Houghton Mifflin Harcourt™

2017 ANNUAL REPORT

One child soars to success. We’re helping millions do the same.

DEAR **SHAREHOLDERS**

LEARNING IS A JOURNEY. EACH OF US HAS A STORY TO TELL ABOUT THE TRANSFORMATIVE MOMENTS, BIG AND SMALL, THAT SHAPE WHO WE BECOME.

A decade ago, the demographics in Modesto, California, were shifting quickly. The city had become a new home for immigrant and refugee families from around the world. Many young people arrived at school unable to understand a word of English, yet also ready and determined to learn. Committed to the success of its students, Modesto City Schools established a comprehensive English immersion program called The Language Institute, which today serves students from over 30 countries speaking sixteen different languages, fulfilling its mission of helping students master English and stay on track to earn their diplomas.

The Language Institute offers a holistic approach to teaching and caring for students and has become a model program. The community brings together empathetic, experienced educators and passionate learners eager to grow, creating a fertile environment for the breakthrough moments that propel learners forward—as her English skills deepen, a young woman taps into a love of writing; a young man conquers his fear of public speaking; students who previously could not communicate because of language barriers begin to collaborate and to learn from one another; a teacher feels the joy of knowing that a student's reading level growth is intertwined with new levels of confidence.

HMH® is privileged to be a part of the magic happening in Modesto. The Language Institute uses our award-winning literacy Intervention programs *Read 180®* and *System 44®* to help students master reading, writing, listening, and speaking English. We also provide professional learning services for the Institute's educators, lending the right levels of support to extend their capabilities and help ensure our programs are implemented for the highest impact.

But that's not the reason why I love this story. I love it because I am inspired by the perseverance and passion driving this community. Their stories remind me that while the path to growth isn't necessarily a straight line, when we embrace the process, our potential is limitless.

Every learner has a unique journey, and it is HMH's role to honor the moments along the way, to help unlock student potential and elevate it. Put simply, this is our reason for being. These moments, when challenges become opportunities, are the ones that make a difference.

THE CURRENT **LANDSCAPE**

35th

U.S. international math ranking*

1 in 3

students in at-risk populations drops out of school before earning a diploma**

Today HMH is no longer focused on simply providing educators with content; we believe it is critical to act as a real partner for the learning communities we serve, which include 13,000 school districts, made up of 3 million teachers and 50 million students. It is about improving outcomes and changing lives.

Our national education system needs reinvention, and we have some big tasks ahead. As many as one in three students in at-risk populations still drops out of school before earning a diploma. The U.S. is ranked 35th internationally in math. The achievement gap is not closing as statistical disparities remain high.

In parallel, the learning landscape has changed dramatically, a reflection of the rapid adoption of technology in our lives. Digital innovation holds great promise while also creating much noise in the space. We've seen startups and new products enter the market with great fanfare, only to underwhelm in the field or fail financially. For success, we need upgraded infrastructure and professional development and we need to close the digital divide. We need integrated learning solutions that bring all the pieces of the puzzle together.

These challenges are the reason I've dedicated my career to education. I chose to come to HMH because I believe that the quality of our products, our scale, and the talent within our organization are unmatched. I believe we have the expertise and passion to create a lasting impact.

* Source: Program for International Student Assessment (PISA), administered by the Organization for International Student Assessment

**Source: National Center for Education Statistics

HMH'S **EVOLUTION**

HMH is on its own journey of transformation. We are evolving from a publishing company focused on great content to a learning company focused on great outcomes. And that move doesn't mean just shifting our delivery from traditional print formats to digital. We are defining an entirely different approach to reach the outcomes we want to produce, and we are taking concrete steps to help us get there.

While roughly half of the Basal market remains "adoption" centered and cyclical in nature, the Extensions market is evergreening and embracing the SaaS recurring revenue model. The industry has also begun to embrace the economic benefits of software, with greater acceptance of subscriptions by schools and districts.

While core curriculum materials, and therefore the Basal adoption calendar, are central to our success—and we continue to see growth opportunities in our core solutions portfolio—we are also working to expand our leadership position into the digital education space more broadly by seeking new opportunities to deepen our product offerings and customer base. In addition, by growing our supplemental, intervention, and professional learning business areas, we aim to lessen the impact of the adoption purchasing cyclicality on our business as well as open up opportunities for success within our areas of domain expertise.

2017 **REVIEW**

In 2017 HMH built a solid foundation from which to launch our 2018–2020 strategic initiatives, underpinning our evolution as an organization. These included appointing new leaders, strengthening our talent bench, as well as implementing organizational changes to help ensure we are lean, efficient, and focused on execution. We continued the development of innovative next generation solutions in reading and math in preparation for the upturn of the adoption cycle in 2019 and began the move to a lean, agile continuous delivery model for software development. We have also taken steps to standardize our IT infrastructure, streamline our back office, and standardize our product catalog to eliminate unnecessary variation.

Despite this transition and the challenging addressable K–12 market conditions our industry faced in 2017, we were able to deliver on the guidance we set at the beginning of the year. On a consolidated basis, the Company generated $1.4 billion in net sales, an increase of 3% compared to 2016, and $1.4 billion of billings for 2017, a decline of 1% compared to 2016.

Our Education segment performance in 2017 delivered a net sales increase of $16 million, or 1%, to $1,223 million from $1,207 million in 2016. The increase was primarily due to the performance of our Extensions businesses, which increased net sales by $22 million, or 4%, in 2017, and was partially offset by the performance of our Core Solutions business net sales, which declined by $6 million, or 1%, in 2017 primarily due to a 6% decline in our addressable K–12 education market.

Our Trade Publishing segment performance was above market in 2017, delivering a net sales increase of $19 million, or 11%, to $185 million from $166 million in 2016.

We executed the majority of actions under our 2017 restructuring program, which we expect to deliver $70 million to $80 million in run-rate savings as we exit 2018, aimed at improving profitability and our ability to generate more free cash flow over the long term at all points in our business cycle.

Our performance in 2017 with respect to important Company financial measures (including those forming our guidance and from which financial performance metrics used in our incentive plans are derived) was as follows on a consolidated basis:

KEY OPERATING METRICS	**Years Ended December 31**		
(in millions of dollars)	**2017**	**2016**	**Change**
Net sales	1,408	1,373	2.5%
Billings[1]	1,392	1,410	(1.3)%
Net loss	(103)	(285)	63.7%
Adjusted EBITDA[2]	219	183	19.4%
Prepublication costs ("Plate Spend")	(139)	(124)	(12.2)%
Net cash provided by operating activities	135	144	(6.0)%
Free cash flow[2]	(62)	(86)	27.4%

1 Billings is an operating measure. For a calculation of this measure, please see calculation in the following pages.

2 Adjusted EBITDA and free cash flow are not prepared in accordance with generally accepted accounting principles in the United States ("GAAP"). For a reconciliation of these financial measures to the most directly comparable GAAP financial measures, please see reconciliations in the following pages.

