined that straight-line or blended rate are the most appropriate methods of measuring progress toward completion for performance obligations that do not meet the criteria for direct allocation.

For professional services, the Company recognizes revenue based on the labor hours incurred for time and materials projects or on a straight-line basis for fixed fee projects.

For Issuer Solutions contracts that contain multiple performance obligations, the transaction price is allocated to each performance obligation based on a relative standalone selling price basis unless the transaction price is variable and meets the criteria to be allocated entirely to a performance obligation or to a distinct service that forms part of a single performance obligation.

The Issuer Solutions segment also enters into licensing arrangements with customers. Under these arrangements, the Company provides the customer with a term license (“functional IP”), implementation services and annual support, which includes unspecified upgrades and enhancements. The Company has determined that these promised goods and services represent one combined performance obligation since the individual promised goods or services are not distinct in the context of the contract. The Company recognizes revenue over the remaining contract period beginning at go-live, on a straight-line basis, for this performance obligation. Revenues related to this combined performance obligation are immaterial. For separate performance obligations relating to professional services, revenue is recognized using an input method based on labor hours expended.

Merchant Solutions

Merchant Solutions revenues typically include one performance obligation to provide processing services to individual merchants, large financial institutions, other merchant acquirers or merchant organizations. The Company has determined that merchant processing services represent a stand-ready series of distinct daily services that are substantially the same, with the same pattern of transfer to the customer. Merchant Solutions arrangements also include other promised goods or services (such as point-of-sale terminals and merchant statement services) that are immaterial in the context of the contract. As a result, the Company has determined that Merchant Solutions arrangements represent one performance obligation.

The Company has determined that the performance obligation to provide merchant processing services meets the allocation of variable consideration exception criteria (“direct allocation”) in that (a) the terms of a variable payment relate specifically to the entity’s efforts to satisfy the performance obligation or transfer the distinct service and (b) allocating the variable amount of consideration entirely to the performance obligation or the distinct good or service is consistent with the allocation objective when considering all of the performance obligations and payment terms in the contract. As a result, the Company allocates and recognizes variable consideration in the period it has the contractual right to invoice the customer.

Interchange and payment network fees

Interchange and payment network fees are charged by the card associations or payment networks and relate primarily to the Company’s Merchant Solutions segment. With respect to interchange and payment network fees, the Company evaluated whether it is the principal or the agent in the arrangement. With the adoption of ASC 606, the Company determined that interchange and payment network fees are not provided in return or exchange for services that the Company controls or acts as the principal, and, therefore, are not part of the consideration paid for its services. Accordingly, the Company is acting as an agent and presents the fees collected from merchants on behalf of the payment networks and card issuers net of the amounts paid to them. In reaching this determination, the Company considered a number of factors including indicators of control such as the party primarily responsible and the party who has discretion in establishing prices.

Consumer Solutions

Consumer Solutions revenues include one performance obligation to provide account access and facilitate purchase transactions, as well as interchange fees. The Company has determined that Consumer Solutions services represent a stand-ready series of distinct daily services that are substantially the same, with the same pattern of transfer to the customer. Further, the Company has determined that the performance obligation to provide account access and facilitate purchase transactions meets the criteria for the “as invoiced” practical expedient in that the Company has a right to consideration from a customer in an amount that corresponds directly with the value to the customer of the Company’s performance completed to date. As a result, the Company recognizes revenue in the amount to which the Company has a right to invoice.

Reimbursable Items

Reimbursable items consist of out-of-pocket expenses which are reimbursed by the Company's clients. These expenses consist primarily of postage, gift cards and third-party software. Reimbursable items are recorded on a gross basis in total revenues and cost of services.

Costs to obtain or fulfill a contract

The Company capitalizes the incremental costs of obtaining a contract with a customer if the Company expects to recover those costs. The incremental costs of obtaining a contract are those that the Company incurs to obtain a contract with a customer that it would not have incurred if the contract had not been obtained (for example, a sales commission). The Company also makes commission payments to third parties such as agents and partners. To date, costs to obtain a contract that qualify for capitalization are immaterial.

The Company capitalizes the costs incurred to fulfill a contract only if those costs meet all of the following criteria:

a. The costs relate directly to a contract or to an anticipated contract that the Company can specifically identify.
b. The costs generate or enhance resources of the Company that will be used in satisfying (or in continuing to satisfy) performance obligations in the future.
c. The costs are expected to be recovered.

See related discussion of contract cost assets in Note 10.

Contract acquisition and fulfillment costs are amortized using the straight-line method over the expected period of benefit (ranging from 20 months to seven years or the longer of the contract term) beginning when the client's cardholder accounts are converted or activated and producing revenues. The amortization of contract fulfillment costs associated with conversion activity is recorded as cost of services in the Company's Consolidated Statements of Income. The amortization of contract acquisition costs associated with sales commissions that qualify for capitalization is recorded as selling, general and administrative expense in the Company's Consolidated Statements of Income. Costs to obtain or fulfill a contract are classified as contract cost assets in the Company's Consolidated Balance Sheets.

In evaluating contract acquisition and fulfillment costs for recoverability, expected cash flows are estimated by management should events indicate a loss may have been triggered. The Company evaluates the carrying value of contract cost assets associated with each customer for impairment on the basis of whether these costs are fully recoverable from either contractual minimum fees or from expected undiscounted net operating cash flows of the related contract. The determination of expected undiscounted net operating cash flows requires management to make estimates. If the actual cash flows are not consistent with the Company's estimates, a material impairment charge may result and net income may be materially different than was initially recorded. These costs may become impaired with the loss of a contract, the financial decline of a client, termination of conversion efforts after a contract is signed, diminished prospects for current clients or if the Company's actual results differ from its estimates of future cash flows. The amount of the impairment is written off in the period that such a determination is made.

Optional exemptions, practical expedients and policy elections

The Company has elected to treat shipping and handling activities as a cost of fulfillment rather than a separate performance obligation.

The Company has elected to exclude all sales and other similar taxes from the transaction price. Accordingly, the Company presents all collections from customers for these taxes on a net basis, rather than having to assess whether the Company is acting as an agent or a principal in each taxing jurisdiction.

The Company utilizes a portfolio approach in order to estimate amounts for service level agreement penalties and similar items for portfolios of contracts with similar characteristics, using estimates and assumptions that reflect the size and composition of the portfolio.

As a practical expedient, the Company is not required to adjust the promised amount of consideration for the effects of a significant financing component if the Company expects, at contract inception, that the period between when the Company transfers a promised good or service to a customer and when the customer pays for that good or service will be one year or less. None of the Company's contracts as of December 31, 2018 contained a significant financing component.

The Company has elected to use the "as-invoiced" practical expedient for its performance obligations to provide account access and facilitate purchase transactions related to the Consumer Solutions segment.

The Company does not disclose the value of unsatisfied performance obligations (except for contractual minimums) for which revenue is recognized using (i) the "as-invoiced" practical expedient and (ii) the "direct allocation" method.

The Company adopted ASC 606 as of January 1, 2018 using the modified retrospective method for all contracts not completed as of the date of adoption.

Revenue recognition for periods prior to the Company's adoption of ASC 606 as of January 1, 2018

Revenue was recognized when it was realized or realizable and earned, which was deemed to occur when all of the following criteria were met: (1) persuasive evidence of an arrangement existed; (2) delivery had occurred or services had been performed; (3) the seller's price to the buyer was fixed or determinable; and (4) collectability was reasonably assured. The Company accrued for rights of refund, processing errors or penalties, or other related allowances based on historical experience.

Issuer Solutions

Revenue was recognized as the services were performed, primarily on a per unit basis. Processing contracts generally ranged from three to ten years in length. When providing payment processing services, the Company frequently entered into customer arrangements to provide multiple services that may have also included conversion or implementation services, business process outsourcing services such as call center services, web-based services, and other payment processing-related services. The revenue contracts can be highly complex and customized between customers. Revenue for these services was generally recognized as they were performed on a per unit basis each month or ratably over the term of the contract.

Merchant Solutions

Revenue was recognized for merchant services as those services were performed, primarily measured on a per unit basis. When providing merchant processing services, the Company frequently entered into customer arrangements to provide multiple services that may have also included conversion or implementation services, business process outsourcing services such as call center services, terminal services, and other merchant processing-related services. Revenue for these services was generally recognized as they were performed on a per unit basis each month or ratably over the term of the contract. Revenues on point-of-sale ("POS") terminal equipment were recognized upon the transfer of ownership and shipment of product.

With the acquisition of TransFirst Holdings Corp. ("TransFirst") on April 1, 2016, TSYS included TransFirst's results as part of the Merchant Solutions segment. TransFirst's revenues were reported gross, which includes amounts paid for interchange and assessments, as TransFirst is the principal in the contractual relationship with its customers. Expenses covering interchange and payment network fees were included in TransFirst's cost of services and were directly attributable to processing fee revenues and were recognized in the same period as the related revenue.

Consumer Solutions

Revenue resulting from the service fees charged to the cardholders was recognized when the fees were charged because the earnings process was substantially complete, except for revenue resulting from the initial activation of cards and annual subscription fees. Revenue resulting from the initial activation of cards was recognized ratably, net of commissions paid to distributors, over the average account life. Revenue resulting from annual subscription fees was recognized ratably over the annual period to which the fees related.

Revenues also included fees charged in connection with program management and processing services the Company provided for private-label programs. Revenue resulting from these fees was recognized when the Company had fulfilled its obligations under the underlying service agreements.

The Company derives revenue from a portion of the interchange fees remitted by merchants when cardholders make purchases using their cards. Subject to applicable law, interchange fees are fixed by the card associations and network organizations ("Networks"). Interchange revenue was recognized net of sponsorship, licensing and processing fees charged by the Networks for services they provided in processing purchase transactions routed through them. Interchange revenue was recognized during the period that the purchase transactions occurred. Revenues also included fees earned from branding agreements with the Networks.

Multiple Element Arrangements

When a sale involved multiple deliverables, revenue recognition was affected by the determination of the number of deliverables in an arrangement, whether those deliverables may be separated into multiple units of accounting, and the standalone selling price of each unit of accounting which affected the amount of revenue allocated to each unit. Pursuant to ASC 605, the Company used vendor-specific objective evidence ("VSOE") of the standalone selling price of its services when it existed to determine the amount of revenue to allocate to each unit of accounting. The Company established VSOE using the price charged when the same service was sold separately (on a standalone basis). In most situations, the Company did not have sufficient VSOE. In these situations, TSYS considered whether sufficient third party evidence ("TPE") of standalone selling price existed for the Company's services. However, the Company typically was not able to determine TPE and had not used this measure of selling price due to the unique and proprietary nature of some of its services and the inability to reliably verify relevant standalone third party prices. When there was insufficient evidence of VSOE and TPE, the Company made its best estimate of the standalone selling price ("ESSP") of that service for purposes of allocating revenue to each unit of accounting. When determining ESSP, TSYS used limited standalone sales data that met the Company's criteria to establish VSOE, management pricing strategies, residual selling price data when VSOE exists for a group of elements, the cost of

providing the services and the related margin objectives. Consideration was also given to geographies in which the services were sold or delivered, customer classifications, and market conditions including competitor pricing strategies and benchmarking studies. Revenue was recognized when the revenue recognition criteria for each unit of accounting had been met.

There were no material changes or impact to revenue for current contractual arrangements during the years ended December 31, 2017 and 2016 due to any changes in the determination of the number of deliverables in an arrangement, units of accounting, or estimates of VSOE or ESSP.

In many situations, the Company entered into arrangements with customers to provide conversion or implementation services in addition to processing services where the conversion or implementation services did not have standalone value. For these arrangements, conversion or implementation services that did not have standalone value, were recognized over the expected customer relationship (contract term) as the related processing services were performed.

The Company's multiple element arrangements may have included one or more elements that were subject to other topics including software revenue recognition and leasing guidance. The consideration for these multiple element arrangements was allocated to each group of deliverables – those subject to ASC 605-25 *Revenue Recognition – Multiple-Element Arrangements* and those subject to other topics based on the revised guidance in ASU 2009-13 *Revenue Recognition (Topic 605)*. Arrangement revenue for each group of deliverables was then further separated, allocated, and recognized based on applicable guidance.

In regards to taxes assessed by a governmental authority imposed directly on a revenue producing transaction, the Company reports its revenues on a net basis.

Reimbursable Items

Reimbursable items consisted of out-of-pocket expenses which were reimbursed by the Company's clients. These expenses consisted primarily of postage, access fees and third-party software. Reimbursable items were recorded on a gross basis in total revenues and cost of services.

SHARE-BASED COMPENSATION: GAAP establishes standards for the accounting for transactions in which an entity exchanges its equity instruments for goods or services. It also addresses transactions in which an entity incurs liabilities in exchange for goods or services that are based on the fair value of the entity's equity instruments or that may be settled by the issuance of those equity instruments. A public entity must measure the cost of employee services received in exchange for an award of equity instruments based on the grant-date fair value of the award (with limited exceptions). That cost will be recognized over the period during which an employee is required to provide service in exchange for the award.

The Company estimates forfeitures when recognizing compensation cost. The estimate of forfeitures will be adjusted by the Company as actual forfeitures differ from its estimates, resulting in compensation cost only for those awards that actually vest. The effect of the change in estimated forfeitures is recognized as compensation costs in the period the change in estimate occurred. In estimating its forfeiture rate, the Company stratified its data based upon historical experience to determine separate forfeiture rates for the different award grants. The Company currently estimates a forfeiture rate for existing stock option grants to TSYS non-executive employees, and other TSYS share-based awards. Currently, TSYS estimates a forfeiture rate in the range of 0% to 3% for executive level employees and up to 8% for other employees.

The Company has issued its vested awards to directors and nonvested awards to certain employees. The market value of the common stock at the date of issuance is recognized as compensation expense immediately for vested awards and over the vesting period of the nonvested awards. For nonvested award grants that have pro rata vesting, the Company recognizes compensation expense using the straight-line method over the vesting period of the award.

ADVERTISING: Advertising costs are expensed as incurred or the first time the advertising takes place except for direct-response advertising and television advertising production costs. Direct-response advertising consists of commissions paid to affiliate marketers for the new funded customer accounts generated by them. Direct-response advertising costs are capitalized and amortized over the average life of the new accounts, which is approximately one year. Television advertising production costs consist of the costs of developing and filming television ads. Television advertising production costs are capitalized when the production services are received and expensed in the period when the advertising first takes place. Advertising expense for 2018, 2017 and 2016 was $12.4 million, $13.2 million and $11.5 million, respectively.

NONCONTROLLING INTEREST: Noncontrolling interest in earnings of subsidiaries represents the minority shareholders' share of the net income of Central Payment Co., LLC ("CPAY"). Refer to Note 23 for more information on acquisitions.

EARNINGS PER SHARE: Basic EPS is calculated by dividing net income by the weighted average number of common shares outstanding during the period. Diluted EPS is calculated to reflect the potential dilution that would occur if stock options or other contracts to issue common stock were exercised. Diluted EPS is calculated by dividing net income by weighted average common and common equivalent shares outstanding. Common equivalent shares are calculated using the treasury stock method.

Unvested share-based payment awards that contain nonforfeitable rights to dividends or dividend equivalents are "participating securities" as defined by GAAP, and therefore should be included in EPS using the two-class method.

The two-class method is an earnings allocation method for computing EPS when an entity's capital structure includes two or more classes of common stock or common stock and participating securities. It determines EPS based on dividends declared on common stock and participating securities and participation rights of participating securities in any undistributed earnings.

RECLASSIFICATIONS: The Company had restricted cash of $1.0 million and $0.5 million as of December 31, 2017 and 2016. Upon the Company's adoption of ASU 2016-18 on January 1, 2018, the Company reclassified the change in its restricted cash to cash, cash equivalents and restricted cash on the Consolidated Statements of Cash Flows for all periods presented.

Recently Adopted Accounting Pronouncements

The Company adopted the following ASUs:

In March 2018, the FASB issued ASU 2018-05 *Income Taxes (Topic 740) - Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 118*. This ASU adds SEC paragraphs pursuant to the SEC Staff Accounting Bulletin No. 118, which expresses the view of the staff regarding application of Topic 740, *Income Taxes*, in the reporting period that includes December 22, 2017 - the date on which the Tax Cuts and Jobs Act was signed into law. The Company adopted the provisions of SEC Staff Accounting Bulletin No. 118 as of December 22, 2017. See Note 14 for further discussion regarding income taxes.

In February 2018, the FASB issued ASU 2018-02 *Income Statement - Reporting Comprehensive Income (Topic 220) Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*. ASU 2018-02 allows a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act. Consequently, the amendments in this ASU eliminate the stranded tax effects resulting from the Tax Cuts and Jobs Act and will improve the usefulness of information reported to financial statement users. The amendments in this ASU are effective for all entities for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. Early adoption of the amendments in this ASU is permitted. The amendments in this ASU should be applied either in the period of adoption or retrospectively to each period (or periods) in which the effect of the change in the U.S. federal corporate income tax rate in the Tax Cuts and Jobs Act is recognized. The ASU was early adopted by the Company as of July 1, 2018 and the Company recorded a balance sheet reclassification of $2.3 million between accumulated other comprehensive loss and retained earnings.

In May 2017, the Financial Accounting Standards Board ("FASB") issued ASU 2017-09 *Compensation - Stock Compensation (Topic 718), Scope of Modification Accounting,* to provide guidance about which changes to the terms or conditions of a share-based payment award require an entity to apply modification accounting in Topic 718. An entity should account for the effects of a modification unless all the following are met:

1. The fair value (or calculated value or intrinsic value, if such an alternative measurement method is used) of the modified award is the same as the fair value (or calculated value or intrinsic value, if such an alternative measurement method is used) of the original award immediately before the original award is modified. If the modification does not affect any of the inputs to the valuation technique that the entity uses to value the award, the entity is not required to estimate the value immediately before and after the modification.
2. The vesting conditions of the modified award are the same as the vesting conditions of the original award immediately before the original award is modified.
3. The classification of the modified award as an equity instrument or a liability instrument is the same as the classification of the original award immediately before the original award is modified.