STRATEGIC **DIRECTION**

At our Investor Day in June of 2017, we gave you a broad outline of our strategic direction, and since then we have invested a great deal of time and thought to define our path forward. The resulting three-year road map for transformation illustrates our long-term focus under three key pillars: **enhance and extend the core, develop integrated solutions, and achieve operational excellence.**

ENHANCE AND EXTEND THE CORE

DEVELOP INTEGRATED SOLUTIONS

ACHIEVE OPERATIONAL EXCELLENCE

ENHANCE AND EXTEND THE CORE

We plan to strengthen our core solutions by developing products and services that are truly different from anything else on the market. We aim to connect the promise of data analysis to actual student performance. Our goal is to offer simple solutions for our teachers that make a real difference, meeting the needs of all students in the classroom, regardless of ability. Technology will never replace teachers, but it can help extend their capabilities, unburdening them from labor-intensive tasks so they can focus on their most important responsibilities. We also want to augment our portfolio with faster-growing extensions of our core solutions, such as intervention programs that support students with the greatest needs.

We turn challenges into successful outcomes.

Braxton is now a fearless problem solver.

Broward County, Florida

With the help of data-driven scaffolded practice in ***GO Math!***®, Braxton built the skills he needed to build confidence and grow on the FSAT. Now in 7th grade, Braxton is still excited to practice math and continue along his learning journey to algebra.

At HMH, we honor the journey.

DEVELOP INTEGRATED SOLUTIONS

Because of our wealth of experience and broad portfolio, we are in a unique position to partner with our customers and offer them fully integrated solutions to address their needs. We want to support all students, and we aim to tailor our offerings to do so in new ways. Even the best products may fail when they are not supported and implemented with fidelity, so we plan to employ a blended model of in-person and online services to help ensure the execution of our offerings matches our intention for them. We will obsess over how we can truly help our customers with new products, rather than develop new products and then obsess over how to market them to our customers. This is the fundamental difference we will embrace to become a customer-centric, rather than a product-centric, company.

ACHIEVE OPERATIONAL EXCELLENCE

Finally, we will rededicate ourselves to achieving success for customers and employees through inspired and meaningful work in order to deliver company success. Every day we will ask ourselves what we need to do to be successful, and we will work smarter and more productively to get that done. We are the product our customers are buying, and therefore our goal at all times is to deliver best-in-class satisfaction.

PATH **FORWARD**

As one of the leading education companies in the nation, we have a responsibility: to use our scale and expertise to be a force for change, a force for good. We are privileged to be in a double bottom line business. Our work improves the lives of students, and our students have the potential to change the world for the better. To honor the educators and students we serve, we must strive to build the future with novelty, with a fresh approach to old problems. We need to set big, audacious goals and meet them.

And that's why we have spent so much time and effort this year planning our future. Because you need a plan if you believe you can shape the future of education. I am a big believer in the positive mindset. We're approaching 2020 and beyond with a growth mentality and a sense of optimism. I am confident that the results will follow.

Jack Lynch
President and Chief Executive Officer

Fereshta is on the path to a brighter future.

Modesto, California

Thanks to ***System 44***® and her wonderful teacher Ms. Herrera, Fereshta, a refugee student from Iran, gains the English language skills she needs to realize her goals of being an architectural engineer.

Watch her story at hmhco.com/system44.

CALCULATION OF BILLINGS AND RECONCILIATIONS OF NON-GAAP FINANCIAL MEASURES **TO GAAP FINANCIAL MEASURES**

To supplement our financial statements presented in accordance with Generally Accepted Accounting Principles (GAAP) and to provide additional insights into our performance, we have presented adjusted EBITDA and free cash flow. These measures are not prepared in accordance with GAAP. This information should be considered as supplemental in nature and should not be considered in isolation or as a substitute for the related financial information prepared in accordance with GAAP. Management believes that the presentation of these non-GAAP measures provides useful information to investors regarding our results of operations and/or our expected results of operations because it assists both investors and management in analyzing and benchmarking the performance and value of our business.

Management believes that the presentation of adjusted EBITDA provides useful information to our investors and management as an indicator of our performance and believes that this measure is useful for comparing our performance from period to period and makes decisions based on it. Management also believes that the presentation of free cash flow provides useful information to our investors because management regularly reviews free cash flow as an important indicator of how much cash is generated by general business operations, excluding capital expenditures, and makes decisions based on it.

Other companies may define these non-GAAP measures differently and, as a result, our use of these non-GAAP measures may not be directly comparable to adjusted EBITDA and free cash flow used by other companies. Although we use these non-GAAP measures as financial measures to assess our business, the use of non-GAAP measures is limited as they include and/or do not include certain items not included and/or included in the most directly comparable GAAP measure. You are cautioned not to place undue reliance on these non-GAAP measures.

The following is a calculation of the Billings operating measure as disclosed by the Company in our Exhibit 99.1 to current report on form 8-K for the year ended December 31, 2017 furnished to the SEC:

(in millions of dollars)	**2017[1]**	**2016[1]**
Net sales	$ 1,408	$ 1,372
Change in deferred revenue	(15)	38
Billings	**$ 1,392**	**$ 1,410**

The following is a reconciliation of net loss prepared in accordance with GAAP to adjusted EBITDA as disclosed by the Company in our Annual Report on Form 10-K for the year ended December 31, 2017, filed with the SEC:

(in millions of dollars)	2017 [1]	2016
Net loss	$ (103)	$ (285)
Interest expense	43	39
Interest Income	(1)	(1)
Provision (benefit) for income taxes	(50)	(65)
Depreciation expense	75	80
Amortization expense	203	218
Noncash charges—stock compensation	11	11
Noncash charges—(gain) loss on derivative instruments	(1)	1
Noncash charges—asset impairment charges	4	139
Purchase accounting adjustments	–	5
Fees, expenses, or charges for equity offerings, debt, or acquisitions	1	1
2017 Restructuring Plan	41	–
Restructuring/Integration	–	14
Severance, separation costs, and facility closures	1	16
Legal (reimbursement) settlement	(4)	10
Adjusted EBITDA	**$ 219**	**$ 183**

The following is a reconciliation of cash flows from operating and investing activities to free cash flow as disclosed by the Company in our Exhibit 99.1 to current report on form 8-K for the year ended December 31, 2017 furnished to the SEC:

(in millions of dollars)	2017	2016
Cash flows from operating activities		
Net cash provided by operating activities	$ 135	$ 144
Cash flows from investing activities		
Additions to prepublication costs	(139)	(124)
Additions to property, plant, and equipment	(58)	(106)
Free cash flow	**$ (62)**	**$ (86)**