The ASU was adopted by the Company on January 1, 2018. The adoption of this ASU did not have a material impact on the Company's financial position, results of operations or cash flows.

In January 2017, the FASB issued ASU 2017-01 *Business Combinations (Topic 805), Clarifying the Definition of a Business,* which provides a more robust framework to use in determining when a set of assets and activities is a business. The framework assists entities in evaluating whether both an input and a substantive process are present. The framework includes two sets of criteria to consider that depend on whether a set of assets and activities has outputs. Although outputs are not required for a set to be a business, outputs generally are a key element of a business; therefore, the FASB has developed more stringent criteria for sets without outputs. The ASU was adopted by the Company on January 1, 2018. The adoption of this ASU did not have a material impact on the Company's financial position, results of operations or cash flows.

In November 2016, the FASB issued ASU 2016-18 *Statement of Cash Flows (Topic 230): Restricted Cash*, which requires that a statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. The Company adopted this guidance on January 1, 2018 and has applied the guidance using a retrospective transition method for all periods presented.

In October 2016, the FASB issued ASU 2016-16 *Income Taxes (Topic 740): Intra-Equity Transfers of Assets Other Than Inventory,* which requires that an entity should recognize the income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs and eliminates the exception for an intra-entity transfer of an asset other than inventory. The ASU was adopted by the Company on January 1, 2018. The adoption of this ASU did not have a material impact on the Company's financial position, results of operations or cash flows.

In August 2016, the FASB issued ASU 2016-15 *Statement of Cash Flows (Topic 230): Classification of Certain Receipts and Cash Payments*, which clarifies how entities should classify certain cash receipts and cash payments on the statement of cash flows. The guidance also clarifies how the predominance principle should be applied when cash receipts and cash payments have aspects of more than one class of cash flow. The ASU was adopted by the Company on January 1, 2018. The adoption of this ASU did not have a material impact on the Company's financial position, results of operations or cash flows.

In January 2016, the FASB issued ASU 2016-01 *Recognition and Measurement of Financial Assets and Financial Liabilities,* which amends the guidance in U.S. GAAP on the classification and measurement of financial instruments. The ASU significantly revises an entity's accounting related to (1) the classification and measurement of investments in equity securities and (2) the presentation of certain fair value changes for financial liabilities measured at fair value. The ASU also amends certain disclosure requirements associated with the fair value of financial instruments. The ASU was adopted by the Company on January 1, 2018. The adoption of this ASU did not have a material impact on the Company's financial position, results of operations or cash flows.

In May 2014, the FASB issued ASU 2014-09 *Revenue from Contracts with Customers (Topic 606),* which requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. The ASU replaces most existing revenue recognition guidance in U.S. GAAP when it becomes effective. The FASB has issued several additional ASUs since this time that add additional clarification to certain issues existing after the original ASU was released. All of the new standards were effective for the Company on January 1, 2018. The standards permit the use of either the full retrospective or modified retrospective transition method. TSYS adopted the new revenue standard as of January 1, 2018 using the modified retrospective transition method. See Notes 1 and 2 for further discussion of the Company's adoption of this new standard.

New Accounting Pronouncements

In November 2018, the FASB issued ASU 2018-18 *Collaborative Arrangements (Topic 808), Clarifying the Interaction between Topic 808 and Topic 606.* The amendments in this update make targeted improvements to GAAP for collaborative arrangements as follows:

1. Clarify that certain transactions between collaborative arrangement participants should be accounted for as revenue under Topic 606 when the collaborative arrangement participant is a customer in the context of a unit of account. In those situations, all the guidance in Topic 606 should be applied, including recognition, measurement, presentation, and disclosure requirements.
2. Add unit of account guidance in Topic 808 to align with the guidance in Topic 606 (that is, a distinct good or service) when an entity is assessing whether the collaborative arrangement or a part of the arrangement is within the scope of Topic 606.
3. Require that in a transaction with a collaborative arrangement participant that is not directly related to sales to third parties, presenting the transaction together with revenue recognized under Topic 606 is precluded if the collaborative arrangement participant is not a customer.

The ASU is effective for the Company on January 1, 2020. Early adoption of the ASU is permitted. The Company is evaluating the effects of ASU 2018-18 on its consolidated financial statements.

In August 2018, the FASB issued ASU 2018-15 *Intangibles-Goodwill and Other-Internal-Use Software (Subtopic 350-40), Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*. The amendments in this update align the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). The ASU is effective for the Company on January 1, 2020. Early adoption of the ASU is permitted. The Company is evaluating the effects of ASU 2018-15 on its consolidated financial statements.

In August 2018, the FASB issued ASU 2018-13 *Fair Value Measurement (Topic 820), Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement.* The FASB is issuing the amendments in this update in connection with the FASB Statement of Financial Accounting Concepts No. 8, *Conceptual Framework for Financial Reporting-Chapter 8: Notes to Financial Statements,* which was finalized in August 2018. The amendments in this update modify the disclosure requirements on fair value measurement in Topic 820, *Fair Value Measurement,* by removing, modifying or adding disclosures. The ASU is effective for the Company on January 1, 2020. Early adoption of the ASU is permitted. The Company is evaluating the effects of ASU 2018-13 on its consolidated financial statements.

In September 2017, the FASB issued ASU 2017-13 *Revenue Recognition (Topic 605), Revenues from Customers (Topic 606), Leases (Topic 840) and Leases (Topic 842),* which made amendments to SEC paragraphs pursuant to the Staff Announcement at the July 20, 2017 Emerging Issues Task Force ("EITF") Meeting and rescission of prior SEC Staff Announcements and Observer comments. This guidance, which is effective immediately, generally relates to the adoption of ASC 606 and 842. The adoption of the amendments in this ASU relating to ASC 606 did not have a material impact on the Company's financial position, results of operations or cash flows. The Company does not expect the adoption of the amendments in this ASU relating to ASC 842 to have a material impact on the Company's financial position, results of operations or cash flows.

In June 2016, the FASB issued ASU 2016-13 *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. The amendments in this update change how companies measure and recognize credit impairment for many financial assets. The new expected credit loss model will require companies to immediately recognize an estimate of credit losses expected to occur over the remaining life of the financial assets (including trade receivables) that are in the scope of the update. The update also made amendments to the current impairment model for held-to-maturity and available-for-sale debt securities and certain guarantees. The ASU is effective for the Company on January 1, 2020. Early adoption is permitted for periods beginning on or after January 1, 2019. The Company is evaluating the effect of ASU 2016-13 on its consolidated financial statements.

Recent Accounting Pronouncements Related to Leases

In February 2016, the FASB issued ASU 2016-02 *Leases (Topic 842),* which introduces a lessee model that brings most operating leases on the balance sheet and aligns many of the underlying principles of the new lessor model with those in the FASB's new revenue recognition standard. The new guidance will be effective for fiscal years and interim periods within those years beginning after December 15, 2018. Early adoption is permitted for all entities.

The FASB has issued several additional ASUs that provide additional clarification to certain issues existing after ASU 2016-02 was released. In December 2018, the FASB issued ASU 2018-20 *Leases (Topic 842), Narrow-Scope Improvements for Lessors*. The amendments in this update create a lessor practical expedient applicable to sales and other similar taxes incurred in connection with a lease, and simplify lessor accounting for lessor costs paid by the lessee. In July 2018, the FASB issued ASU 2018-11 *Leases (Topic 842): Targeted Improvements* to provide entities with an additional (and optional) transition method to adopt the new leases standard and provide lessors with a practical expedient, by class of underlying asset, to not separate non-lease components from the associated lease component and, instead, to account for those components as a single component if certain criteria are met. Also in July 2018, the FASB issued ASU 2018-10 *Codification Improvements to Topic 842* to make amendments addressing sixteen issues related to various aspects of ASU 2016-02. The effective date and transition requirements for the amendments in ASU 2018-20, ASU 2018-11 and ASU 2018-10 are the same as the effective date and transition requirements in ASU 2016-02.

The Company adopted ASU 2016-02 on January 1, 2019 using the additional transition method (cumulative effect method) provided by ASU 2018-11. The Company has elected to utilize the following practical expedients and accounting policy elections:

- The Company, electing as a package, will not reassess: (a) whether expired or existing contracts contain leases under the new definition of a lease, (b) lease classification for expired or existing leases, and (c) whether previously capitalized initial direct costs would qualify for capitalization under ASU 2016-02.
- The Company will not evaluate land easements that exist or expired before the Company's adoption of ASU 2016-02 and that were not previously accounted for as leases.
- From a lessee perspective, the Company has elected to combine lease and non-lease components for all classes of assets except for computer equipment. Accordingly, for all asset classes excluding computer equipment, the Company will account for the combined lease and non-lease components as a single lease component. For computer equipment, the Company will account for lease and non-lease components, such as maintenance, separately.
- From a lessee perspective, the Company has elected, as an accounting policy election by class of underlying asset, not to recognize Right-of-Use ("ROU") assets and lease liabilities for short-term leases.
- From a lessor perspective, the Company has elected to utilize the practical expedient in ASU 2018-11 to not separate non-lease components from the associated lease component for arrangements including point-of-sale ("POS") terminals. Since the predominant component in these arrangements is service revenue and not the POS terminal, the combined components in these arrangements will be accounted for under ASC 606 and not ASC 842.
- The Company will utilize incremental borrowing rates in transition (as of January 1, 2019) based on the remaining lease payments and remaining lease term.

The Company decided not to elect the use of hindsight in determining the lease term and in assessing impairment of the Company's ROU assets.

The Company formed a cross-functional project team to evaluate the requirements of the new leases standard from both a lessee and lessor perspective, and to monitor ongoing standard setting activities of the FASB. The Company is reviewing its lease contracts under the new standard to identify and evaluate differences from current guidance. From a lessee standpoint, the Company's leases primarily involve computer equipment and facilities. From a lessor perspective, the Company's leases primarily involve POS terminals.

While the Company is continuing to evaluate the effects of this ASU, the Company expects to record material ROU assets and lease liabilities on its consolidated balance sheet upon adoption as of January 1, 2019. Upon adoption, the Company expects to record ROU assets of approximately $195 million and additional operating liabilities of approximately $190 million for existing operating leases. Also as part of the initial adoption, the Company wrote off the carrying value of favorable lease intangible assets of $2.1 million and increased the ROU assets by the same amount. The cumulative effect adjustment expected to be recorded to opening retained earnings is not material. The Company does not expect the adoption of this ASU to have a material impact on its results of operations or cash flows. The adoption of this guidance will require the implementation of new or updated accounting processes, procedures and internal controls over financial reporting. The Company implemented a new lease accounting software solution in 2019 to facilitate compliance with the requirements of the new standard. The new standard also requires expanded qualitative and quantitative disclosures regarding the Company's leases.

Note 2 — Revenue from Contracts with Customers

Description of service offerings

Issuer Solutions

The Company's Issuer Solutions revenues are derived from long-term processing contracts with financial and nonfinancial institutions. Payment processing services revenues are generated primarily from charges based on:

- The number of accounts on file;
- Transactions and authorizations processed;
- Statements generated and/or mailed;
- Managed services; and
- Cards embossed and mailed and other processing services for cardholder accounts on file.

Most of these contracts have prescribed annual revenue minimums, penalties for early termination, and service level agreements which may impact contractual fees if certain service levels are not achieved.

Issuer Solutions revenues also include loyalty redemption services and professional services.

Merchant Solutions

The Company's Merchant Solutions revenues are partially derived from relationships with thousands of individual merchants whose contracts range from thirty days to five years. Additionally, part of the revenues are derived from long-term processing contracts with large financial institutions, other merchant acquirers and merchant organizations which generally range from three to eight years. Merchant services revenue is generated primarily from processing all payment forms including credit, debit and electronic benefits transfer for merchants of all sizes across a wide array of retail market segments.

The products and services offered include:
- Authorizations and capture of electronic transactions;
- Clearing and settlement of electronic transactions;
- Information reporting services related to electronic transactions;
- Merchant billing services; and
- Point-of-sale equipment and services.

Most of these contracts have prescribed revenue minimums, penalties for early termination, and service level agreements which may impact contractual fees if certain service levels are not achieved.

Consumer Solutions

The Company's Consumer Solutions revenues principally consist of a portion of the service fees collected from cardholders and interchange revenues received by the issuing banks in connection with the programs that the Consumer Solutions segment manages.

Customers are charged fees in connection with the Consumer Solutions segment's products and services as follows:
- Transactions - Customers are typically charged a fee for each Personal Identification Number ("PIN") and signature-based purchase transaction made using their cards, unless the customer is on a monthly or annual service plan, in which case the customer is instead charged a monthly or annual subscription fee, as applicable. Customers are also charged fees for Automated Teller Machine ("ATM") withdrawals and other transactions conducted at ATMs.
- Customer Service and Maintenance - Customers are typically charged fees for balance inquiries made through Consumer Solutions call centers. Customers are also charged a monthly maintenance fee after a specified period of inactivity.
- Additional Products and Services - Customers are charged fees associated with additional products and services offered in connection with certain cards, including the use of overdraft features, a variety of bill payment options, card replacement, foreign exchange and card-to-card transfers of funds initiated through the call centers.
- Other - Customers are charged fees in connection with the acquisition and reloading of the cards at retailers and the Company receives a portion of these amounts in some cases.

Disaggregation of revenue

The following table summarizes volume-based and non-volume related revenue from contracts with external customers for the year ended December 31, 2018:

	Year Ended December 31, 2018			
(in thousands)	**Issuer Solutions**	**Merchant Solutions**	**Consumer Solutions**	**Total**
Volume-based revenues	$ 903,831	1,268,151	804,231	$ 2,976,213
Non-volume related revenues	964,474	85,468	2,056	1,051,998
Total revenues	$ 1,868,305	1,353,619	806,287	$ 4,028,211

Issuer Solutions

Volume-based revenues are generated from charges based on the number of Accounts on File ("AOF"), transactions and authorizations processed, statements generated, and other processing services for cardholder AOF. Cardholder AOF includes active and inactive consumer credit, retail, prepaid, stored value, government services and commercial card accounts. TSYS' clients also have the option to use fraud and portfolio management services which are based on authorizations processed and AOF, respectively. Collectively, these services are considered volume-based revenues. Non-volume related revenues include processing fees which are not directly associated with AOF and transactional activity, such as value-added products and services, custom programming and certain other services, which are only offered to TSYS'

processing clients. Additionally, non-volume based revenues include licensing, managed services and output services such as card and document production.

Merchant Solutions

The Merchant Solutions segment's revenues primarily consist of volume-based revenues generated from charges based on sales volume processed, and authorized transactions and settled transactions processed. Non-volume related revenues include chargeback and retrieval services, data transmissions, value-added products and managed services which are not directly associated with transactional activity.

Consumer Solutions

The Consumer Solutions segment's revenues primarily consist of volume-based revenues generated from a portion of the service fees collected from cardholders and interchange revenues. Non-volume related revenues include value-added products and services which are not directly associated with transactional activity.

The following table summarizes revenue from contracts with customers, by currency, for the year ended December 31, 2018:

	Year Ended December 31, 2018			
(in thousands)	Issuer Solutions	Merchant Solutions	Consumer Solutions	Total
U.S. Dollar	$ 1,482,772	1,352,852	806,287	$ 3,641,911
British Pound Sterling	253,185	-	-	253,185
Euro	103,785	-	-	103,785
Other	28,563	767	-	29,330
Total revenues	$ 1,868,305	1,353,619	806,287	$ 4,028,211

See Note 21 for disclosure of revenues by geography.

Performance obligations

The following table includes estimated revenue expected to be recognized in the future related to performance obligations that are unsatisfied or partially unsatisfied at the end of the reporting period. The purpose of this disclosure is to provide additional information about the amounts and expected timing of revenue to be recognized from the remaining performance obligations in the Company's existing contracts. For revenue which is recognized using (i) the "as-invoiced" practical expedient and (ii) the "direct allocation" method, the Company is required to disclose the value of unsatisfied performance obligations for contractual minimums only. Accordingly, the total unsatisfied or partially unsatisfied performance obligations related to processing services are materially higher than the amounts disclosed in the below table.

(in thousands)	2019	2020	2021	2022 - 2029	Total
Unsatisfied or partially unsatisfied performance obligations	$ 693,978	602,463	505,287	799,026	$ 2,600,754

Contract balances

The following table provides information about accounts receivable, contract assets and contract liabilities from contracts with customers:

	As of	
(in thousands)	December 31, 2018	January 1, 2018
Accounts receivable	$ 450,322	$ 412,322
Contract assets (short-term and long-term)	78,789	87,812
Contract liabilities (short-term and long-term)	68,716	76,541

Contract assets are defined as an entity's right to consideration in exchange for goods or services that the entity has transferred to a customer when that right is conditioned on something other than the passage of time (for example, the entity's future performance).

Contract liabilities are defined as an entity's obligation to transfer goods or services to a customer for which the entity has received consideration (or the amount is due) from the customer. Contract liabilities as of December 31, 2017 were previously described as deferred revenues.

Net contract assets and liabilities may include amounts related to signing incentives for signing or renewing long-term contracts. Capitalized signing incentives are amortized over the contract term and the amortization is included as a reduction of revenues in the Company's Consolidated Statements of Income.

ASC 606 requires an entity to present in its consolidated balance sheets the net position in a customer contract on a contract-by-contract basis. The net position in a customer contract is presented as either contract assets or contract liabilities. Excluding the impact of the initial adoption of ASC 606 as of January 1, 2018, significant changes in the contract assets and liabilities balances during the year ended December 31, 2018 are as follows:

	Year Ended December 31, 2018	
(in thousands)	**Contract Assets Increase/(Decrease)**	**Contract Liabilities (Increase)/Decrease**
Signing incentive additions	$ 24,837	$ 55
Signing incentive amortization	(29,244)	(7,330)
Revenue recognized in advance of billings	4,956	2,099
Billed amounts transferred to receivables	(4,772)	(2,668)
Cash received from customers	(7,531)	(136,295)
Deferred revenue that was recognized as revenue	9,110	140,558

Other changes in contract assets and contract liabilities primarily relate to movements in net contract position (between contract assets and contract liabilities) each period and foreign currency translation.

Impact of New Revenue Guidance on Financial Statement Line Items

The disclosure of the impact of adoption of ASC 606 on the Company's consolidated balance sheets, statements of income, and statements of cash flows was as follows:

	As of December 31, 2018		
(in thousands)	**As Reported**	**Balances Without Adoption of ASC 606**	**Effect of Change Higher/(Lower)**
Assets:			
Prepaid expenses and other current assets	$ 188,355	$ 190,417	$ (2,062)
Contract assets (short-term and long-term)	78,789	-	78,789
Contract cost assets	145,598	252,550	(106,952)
Deferred income tax assets	7,773	6,896	877
Other assets	116,905	122,323	(5,418)
Liabilities:			
Contract liabilities (short-term and long-term)	68,716	91,678	(22,962)
Other liabilities (short-term and long-term)	344,044	345,625	(1,581)
Shareholders' equity:			
Accumulated other comprehensive loss, net	(60,223)	(59,842)	(381)
Retained earnings	3,478,650	3,488,492	(9,842)

	Year Ended December 31, 2018		
(in thousands, except per share data)	**As Reported**	**Balances Without Adoption of ASC 606**	**Effect of Change Higher/(Lower)**
Total revenues	$ 4,028,211	$ 5,716,741	$ (1,688,530)
Total operating expenses	3,205,473	4,887,026	(1,681,553)
Operating income	822,738	829,715	(6,977)
Income taxes	127,003	128,585	(1,582)
Net income	577,917	583,314	(5,397)
Net income attributable to TSYS common shareholders	576,656	582,053	(5,397)
Basic earnings per share (EPS) attributable to TSYS common shareholders[1]	3.17	3.20	(0.03)
Diluted EPS attributable to TSYS common shareholders[1]	3.14	3.16	(0.03)

[1] *EPS Amounts may not total due to rounding.*

(in thousands)	Year Ended December 31, 2018 As Reported	Balances Without Adoption of ASC 606	Effect of Change Higher/(Lower)
Cash flows from operating activities:			
Net income	$ 577,917	$ 583,314	$ (5,397)
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	408,573	470,804	(62,231)
Changes in contract assets and contract liabilities	(2,771)	(35,754)	32,983
Changes in contract cost assets	3,316	-	3,316
Changes in other current and other long-term liabilities	(55,602)	(54,524)	(1,078)
Cash flows from investing activities:			
Additions to contract cost assets	-	(32,407)	32,407

Note 3 Fair Value Measurements

GAAP requires disclosure about how fair value is determined for assets and liabilities and establishes a hierarchy for which these assets and liabilities must be grouped, based on significant level of inputs. The three-tier fair value hierarchy, which prioritizes the inputs used in the valuation methodologies, is as follows:

Level 1 — Quoted prices for identical assets and liabilities in active markets.

Level 2 — Observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar assets and liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data.

Level 3 — Unobservable inputs for the asset or liability.

The Company had no transfers between Level 1, Level 2, or Level 3 during the years ended December 31, 2018, 2017 or 2016. Goodwill is assessed annually for impairment in the second quarter of each year using fair value measurement techniques. Specifically, goodwill impairment is determined using a two-step test. Step 0 is a qualitative analysis of relevant events or circumstances to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. The first step of the goodwill impairment test is used to identify potential impairment by comparing the fair value of a reporting unit ("RU") with its book value, including goodwill. If the fair value of the RU exceeds its book value, goodwill is considered not impaired. If the book value of the RU exceeds its fair value, an impairment charge is recognized for the amount by which the carrying amount exceeds the fair value of identifiable assets and liabilities of the RU.

The estimate of fair value of the Company's RUs is determined using various valuation techniques, including using an equally weighted combination of the market approach and the income approach. The market approach, which contains Level 2 inputs, utilizes readily available market valuation multiples to estimate fair value. The income approach is a valuation technique that utilizes the discounted cash flow ("DCF") method, which includes Level 3 inputs. Under the DCF method, the fair value of the RU reflects the present value of the projected earnings that will be generated by each RU after taking into account the revenues and expenses associated with the asset, the relative risk that the cash flows will occur, the contribution of other assets, and an appropriate discount rate to reflect the value of the invested capital. Cash flows are estimated for future periods based upon historical data and projections by management.

As of December 31, 2018, the Company had recorded goodwill in the amount of $4.1 billion. The Company performed its annual impairment test of its goodwill balances as of May 31, 2018, and this test did not indicate any impairment. The fair value of the RUs substantially exceeds the carrying value. Refer to Note 6 for more information regarding goodwill.

The fair values of the Company's unsecured revolving loan and notes payable are considered to be level 2 measurements which are based on inputs other than quoted prices included within Level 1 that are observable for the liability, either directly or indirectly. Level 2 inputs may include quoted prices for similar liabilities in active or inactive markets, or other inputs that can be corroborated by observable market data. The carrying value of the Company's unsecured revolving loan approximates fair value since the interest rate resets monthly and the balances are pre-payable at any time. With respect to the Company's notes payable due March and December 2020, the carrying values approximate fair value due to their relatively short maturities. Refer to Note 12 for the estimated fair values of the Company's Senior Notes.

Note 4 Cash, Cash Equivalents and Restricted Cash

Cash, cash equivalents and restricted cash balances as of December 31, 2018 and 2017 are summarized as follows:

(in thousands)	**December 31, 2018**	December 31, 2017
Cash and cash equivalents in domestic accounts	**$ 405,535**	396,577
Cash and cash equivalents in foreign accounts	**65,621**	53,780
Total cash and cash equivalents	**471,156**	450,357
Restricted cash included in other assets	**3,123**	1,013
Total cash, cash equivalents and restricted cash shown in the statement of cash flows	**$ 474,279**	451,370

The Company maintains operating accounts outside the United States denominated in currencies other than the U.S. dollar. All amounts in domestic accounts are denominated in U.S. dollars. Restricted cash included in other assets in the consolidated balance sheets represents immaterial amounts required across the Company's segments for operational purposes.

Note 5 Prepaid Expenses and Other Current Assets

Significant components of prepaid expenses and other current assets as of December 31, 2018 and 2017 are summarized as follows:

(in thousands)	**December 31, 2018**	December 31, 2017
Prepaid expenses	**$ 48,058**	65,159
R&D state tax credit	**26,541**	22,642
Income taxes receivable	**19,362**	41,400
Supplies inventory	**18,089**	17,072
Other	**76,305**	70,292
Total	**$ 188,355**	216,565

Note 6 Goodwill

In 2018, the Company completed the acquisition of Cayan Holdings LLC ("Cayan") resulting in an additional $0.8 billion of goodwill being recorded. Also in 2018, the Company acquired substantially all of the assets of iMobile3 resulting in an additional $5.3 million of goodwill being recorded.

The gross amount and accumulated impairment losses of goodwill as of December 31, 2018 and 2017 are as follows:

	2018			
(in thousands)	**Issuer Solutions**	**Merchant Solutions**	**Consumer Solutions**	**Consolidated**
Gross amount	**$ 98,276**	**2,984,609**	**1,035,965**	**$ 4,118,850**
Accumulated impairment losses	**(1,787)**	**(2,225)**	**-**	**(4,012)**
Goodwill, net	**$ 96,489**	**2,982,384**	**1,035,965**	**$ 4,114,838**

	2017			
	Issuer Solutions	Merchant Solutions	Consumer Solutions	Consolidated
Gross amount	$ 99,465	2,132,653	1,035,965	$ 3,268,083
Accumulated impairment losses	(1,787)	(2,225)	-	(4,012)
Goodwill, net	$ 97,678	2,130,428	1,035,965	$ 3,264,071

Below are the balances of goodwill as of December 31, 2018 and 2017 along with the related changes in carrying value.

(in thousands)	Issuer Solutions	Merchant Solutions	Consumer Solutions	Consolidated
Balance as of December 31, 2016	$ 94,946	2,141,836	1,034,170	$ 3,270,952
Tax adjustment	-	-	1,795	1,795
Acquisition	-	(11,408)	-	(11,408)
Currency translation adjustments	2,732	-	-	2,732
Balance as of December 31, 2017	97,678	2,130,428	1,035,965	3,264,071
Acquisition	**-**	**851,956**	**-**	**851,956**
Currency translation adjustments	**(1,189)**	**-**	**-**	**(1,189)**
Balance as of December 31, 2018	**$ 96,489**	**2,982,384**	**1,035,965**	**$ 4,114,838**

In 2017, the Company adjusted the Netspend goodwill due to a tax adjustment of $1.8 million relating to uncertain tax positions. In 2017, the Company decreased the Merchant Solutions goodwill due to deferred tax adjustments of $12.1 million and the write-off of a note receivable of $727,000 on the opening balance sheet of TransFirst. Refer to Note 23 for more information on acquisitions.

Note 7 Other Intangible Assets, Net

Significant components of other intangible assets as of December 31, 2018 and 2017 are summarized as follows:

	2018		
(in thousands)	**Gross**	**Accumulated Amortization**	**Net**
Merchant relationships	**$ 756,400**	**(252,050)**	**$ 504,350**
Channel relationships	**520,000**	**(260,461)**	**259,539**
Customer relationships	**166,811**	**(150,509)**	**16,302**
Trade name	**79,546**	**(70,906)**	**8,640**
Covenants-not-to-compete	**34,040**	**(29,507)**	**4,533**
Database	**28,000**	**(28,000)**	**-**
Trade association	**10,000**	**(8,750)**	**1,250**
Favorable lease	**3,929**	**(1,841)**	**2,088**
Total	**$ 1,598,726**	**(802,024)**	**$ 796,702**

	2017		
(in thousands)	Gross	Accumulated Amortization	Net
Merchant relationships	$ 588,000	(147,000)	$ 441,000
Channel relationships	439,398	(200,540)	238,858
Customer relationships	167,222	(139,969)	27,253
Trade name	62,468	(58,068)	4,400
Covenants-not-to-compete	29,940	(20,815)	9,125
Database	28,000	(25,200)	2,800
Trade association	10,000	(7,750)	2,250
Favorable lease	3,006	(1,546)	1,460
Total	$ 1,328,034	(600,888)	$ 727,146

Other intangible assets increased in 2018 due to the acquisition of Cayan in January 2018 and acquiring substantially all of the assets of iMobile3 in June 2018. Refer to Note 23 for more information regarding the Company's acquisitions. In connection with the sale of a merchant portfolio in December 2018, the Company wrote off $2.8 million of merchant relationship intangible assets. In connection with the early termination of a facilities lease in December 2018, the Company wrote off a favorable lease intangible asset of $0.3 million. Upon the Company's adoption of ASC 842, *Leases*, as of January 1, 2019, the Company wrote-off the carrying value of favorable lease intangible assets of $2.1 million and increased right-of-use assets by the same amount.

Amortization related to other intangible assets, which is recorded in selling, general and administrative expenses, was $202.1 million, $179.5 million and $163.8 million for 2018, 2017 and 2016, respectively.

The weighted average useful life for each component of other intangible assets, and in total, as of December 31, 2018 is as follows:

	Weighted Average Amortization Period (Years)
Merchant relationships	7.2
Channel relationships	8.8
Customer relationships	6.9
Trade name	3.8
Covenants-not-to-compete	4.0
Database	5.0
Trade association	10.0
Favorable lease	5.6
Total	7.4

Estimated future amortization expense of other intangible assets as of December 31, 2018 for the next five years is:

(in thousands)	
2019	$ 178,740
2020	171,876
2021	151,180
2022	130,930
2023	62,326

Note 8 Intangible Assets - Computer Software, Net

Computer software as of December 31, 2018 and 2017 is summarized as follows:

(in thousands)	**2018**	2017
Licensed computer software	**$ 656,704**	543,198
Software development costs	**485,047**	450,789
Acquisition technology intangibles	**286,206**	239,011
Total computer software	**1,427,957**	1,232,998
Less accumulated amortization:		
Licensed computer software	**347,641**	360,160
Software development costs	**347,847**	325,443
Acquisition technology intangibles	**197,933**	163,680
Total accumulated amortization	**893,421**	849,283
Computer software, net	**$ 534,536**	383,715

Licensed computer software includes the following computer software acquired under license agreements as of December 31, 2018 and 2017:

(in thousands)	**2018**	2017
Licensed computer software (acquired under license agreements)	**$ 20,524**	24,421
Accumulated amortization	**(3,228)**	(15,918)
Licensed computer software, net	**$ 17,296**	8,503

Amortization expense includes amounts for computer software acquired under license agreements. The Company had the following amortization expense related to computer software for the years ended December 31, 2018, 2017 and 2016:

(in thousands)	**2018**	2017	2016
Amortization expense related to:			
Licensed computer software	**$ 63,370**	51,247	45,655
Software development costs	**26,701**	27,461	26,478
Acquisition technology intangibles	**34,758**	28,267	26,217

The weighted average useful life for each component of computer software, and in total, as of December 31, 2018, is as follows:

	Weighted Average Amortization Period (Years)
Licensed computer software	6.2
Software development costs	6.0
Acquisition technology intangibles	5.8
Total	6.0

Estimated future amortization expense of licensed computer software, software development costs and acquisition technology intangibles as of December 31, 2018 for the next five years is:

(in thousands)	Licensed Computer Software	Software Development Costs	Acquisition Technology Intangibles
2019	$ 71,418	23,345	35,333
2020	61,558	19,125	29,674
2021	50,675	14,078	13,140
2022	40,318	8,959	9,540
2023	32,819	6,292	575

Note 9 Property and Equipment, Net

Property and equipment balances as of December 31, 2018 and 2017 are as follows:

(in thousands)	**2018**	2017
Computer and other equipment	**$ 446,000**	424,957
Buildings and improvements	**275,396**	262,499
Furniture and other equipment	**167,578**	141,927
Land	**15,677**	16,195
Other	**1,171**	724
Total property and equipment	**905,822**	846,302
Less accumulated depreciation and amortization	**(522,748)**	(521,084)
Property and equipment, net	**$ 383,074**	325,218

Property and equipment includes various types of equipment under capital lease arrangements. The Company has the following amounts of equipment under capital lease obligations as of December 31, 2018 and 2017:

(in thousands)	**2018**	2017
Computer and other equipment (acquired under capital lease arrangements)	**$ 91,526**	92,553
Furniture and other equipment (acquired under capital lease arrangements)	**6,104**	5,451
Total equipment	**97,630**	98,004
Less accumulated depreciation:		
Computer and other equipment	**(47,903)**	(44,327)
Furniture and other equipment	**(4,859)**	(4,520)
Total accumulated depreciation	**(52,762)**	(48,847)
Total equipment, net	**$ 44,868**	49,157

Depreciation and amortization expense includes amounts for computer equipment, furniture and other equipment acquired under capital lease. Depreciation and amortization expense related to property and equipment was $81.1 million, $68.0 million and $62.5 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Note 10 Contract Cost Assets, Net

Upon the Company's adoption of ASC 606, costs to obtain or fulfill a contract are classified as contract cost assets. As of December 31, 2018, contract cost assets primarily relate to conversion costs. Also, with the adoption of ASC 606, payments for processing rights (signing incentives) are classified as contract assets in the Company's consolidated balance sheets. See further discussion in Notes 1 and 2.

Prior to the Company's adoption of ASC 606, contract cost assets were referred to as contract acquisition costs and included both conversion costs and payments for processing rights (signing incentives).

Significant components of contract cost assets as of December 31, 2018 and 2017 are summarized as follows:

(in thousands)		**December 31, 2018**	December 31, 2017
Contract cost assets, net	**$**	**145,598**	139,249
Payments for processing rights, net		**-**	119,416
Total	**$**	**145,598**	258,665

Amortization expense related to contract cost assets for the years ended December 31, 2018, 2017 and 2016 is as follows:

(in thousands)		**2018**	2017	2016
Amortization expense related to:				
Contract cost assets	**$**	**35,729**	29,625	28,811
Payments for processing rights		**-**	21,357	19,804

The weighted average useful life for contract cost assets as of December 31, 2018 is 7.7 years.

Estimated future amortization expense of contract cost assets as of December 31, 2018 for the next five years is:

(in thousands)		**Contract Cost Assets**
2019	$	31,565
2020		29,231
2021		27,426
2022		22,404
2023		13,576

Note 11 Equity Investments

The Company has an equity investment in CUP Data and records its 44.56% ownership using the equity method of accounting. CUP Data is sanctioned by the People's Bank of China, China's central bank. CUP Data currently provides transaction processing, disaster recovery and other services for banks and bankcard issuers in China.

The Company also has an equity investment in TSYS de México and records its 49% ownership using the equity method of accounting. The electronic payment processing support operation prints statements and provides card-issuing support services to its clients.

The Company invests in limited partnership agreements with two Atlanta-based venture capital funds focused exclusively on investing in technology-enabled financial services companies. Pursuant to each limited partnership agreement, the Company has committed to invest up to $20.0 million in each fund so long as its ownership interest in each fund does not exceed 50%. As of December 31, 2018 and 2017, the Company had made contributions to the funds of $29.5 million and $22.8 million, respectively.