1 Details may not sum to total due to rounding.

HMH **LEADERSHIP**

John J. Lynch, Jr.*
President and Chief Executive Officer

Joseph P. Abbott, Jr.*
Chief Financial Officer

William F. Bayers*
General Counsel and Secretary

Ellen Archer*
President, Houghton Mifflin Harcourt Trade Publishing

Vicki Boyd
General Manager, Heinemann

Martin Davy
Chief Platform Architect

Amy L. Dunkin*
Chief Marketing Officer

Rosamund Else-Mitchell*
Chief Learning Officer

Matthew Mugo Fields*
General Manager, Supplemental and Intervention Solutions

Kristen Duffy Lavelle
Senior Vice President, Global Operations and Customer Experience

James P. O'Neill*
General Manager, Core Solutions

Lee R. Ramsayer*
Executive Vice President, Global Sales

Alejandro Reyes*
Chief People Officer

Trish Torizzo
Chief Information Officer

*Executive officers as defined under Rule 3b-7 promulgated under the Securities Exchange Act of 1934, as amended.

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

FORM 10-K

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

For the fiscal year ended December 31, 2017

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

Commission file number 001-36166

Houghton Mifflin Harcourt Company

(Exact name of registrant as specified in its charter)

Delaware	**27-1566372**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

125 High Street
Boston, MA 02110
(617) 351-5000
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

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

Title of each class	Name of each exchange on which registered
Common Stock, $0.01 par value	**The Nasdaq Stock Market LLC**

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

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

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

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

Indicate by check mark whether the Registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the Registrant was required to submit and post such files). Yes ☒ No ☐

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

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer" "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
Emerging growth company	☐		

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

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

The aggregate market value of the voting stock held by non-affiliates of the Registrant as of June 30, 2017, was approximately $1.3 billion.

The number of shares of common stock, par value $0.01 per share, outstanding as of February 2, 2018 was 123,430,481.

Documents incorporated by reference and made a part of this Form 10-K:

The information required by Part III of this Form 10-K, to the extent not set forth herein, is incorporated herein by reference from the Registrant's Definitive Proxy Statement for its 2018 Annual Meeting of Stockholders, to be filed with the Securities and Exchange Commission not later than 120 days after December 31, 2017.

Table of Contents

		Page(s)
Special Note Regarding Forward-Looking Statements		3
PART I		
Item 1.	Business	4
Item 1A.	Risk Factors	13
Item 1B.	Unresolved Staff Comments	24
Item 2.	Properties	25
Item 3.	Legal Proceedings	25
Item 4.	Mine Safety Disclosures	25
PART II		
Item 5.	Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	26
Item 6.	Selected Financial Data	28
Item 7.	Management's Discussion and Analysis of Financial Condition and Results of Operations	30
Item 7A.	Quantitative and Qualitative Disclosures About Market Risk	60
Item 8.	Financial Statements and Supplementary Data	61
Item 9.	Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	115
Item 9A.	Controls and Procedures	115
Item 9B.	Other Information	116
PART III		
Item 10.	Directors, Executive Officers and Corporate Governance	116
Item 11.	Executive Compensation	116
Item 12.	Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	116
Item 13.	Certain Relationships and Related Transactions, and Director Independence	116
Item 14.	Principal Accounting Fees and Services	116
PART IV		
Item 15.	Exhibits	117
Item 16.	Form 10-K Summary	122
SIGNATURES		123

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

The statements contained herein include forward-looking statements, which involve risks and uncertainties. These forward-looking statements can be identified by the use of forward-looking terminology, including the terms “believes,” “estimates,” “projects,” “anticipates,” “expects,” “could,” “intends,” “may,” “will,” “should,” “forecast,” “intend,” “plan,” “potential,” “project,” “target” or, in each case, their negative, or other variations or comparable terminology. Forward-looking statements include all statements that are not statements of historical facts. They include statements regarding our intentions, beliefs or current expectations concerning, among other things, our results of operations; financial condition; liquidity; prospects, growth and strategies; our competitive strengths; the industry in which we operate; the impact of new accounting guidance and tax laws; expenses; effective tax rates; future liabilities; the outcome and impact of pending or threatened litigation; decisions of our customers; education expenditures; population growth; state curriculum adoptions and purchasing cycles; the impact of acquisitions and other investments; our share repurchase program; the timing, structure and expected impact of our operational efficiency and cost-reduction initiatives and the estimated savings and amounts expected to be incurred in connection therewith; and potential business decisions. We derive many of our forward-looking statements from our operating budgets and forecasts, which are based upon many detailed assumptions. While we believe that our assumptions are reasonable, we caution that it is very difficult to predict the impact of known factors, and, of course, it is impossible for us to anticipate all factors that could affect our actual results. All forward-looking statements are based upon information available to us on the date of this report.

By their nature, forward-looking statements involve risks and uncertainties because they relate to events and depend on circumstances that may or may not occur in the future. We caution you that forward-looking statements are not guarantees of future performance and that actual results may differ materially from those made in or suggested by the forward-looking statements contained herein. In addition, even if actual results are consistent with the forward-looking statements contained herein, those results or developments may not be indicative of results or developments in subsequent periods.

Important factors that could cause actual results to vary from expectations include, but are not limited to: changes in state and local education funding and/or related programs, legislation and procurement processes; changes in state academic standards; industry cycles and trends; the rate and state of technological change; state requirements related to digital instructional materials; changes in product distribution channels and concentration of retailer power; changes in our competitive environment, including free and low-cost open educational resources; periods of operating and net losses; our ability to enforce our intellectual property and proprietary rights; risks based on information technology systems and potential breaches of those systems; dependence on a small number of print and paper vendors; third-party software and technology development; possible defects in digital products; our ability to identify, complete, or achieve the expected benefits of, acquisitions; our ability to execute on our long-term growth strategy; increases in our operating costs; exposure to litigation; major disasters or other external threats; contingent liabilities; risks related to our indebtedness; future impairment charges; changes in school district payment practices; a potential increase in the portion of our sales coming from digital sales; risks related to doing business abroad; changes in tax law or interpretation; management and personnel changes; timing, higher costs and unintended consequences of our operational efficiency and cost-reduction initiatives; and other factors discussed in the “Risk Factors” section of our Annual Report on Form 10-K (this “Annual Report”). In light of these risks, uncertainties and assumptions, the forward-looking events described herein may not occur.

We undertake no obligation, and do not expect, to publicly update or publicly revise any forward-looking statement, whether as a result of new information, future events or otherwise, except as required by law. All subsequent written and oral forward-looking statements attributable to us or to persons acting on our behalf are expressly qualified in their entirety by the cautionary statements contained herein.