TSYS believes the carrying value approximates the underlying net assets of the equity investments.

TSYS' equity in income of equity investments (net of tax) for the years ended December 31, 2018, 2017 and 2016 was $45.2 million, $40.5 million and $26.1 million, respectively.

A summary of TSYS' equity investments as of December 31, 2018 and 2017 is as follows:

(in thousands)	2018	2017
CUP Data	$ 138,791	127,367
Other	41,870	36,151
Total	$ 180,661	163,518

Note 12 Long-term Borrowings, Capital Lease Obligations and License Agreements

Long-term debt as of December 31, 2018 and 2017 consists of:

(in thousands)	December 31, 2018	December 31, 2017
3.800% Senior Notes due April 1, 2021 (5 year tranche), net of discount and debt issuance costs	$ 746,430	745,000
4.800% Senior Notes due April 1, 2026 (10 year tranche), net of discount and debt issuance costs	743,734	743,042
3.750% Senior Notes due June 1, 2023 (10 year tranche), net of discount and debt issuance costs	545,647	544,780
4.000% Senior Notes due June 1, 2023 (5 year tranche), net of discount and debt issuance costs	545,801	-
4.450% Senior Notes due June 1, 2028 (10 year tranche), net of discount and debt issuance costs	445,439	-
LIBOR + 1.300%, unsecured revolving loan, due April 23, 2023, with monthly interest payments on outstanding balances	805,000	-
3.760% note payable due March 20, 2020, with monthly interest and principal payments	16,450	-
3.600% note payable due December 20, 2020, with monthly interest and principal payments	15,700	-
2.375% Senior Notes due June 1, 2018 (5 year tranche), net of discount and debt issuance costs	-	549,532
LIBOR + 1.500%, unsecured term facility, due February 23, 2021, with quarterly principal and interest payments, net of debt issuance costs	-	368,645
LIBOR + 1.300%, unsecured revolving loan, due February 23, 2021, with monthly interest payments on outstanding balances	-	200,000
Total debt	3,864,201	3,150,999
Less current portion	(20,807)	(559,050)
Noncurrent portion of long-term debt	$ 3,843,394	2,591,949

[1] *As of December 31, 2018 and 2017, the estimated fair values of the Company's Senior Notes totaled $3.0 billion and $2.7 billion, respectively. The estimated fair values of the Company's Senior Notes were based on quoted prices in an active market and are considered to be Level 1 measurements.*

Interest expense for the years ended December 31, 2018, 2017 and 2016 was $163.4 million, $118.2 million and $115.4 million, respectively.

Senior Notes

On May 11, 2018, TSYS closed its sale (the "Transaction") of $550 million aggregate principal amount of 4.000% Senior Notes due 2023 and $450 million aggregate principal amount of 4.450% Senior Notes due 2028 (collectively, the "Notes") pursuant to an underwriting agreement, dated May 9, 2018 (the "Underwriting Agreement"), with Merrill Lynch, Pierce, Fenner & Smith Incorporated and J.P. Morgan Securities LLC (the "Underwriters"). The Company used the net proceeds of the Transaction to repay (i) all of its outstanding 2.375% Senior Notes due June 1, 2018 at maturity, (ii) all of its remaining outstanding indebtedness under that certain credit agreement dated January 10, 2018, (iii) with any remaining amounts, a portion of the $1.34 billion outstanding under that certain Credit Agreement dated April 23, 2018, among the Company and Bank of America, N.A. The Notes were issued pursuant to a Senior Indenture, dated as of March 17, 2016, between the Company and Regions Bank, as trustee. The balance as of December 31, 2018 was $545.8 million net of discount and debt issuance costs for the Senior Notes due June 1, 2023 and $445.4 million net of discount and debt issuance costs for the Senior Notes due June 1, 2028.

On March 17, 2016, the Company closed its sale of $750 million aggregate principal amount of 3.800% Senior Notes due 2021 and $750 million aggregate principal amount of 4.800% Senior Notes due 2026 (collectively, the "2016 Notes"). The

Company used the net proceeds of the transaction to pay a portion of the approximately $2.35 billion purchase price of the Company's acquisition of TransFirst and related fees and expenses. The 2016 Notes were issued pursuant to a Senior Indenture, dated as of March 17, 2016, between the Company and Regions Bank, as trustee. The balance as of December 31, 2018 was $746.4 million net of discount and debt issuance costs for the Senior Notes due April 1, 2021 and $743.7 million net of discount and debt issuance costs for the Senior Notes due April 1, 2026.

In May 2013, the Company closed its issuance of $550.0 million aggregate principal amount of 2.375% Senior Notes due 2018 and $550.0 million aggregate principal amount of 3.750% Senior Notes due 2023 (collectively, the "2013 Notes") pursuant to an Underwriting Agreement with J.P. Morgan Securities LLC. The Company used the net proceeds of the transaction to pay a portion of the $1.4 billion purchase price of the Company's acquisition of Netspend and related fees and expenses. The 2013 Notes were issued pursuant to an Indenture dated as of May 22, 2013 between the Company and Wells Fargo Bank, National Association, as trustee. As of December 31, 2018 there was no outstanding balance for the Senior Notes due June 1, 2018 and a balance of $545.6 million net of discount and debt issuance costs for the Senior Notes due June 1, 2023.

Senior Credit Facility and Other Borrowings

On April 23, 2018, TSYS entered into a Credit Agreement with Bank of America, N.A. The Credit Agreement provides the Company with a $1.75 billion five-year revolving senior credit facility, which includes a $50 million sub-facility for the issuance of standby letters of credit.

The Credit Agreement was used to repay (i) in full, borrowings under that certain Credit Agreement dated February 23, 2016, among the Company, JPMorgan Chase Bank, N.A. and (ii) in part, borrowings under that certain Credit Agreement dated January 10, 2018, among the Company and Bank of America as administrative agent and the lenders party thereto, as amended.

Borrowings under the Credit Agreement will accrue interest at either the base rate (as defined in the Credit Agreement) or the London Interbank Offered Rate ("LIBOR"), in each case plus a margin based on the Company's corporate credit ratings. Additionally, a facility fee of 0.2% is assessed on the entire revolver.

The Credit Agreement contains customary covenants regarding, among other matters, the maintenance of insurance, the preservation and maintenance of the Company's corporate existence, material compliance with laws and the payment of taxes and other material obligations. The Credit Agreement also contains financial covenants including (i) a minimum consolidated fixed charge coverage ratio (the "Minimum Fixed Charge Coverage Ratio") of 2.5 to 1.0 and (ii) a maximum consolidated leverage ratio ("Maximum Leverage Ratio") (x) of 4.00 to 1.0, for the fiscal quarter ending June 30, 2018, (y) of 3.75 to 1.0, for each of the fiscal quarters ending September 30, 2018, December 31, 2018 and March 31, 2019, and (z) of 3.50 to 1.0, for any fiscal quarter ending thereafter. The Company was in compliance with all applicable financial covenants as of December 31, 2018. As of December 31, 2018, the outstanding balance on the Company's revolving credit facility was $805.0 million.

On January 10, 2018, TSYS entered into a credit agreement with Bank of America, N.A. The credit agreement provides the Company with a $450 million two-year term loan facility ("Term Loan Facility"). The Term Loan Facility was used to finance, in part, the Company's acquisition of Cayan.

Borrowings under the credit agreement will accrue interest at the base rate (as defined in the Credit Agreement) or LIBOR, in each case plus a margin based on the Company's corporate credit ratings. The applicable margin for loans bearing interest based on LIBOR ranges from 1.000% to 1.750%. The applicable margin for loans bearing interest based on the base rate ranges from 0.000% to 0.750%.

The credit agreement contains customary covenants regarding, among other matters, the maintenance of insurance, the preservation and maintenance of the Company's corporate existence, material compliance with laws and the payment of taxes and other material obligations. The credit agreement also contains financial covenants requiring the maintenance as of the end of each fiscal quarter of (i) a minimum fixed charge coverage ratio of 2.5 to 1.0 and (ii) a maximum consolidated leverage ratio of 3.5 to 1.0, which may be increased upon the occurrence of certain events. As discussed above, the remaining balance of the Term Loan Facility was paid off in May 2018.

On February 23, 2016, the Company entered into the 2016 Credit Agreement with JPMorgan Chase Bank, N.A. The 2016 Credit Agreement provided the Company with a $700 million five-year term loan facility (the "Term Loan Facility") consisting of (i) a $300 million term loan (the "Refinancing Term Loan") funded upon entry into the 2016 Credit Agreement and (ii) the Delayed Draw Term Loan. The 2016 Credit Agreement also provided the Company with the Revolving Loan Facility, which

includes a $50 million sub-facility for the issuance of standby letters of credit. As of December 31, 2018, there was no remaining balance on the Term Loan Facility.

Borrowings under the 2016 Credit Agreement will accrue interest at the base rate (as defined in the 2016 Credit Agreement) or LIBOR, in each case plus a margin that is set based on the Company's corporate credit ratings. The applicable margin for loans bearing interest based on LIBOR ranges from 0.900% to 1.500% for revolving loans and 1.000% to 1.750% for term loans. The applicable margin for loans bearing interest based on the base rate ranges from 0.000% to 0.500% for revolving loans and 0.000% to 0.750% for term loans. In addition, the Company will pay the lenders a facility fee ranging from 0.100% to 0.250% per annum, depending on the Company's corporate credit ratings, on the commitments under the Revolving Loan Facility (regardless of usages) and the undrawn commitment amount in respect of the Delayed Draw Term Loan. Based on the Company's current corporate credit ratings, (i) the applicable margin for loans accruing interest at the base rate is 0.500% for term loans and 0.300% for revolving loans and (ii) the applicable margin for loans accruing interest at LIBOR is 1.500% for term loans and 1.300% for revolving loans. The 2016 Credit Agreement contains customary covenants regarding, among other matters, the maintenance of insurance, the preservation and maintenance of the Company's corporate existence, material compliance with laws and the payment of taxes and other material obligations. As of December 31, 2018, the 2016 Credit Agreement no longer exists as it was replaced by the April 23, 2018 Credit Agreement.

The Refinancing Term Loan was used to repay in full the Company's outstanding loans and other obligations under that certain credit agreement, dated as of September 10, 2012. The Delayed Draw Term Loan was used to finance, in part, the TransFirst acquisition and related transactions. The Revolving Loan Facility is available for draws for purposes of working capital and other general corporate purposes, including to finance, in part, the acquisition and related transactions. The creditor group of the modified debt remained consistent before and after the debt was amended.

Debt Covenants

The 2018 Credit Agreement also contains various affirmative and negative covenants, including those that create limitations on the Company's:

- creation of liens;
- merging or selling assets unless certain conditions are met; and
- entering into sale/leaseback transactions.

The 2013, 2016 and 2018 Notes also contain a provision that requires the Company to repurchase all or any portion of a holder's notes, at the holder's option, if a Change in Control Repurchase Event occurs, as defined in the Prospectus Supplements for the 2013, 2016, and 2018 Notes offerings.

Annual Principal Payments on Long-term Debt

Required annual principal payments on long-term debt for the five years subsequent to December 31, 2018 are summarized as follows:

(in thousands)	
2019	$ 20,807
2020	11,342
2021	750,000
2022	-
2023	1,905,000

Capital Lease Obligations and License Agreements

Capital lease obligations and license agreements as of December 31, 2018 and 2017 consist of:

(in thousands)	**2018**	2017
Capital lease obligations	**$ 37,177**	37,950
License agreements	**17,288**	4,865
Total capital lease obligations and license agreements	**54,465**	42,815
Less current portion	**(8,318)**	(6,762)
Noncurrent portion of capital leases and license agreements	**$ 46,147**	36,053

The Company acquires various computer equipment, software, machinery and equipment and furniture and fixtures under capital lease obligations and license agreements. Refer to Notes 7, 8 and 22 for more information. The capital lease and license agreements obligations have various payment terms for each capital lease obligation, including single payment leases, monthly, quarterly and annually. The lease terms for the equipment and software range from one to six years.

The future minimum lease payments under capital leases and license agreements as of December 31, 2018 are summarized as follows:

(in thousands)	**Capital Leases**	**License Agreements**
2019	$ 7,393	2,939
2020	7,319	13,778
2021	7,085	1,390
2022	7,051	39
2023	6,658	-
Thereafter	6,868	-
Total minimum lease payments	42,374	18,146
Less amount representing interest	(5,197)	(858)
Principal minimum lease payments	$ 37,177	17,288

Note 13 Other Current Liabilities

Significant components of other current liabilities as of December 31, 2018 and 2017 are summarized as follows:

(in thousands)	**December 31, 2018**	December 31, 2017
Accrued card brand fees	**$ 55,991**	43,814
Accrued third-party commissions	**46,977**	34,276
Accrued expenses	**25,178**	34,260
Dividends payable	**24,645**	24,886
Accrued interest	**22,191**	19,330
Other	**93,168**	69,356
Total	**$ 268,150**	225,922

Note 14 Income Taxes

The provision for income taxes includes income taxes currently payable and those deferred because of temporary differences between the financial statement carrying amounts and tax bases of assets and liabilities.

The components of income tax expense included in the Consolidated Statements of Income are as follows:

	Years Ended December 31,		
(in thousands)	**2018**	2017	2016
Current income tax expense:			
Federal	**$ 75,273**	210,550	140,079
State	**18,000**	20,316	9,218
Foreign	**12,330**	7,500	4,443
Total current income tax expense	**105,603**	238,366	153,740
Deferred income tax (benefit) expense:			
Federal	**18,200**	(178,879)	8,393
State	**3,891**	5,093	(65)
Foreign	**(691)**	1,298	(893)
Total deferred income tax (benefit) expense	**21,400**	(172,488)	7,435
Total income tax expense	**$ 127,003**	65,878	161,175

(in thousands)	Years Ended December 31, 2018	2017	2016
Components of income before income taxes and equity in income of equity investments:			
Domestic	**$ 634,433**	603,260	454,628
Foreign	**25,331**	14,302	6,404
Total income before income tax expense	**$ 659,764**	617,562	461,032

Income tax expense differs from the amounts computed by applying the statutory U.S. federal income tax rate of 21% to income before income taxes, noncontrolling interest and equity in income of equity investments as a result of the following:

(in thousands)	Years Ended December 31, 2018	2017	2016
Computed "expected" income tax expense	**$ 138,551**	216,147	161,425
Increase (decrease) in income tax expense resulting from:			
International tax rate differential and equity income	**14,683**	11,953	8,715
State income tax expense, net of federal income tax effect	**19,220**	12,470	9,127
(Decrease) increase in valuation allowance	**(1,714)**	8,230	2,855
Tax credits	**(22,963)**	(20,998)	(15,695)
Share-based compensation	**(20,309)**	(14,310)	—
Foreign-derived intangible income deduction	**(7,283)**	—	—
Deduction for domestic production activities	**—**	(17,150)	(12,950)
Re-measurement of deferred tax asset / deferred tax liability	**—**	(146,093)	—
Permanent differences and other, net	**6,818**	15,629	7,698
Total income tax expense	**$ 127,003**	65,878	161,175

Temporary differences between the financial statement carrying amounts and tax bases of assets and liabilities that give rise to significant portions of the net deferred tax liability as of December 31, 2018 and 2017 relate to the following:

(in thousands)	As of December 31, 2018	2017
Deferred income tax assets:		
Net operating loss and income tax credit carryforwards	**$ 32,767**	35,089
Allowances for doubtful accounts and billing adjustments	**1,132**	852
Contract liabilities	**8,611**	17,813
Share-based compensation	**11,735**	15,170
Foreign currency translation	**1,938**	—
Postretirement benefits	**5,349**	4,679
Employee compensation and benefits	**7,126**	2,790
Foreign timing differences	**5,737**	2,924
Other, net	**8,767**	4,522
Total deferred income tax assets	**83,162**	83,839
Less valuation allowance for deferred income tax assets	**(27,817)**	(29,531)
Net deferred income tax assets	**55,345**	54,308
Deferred income tax liabilities:		
Excess tax over financial statement depreciation	**(75,222)**	(43,056)
Computer software development costs	**(56,250)**	(48,244)
Purchased intangibles	**(32,363)**	(42,467)
Foreign currency translation	**—**	(942)
Partnership interests	**(258,007)**	(143,908)
Other, net	**(6,008)**	(7,917)
Total deferred income tax liabilities	**(427,850)**	(286,534)
Net deferred income tax liabilities	**$ (372,505)**	(232,226)
Total net deferred tax assets (liabilities):		
Noncurrent deferred tax asset	**$ 7,773**	6,091
Noncurrent deferred tax liability	**(380,278)**	(238,317)
Net deferred tax liability	**$ (372,505)**	(232,226)

As of December 31, 2018, TSYS had recognized deferred tax assets from net operating losses, capital losses and federal and state income tax credit carryforwards of $5.9 million, $0.3 million and $26.5 million, respectively. As of December 31, 2017, TSYS had recognized deferred tax assets from net operating losses, capital losses, and federal and state income tax credit carryforwards of $6.6 million, $0.3 million, and $28.2 million, respectively. Additionally, net deferred income tax liabilities were increased by $124.2 million as a result of the acquisition of Cayan.

In assessing the realizability of deferred income tax assets, management considers whether it is more likely than not that some portion or all of the deferred income tax assets will not be realized. The ultimate realization of deferred income tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment.

Management believes it is more likely than not that TSYS will realize the benefits of these deductible differences, net of existing valuation allowances. The valuation allowance for deferred tax assets was $27.8 million and $29.5 million at December 31, 2018 and 2017, respectively. The decrease in the valuation allowance for deferred income tax assets was $1.7 million primarily as a result of utilization of income tax credit carryforwards against the one-time transition tax that was enacted as part of the Tax Cuts and Jobs Act of 2017 (the “Tax Act”).

TSYS’ effective tax rate was 19.3% and 10.7% for the years ended December 31, 2018 and 2017, respectively. The primary reasons for the higher effective income tax rate for the year ended December 31, 2018 as compared to the same period last year is that the prior year reflected a significant one-time benefit, the elimination of the domestic production activities deduction for 2018 and limitations on executive compensation for 2018 as provided by the Tax Act. This was somewhat offset by favorable variances in discrete items related to excess tax benefits from share-based compensation and the lower 2018 statutory Federal income tax rate and a deduction for foreign-derived intangible income as enacted by the Tax Act.

On December 22, 2017, the President signed into law the Tax Act. Some key provisions of this law impacted the Company during this reporting period. One such provision was the reduction of the Federal corporate income tax rate from 35.0% to 21.0%. The Company’s consolidated financial statements reflect the impact of this rate reduction.

Additionally, the Tax Act provides for two U.S. tax base erosion provisions which began in 2018. They are the base-erosion and anti-abuse tax (“BEAT”) and the global intangible low-taxed income (“GILTI”). While TSYS’ calculations indicate no impact related to BEAT in 2018, the Company’s GILTI calculations did indicate an insignificant impact, which has been reflected in the Company’s consolidated financial statements. TSYS will continue to perform all necessary calculations, make any needed elections and report any future impacts of GILTI and BEAT as appropriate. The Company has made the policy election to record any liabilities associated with GILTI in the period in which it is incurred.

The Tax Act provides the Company with a new deduction for Foreign-Derived Intangible Income (FDII). The deduction effectively results in a preferential tax rate on eligible income generated from TSYS’ non US-based clients located primarily in Europe and Canada. TSYS recorded a FDII tax benefit of $7.3 million in 2018.

Although the Tax Act allows repatriation of foreign earnings without incurring U.S. income taxes, TSYS has maintained the previously adopted permanent reinvestment exception under GAAP, with respect to earnings of certain foreign subsidiaries. As a result, TSYS considers foreign earnings related to these foreign operations to be permanently reinvested. Pursuant to U.S. tax requirements, no provision for U.S. federal and state incomes taxes has been made in the consolidated financial statements for those non-U.S. subsidiaries whose earnings were deemed to be permanently reinvested. The amount of undistributed earnings considered to be “reinvested” which may be subject to tax upon distribution was approximately $115.3 million as of December 31, 2018. Although TSYS does not intend to repatriate these earnings, a distribution of these non-U.S. earnings in the form of dividends, or otherwise, may subject the Company to withholding taxes payable to the various non-U.S. countries.

Pursuant to the Tax Act, some amounts related to repatriation of foreign accumulated earnings and related to executive compensation may be considered provisional amounts pursuant to Securities and Exchange Commission (“SEC”) Staff Accounting Bulletin No. 118. As such, these amounts were subject to adjustment during the measurement period ended December 22, 2018.

TSYS is the parent of an affiliated group that files a consolidated U.S. federal income tax return and most state and foreign income tax returns on a separate entity basis. In the normal course of business, the Company is subject to examinations by these taxing authorities unless statutory examination periods lapse. TSYS is no longer subject to U.S. federal income tax examinations for years before 2011 and with few exceptions, the Company is no longer subject to income tax examinations from state and local or foreign tax authorities for years before 2011. There are currently federal income tax examinations in progress for the years 2011 through 2013. Additionally, a number of tax examinations are in progress by the relevant state tax

authorities. Although TSYS is unable to determine the ultimate outcome of these examinations, TSYS believes that its liability for uncertain tax positions relating to these jurisdictions for such years is adequate.

GAAP prescribes a recognition threshold and measurement attribute for the financial statement recognition, measurement and disclosure of a tax position taken or expected to be taken in a tax return. During the year ended December 31, 2018, TSYS decreased its liability for uncertain income tax positions by a net amount of approximately $1.5 million. The Company is not able to reasonably estimate the amount by which the liability will increase or decrease over time; however, at this time, the Company does not expect any significant changes related to these obligations within the next twelve months.

A reconciliation of the beginning and ending amount of unrecognized tax liabilities is as follows [1]:

	Years Ended December 31,		
(in millions)	**2018**	2017	2016
Beginning balance	**$ 23.8**	16.5	13.1
Current activity:			
Additions based on tax positions related to current year	**2.4**	4.9	3.4
Additions for tax positions of prior years	**3.2**	4.6	3.0
Reductions for tax positions of prior years	**(6.5)**	—	—
Decreases resulting from settlements with tax authorities	**(0.6)**	(2.2)	(3.0)
Net current activity	**(1.5)**	7.3	3.4
Ending balance	**$ 22.3**	23.8	16.5

[1] *Unrecognized state tax liabilities are not adjusted for the federal tax impact.*

TSYS recognizes potential interest and penalties related to the underpayment of income taxes as income tax expense in the Consolidated Statements of Income. Gross accrued interest and penalties on unrecognized tax benefits totaled $2.5 million and $2.0 million as of December 31, 2018 and 2017, respectively. The total amounts of unrecognized income tax benefits as of December 31, 2018 and 2017 that, if recognized, would affect the effective tax rates are $23.5 million and $24.5 million (net of the federal benefit on state tax issues), respectively, which includes interest and penalties of $1.7 million and $1.3 million, respectively. TSYS does not expect any significant changes to its calculation of uncertain tax positions during the next twelve months.

Note 15 Commitments and Contingencies

LEASE AND PURCHASE COMMITMENTS: TSYS is obligated under noncancelable operating leases for computer equipment and facilities. Additionally, the Company has long-term obligations which consist of required minimum future payments under contracts with the Company's distributors and other service providers.

The future minimum lease payments under noncancelable operating leases and purchase commitments with remaining terms greater than one year for the next five years and thereafter and in the aggregate as of December 31, 2018, are as follows:

(in thousands)	**Operating Leases**	**Other Purchase Commitments**
2019	$ 54,818	59,182
2020	54,738	29,036
2021	50,794	10,427
2022	42,048	6,892
2023	19,089	5,438
Thereafter	32,894	20,813
Total future minimum commitment payments	$ 254,381	131,788

The majority of computer equipment lease commitments come with a renewal option or an option to terminate the lease. These lease commitments may be replaced with new leases which allow the Company to continually update its computer equipment. The operating lease commitments for 2019, 2020, 2021 and 2022 include amounts relating to a hardware lease that commenced on January 1, 2019.

Total rental expense under all operating leases in 2018, 2017 and 2016 was $128.6 million, $134.0 million and $122.9 million, respectively.

CONTRACTUAL COMMITMENTS: In the normal course of its business, the Company maintains long-term processing contracts with its clients. These processing contracts contain commitments, including, but not limited to, minimum standards

and time frames against which the Company's performance is measured. In the event the Company does not meet its contractual commitments with its clients, the Company may incur penalties and certain clients may have the right to terminate their contracts with the Company. The Company does not believe that it will fail to meet its contractual commitments to an extent that will result in a material adverse effect on its financial position, results of operations or cash flows.

CONTINGENCIES:

Legal Proceedings – General

The Company is subject to various legal proceedings and claims and is also subject to information requests, inquiries and investigations arising out of the ordinary conduct of its business. The Company establishes accruals for litigation and similar matters when those matters present loss contingencies that TSYS determines to be both probable and reasonably estimable in accordance with GAAP. Legal costs are expensed as incurred. In the opinion of management, based on current knowledge and in part upon the advice of legal counsel, all matters not specifically discussed below are believed to be adequately covered by insurance, or, if not covered, the possibility of losses from such matters are believed to be remote or such matters are of such kind or involve such amounts that would not have a material adverse effect on the financial position, results of operations or cash flows of the Company if disposed of unfavorably.

TelexFree Matter

ProPay, Inc. (ProPay), a subsidiary of the Company, has been named as one of a number of defendants (including other merchant processors) in several purported class action lawsuits relating to the activities of TelexFree, Inc. and its affiliates and principals. TelexFree is a former merchant customer of ProPay. With regard to TelexFree, each purported class action lawsuit generally alleges that TelexFree engaged in an improper multi-tier marketing scheme involving voice-over Internet protocol telephone services. The plaintiffs in each of the purported class action complaints generally allege that the various merchant processor defendants, including ProPay, aided and abetted the improper activities of TelexFree. TelexFree filed for bankruptcy protection in Nevada. The bankruptcy proceeding was subsequently transferred to the Massachusetts Bankruptcy Court.

Specifically, ProPay has been named as one of a number of defendants (including other merchant processors) in each of the following purported class action complaints relating to TelexFree: (i) Waldermara Martin, et al. v. TelexFree, Inc., et al. (Case No. BK-S-14-12524-ABL) (Bankr. D. Nev.); (ii) Anthony Cellucci, et al. v. TelexFree, Inc., et. al. (Case No. 4:14-BK-40987) (Bankr. D. Mass.); (iii) Maduako C. Ferguson Sr., et al. v. Telexelectric, LLP, et. al (Case No. 5:14-CV-00316-D) (E.D.N.C.); (iv) Todd Cook v. TelexElectric LLP et al. (Case No. 2:14-CV-00134) (N.D. Ga.); (v) Felicia Guevara v. James M. Merrill et al., CA No. 1:14-cv-22405-DPG) (S.D. Fla.); (vi) Reverend Jeremiah Githere, et al. v. TelexElectric LLP et al. (Case No. 1:14-CV-12825-GAO) (D. Mass.); (vii) Paulo Eduardo Ferrari et al. v. TelexFree, Inc. et al. (Case No. 14-04080) (Bankr. D. Mass); (viii) Magalhaes v. TelexFree, Inc., et al., No. 14-cv-12437 (D. Mass.); (ix) Griffith v. Merrill et al., No. 14-CV-12058 (D. Mass.); (x) Abelgadir v. Telexelectric, LLP, No. 14-09857 (S.D.N.Y.); and (xi) Rita Dos Santos, v. TelexElectric, LLP et al., 2:15-cv-01906-NVW (D. Ariz.) (together, the “Actions”).

On October 21, 2014, the Judicial Panel on Multidistrict Litigation (“JPML”) transferred and consolidated the Actions filed before that date to the United States District Court for the District of Massachusetts (the “Consolidated Action”). The JPML subsequently transferred the remaining Actions to the Consolidated Action. The Consolidated Action is styled In Re: TelexFree Securities Litigation (4:14-md-02566-TSH) (D. Mass.).

The plaintiffs in the Consolidated Action filed a First Consolidated Amended Complaint on March 31, 2015 and filed a Second Consolidated Amended Complaint (the “Second Amended Complaint”) on April 30, 2015. The Second Amended Complaint, which supersedes the complaints filed prior to consolidation of the Actions, purports to bring claims on behalf of all persons who purchased certain TelexFree “memberships” and suffered a “net loss” between January 1, 2012 and April 16, 2014. With respect to ProPay, the Second Amended Complaint alleges that ProPay aided and abetted tortious acts committed by TelexFree, and that ProPay was unjustly enriched in the course of providing payment processing services to TelexFree. Several defendants, including ProPay, moved to dismiss the Second Amended Complaint on June 2, 2015. The court held a hearing on the motions to dismiss on November 2, 2015.

On January 29, 2019, the court granted in part and denied in part ProPay’s motion to dismiss the Second Amended Complaint. The court dismissed plaintiffs’ claim that ProPay was unjustly enriched by the alleged TelexFree fraud, but denied ProPay’s motion to dismiss the plaintiffs’ claim that ProPay allegedly aided and abetted TelexFree’s purported scheme. The court’s ruling does not reflect any determination of the merits of the plaintiffs’ aiding and abetting claim against ProPay, but instead is merely a ruling that the plaintiffs have alleged facts that could potentially entitle them to relief from ProPay if those facts were true. ProPay denies that it had any knowledge of TelexFree’s alleged fraud or that it aided and abetted that fraud in any way.

After deciding the motions to dismiss filed by ProPay and some of the other defendants in the litigation, the court lifted the stay on discovery that had been in place since the outset of the Consolidated Action proceeding. Approximately 50 defendants remain in the litigation, and the Court will hold a scheduling conference on March 20, 2019 to set a case schedule.

ProPay has also received various subpoenas, a seizure warrant and other inquiries requesting information regarding TelexFree from (i) the Commonwealth of Massachusetts, Securities Division, (ii) United States Securities and Exchange Commission, (iii) US Immigration and Customs Enforcement, and (iv) the bankruptcy Trustee of the Chapter 11 entities of TelexFree, Inc., TelexFree, LLC and TelexFree Financial, Inc. Pursuant to the seizure warrant served by the United States Attorney's Office for the District of Massachusetts, ProPay delivered all funds associated with TelexFree held for chargeback and other purposes by ProPay to US Immigration and Customs Enforcement. In addition, ProPay received a notice of potential claim from the bankruptcy Trustee as a result of the relationship of ProPay with TelexFree and its affiliates.

While the Company and ProPay intend to vigorously defend the Consolidated Action proceeding and other matters arising out of the relationship of ProPay with TelexFree and believe ProPay has substantial defenses related to these purported claims, the Company currently cannot reasonably estimate losses attributable to these matters.

GUARANTEES AND INDEMNIFICATIONS: The Company has entered into processing and licensing agreements with its clients that include intellectual property indemnification clauses. Under these clauses, the Company generally agrees to indemnify its clients, subject to certain exceptions, against legal claims that TSYS' services or systems infringe on certain third party patents, copyrights or other proprietary rights. In the event of such a claim, the Company is generally obligated to hold the client harmless and pay for related losses, liabilities, costs and expenses, including, without limitation, court costs and reasonable attorney's fees. The Company has not made any indemnification payments pursuant to these indemnification clauses.

A portion of the Company's business is conducted through distributors that provide load and reload services to cardholders at their locations. Members of the Company's distribution and reload network collect cardholder funds and remit them by electronic transfer to the issuing banks for deposit in the cardholder accounts. The Company's issuing banks typically receive cardholders' funds no earlier than two business days after they are collected by the distributor. If any distributor fails to remit cardholders' funds to the Company's issuing banks, the Company typically reimburses the issuing banks for the shortfall created thereby. The Company manages the risk associated with this process through a formalized set of credit standards, volume limits and deposit requirements for certain distributors and by typically maintaining the right to offset any settlement shortfall against the commissions payable to the relevant distributor. To date, the Company has not experienced any significant losses associated with settlement failures and the Company had not recorded a settlement guarantee liability as of December 31, 2018. As of December 31, 2018 and 2017, the Company's estimated gross settlement exposure was $17.2 million and $16.7 million, respectively.

Cardholders of the products managed by the Company's Consumer Solutions segment can incur charges in excess of the funds available in their accounts and are liable for the resulting overdrawn account balance. Although the Company generally declines authorization attempts for amounts that exceed the available balance in a cardholder's account, the application of the Networks' rules and regulations, the timing of the settlement of transactions and the assessment of subscription, maintenance or other fees can, among other things, result in overdrawn card accounts. The Company also provides, as a courtesy and in its discretion, certain cardholders with a "cushion" that allows them to overdraw their card accounts by a nominal amount. In addition, eligible cardholders may enroll in the issuing banks' overdraft protection programs and fund transactions that exceed the available balance in their accounts. The Company generally provides the funds used as part of these overdraft programs (one of the Company's issuing banks will advance the first $1.0 million on behalf of its cardholders) and is responsible to the issuing banks for any losses associated with any overdrawn account balances. As of December 31, 2018 and 2017, cardholders' overdrawn account balances totaled $29.1 million and $25.5 million, respectively. As of December 31, 2018 and 2017, the Company's reserves for the losses it estimates will arise from processing customer transactions, debit card overdrafts, chargebacks for unauthorized card use and merchant-related chargebacks due to non-delivery of goods or services was $13.1 million and $9.5 million, respectively.

The Company has not recorded a liability for guarantees or indemnities in the accompanying consolidated balance sheet since the maximum amount of potential future payments under such guarantees and indemnities is not determinable.

PRIVATE EQUITY INVESTMENTS: The Company has limited partnership agreements with two Atlanta-based venture capital funds focused exclusively on investing in technology-enabled financial services companies. Pursuant to each limited partnership agreement, the Company has committed to invest up to $20.0 million in each fund so long as its ownership interest in each fund does not exceed 50%. As of December 31, 2018 and 2017, the Company had made contributions to the

funds of $29.5 million and $22.8 million, respectively. The Company had investments, including equity in income, totaling $34.3 million and $26.1 million, respectively, as of December 31, 2018 and 2017.

Note 16 Employee Benefit Plans

The Company provides benefits to its employees by offering employees participation in certain defined contribution plans. The employee benefit plans through which TSYS provided benefits to its employees during 2018 are described as follows:

RETIREMENT SAVINGS AND STOCK PURCHASE PLANS: TSYS maintains a single plan, the TSYS Retirement Savings Plan, which is designed to reward all team members of TSYS U.S.-based companies with a uniform employer contribution. Until June 30, 2018, the terms of the plan provided for the Company to match 100% of the employee contribution up to 4% of eligible compensation. Beginning July 1, 2018, the terms of the plan were amended to provide for the Company to match 100% of the employee contributions up to 5% of eligible compensation. The Company can make discretionary contributions up to another 4% based upon business conditions.