Item 1. Business

As used in this Annual Report, the terms "we," "us," "our," "HMH" and the "Company" refer to Houghton Mifflin Harcourt Company, formerly known as HMH Holdings (Delaware), Inc., and its consolidated subsidiaries, unless otherwise expressly stated or the context otherwise requires.

Our Company

Houghton Mifflin Harcourt is a global learning company committed to delivering integrated solutions that engage learners, empower educators and improve student outcomes. We serve over 50 million students and three million teachers in more than 150 countries worldwide.

HMH focuses on the kindergarten through 12th grade ("K-12") market and, in the United States, we are a market leader. We specialize in comprehensive core curriculum, supplemental and intervention solutions, as well as provide ongoing support in professional learning, coaching and technical services for educators and administrators. HMH offerings are rooted in learning science, and we work with research partners, universities and third-party organizations as we design, build, implement and iterate our offerings to maximize their effectiveness. We are purposeful about innovation, leveraging technology to create engaging and immersive experiences designed to deepen learning experiences for students and to extend teachers' capabilities so that they can focus on making meaningful connections with their students.

HMH's diverse portfolio enables us to help ensure that every student and teacher has the tools needed for success. We are able to build deep partnerships with school districts and leverage the scope of our offerings to provide holistic solutions at scale with the support of our far-reaching sales force and talented field-based specialists and consultants. We provide print, digital and hybrid solutions that are tailored to a district's needs, goals and technological readiness.

For nearly two centuries, HMH's Trade Publishing division has brought renowned and awarded children's, fiction, nonfiction, culinary and reference titles to readers throughout the world. Our distinguished author list includes ten Nobel Prize winners, forty-eight Pulitzer Prize winners, and fifteen National Book Award winners. We are home to popular characters and titles such as Curious George, Carmen Sandiego, *The Lord of the Rings, The Whole 30,* The Best American Series, the Peterson Field Guides, CliffsNotes, and *The Polar Express,* and published distinguished authors such as Philip Roth, Temple Grandin, Tim O'Brien, Amos Oz, Kwame Alexander, Lois Lowry, and Chris Van Allsburg.

Market Overview

HMH operates predominantly within the U.S. K-12 Education market, which represents over $600 billion of total spending annually, and specifically within the U.S. market for K-12 instructional materials and services, which we estimate to be approximately $11.0 billion in size. Internationally, we export and sell K-12 English language education products to premium private schools that utilize the U.S. curriculum, located primarily in Asia, the Pacific, the Middle East, Latin America, the Caribbean and Africa. We also participate in the U.S. Trade publishing market, which is estimated to be approximately $16.0 billion according to the Association of American Publishers.

The U.S. Education market comprises approximately 13,600 K-12 public school districts, 132,800 public and private schools, 3.5 million teachers and 55.8 million total student enrollment across public, private and charter schools. From 2013-2014 to 2025-2026, total public school enrollment, a major long-term driver of growth in the K-12 Education market, is projected to increase by 3% to 51.4 million students, according to the National Center for Education Statistics.

The primary sources of funding for public schools in the U.S. are state and local tax collections, with Federal funding accounting for slightly less than 10% of public education spending nationally. Consequently, general or localized economic conditions as well as legislative and political decisions which affect the ability of

state and school districts to raise revenue through tax collections can have a significant impact on spending and growth in the K-12 Education market. Public K-12 education has been, and remains, a high priority for political leaders, accounting for more than one-fifth of all state and local government spending.

Education policy and curriculum choices have traditionally been local prerogatives in the U.S., but Federal law and policy also play an important role. The Elementary and Secondary Education Act, reauthorized in 2015 by the Every Student Succeeds Act ("ESSA"), requires that states, as a condition to receiving Federal education funds, adopt challenging academic content standards, administer annual student tests aligned to those standards, develop systems of accountability tied to specific goals for student achievement, and take measures to identify and support low performing schools. ESSA gives states more flexibility than they had under prior law but still requires standards-based, largely assessment-driven accountability with a focus on the achievement of students in all demographic subgroups.

One important change brought about by ESSA is that states are now permitted to use growth in student achievement as measured by statewide assessments, in addition to grade-level proficiency, as an academic indicator for purposes of accountability. Instructional solutions that incorporate interim assessments and data analytics to help monitor student performance in real time will be especially useful in states that incorporate student growth as a significant element of their accountability systems. Other changes brought about by ESSA include a greater emphasis on English language learners, with progress towards English proficiency now a required element of state accountability plans, a requirement that products and solutions paid for with Federal education funds have evidence of effectiveness, and new requirements and expectations for Federally funded educator professional learning programs. The new law also gives states and school districts greater flexibility in how they spend Federal dollars and how they demonstrate that Federal funds are used to supplement and not supplant state and local spending.

Title I, the largest program within ESSA, and other ESSA programs also provide targeted funding for specific activities, such as early childhood education, school improvement, dropout prevention, and before- and after-school programs. The Individuals with Disabilities Education Act ("IDEA") governs how states and public agencies provide early intervention, special education and related services to children with disabilities. In addition, school districts in many states are now able to spend educational funds on "instructional materials" that include core and supplemental materials, computer software, digital media, digital courseware, and online services.

Academic content standards, which are grade-level expectations for student learning, are established at the state level. States generally review and revise standards in each of the various subject areas every six to eight years, and the revision or adoption of new standards typically gives rise to the need for new instructional materials and services aligned to the new or revised standards. A large percentage of states have adopted the Common Core State Standards ("CCSS") in English language arts and mathematics or standards largely based on the Common Core, and, as of December 2017, nineteen states had adopted Next Generation Science Standards ("NGSS"). Both the CCSS and NGSS are products of state-led collaborations. The adoption of these standards has led to greater uniformity among states but has not completely eliminated differences or the need for customized state-specific instructional materials.

Market Segments

Core Curriculum

In the U.S., K-12 core curriculum programs provides educational content and assessments to over 55.8 million students across approximately 132,800 public and private elementary and secondary schools. Core programs cover curriculum standards in a particular subject and include a comprehensive offering of teacher and student materials necessary to conduct the class throughout the year. Products and services include students' print and digital offerings and a variety of supporting materials such as teacher's editions, formative assessments, supplemental materials, whole group instruction materials, practice aids, educational games and services.

Core curriculum programs traditionally have been the primary resource for classroom instruction in most K-12 academic subjects, and as a result, enrollment trends are a major driver of industry growth. Although economic cycles may affect short-term buying patterns, school enrollments, a driver of growth in the educational content industry, are highly predictable and are expected to trend upward over the longer term.