The Company also maintains a stock purchase plan for employees. The Company contributes 15% of employee contributions up to certain limits. The funds are used to purchase presently issued and outstanding shares of TSYS common stock on the open market at fair market value for the benefit of participants. The Company's contributions to the plans charged to expense for the years ended December 31, 2018, 2017 and 2016 are as follows:

(in thousands)	**2018**	2017	2016
TSYS Retirement Savings Plan	**$ 28,196**	23,113	21,077
TSYS Stock Purchase Plan	**1,793**	1,600	1,514

POSTRETIREMENT MEDICAL BENEFITS PLAN: TSYS provides certain medical benefits to qualified retirees through a postretirement medical benefits plan, which is immaterial to the Company's consolidated financial statements. The measurement of the benefit expense and accrual of benefit costs associated with the plan do not reflect the effects of the 2003 Medicare Act. Additionally, the benefit expense and accrued benefit cost associated with the plan, as well as any potential impact of the effects of the 2003 Medicare Act, are not significant to the Company's consolidated financial statements.

Note 17 Equity

DIVIDENDS: Dividends on common stock of $94.6 million were paid in 2018, compared to $79.0 million and $73.4 million in 2017 and 2016, respectively.

EQUITY COMPENSATION PLANS: The following table summarizes TSYS' equity compensation plans by category as of December 31, 2018:

(in thousands, except per share data) **Plan Category**	(a) **Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights**	(b) **Weighted Average Exercise Price of Outstanding Options, Warrants and Rights**	(c) **Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a)**
Equity compensation plans approved by security holders	3,585	$ 49.27 [1]	13,964 [2]

The Company does not have any equity compensation plans that were not approved by security holders.

[1] *Weighted-average exercise price represents 2.0 million options only and does not include restricted share units that have no exercise price.*

[2] *Shares available for future grants under the Total System Services, Inc. 2017 Omnibus Plan, which could be in the form of options, nonvested awards and performance shares.*

Note 18 Share-Based Compensation

TSYS has various long-term incentive plans under which the Compensation Committee of the Board of Directors has the authority to grant share-based compensation to TSYS employees.

Share-Based Compensation and Long-Term Incentive Plans

TSYS maintains the Total System Services, Inc. 2017 Omnibus Plan, Total System Services, Inc. 2012 Omnibus Plan, Total System Services, Inc. 2007 Omnibus Plan, Total System Services, Inc. 2002 Long-Term Incentive Plan, Total System

Services, Inc. 2000 Long-Term Incentive Plan and the Amended and Restated Netspend Holdings, Inc. 2004 Equity Incentive Plan for Options and Restricted Shares Assumed by Total System Services, Inc. to advance the interests of TSYS and its shareholders through awards that give employees and directors a personal stake in TSYS' growth, development and financial success. Awards under these plans are designed to motivate employees and directors to devote their best efforts to the business of TSYS. Awards will also help TSYS attract and retain the services of employees and directors who are in a position to make significant contributions to TSYS' success.

The plans are administered by the Compensation Committee of the Company's Board of Directors and enable the Company to grant nonqualified and incentive stock options, stock appreciation rights, restricted stock and restricted stock units, performance units or performance shares, cash-based awards and other stock-based awards.

All stock options must have a maximum life of no more than ten years from the date of grant. The exercise price will not be less than 100% of the fair market value of TSYS' common stock at the time of grant. Any shares related to awards which terminate by expiration, forfeiture, cancellation or otherwise without the issuance of shares, are settled in shares, or are exchanged with the Committee's permission, prior to the issuance of shares, for awards not involving shares, shall be available again for grant under the Total System Services, Inc. 2017 Omnibus Plan. Effective as of, or prior to, April 27, 2017, no additional awards may be made from any of the other plans. The aggregate number of shares of TSYS stock which may be granted, or could have been granted, to participants pursuant to awards granted under the various plans may not exceed the following:

(in thousands) Plan	Shares
Total System Services, Inc. 2017 Omnibus Plan	15,000
Total System Services, Inc. 2012 Omnibus Plan	17,000
Total System Services, Inc. 2007 Omnibus Plan	5,000
Total System Services, Inc. 2002 Long-term Incentive Plan	9,400
Total System Services, Inc. 2000 Long-term Incentive Plan	2,400

Share-based compensation costs are classified as selling, general and administrative expenses on the Company’s consolidated statements of income and corporate administration and other expenses for segment reporting purposes. TSYS’ share-based compensation costs are expensed, rather than capitalized, as these awards are typically granted to individuals not involved in capitalizable activities. For the year ended December 31, 2018, share-based compensation was $48.8 million compared to $42.4 million and $43.7 million for the same periods in 2017 and 2016, respectively.

Nonvested Awards

The Company granted shares of TSYS common stock to certain key employees and non-management members of its Board of Directors. The grants to certain key employees were issued under nonvested stock bonus awards and are typically for services to be provided in the future and vest over a period of up to four years. The grants to non-management members of the Board of Directors were fully vested on the date of grant. The market value of the TSYS common stock at the date of issuance is charged as compensation expense over the vesting periods or derived service periods.

The following table summarizes the number of shares granted each year:

	2018	2017	2016
Number of shares granted	**326,968**	329,051	362,804
Market value (*in millions*)	**$ 29.1**	18.1	16.8

A summary of the status of TSYS' nonvested shares as of December 31, 2018, 2017 and 2016 and the changes during the periods are presented below:

	2018		2017		2016	
(in thousands, except per share data)	**Shares**	**Weighted Average Grant Date Fair Value**	Shares	Weighted Average Grant Date Fair Value	Shares	Weighted Average Grant Date Fair Value
Outstanding at beginning of year	**634**	**$ 47.19**	863	$ 37.78	1,146	$ 31.11
Granted	**327**	**89.13**	329	55.06	363	46.23
Vested	**(336)**	**46.10**	(458)	36.01	(563)	29.95
Forfeited/canceled/adjusted	**(85)**	**54.30**	(100)	43.82	(84)	36.79
Outstanding at end of year	**540**	**$ 72.08**	634	$ 47.19	863	$ 37.78

As of December 31, 2018, there was approximately $21.6 million of total unrecognized compensation cost related to nonvested share-based compensation arrangements. That cost is expected to be recognized over a remaining weighted average period of 1.8 years.

Performance- and Market-Based Awards

The Company granted performance- and market-based shares to certain key executives and granted performance-based shares to certain key employees. The performance- and market-based goals are established by the Compensation Committee of the Board of Directors and will vest up to a maximum of 200% of target. During 2018, 2017 and 2016, the Compensation Committee established performance goals based on various financial and market-based measures.

Compensation expense for performance-based shares is measured on the grant date based on the quoted market price of TSYS common stock. The Company estimates the probability of achieving the goals through the performance period and expenses the awards on a straight-line basis over the derived service period. The fair value of market-based awards is estimated on the grant date using a Monte Carlo simulation model. The Company expenses market-based awards on a straight-line basis. Compensation costs related to performance- and market-based shares are recognized through the longer of the performance period, the vesting period, or the derived service period. As of December 31, 2018, there was approximately $19.7 million of unrecognized compensation cost related to TSYS performance-based awards that is expected to be recognized through December 2020. As of December 31, 2018, there was approximately $2.0 million of unrecognized compensation cost related to TSYS market-based awards that is expected to be recognized through December 2020.

The number of market-based awards granted during 2018, 2017 and 2016 were 33,940, 44,275, and 58,807, respectively. The performance measure for the market-based awards is the Company’s Total Shareholder Return (“TSR”) as compared to the TSR of the companies in the S&P 500 at the end of the performance period.

During the years ended December 31, 2018, 2017 and 2016, the Company granted performance-based awards based on non-financial operational metrics and the following financial performance measures:

Performance Measure	**Definition of Measure**
Adjusted diluted EPS	Adjusted earnings divided by weighted average diluted shares outstanding used for diluted EPS calculations. Adjusted earnings is net income excluding the after-tax impact of share-based compensation expense, amortization of acquisition intangibles, merger and acquisition expenses for completed acquisitions and litigation claims, judgments or settlement expenses and related legal expenses.
Net revenue	Net revenue is total revenue less reimbursable items, as well as merchant acquiring interchange and payment network fees charged by card associations or payment networks that are recorded by TSYS as expense.
Adjusted EPS	Adjusted EPS is adjusted earnings divided by weighted average shares outstanding used for basic EPS.
Revenues before reimbursable items	Revenues before reimbursable items is total revenue less reimbursable items which consist of out-of-pocket expenses which are reimbursed by the Company’s clients. These expenses consist primarily of postage, access fees and third-party software.

The number of performance-based shares with a one-year performance period granted during the years ended December 31, 2018, 2017 and 2016 totaled 84,600, 146,094, and 160,600, respectively. The number of performance-based shares with a three-year performance period granted during the years ended December 31, 2018, 2017 and 2016 totaled 130,840, 129,442, and 312,293, respectively. The grants awarded with a three-year performance period during 2018, 2017 and 2016 will be expensed through December 31, 2020, 2019 and 2018, respectively.

A summary of the awards authorized in each year is below:

	Total Number of Shares Awarded[1]	Potential Number of Performance- and Market-Based Shares to be Vested[2]	Year Potential Performance- and Market-Based Shares Will Fully Vest[3]
2018	**249,380**	**426,963**	**2021**
2017	319,811	903,364	2020
2016	531,700	687,015	2019

1 *Shares awarded does not include dividend equivalents.*
2 *Includes dividend equivalents.*
3 *Represents year in which authorized performance and market-based shares will fully vest if they had been granted during 2018, 2017, and 2016, respectively.*

A summary of the status of TSYS' performance- and market-based nonvested shares as of December 31, 2018, 2017 and 2016 and changes during those periods are presented below:

	2018		2017		2016	
(in thousands, except per share data)	**Shares[1]**	**Weighted Average Grant Date Fair Value**	Shares[1]	Weighted Average Grant Date Fair Value	Shares[1]	Weighted Average Grant Date Fair Value
Outstanding at beginning of year	**805**	**$ 45.41**	982	$ 33.43	918	$ 31.19
Granted	**521**	**93.28**	618	52.48	540	45.91
Vested	**(569)**	**40.69**	(621)	14.85	(140)	37.91
Forfeited/canceled/adjusted	**(112)**	**59.50**	(174)	46.98	(336)	37.70
Outstanding at end of year	**645**	**$ 67.44**	805	$ 45.41	982	$ 33.43

1 *Includes dividend equivalents.*

Stock Option Awards

Stock options generally become exercisable in three equal annual installments on the anniversaries of the date of grant and expire ten years from the date of grant. The required service period for retirement eligible employees is typically 12 or 18 months. For retirement eligible employees who retire prior to completing this required service period, the options vest on a pro-rata basis based upon the number of months employed during the full service period. For retirement eligible employees who retire after the required 18-month service period, the options become fully vested upon retirement. For retirement eligible employees who retire after the required 12-month service period, the option holder is deemed to have continued employment through the end of the vesting period and the options continue to vest in accordance with their terms.

During 2018, 2017 and 2016, the Company granted stock options to key TSYS executive officers and non-management members of its Board of Directors. The grants to key TSYS executive officers were issued for services to be provided in the future and vest over a period of three years. The grants to the Board of Directors were fully vested on the date of grant. The weighted average fair value of the options granted was estimated on the date of grant using the Black-Scholes-Merton option-pricing model.

In December 2018, the Company modified the exercise provisions for stock option awards granted to non-management members of its Board of Directors. The modification permits non-management directors to exercise the option for the remainder of the option’s term if the director’s service ceases for any reason. Previously, the non-management members of the Board of Directors had one year from the time they retire from the Board of Directors to exercise their options. The total incremental compensation cost resulting from the modification is immaterial.

The following table summarizes the weighted average assumptions, and the weighted average fair value of the options:

	2018	2017	2016
Number of options granted	**362,525**	550,527	687,685
Weighted average exercise price	**$ 86.91**	54.97	47.01
Risk-free interest rate	**2.55 %**	1.78	1.24 %
Expected volatility	**21.80 %**	21.72	21.53 %
Expected term (years)	**4.9**	4.6	4.5
Dividend yield	**0.63 %**	0.73	0.86 %
Weighted average fair value	**$ 19.44**	10.85	8.50

A summary of TSYS' stock option activity as of December 31, 2018, 2017 and 2016, and changes during the years ended on those dates is presented below:

	2018		2017		2016	
(in thousands, except per share data)	**Options**	**Weighted Average Exercise Price**	Options	Weighted Average Exercise Price	Options	Weighted Average Exercise Price
Outstanding at beginning of year	**2,695**	**$ 37.15**	2,996	$ 32.78	2,887	$ 28.07
Granted	**362**	**86.91**	551	54.97	688	47.01
Exercised	**(1,020)**	**30.55**	(730)	30.05	(500)	23.43
Forfeited/canceled	**(45)**	**51.72**	(122)	52.76	(79)	43.49
Outstanding at end of year	**1,992**	**$ 49.27**	2,695	$ 37.15	2,996	$ 32.78
Options exercisable at year-end	**1,234**	**$ 38.08**	1,758	$ 31.00	1,877	$ 28.45
Weighted average fair value of options granted during the year		**$ 19.44**		$ 10.85		$ 8.50

As of December 31, 2018, the average remaining contractual life and intrinsic value of TSYS' outstanding and exercisable stock options were as follows:

	Outstanding	**Exercisable**
Average remaining contractual life (in years)	8.4	6.0
Aggregate intrinsic value (in thousands)	$ 12,437	53,366

Shares Issued for Options Exercised

During 2018, 2017 and 2016, employees of the Company exercised options for shares of TSYS common stock that were issued from treasury. The table below summarizes these stock option exercises by year:

(in thousands)	**Options Exercised and Issued from Treasury**	**Intrinsic Value**
2018	**1,020**	**$ 57,868**
2017	730	23,629
2016	500	12,984

For awards granted before January 1, 2006, that were not fully vested on January 1, 2006, the Company recorded the tax benefits from the exercise of stock options as increases to the "Additional paid-in capital" line item of the Consolidated Balance Sheets. Through December 31, 2016, if the Company recognized tax benefits, the Company recorded these tax benefits from share-based compensation costs as cash inflows in the financing section and cash outflows in the operating section in the Consolidated Statement of Cash Flows. The Company elected to use the short-cut method to calculate its historical pool of windfall tax benefits. As previously disclosed, the Company adopted ASU 2016-09 *Compensation- Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting* effective January 1, 2017 on a prospective basis.

As of December 31, 2018, there was approximately $3.6 million of total unrecognized compensation cost related to TSYS stock options that is expected to be recognized over a remaining weighted average period of 1.7 years.

Note 19 Treasury Stock

The following table summarizes shares held as treasury stock and their related carrying value as of December 31:

(in thousands)	Number of Treasury Shares	Treasury Shares Cost
2018	**22,179**	**$ 1,042,687**
2017	21,862	909,960
2016	19,314	646,047

Stock Repurchase Plan

In January 2015, TSYS announced that its Board had approved a stock repurchase plan to purchase up to 20 million shares of TSYS stock. The shares may be purchased from time to time at prices considered appropriate. There is no expiration date for the plan.

The table below summarizes these repurchases under the plan by year:

(in thousands, except per share data)	Total Number of Shares Purchased	Average Price Paid per Share	Repurchased Shares Cost
2018	**2,000**	**$ 85.95**	**$ 171,898**
2017	3,850	73.41	282,645
2016	500	48.57	24,287

The following table sets forth information regarding the Company's purchases of its common stock on a monthly basis during the three months ended December 31, 2018:

(in thousands, except per share data)	Total Number of Shares Purchased	Average Price Paid per Share[1]	Total Number of Cumulative shares Purchased as Part of Publicly Announced Plans or Programs[2]	Maximum Number of Shares That May yet be Purchased Under the Plans or Programs[2]
October 2018	-	$ -	9,500	10,500
November 2018	740	85.77	10,240	9,760
December 2018	1,268 [1]	86.00	11,500	8,500
Total	2,008 [3]	$ 85.92		

[1] *Includes a total of 7,681 shares (not rounded) in December withheld for payment of taxes.*

[2] *In January 2015, TSYS' Board of Directors approved a stock repurchase plan to repurchase up to 20 million shares of TSYS stock. The shares may be purchased from time to time at prices considered appropriate. There is no expiration date for the plan.*

[3] *Total number of shares purchased amounts may not total due to rounding.*

Treasury Shares

In 2008, the Compensation Committee approved "share withholding for taxes" for all employee nonvested awards, and also for employee stock options under specified circumstances. The dollar amount of the income tax liability from each exercise is converted into TSYS shares and withheld at the statutory minimum. The shares are added to the treasury account and TSYS remits funds to the Internal Revenue Service to settle the tax liability. During 2018 and 2017, the Company acquired 12,518 shares for approximately $1.1 million, and acquired 20,875 shares for approximately $1.6 million, respectively, as a result of share withholding for taxes.

Note 20 Accumulated Other Comprehensive Loss (AOCL)

Comprehensive income (loss) for TSYS consists of net income, cumulative foreign currency translation adjustments, unrealized gains on available for sale securities and the recognition of an overfunded or underfunded status of a defined benefit postretirement plan recorded as a component of shareholders' equity. The income tax effects allocated to and the cumulative balance of each component of accumulated other comprehensive income ("AOCI") (loss) are as follows:

(in thousands)	Foreign Currency Translation Adjustments	Gain on Available-For-Sale Securities	Change in Postretirement Healthcare Plans	Total Accumulated Other Comprehensive Loss, Net of Tax
Balance as of December 31, 2015	$ (35,013)	2,503	(1,034)	$ (33,544)
Pretax amount	(36,341)	11,394	775	(24,172)
Tax effect	(5,872)	4,035	279	(1,558)
Net-of-tax amount	(30,469)	7,359	496	(22,614)
Balance as of December 31, 2016	(65,482)	9,862	(538)	(56,158)
Pretax amount	24,794	(2,050)	(682)	22,062
Tax effect	2,776	(634)	(90)	2,052
Net-of-tax amount	22,018	(1,416)	(592)	20,010
Balance as of December 31, 2017	(43,464)	8,446	(1,130)	(36,148)
Pretax amount	**(21,495)**	**(6,896)**	**(682)**	**(29,073)**
Tax effect	**(1,169)**	**(1,534)**	**34**	**(2,669)**
Net-of-tax amount	**(20,326)**	**(5,362)**	**(716)**	**(26,404)**
Reclassification for adoption of ASU 2018-02 (Note 1)	**604**	**1,968**	**(243)**	**2,329**
Balance as of December 31, 2018	**$ (63,186)**	**5,052**	**(2,089)**	**$ (60,223)**

As discussed in Note 1, the Company early adopted ASU 2018-02 as of July 1, 2018 and recorded a balance sheet reclassification of $2.3 million between accumulated other comprehensive loss and retained earnings.