Demand for core curriculum programs is also affected by changes in state curriculum standards, which drive instruction, assessment, and accountability in each state. A significant change in state curriculum standards requires that assessments, teacher training programs, and instructional materials be revised or replaced to align to the new standards, which historically has driven demand for new comprehensive curriculum programs.

In the U.S., core instructional material programs are typically selected and purchased at the school district level and, in some cases, at the individual school level. In nineteen states, before districts make their selections, programs are first evaluated at the state level for alignment to state academic standards and other criteria. These states are commonly referred to as "adoption states," while states that do not have a state level review process are called "open states" or "open territory." In some adoption states, districts are required to select materials from the state-adopted list; in others the state list is just a recommendation, and districts are free to purchase and use whatever materials they choose, whether or not adopted by the state. Adoption states typically review materials in the various subject areas on a six- to eight-year cycle. School districts in those states tend to follow the state review cycle and replace core programs in the year or years immediately following state adoption. In open states, each individual school or school district evaluates and purchases materials independently, typically according to a five- to ten-year cycle. As a result, in individual adoption states, purchases of core instructional materials in a particular subject area tend to be clustered in a window of one to three years, while in individual open territory states they may be spread over several years.

The following chart illustrates the current adoption and open territory states:

The formal determination whether to approve a program for state adoption is typically made by the state board of education or chief state school officer, informed by recommendations by one or more instructional materials review committees comprised of educators, curriculum specialists, and or subject area experts. The district level selection process varies but, in both adoption and open states, usually entails presentation to and evaluation by a committee of educators. State level evaluations typically focus primarily on alignment to state academic standards, whereas local evaluators consider, in addition to standards alignment, more subjective factors such as ease of use and suitability for particular student populations. Providers of instructional content often, although not always, customize their programs for particular states, including both adoption and open states, to strengthen alignment to state standards and assessments and/or to address specific needs and preferences of students and educators in a state.

The student population in adoption states represents approximately 53% of the U.S. elementary and secondary school-age population. A number of adoption states, and a few open territory states, provide categorical state funding for instructional materials; that is, funds that cannot be used for any purpose other than to purchase instructional content or, in some cases, technology equipment used to deliver instruction. In some states, categorical instructional materials funds can be used only for the purchase of materials on the state-approved list. In states that do not provide categorical state instructional materials funding, districts pay for materials primarily out of general purpose state formula aid and/or local funds.

Supplemental

Supplemental resources encompass a wide variety of targeted solutions that enrich learning and support student achievement beyond core curriculum. Supplemental resources can be print and/or digital, and can include workbooks, test-prep materials, software, games and apps. Many teachers augment their core curriculum with supplemental resources for additional practice and personalized instruction around particular areas of need, such as writing or vocabulary. Supplemental materials are purchased by individual teachers, schools and districts whose purchases are not tied to adoption schedules and who use funding from local, state and federal sources.

Intervention

Intervention solutions are generally purchased by individual schools or districts. Demand for intervention materials is significant and growing in the United States. In the latest NAEP (National Assessment of Educational Progress) assessments conducted in 2015, more than 60 percent of public school students performed below proficiency in both literacy and mathematics. These students are strong candidates for intervention programs that are focused on improving outcomes and ensuring students perform at grade level. As demand for digital content and personalized learning solutions is growing, traditional distinctions between core, supplemental and intervention materials and assessments are blurring.

Intervention products and services are funded through state and local funding as well as federal funding allocations pursuant to the ESSA and IDEA. Title I provides funding to schools and school districts with high concentrations of students from low income families and is often used to purchase intervention products and services.

Assessment

The assessment market segment includes summative, formative or in-classroom, and cognitive assessments. Summative assessments are concluding or “final” exams that measure students’ proficiency in a particular subject or group of subjects on an aggregate level or against state standards. Formative assessments are on-going, in-classroom tests that occur throughout the school year and monitor progress in certain subjects or curriculum units. Diagnostic and cognitive assessments are designed to pinpoint areas of need and are often administered by specialists to identify learning difficulties and qualify individuals for special services under the requirements IDEA.

ESSA requires annual summative testing in reading and mathematics at grades 3 through 8 and one grade level of high school, as well as testing in science at a minimum of three grade levels. Under ESSA, states have greater flexibility than under the previous No Child Left Behind Act in choosing their assessment approach and how they intervene with the lowest performing schools. In addition, the law prohibits federal incentives for states to adopt any particular set of standards, including the Common Core State Standards, and assessments. Several states that had initially participated in the Common Core-based Smarter Balanced Assessment Consortium (“SBAC”) and the Partnership Assessment of Readiness for College and Careers (“PARCC”) have since dropped out of the consortia and decided to use other assessments to measure student achievement. Major challenges facing the future of the consortia are testing time, cost, and dependency for online assessment delivery.

As states plan for and implement new assessments and districts continue to transition to new standards, demand for quality measures and reporting systems that help educators prepare students for the content coverage and item types anticipated on the new assessments should continue to increase.

States rely heavily on large federal programs, such as Title I and IDEA to augment their contributions for assessments. Classroom assessment decisions are primarily made at the district level, relying on state and local funding.

Professional Learning

The professional learning market segment includes consulting and support services to assist individual schools and school districts in raising student achievement, implementing new programs and technology effectively, developing effective teachers, principals and leaders, as well as school and school-district turnaround and improvement solutions. We believe all districts and schools contract for some level of professional services. These services may include support for up-front training, in-classroom coaching, institutes, author workshops, professional learning communities, leadership development, technical support and maintenance, and program management.

Professional learning is directly addressed in ESSA. ESSA restructured Title II, the section of the law addressing teacher quality, and eliminated federal "highly qualified teacher" requirements. ESSA prohibits U.S. Department of Education mandates and incentives to evaluate teachers based on student test scores, which in recent years have channeled resources and attention to the development of educator evaluation systems, measurement tools, and related training. Title II now focuses instead on the role of the profession in improving student achievement, including new requirements to ensure professional development is not only sustained ("no one-day workshops"), but also "job-embedded", "data-driven," and "personalized." It is expected that school districts will need to focus their applications for teacher training to ensure teacher alignment with high quality standards as well as priorities for funds to low-performing schools where comprehensive support and improvement plans are in place. There are also significant funding opportunities for professional learning as part of state programs, especially in states where they have consolidated program funding and want solutions that are "evidence-based."

The professional learning services segment, which is relatively fragmented in the United States, is expected to grow as the transition to digital learning in classrooms increases the need for technology training and implementation support for educators. We believe that the use of interim data, differentiation, teacher content knowledge (in mathematics) and the use of technology in the classroom are the areas in which teachers and leaders are most seeking support. Also, demand for teacher training and professional development opportunities tied to the implementation of new or revised standards at the state level is expected to continue. In addition, there is expected to be a need to develop new teachers as the next several years are expected to continue to see the "greening" of the teaching force, with approximately 200,000 new teachers entering the work force every year and roughly 50% attrition rate among new teachers.