Consistent with its overall strategy of pursuing international investment opportunities, TSYS adopted the permanent reinvestment exception under GAAP, with respect to future earnings of certain foreign subsidiaries. Its decision to permanently reinvest foreign earnings offshore means TSYS will no longer allocate taxes to foreign currency translation adjustments associated with these foreign subsidiaries accumulated in other comprehensive income.

Note 21 Segment Reporting, including Geographic Area Data and Major Customers

TSYS provides global payment processing and other services to card-issuing and merchant acquiring institutions in the United States and internationally through online accounting and electronic payment processing systems. The Company also provides financial service solutions to consumers and businesses in the United States. Corporate expenses, such as finance, legal, human resources, mergers and acquisitions and investor relations are categorized as Corporate Administration and Other.

At TSYS, the chief operating decision maker ("CODM") is a group consisting of Senior Executive Management. The information utilized by the CODM consists of the financial statements and the main metrics monitored are revenue growth and growth in profitability. During the second quarter of 2018, the CODM renamed the Netspend segment to the Consumer Solutions segment as a part of the rebranding of the segment. There has been no change to the composition of the Consumer Solutions segment. Therefore, no prior periods were restated.

The Company acquired Cayan in January 2018 and substantially all of the assets of iMobile3, LLC in June 2018. In April 2016, the Company completed the acquisition of all of the outstanding stock of TransFirst. These acquisitions are part of the Merchant Solutions segment. Refer to Note 23 for more information regarding the Company's acquisitions.

Issuer Solutions includes electronic payment processing services and other services provided from within the North America region and internationally. Merchant Solutions includes electronic processing and other services provided to merchants and merchant acquirers. The Consumer Solutions segment provides GPR prepaid debit and payroll cards, demand deposit accounts and other financial service solutions to the underbanked and other consumers and businesses in the United States.

TSYS' operating segments share certain resources, such as information technology support, that TSYS allocates based on various metrics depending on the nature of the service.

Operating Segments	**Years Ended December 31,**		
(in thousands)	**2018**	2017	2016
Adjusted operating income by segment:			
Issuer Solutions (a)	$ **608,392**	574,580	525,025
Merchant Solutions (b)	**484,197**	391,466	307,595
Consumer Solutions (c)	**193,472**	182,082	160,371
Corporate Administration and Other	**(151,167)**	(148,564)	(135,996)
Adjusted segment operating income[1] (d)	**1,134,894**	999,564	856,995
Less:			
Share-based compensation	**48,758**	42,409	43,728
Cayan and TransFirst merger & acquisition (M&A) and integration expenses[2]	**26,550**	13,367	28,176
Litigation, claims, judgments or settlements	**-**	1,947	21,719
Acquisition intangible amortization	**236,848**	207,797	189,990
Operating income	**822,738**	734,044	573,382
Nonoperating expenses, net	**(162,974)**	(116,482)	(112,350)
Income before income taxes and equity in income of equity investments	$ **659,764**	617,562	461,032
Net revenue by segment:			
Issuer Solutions (e)	$ **1,718,177**	1,594,959	1,515,462
Merchant Solutions (f)	**1,344,718**	1,103,682	898,533
Consumer Solutions (g)	**806,430**	746,870	663,579
Segment net revenue	**3,869,325**	3,445,511	3,077,574
Less: intersegment revenues	**53,425**	45,179	35,698
Net revenue[3] (h)	**3,815,900**	3,400,332	3,041,876
Add: reimbursable items, interchange and payment network fees[4]	**212,311**	1,527,633	1,128,201
Total revenues	$ **4,028,211**	4,927,965	4,170,077
Adjusted segment operating margin on net revenue:			
Issuer Solutions (a)/(e)	**35.4%**	36.0%	34.6%
Merchant Solutions (b)/(f)	**36.0%**	35.5%	34.2%
Consumer Solutions (c)/(g)	**24.0%**	24.4%	24.2%
Adjusted segment operating margin on net revenue (d)/(h)	**29.7%**	29.4%	28.2%

[1] *Adjusted segment operating income excludes acquisition intangible amortization, TransFirst and Cayan M&A and integration expenses, share-based compensation and expenses associated with Corporate Administration and Other.*

[2] *Excludes share-based compensation.*

[3] *Net revenue is total revenues less reimbursable items (such as postage), as well as, merchant acquiring interchange and payment network fees charged by the card associations or payment networks that are recorded by TSYS as expense.*

[4] *As discussed in Note 1, the most significant impact of the Company's adoption of ASC 606 as of January 1, 2018 is the result of gross versus net presentation of interchange and payment network fees. In 2018, these fees collected on behalf of the payment networks and card issuers are presented "net" of the amounts paid to them, as opposed to the "gross" presentation for certain of these fees in 2017 and 2016.*

The following table presents the Company's depreciation and amortization expense by segment:

	Years Ended December 31,		
(in thousands)	**2018**	2017	2016
Depreciation and amortization by segment:			
Issuer Solutions	$ **119,402**	147,914	141,309
Merchant Solutions	**30,713**	29,477	25,553
Consumer Solutions	**17,424**	15,838	13,133
Segment depreciation and amortization	**167,539**	193,229	179,995
Acquisition intangible amortization	**236,848**	207,797	189,990
Corporate administration and other	**4,186**	4,880	3,561
Total depreciation and amortization[1]	$ **408,573**	405,906	373,546

[1] *Client incentive/contract asset amortization is no longer included in depreciation and amortization due to the adoption of ASC 606 on January 1, 2018.*

The following table presents the Company's total assets by segment:

(in thousands)	As of December 31, 2018	2017
Issuer Solutions	**$ 6,843,451**	5,735,195
Merchant Solutions	**4,248,183**	3,136,395
Consumer Solutions	**1,374,667**	1,418,644
Intersegment assets	**(4,997,592)**	(3,958,545)
Total assets	**$ 7,468,709**	6,331,689

The Company maintains property and equipment, net of accumulated depreciation and amortization, in the following geographic areas:

(in thousands)	As of December 31, 2018	2017
United States	**$ 321,119**	273,690
Europe	**45,872**	43,586
Other	**16,083**	7,942
Total	**$ 383,074**	325,218

The following tables reconcile geographic revenues to external revenues by operating segment based on the domicile of the Company's customers for the years ended December 31:

	2018[2]				
(in thousands)	**Issuer Solutions**	**Merchant Solutions**	**Consumer Solutions**	**Total**	**Percentage of Revenues**
United States	**$ 1,079,461**	**1,350,671**	**806,287**	**$ 3,236,419**	**80.4 %**
Europe[1]	**375,793**	**625**	**-**	**376,418**	**9.3**
Canada[1]	**324,937**	**1,148**	**-**	**326,085**	**8.1**
Other[1]	**88,114**	**1,175**	**-**	**89,289**	**2.2**
Total	**$ 1,868,305**	**1,353,619**	**806,287**	**$ 4,028,211**	**100.0 %**

	2017				
(in thousands)	Issuer Solutions	Merchant Solutions	Consumer Solutions	Total	Percentage of Revenues
United States	$ 1,051,292	2,428,327	745,235	$ 4,224,854	85.7 %
Europe[1]	320,400	284	-	320,684	6.5
Canada[1]	313,674	1,496	-	315,170	6.4
Other[1]	66,102	1,155	-	67,257	1.4
Total	$ 1,751,468	2,431,262	745,235	$ 4,927,965	100.0 %

	2016				
(in thousands)	Issuer Solutions	Merchant Solutions	Consumer Solutions	Total	Percentage of Revenues
United States	$ 1,032,381	1,826,775	660,845	$ 3,520,001	84.4 %
Europe[1]	306,894	227	-	307,121	7.4
Canada[1]	284,028	705	-	284,733	6.8
Other[1]	57,460	762	-	58,222	1.4
Total	$ 1,680,763	1,828,469	660,845	$ 4,170,077	100.0 %

[1] *Certain of these revenues are impacted by movements in foreign currency exchange rates.*
[2] *Includes the impact of adopting ASC 606.*

MAJOR CUSTOMER: For the years ended December 31, 2018, 2017 and 2016, the Company had no major customers.

Note 22 Supplemental Cash Flow Information

Equipment Acquired Under Capital Lease Obligations and Software Acquired Under License Agreements

The Company acquired approximately $8.4 million, $40.8 million and $1.8 million of equipment under capital lease obligations in 2018, 2017 and 2016, respectively. The Company acquired approximately $14.8 million and $8.5 million of software under license agreements in 2018 and 2017, respectively. The amount of software acquired under license agreements in 2016 was insignificant. Additionally, the Company acquired $52.2 million of software through vendor financing and other arrangements in 2018.

Note 23 Acquisitions

The revenue and operating loss of the Company's 2018 acquisitions included in the Company's Consolidated Statements of Income since the acquisitions are $179.0 million and ($5.4) million, respectively, for the year ended December 31, 2018.

iMobile3

On June 1, 2018, TSYS acquired substantially all of the assets of iMobile3, LLC, a leading provider of private-labeled small business solutions within the payments industry, for $13.4 million in cash. The newly acquired business is part of the Company's Merchant Solutions segment. The goodwill amount of $5.3 million arising from the acquisition is primarily attributable to the economies of scale from combining the assets of TSYS and iMobile3. All of the goodwill was assigned to TSYS' Merchant Solutions segment. The goodwill recognized is expected to be deductible for income tax purposes.

Identifiable intangible assets acquired in the iMobile3 acquisition include technology of $6.9 million and non-compete agreements of $900,000. The measurement period, during which changes in assets or other items of consideration are subject to adjustment, ends one year following the acquisition date. The intangible assets are being amortized over their estimated useful lives of three to five years based on the pattern of expected future economic benefit, which approximates a straight-line basis over the useful lives of the assets.

Additional disclosures relating to the iMobile3 acquisition, including pro forma financial information, have not been included since the transaction is insignificant.

Redeemable Noncontrolling Interest – CPAY

2018

In April 2018, the Company acquired the remaining 15% equity interest in Central Payment Co., LLC from a privately-owned company for $126.0 million.

2017

On February 3, 2017, the Company acquired an additional 10% equity interest in CPAY from a privately-owned company for $70.0 million. This purchase reduced the remaining redeemable noncontrolling interest in CPAY to 15% of its total outstanding equity and extended the put call arrangement until April 2018. The transaction resulted in a decrease to noncontrolling interest of $9.8 million and a decrease to additional paid-in-capital of $60.2 million.

Cayan

On January 11, 2018, TSYS completed the acquisition of 100 percent ownership of Cayan, a payment technology company focused on integrated payment solutions and merchant acquiring, in an all cash transaction valued at approximately $1.05 billion. In connection with the acquisition, the Company entered into a Loan Facility with Bank of America, N.A. as administrative agent and the other lenders a party thereto from time to time to provide a $450 million two-year bilateral loan (see Note 12). The results of the newly acquired business are being reported by TSYS as part of the Merchant Solutions segment.

The goodwill amount of $0.8 billion arising from the acquisition is primarily attributable to the expansion of the Merchant Solutions segment's customer base, differentiation in market opportunity and economies of scale expected from combining the operations of TSYS and Cayan. All of the goodwill was assigned to TSYS' Merchant Solutions segment. Approximately $0.4 billion of the goodwill recognized is expected to be deductible for income tax purposes.

The following table summarizes the consideration paid for Cayan and the recognized amounts of the identifiable assets acquired and liabilities assumed on January 11, 2018 (the acquisition date).

(in thousands)		
Consideration		
Cash	$	1,054,931
Fair value of total consideration transferred	$	1,054,931
Recognized amounts of identifiable assets acquired and liabilities assumed:		
Cash	$	16,854
Accounts receivable		16,421
Property and equipment		18,037
Deferred tax assets		3,558
Other assets		3,032
Identifiable intangible assets		314,785
Deferred tax liabilities		(127,804)
Other liabilities		(36,600)
Total identifiable net assets		208,283
Goodwill		846,648
Total identifiable assets acquired and liabilities assumed	$	1,054,931

During 2018, there was an increase of $1.2 million in the purchase price due to the finalization of the working capital adjustment. In addition, there was a $13.3 million decrease in identifiable tangible assets, a $6.8 million decrease in identifiable intangible assets, a $14.0 million increase in deferred tax liabilities and a $3.4 million increase in other liabilities that resulted in a net increase to goodwill of $38.7 million.

Identifiable intangible assets acquired in the Cayan acquisition include merchant relationships, channel relationships, current technology, the Cayan and Genius trade names, non-compete agreements and favorable leases. The identifiable intangible assets had no significant estimated residual value. These intangible assets are being amortized over their estimated useful lives of one to ten years based on the pattern of expected future economic benefit, which approximates a straight-line basis over the useful lives of the assets. The fair value of the acquired identifiable intangible assets of $314.8 million was estimated using the income approach (discounted cash flow and relief from royalty methods) and cost approach. The fair values and useful lives of the identified intangible assets were primarily determined using forecasted cash flows, which included estimates for certain assumptions such as revenues, expenses, attrition rates and royalty rates. The estimated fair value of identifiable intangible assets acquired in the acquisition and the related estimated weighted average useful lives are as follows:

(in millions)		**Fair Value**	**Weighted Average Useful Life** ***(in years)***
Merchant relationships	$	171.6	8.0
Channel relationships		80.4	10.0
Technology		40.8	5.0
Trade names		17.1	3.5
Covenants not-to-compete		3.2	2.0
Favorable leases		1.7	6.5
Total acquired identifiable intangible assets	$	314.8	7.8

The fair value measurement of the identifiable intangible assets represents Level 3 measurements as defined in ASC 820, *Fair Value Measurement*. Key assumptions include (a) cash flow projections based on market participant and internal data, (b) a discount rate of 12.0%, (c) a pre-tax royalty rate range of 1.5-8.0%, (d) attrition rate of 12.0%, (e) an effective tax rate of 27%, and (f) a terminal value based on a long-term sustainable growth rate of 3%.

In connection with the acquisition, TSYS incurred $16.3 million in acquisition-related costs primarily related to professional legal, finance, and accounting costs. These costs were expensed as incurred and are included in selling, general and administrative expenses in the Consolidated Statements of Income for the year ended December 31, 2018.

Pro Forma Results of Operations (Unaudited)

The following unaudited pro forma financial information shows the results of operations of the combined entities as if the acquisition of Cayan had occurred on January 1, 2017. The unaudited pro forma information reflects certain pro forma adjustments to the combined financial information of TSYS and Cayan. The pro forma adjustments include incremental depreciation and amortization expense, incremental interest expense associated with new long-term debt and the elimination of non-recurring transaction costs directly related to the acquisition.

(in thousands)	Supplemental Pro Forma Year ended December 31, 2017
Total revenues	$ 5,077,632
Net income attributable to TSYS common shareholders	$ 549,771

The unaudited pro forma financial information presented above does not purport to represent what the actual results of operations would have been if the acquisition of Cayan's operations had occurred prior to January 1, 2017, nor is it indicative of the future operating results of TSYS. The unaudited pro forma financial information does not reflect the impact of future events that may occur after the acquisition, including, but not limited to, anticipated cost savings from operating synergies. As discussed in Notes 1 and 2, the most significant impact of the Company's adoption of ASC 606 as of January 1, 2018 is the result of gross versus net presentation of interchange and payment network fees. In 2018, these fees collected on behalf of the payment networks and card issuers are presented "net" of the amounts paid to them, as opposed to the "gross" presentation for certain of these fees in 2017 and 2016.

The unaudited pro forma financial information presented in the table above has been adjusted to give effect to adjustments that are (1) directly related to the business combination; (2) factually supportable; and (3) expected to have a continuing impact. These adjustments include, but are not limited to, the application of accounting policies; and depreciation and amortization related to fair value adjustments to property, plant and equipment and intangible assets.

The pro forma adjustments do not reflect the following material items that result directly from the acquisition and which impacted statement of operations following the acquisition:

- Acquisition and related financing transaction costs relating to fees to investment bankers, attorneys, accountants, and other professional advisors, and other transaction-related costs that were not capitalized as deferred financing costs; and
- The effect of anticipated cost savings or operating efficiencies expected to be realized and related restructuring charges such as technology and infrastructure integration expenses, and other costs related to the integration of Cayan into TSYS.

TransFirst

2017

In 2017, the Company decreased the Merchant Solutions goodwill due to deferred tax adjustments of $12.1 million and the write-off of a note receivable of $727,000 on the opening balance sheet of TransFirst.

2016

On April 1, 2016, the Company acquired all of the outstanding capital stock of TransFirst for an aggregate purchase price of $2.35 billion in cash as of the closing, which was subject to certain working capital and other adjustments, as described in the Purchase Agreement. TransFirst previously operated as a privately held company, under the ownership of Vista Equity Partners. The results of the newly acquired business are being reported by TSYS as part of the Merchant Solutions segment.