Trade Publishing

Trade Publishing market includes children's, fiction, nonfiction, culinary and reference titles. While digital formats have gained some traction in this market, print remains the primary format in which trade books are produced and distributed. In recent years, eBooks sales in the industry have declined while the market overall grew.

Our Products and Services

HMH is organized along two reporting segments: Education and Trade Publishing. Our primary segment measures are net sales and Adjusted EBITDA. The Education segment is our largest business, representing approximately 87% of our total net sales for the year ended December 31, 2017 and 88% of our total net sales for each of the years ended December 31, 2016 and 2015.

Education

Our Education segment provides integrated solutions that engage learners, empower educators and improve student outcomes. The principle customers for our Education products are K-12 school districts, which purchase core curriculum, supplemental and intervention solutions and professional learning services.

The Education segment net sales and Adjusted EBITDA were $1,223.0 million and $253.6 million, $1,207.1 million and $225.7 million, and $1,251.1 million and $269.4 million for the years ended December 31, 2017, 2016 and 2015, respectively.

Our Education offerings consist of the following:

- *Core Solutions*: Our core curriculum offerings include education programs in disciplines including reading, math, social studies and science that serve as primary sources of classroom instruction. HMH's core programs are created to provide educators with the resources needed to align with state standards and support students in their mastery of the subject matter, resulting in positive outcomes and competency. HMH's market-leading programs within this space include *Journeys* for reading, *Collections* for literature, *Go Math!* for math, and *Science Dimensions* and *Science Fusion* for Science.
- *Supplemental Solutions:* HMH's supplemental offerings include a variety of targeted solutions that enrich learning and support student achievement beyond the core curriculum. Supplemental resources can be print and/or digital, and can include workbooks, test-prep materials, software, games and apps. Many teachers augment core curriculum with supplemental resources that can provide additional practice for their students and further personalize learning instruction to support student growth in essential areas such as writing or vocabulary. HMH's offerings in the supplemental space include *Steck-Vaughn* language arts, math and GED prep workbooks, *Saxon Phonics and Spelling*, *Rigby Leveled Readers*, and our popular "Classroom Reading Libraries," which provide individually-curated collections of "just-right" books to strengthen literacy development and foster independent reading.
- *Intervention Solutions:* Intervention solutions also address curricular needs outside of the core disciplines, supporting student achievement for those with unique needs, such as English language learners, a growing population, and students performing below grade level. Our intervention solutions support struggling learners through comprehensive offerings, including market-leading products such as *MATH 180, READ 180 Universal, System 44* and *iRead*. The products within this area generate net sales and earnings that do not vary greatly with the adoption cycle and require significantly less capital investment than the development of a core curriculum program.
- *Assessment:* HMH assessment offerings provide district and state-level cognitive and formative assessment tools and platform solutions. Cognitive solutions provide psychological and special needs testing to assess intellectual, cognitive and behavioral development. Our group and formative solutions include K-12 assessment tools and services to benchmark academic achievement and growth as well as low-stakes tools that assist in identifying the learning needs and abilities of students. Key products in the assessment space include *Iowa Assessments*™, *Woodcock-Johnson*® and the *Cognitive Abilities Test*™ (*CogAT*®), as well as HMH's *Math Inventory* and *Reading Inventory* solutions, which offer educators rich data reporting tool to ensure their students are on track for success.
- *Professional Services:* HMH brings together its world-renowned authors and education experts to work directly with K-12 educators and administrators to build instructional excellence, cultivate leadership and provide school districts with the comprehensive support they need to raise student achievement. Offerings include ongoing curriculum support and expertise in professional development, technical services, coaching, and strategic consulting from trusted names like the International Center for Leadership in Education (ICLE) and Math Solutions®.
- *Heinemann*: A division of HMH, Heinemann provides professional resources and educational services for teachers, kindergarten through college. With 11 straight years of growth, Heinemann is the leading professional publisher for educators, and features well-known and respected authors such as Irene Fountas, Gay-Su Pinnell and Lucy Calkins, who support the practice of teachers through books, videos, workshops, online courses, and most recently through explicit teaching materials.

Trade Publishing

Our Trade Publishing segment, founded in 1832, primarily develops, markets and sells consumer books in print and digital formats and licenses book rights to other publishers and electronic businesses in the United States and abroad. The principle distribution channels for Trade Publishing products are retail stores (both physical and online) and wholesalers. Reference materials are also sold to schools, colleges, libraries, office supply distributors and other businesses.

Our Trade Publishing segment offers an extensive library of general interest, young readers and reference works that include well-known characters and brands. Our award-winning general interest titles include literary fiction, culinary, and non-fiction in hardcover, e-book and paperback formats, including the Mariner Books paperback line. Among the general interest properties are the popular J.R.R. Tolkien titles, the prolific The Best American Series and major cookbook brands such as Betty Crocker and Better Homes and Gardens in addition to recent best sellers including the *How to Cook Everything* series and *Whole30*. In young readers publishing, our list addresses a broad age group and includes recognized characters and titles such as Curious George and Martha Speaks, Five Little Monkeys, Gossie & Friends, Polar Express, Little Blue Truck, and many more. We also publish novels for young adults, a growing genre, including titles from Lois Lowry, author of *The Giver,* and Kwame Alexander.

For the years ended December 31, 2017, 2016 and 2015, Trade Publishing net sales and Adjusted EBITDA were approximately $184.5 million and $16.1 million, $165.6 million and $6.3 million, and $164.9 million and $7.7 million, respectively.

Seasonality

Approximately 87% of our net sales for the year ended December 31, 2017 were derived from our Education segment, which is a markedly seasonal business. Schools conduct the majority of their purchases in the second and third quarters of the calendar year in preparation for the beginning of the school year. Thus, over our latest three completed fiscal years, approximately 68% of consolidated net sales were realized in the second and third quarters. Sales of K-12 instructional materials and customized assessment products are also cyclical, with some years offering more sales opportunities than others. The amount of funding available at the state level for educational materials also has a significant effect on year-to-year net sales. Although the loss of a single customer would not have a material adverse effect on our business, schedules of school adoptions and market acceptance of our products can materially affect year-to-year net sales performance.