The Company funded the cash consideration and the payment of transaction related expenses through a combination of cash-on-hand and proceeds from debt financings, including proceeds drawn under the Company's 2016 Credit Agreement and the proceeds from the issuance of the 2016 Notes, which together included proceeds of approximately $2.35 billion.

The goodwill amount of $1.7 billion arising from the acquisition is primarily attributable to the expansion of the Merchant Solutions segment's customer base, differentiated distribution channels and economies of scale expected from combining the operations of TSYS and TransFirst. All of the goodwill was assigned to TSYS' Merchant Solutions segment. The goodwill recognized is not expected to be deductible for income tax purposes.

Identifiable intangible assets acquired in the TransFirst acquisition include merchant relationships, channel relationships, current technology, the TransFirst trade name, not-to-compete agreements and a favorable lease. The identifiable intangible assets had no significant estimated residual value. These intangible assets are being amortized over their estimated useful lives of one to ten years based on the pattern of expected future economic benefit, which approximates a straight-line basis over the useful lives of the assets. The fair value of the acquired identifiable intangible assets of $814.1 million was estimated using the income approach (discounted cash flow and relief from royalty methods) and cost approach. The fair values and useful lives of the identified intangible assets were primarily determined using forecasted cash flows, which included estimates for certain assumptions such as revenues, expenses, attrition rates and royalty rates.

Note 24 Collaborative Arrangement

Until March 2018, TSYS had a 45% interest in an enterprise jointly owned with two other entities which operates aircraft for the owners' internal use. In March 2018, TSYS and one of the other entities each purchased a 5% ownership from the third entity for an immaterial amount, which effectively removed the third entity from the joint enterprise. This transaction resulted in TSYS and the other entity having a 50% interest in the joint enterprise. The arrangement allows each entity access to the aircraft and each entity pays for its usage of the aircraft. Each quarter, the net operating costs of the enterprise are shared among the owners.

Note 25 Earnings Per Share

The following table illustrates basic and diluted EPS under the guidance of GAAP for the years ended December 31, 2018, 2017 and 2016:

(in thousands, except per share data)		**2018** **Common Stock**	2017 Common Stock	2016 Common Stock
Basic EPS:				
Net income attributable to TSYS common shareholders	$	**576,656**	586,185	319,638
Less income allocated to nonvested awards		**(350)**	(1,373)	(1,557)
Net income allocated to common stock for EPS calculation (a)	$	**576,306**	584,812	318,081
Average common shares outstanding (b)		**181,956**	183,309	182,744
Basic EPS (a)/(b)	$	**3.17**	3.19	1.74
Diluted EPS:				
Net income attributable to TSYS common shareholders	$	**576,656**	586,185	319,638
Less income allocated to nonvested awards		**(350)**	(1,373)	(1,557)
Add income reallocated to nonvested awards[1]		**350**	1,373	1,557
Net income allocated to common stock for EPS calculation (c)	$	**576,656**	586,185	319,638
Average common shares outstanding		**181,956**	183,309	182,744
Increase due to assumed issuance of shares related to common equivalent shares outstanding		**976**	1,162	813
Average nonvested awards[1]		**987**	959	891
Average common and common equivalent shares outstanding (d)		**183,919**	185,430	184,448
Diluted EPS (c)/(d)	$	**3.14**	3.16	1.73

[1] *In accordance with the diluted EPS guidance under the two-class method, the Company uses the approach-either the treasury stock method or the two-class method assuming a participating security is not exercised- that is more dilutive.*

The diluted EPS calculation excludes stock options and nonvested awards that are exercisable into 0.3 million, 0.3 million and 0.4 million common shares for the years ended December 31, 2018, 2017 and 2016, respectively, because their inclusion would have been anti-dilutive.

Note 26 Subsequent Events

Management performed an evaluation of the Company's activity as of the date these audited financial statements were issued and has concluded that there are no significant events requiring disclosure.

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors
Total System Services, Inc.:

Opinions on the Consolidated Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying consolidated balance sheets of Total System Services, Inc. and subsidiaries (the Company) as of December 31, 2018 and 2017, the related consolidated statements of income, comprehensive income, cash flows, and changes in equity for each of the years in the three-year period ended December 31, 2018, and the related notes and financial statement schedule (collectively, the consolidated financial statements). We also have audited the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

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

The Company acquired Cayan Holdings LLC (Cayan) and iMobile3, LLC (iMobile3) during 2018, and management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2018 Cayan's and iMobile3's internal control over financial reporting associated with total assets of $1.2 billion and total revenues of $179 million included in the consolidated financial statements of the Company as of and for the year ended December 31, 2018. Our audit of internal control over financial reporting of the Company also excluded an evaluation of the internal control over financial reporting of Cayan and iMobile3.

Change in Accounting Principle

As discussed in Note 1 to the consolidated financial statements, the Company has changed its method of accounting for revenue recognition in 2018 due to the adoption of Accounting Standards Codification 606 (ASC 606), Revenue from Contracts with Customers.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

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

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

Definition and Limitations of Internal Control Over Financial Reporting

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

We have served as the Company's auditor since 1983.

Atlanta, Georgia
February 21, 2019

Management's Report on Internal Control Over Financial Reporting

The management of Total System Services, Inc. (the “Company”) is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rule 13a-15(f) under the Securities Exchange Act of 1934. The Company maintains accounting and internal control systems which are intended to provide reasonable assurance that assets are safeguarded against loss from unauthorized use or disposition, transactions are executed in accordance with management's authorization and accounting records are reliable for preparing financial statements in accordance with U.S. generally accepted accounting principles.

Internal control over financial reporting cannot provide absolute assurance of achieving financial reporting objectives because of its inherent limitations. Internal control over financial reporting is a process that involves human diligence and compliance and is subject to lapses in judgment and breakdowns resulting from human failures. Internal control over financial reporting also can be circumvented by collusion or improper management override. Because of such limitations, there is a risk that material misstatements may not be prevented or detected on a timely basis by internal control over financial reporting. However, these inherent limitations are known features of the financial reporting process. Therefore, it is possible to design into the process safeguards to reduce, though not eliminate, risk.

The Company's management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2018.

The Company acquired Cayan Holdings LLC (“Cayan”) in January 2018 and substantially all of the assets of iMobile3, LLC (“iMobile3”) in June 2018. Management excluded from its assessment of the effectiveness of the Company’s internal control over financial reporting as of December 31, 2018, Cayan’s and iMobile3’s internal control over financial reporting associated with 16% of total consolidated assets and 4% of total consolidated revenues included in the consolidated financial statements of Total System Services, Inc. and subsidiaries as of and for the year ended December 31, 2018.

Based on our assessment, management believes that, as of December 31, 2018, the Company's internal control over financial reporting is effective based on those criteria set forth by the Committee of Sponsoring Organizations (“COSO”) of the Treadway Commission in *Internal Control — Integrated Framework (2013)*.

KPMG LLP, the independent registered public accounting firm who audited the Company's consolidated financial statements, has issued an attestation report on the effectiveness of internal control over financial reporting as of December 31, 2018 that appears on the preceding page.

M. Troy Woods
Chairman, President & Chief Executive Officer

Paul M. Todd
Senior Executive Vice President &
Chief Financial Officer

Quarterly Financial Data (Unaudited), Stock Price, Dividend Information

TSYS' common stock trades on the New York Stock Exchange (“NYSE”) under the symbol "TSS." Price and volume information appears under the abbreviation "TotlSysSvc" in NYSE daily stock quotation listings. As of January 31, 2019, there were 15,681 holders of record of TSYS common stock, some of whom are holders in nominee name for the benefit of different shareholders.

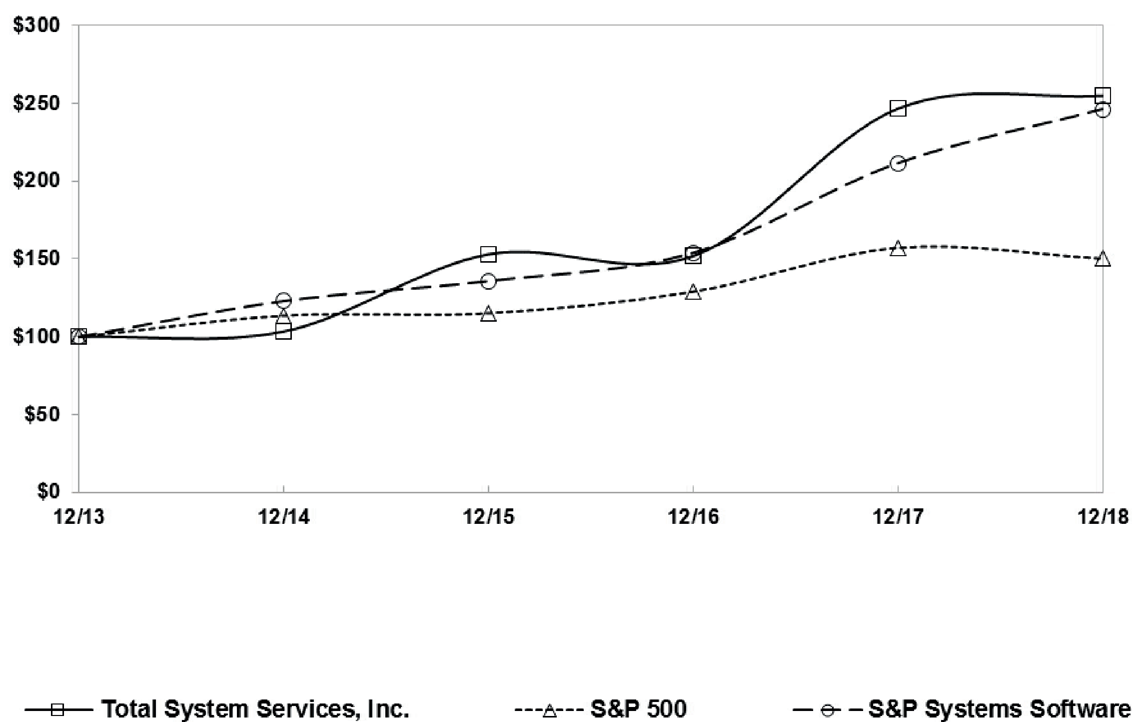
The 2018 fourth quarter dividend of $0.13 per share was declared on December 4, 2018 and was paid on January 2, 2019 to shareholders of record on December 18, 2018. Total dividends declared in 2018 and in 2017 amounted to $95.3 million and $84.4 million, respectively. It is the present intention of the Board of Directors of TSYS to continue to pay cash dividends on its common stock.

Presented here is a summary of the unaudited quarterly financial data for the years ended December 31, 2018 and 2017.

(in thousands, except per share data)	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
2018 Revenues	**$ 987,170**	**1,007,580**	**1,015,371**	**1,018,090**
Cost of services	**613,365**	**617,818**	**624,363**	**636,936**
Operating income	**188,271**	**208,698**	**215,983**	**209,786**
Net income attributable to TSYS common shareholders	**141,841**	**142,435**	**155,960**	**136,420**
Basic earnings per share (EPS) attributable to TSYS common shareholders	**0.78**	**0.78**	**0.85**	**0.75**
Diluted EPS attributable to TSYS common shareholders	**0.77**	**0.78**	**0.85**	**0.74**
Cash dividends declared	**0.13**	**0.13**	**0.13**	**0.13**
Stock prices:				
High	**90.74**	**89.40**	**100.39**	**99.60**
Low	**78.06**	**82.26**	**84.01**	**75.58**
Close	**86.26**	**84.52**	**97.87**	**81.29**
2017 Revenues	$ 1,184,725	1,222,375	1,247,576	1,273,289
Cost of services	861,856	877,887	898,471	939,106
Operating income	167,183	193,248	199,692	173,921
Net income attributable to TSYS common shareholders	105,868	115,014	123,095	242,208
Basic EPS attributable to TSYS common shareholders	0.58	0.62	0.67	1.33
Diluted EPS attributable to TSYS common shareholders	0.57	0.62	0.66	1.31
Cash dividends declared	0.10	0.10	0.13	0.13
Stock prices:				
High	55.48	60.64	70.62	80.51
Low	49.69	51.88	57.53	65.44
Close	53.46	58.25	65.50	79.09

STOCK PERFORMANCE GRAPH

The following graph compares the yearly percentage change in cumulative shareholder return on TSYS stock with the cumulative total return of the Standard & Poor's (“S&P”) 500 Index and the S&P Systems Software Index for the last five fiscal years (assuming a $100 investment on December 31, 2013 and reinvestment of all dividends).



	2013	2014	2015	2016	2017	2018
TSYS	$ 100.00	$ 103.36	$ 152.92	$ 151.80	$ 246.63	$ 254.97
S&P 500	$ 100.00	$ 113.69	$ 115.26	$ 129.05	$ 157.22	$ 150.33
S&P SS	$ 100.00	$ 123.01	$ 135.89	$ 153.87	$ 211.38	$ 246.01

Shareholder Information

Corporate Headquarters
TSYS
One TSYS Way
P.O. Box 2567
Columbus, GA 31902-2567
www.tsys.com

Stock Trading Information
TSYS common stock is traded as "TSS" on the New York Stock Exchange (NYSE). Price and volume information appear under the abbreviation "TSS" in NYSE daily stock quotation listings.

Dividend Reinvestment and Direct Stock Purchase Plan
The TSYS Dividend Reinvestment and Direct Stock Purchase Plan ("Plan") provides a comprehensive package of services designed to make investing in TSYS stock easy, convenient and more affordable. You may request information about the Plan over the phone at +1.877.833.6707.

New Investors
You can join the Plan by making an initial investment of at least $250.

TSYS Shareholders
You can participate by submitting a completed enrollment form. If your shares are held in a brokerage account, you must first register some or all of your shares in your name.

Dividend Reinvestment
You can invest all or a part of your cash dividends to accumulate more shares without paying fees.

Optional Cash Investments
You can purchase additional shares by investing between $50 at any one time and $250,000 in total per calendar year. If you wish, we can withdraw funds automatically from your bank account each month to purchase shares. Purchases are made weekly, or more often if volume dictates. Fees are lower than those typically charged by the financial services industry.

Safekeeping
You can deposit your certificates with us for safekeeping at no cost to you. You can request a certificate any time at no cost.

Gifts and Transfers of Shares
You can make gifts or transfers to others. Contact American Stock Transfer & Trust Company, LLC at +1.877.833.6707 or your brokerage firm for more information.

Sale of Shares
You can sell some or all of your shares when you choose at fees lower than those typically charged by the financial services industry. Shares are sold weekly, or more often if volume dictates.

Form 10-K
A copy of the company's 2018 Annual Report on Form 10-K, filed with the Securities and Exchange Commission, is available at no charge upon written request to Investor Relations at the address below:

TSYS Investor Relations
One TSYS Way
Columbus, GA 31901
ir@tsys.com

Annual Shareholders' Meeting
The Annual Meeting of Shareholders will be held on May 2, 2019 at 10 a.m. ET at the TSYS Riverfront Campus Auditorium in Columbus, Georgia.

Independent Auditors
KPMG LLP, Atlanta, Georgia

Investor Relations
Analysts, investors and others seeking additional information not available at tsys.com should contact:

Shawn Roberts
TSYS Investor Relations
One TSYS Way
Columbus, GA 31901
+1.706.644.6081
shawnroberts@tsys.com

Current shareholders requiring assistance should contact:

American Stock Transfer & Trust Company, LLC
Attn: Shareholder Relations Department
6201 15th Avenue
Brooklyn, NY 11219
+1.877.833.6707
www.astfinancial.com

Online Access

Online Services at tsys.com
You can purchase your initial shares online at tsys.com. TSYS makes it easy and convenient to get current information about your shareholder account any time.

You will have access to:
- View account status
- Purchase or sell shares
- View book-entry information
- Request certificate issuance
- Establish or change your PIN
- View payment history for dividends
- Make address changes
- Obtain a duplicate 1099 tax form
- Request a dividend check replacement
- Receive annual meeting materials electronically

Cautionary language regarding forward-looking statements:
This annual report to shareholders contains forward-looking statements, which by their nature involve risks and uncertainties. Please refer to TSYS' Annual Report on Form 10-K filed with the Securities and Exchange Commission for information concerning forward-looking statements, under the caption "Safe Harbor Statement," and for a description of certain factors that may cause actual results to differ from goals referred to in this report or contemplated by such statements.

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ABOUT TSYS

TSYS® (NYSE: TSS) is a leading global payments provider, offering seamless, secure and innovative solutions across the payments spectrum — for issuers, merchants and consumers. We succeed because we put people and their needs at the heart of every decision to help them unlock payment opportunities. It's an approach we call People-Centered Payments®.

Our headquarters are located in Columbus, Ga., U.S.A., with approximately 13,000 team members and local offices across 13 countries. TSYS generated revenue of $4.0 billion in 2018, while processing more than 32.3 billion transactions. We are a member of The Civic 50 and were named one of the 2018 World's Most Ethical Companies by Ethisphere magazine. TSYS is a member of the S&P 500 and routinely posts all important information on its website. For more, visit ***tsys.com.***

For the fifth time in a row, TSYS was named to The Civic 50 in 2018, an annual initiative that identifies and recognizes companies for their commitment to improve the quality of life in the communities where they do business. The survey was conducted by Points of Light, the nation's definitive experts on civic engagement.

For the sixth time in seven years, TSYS was named one of the 2018 World's Most Ethical Companies by Ethisphere, a global ethics think tank.

TSYS was named as a Top 100 Global Technology leader by Thomson Reuters for 2018. This recognition honors a select group of companies that have demonstrated a commitment to leadership across eight pillars of performance: Financial, Management and Investor Confidence, Risk and Resilience, Legal Compliance, Innovation, People and Social Sustainability, Environmental Impact, and Reputation.

NYSE: TSS

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