Competition

We sell our products in highly competitive markets. In these markets, product quality, innovation and customer service are major differentiating factors between companies. Other factors affecting competition include: (i) competitive pricing, sampling and gratis costs; (ii) digitization and innovative delivery; and (iii) educational effectiveness of the program. In addition to national curriculum publishers, we also compete with a variety of specialized or regional publishers that focus on select disciplines and/or geographic regions in the K-12 market. There are also multiple competitors in the Trade Publishing, supplemental and assessment segments offering content that school districts increasingly are using as part of their core classroom instructional materials. In addition, school districts in many states are able to spend educational funds on “instructional materials” that include core and supplemental materials, computer software, digital media, digital courseware, and online services. Our larger competitors in the educational market include Pearson Education, Inc., McGraw Hill Education, Cengage Learning, Inc., Scholastic Corporation, Curriculum Associates, LLC, Benchmark Education, LLC, Accelerate Learning, Inc., and Amplify Education, Inc. Also competing in our market as a substitute are open educational resources. These resources are free, digital solutions that range from supplemental resources to full Core Solutions programs.

Printing and binding; raw materials

We outsource the printing and binding of our products, with approximately 50% of our printing requirements handled by one major supplier. We have procurement agreements that provide volume and scheduling flexibility and price predictability. We have a longstanding relationship with these parties. Approximately 18% of our printed materials (consisting primarily of teacher's editions and other ancillary components) are printed outside of the United States and approximately 82% of our printed materials (including most student editions) are printed within the United States. Paper is one of our principal raw materials. We purchase our paper primarily through one paper merchant and also directly through suppliers for limited product types. We maintain various agreements that protect against supply availability and unbound price increases. We manage our paper supply concentration by having primary and secondary sources and staying ahead of dramatic market changes.

Distribution

We operate three distribution facilities from which we coordinate our own distribution process: one each in Indianapolis, Indiana; Geneva, Illinois; and Troy, Missouri. We also utilize select suppliers to assist us with coordinating the distribution process for a limited number of product types. Additionally, some adoption states require us to use in-state textbook depositories for educational materials sold in that particular state. We utilize delivery firms including United Parcel Service Inc., FedEx Freight, CH Robinson Worldwide Inc., YRC Freight, SAIA and USF Holland, Inc. to facilitate the principally ground transportation of products.

Employees

As of December 31, 2017, we had approximately 3,800 employees, none of which were covered by collective bargaining agreements. These employees are substantially located in the United States with 218 employees located outside of the United States. We believe that relations with employees are generally good.

Intellectual property

Our principal intellectual property assets consist of our trademarks and copyrights in our content. Substantially all of our publications are protected by copyright, whether registered or unregistered, either in our name as the author of a work made for hire or the assignee of copyright, or in the name of an author who has licensed us to publish the work. Ownership of such copyrights secures the exclusive right to publish the work in the United States and in many countries abroad for specified periods: in the United States, in most cases, either 95 years from publication or for the author's life plus 70 years, but in any event a minimum of 28 years for works published prior to 1978 and 35 years for works published thereafter. In most cases, the authors who retain ownership of their copyright have licensed to us exclusive rights for the full term of copyright. Under U.S. copyright law, for licenses granted by an author during or after 1978, such exclusive licenses are subject to termination by the author or certain of the author's heirs for a five year period beginning at the end of 35 years after the date of publication of the work or 40 years after the date of the license grant, whichever term ends earlier.

We do not own any material patents, franchises or concessions, but we have registered certain trademarks and service marks in connection with our publishing businesses. We believe we have taken, and take in the ordinary course of business, appropriate available legal steps to reasonably protect our intellectual property in all material jurisdictions.

Environmental matters

We generally contract with independent printers and binders for their services, and our operations are generally not otherwise affected by environmental laws and regulations. However, as the owner and lessee of real property, we are subject to environmental laws and regulations, including those relating to the discharge of hazardous materials into the environment, the remediation of contaminated sites and the handling and disposal of

wastes. It is possible that we could face liability, regardless of fault, and can be held jointly or severally liable, if contamination were to be discovered on the properties that we own or lease or on properties that we have formerly owned or leased. We are currently unaware of any material environmental liabilities or other material environmental issues relating to our properties or operations and anticipate no material expenditures for compliance with environmental laws or regulations.

Additional information

Houghton Mifflin Harcourt Company was incorporated as a Delaware corporation on March 5, 2010, and was established as the holding company of the current operating group. Houghton Mifflin Harcourt was formed in December 2007 with the acquisition of Harcourt Education Group, then the second-largest K-12 U.S. publisher, by Houghton Mifflin Group. We are headquartered in Boston, Massachusetts. Our corporate website is www.hmhco.com. We make available our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to these reports, as well as other information, free of charge through our corporate website under the "Financial Information" link located at: ir.hmhco.com, as soon as reasonably practicable after being filed with or furnished to the Securities and Exchange Commission (the "SEC"). The information found on our website or any other website we refer to in this Annual Report is not part of this Annual Report or any other report we file with or furnish to the SEC.

Item 1A. Risk Factors

Our business and results of operations may be adversely affected by changes in federal, state and local education funding, and changes in legislation and public policy.

A majority of our sales are to public school districts in the United States, most of which rely primarily on a combination of local tax revenues and state legislative appropriations for general operating funds and to pay for purchases of goods and services, including instructional materials. Funding for public schools at both the state and local levels can be affected by tax collections, which are typically sensitive to general economic conditions, and by political and policy choices made by state and local governments. A reduction in funding levels, whether due to an economic downturn or legislative action, or a failure of projected funding increases to materialize, can constrain resources available to school districts for making purchases of instructional materials and adversely affect our business and results of operations.

Some states, including a majority of adoption states, provide dedicated state funding for the purchase of instructional content and/or classroom technology, and expenditures for instructional materials in those states tend to be highly dependent on appropriation of those funds. If dedicated funding is not appropriated, or if the amount is substantially less than anticipated or legislative action is taken to lift restrictions on the use of those funds, then purchases of instructional materials may to be significantly reduced and our net sales may be adversely impacted.

In addition, many school districts, including most large urban districts, receive substantial federal funding through Title I of the Elementary and Secondary Education Act ("ESEA"), the Individuals with Disabilities Act ("IDEA"), and other federal education programs. These funds supplement state and local funding and are used primarily to serve specific populations, such as low-income students and families, students with disabilities, and English language learners as well as to support programs to improve the quality of instruction, including educator professional learning. The funding of these programs is subject to Congressional appropriation. A significant reduction in appropriation levels could have an adverse effect on our sales, particularly sales of intervention and professional learning products and services.

Federal and state legislative and policy changes can also affect our business. For example, recent changes to federal education law in the Every Student Succeeds Act ("ESSA") give states greater latitude in how they approach assessment and accountability, support and improvement of low performing schools, as well as accounting for the expenditure of federal program funds. The recent changes in ESSA also provided for new requirements regarding evidence of effectiveness of educational products and services purchased with federal funds. The recent changes in ESSA and state legislation and administrative policy decisions on matters such as assessment and accountability, curriculum and intervention with respect thereto could affect demand for our products.

State instructional materials adoptions, which account for a significant portion of our net sales of K-12 instructional materials, are highly cyclical and pose significant inherent risks that could materially impact our results of operations.

Due to the revolving and staggered nature of "predetermined" state adoption schedules, sales of K-12 instructional materials have traditionally been cyclical, with some years offering more and/or larger sales opportunities than others. Since a large portion of our sales are derived from state adoptions, our overall results can be materially affected from year to year by the adoption schedule, particularly in large adoption states. For example, over the next few years adoptions are scheduled or have already begun in one or more of the primary subjects of reading, language arts and literature, social studies, science and mathematics in, among other states, California, Florida and Texas, which are the three largest adoption states. Our failure to secure approval for our programs or perform according to our expectations in larger new adoption opportunities could materially and adversely affect our net sales for the year of the adoption and in subsequent years.

In any state adoption, there is the inherent the risk that one or more of our programs will not be approved by a particular state board of education or other adopting authority. For example, our K-8 social studies materials were not adopted in California in 2017. While school districts in most adoption states, including California, are not precluded from purchasing materials that have not been approved by the state, in many cases, exclusion of a program on the state-adopted list can materially and adversely impact our ability to compete effectively at the school district level. Moreover, even if our program is approved by the state, we face significant competition and there is no guarantee that school districts will select our program or that we will be able to capture a meaningful share of the sales in such state.

State adoptions can be delayed, postponed or cancelled – sometimes with little or no warning and after we have made significant investments in anticipation of the adoption – due to various reasons, such as funding shortfalls, delays in development and approval of state academic standards and specifications, competing priorities or school readiness. In addition, individual school districts may decline to purchase new programs in accordance with the state's adoption schedule. A substantial delay, postponement or cancellation of a larger adoption opportunity can adversely affect the amount and timing of our net sales return on investment for the affected product, our business and our results of operations.

Further, the timing of the legislative appropriations process in most states is such that it is often impossible to know with certainty whether implementation of an adoption will be funded until after products have been submitted for review. By that time, investments have been made for product development and substantial expenses incurred for sales, marketing and other costs. If the legislature in a state that provides dedicated funding for instructional materials decides not to appropriate those funds or appropriates substantially less than anticipated, due to a revenue shortfall or other reasons, or if the legislature lifts restrictions on use of those funds, then implementation of that adoption could be substantially compromised or delayed and our net sales and return on investment could be adversely affected.

Changes in state academic standards could affect our market and require investment in development of new programs or modifications to our existing programs and any delays or controversies in the implementation of such standards could impact our results of operations.

States may adopt new academic standards or revise existing standards, which may affect our market and require investment in the development of new programs or modifications to our existing programs offered for sale in states that adopt such changes. Delays or controversies in the implementation of the adoption of new or revised academic standards may result in insufficient lead time before the deadline to submit instructional materials for an adoption. As a result, we may have to invest more than planned in order to complete product development or make the modifications in the compressed timeframe to bring our program into alignment with the new or revised standards, which could adversely affect our return on investment. Alternatively, we may determine that completing product development or making the modifications within the available timeframe is not practicable, and elect not to participate in the adoption, forgoing what might have been a significant sales opportunity which could materially and adversely affect our net sales for the year of the adoption and subsequent years.

We may not be able to execute on our long-term growth strategy or achieve expected benefits from actions taken in furtherance of our strategy, which could materially and adversely affect our business, financial condition and results of operations and/or our growth.

If we are not able to execute on our long-term growth strategy or achieve expected benefits from our actions in furtherance of our strategy, it could materially and adversely affect our business, financial condition and results of operations and/or our growth. In any event, actions taken in furtherance of our strategy, such as transitioning to new business models or entering into new market segments could adversely impact our cash flow and our business in unforeseen ways.

Our investments in new products, service offerings, platforms and/or technologies could impact our profitability.

We operate in highly competitive markets that continue to change to adapt to customer needs. These needs include an increasing demand for integrated learning solutions. In order to address these needs, we are investing in new products, new technology and infrastructure, and a new common platform to integrate our products, services and solutions. These investments may be less profitable than what we have experienced historically, may consume substantial financial resources and/or may divert management's attention from existing operations, all of which could materially and adversely affect our business, results of operations and financial condition.

We rely on third-party software and technology development as part of our digital platform.

We rely on third parties for some of our software and technology development. For example, some of the technologies and software that compose our instruction and assessment technologies are developed by third parties. We rely on those third parties for the development of future components and modules. Thus, we face risks associated with technology and software product development and the ability of those third parties to meet our needs and their obligations under our contracts with them. In addition, we rely on third parties for our internet-based product hosting. The loss of one or more of these third-party partners, a material disruption in their business or their failure to otherwise perform in the expected manner could cause disruptions in our business that may materially and adversely affect our results of operations and financial condition.

Defects in our digital products and platforms could cause financial loss and reputational damage.

In the fast-changing digital marketplace, demand for innovative technology has generally resulted in short lead times for producing products that meet customer needs. Growing demand for innovation and additional functionality in digital products increases the risk that our digital products and platforms may contain flaws or corrupted data that may only become apparent after product launch, particularly for new products and platforms and new features for existing products and platforms that are developed and brought to market under tight time constraints. Problems with the performance of our digital products and platforms could result in liability, loss of revenue or harm to our reputation.

Some states and school districts require that newly purchased digital instructional materials conform to certain technical standards for accessibility by persons with disabilities, which could have an adverse effect on our net sales and/or lead us to incur additional costs.

Some states and school districts have adopted certain technical standards for accessibility by persons with disabilities that apply to school websites and electronically-delivered content. While we are committed to designing and developing our electronically-delivered products for the K-12 market in a manner accessible to persons with disabilities and strive to conform to relevant technical standards, it is possible that some of our digital products may be deemed to be non-conforming with those standards in all respects. This could limit our ability to compete for sales in states and districts that have adopted those standards, which could have an adverse effect on our net sales. To the extent that we decide to add accessibility features to existing products, we may incur costs that we would not otherwise have incurred.

Changes in product distribution channels and concentration of retailer power may restrict our ability to grow and affect our profitability in our Trade Publishing segment.

Distribution channels such as online retailers and ecommerce sites, digital delivery platforms, expanding social media, digital discovery and marketing platforms, combined with the increased concentration of retailer power, pose threats and provide opportunities to traditional consumer publishing models of our Trade Publishing segment, potentially impacting both sales volume and profitability. The reduction in "brick and mortar" booksellers, the resulting concentration of power held by our largest retailers, and the increased concentration of consumer book spending on best-selling titles could negatively affect our business, financial condition and results of operations.

We operate in a highly competitive environment where the risks from competition are intensified due to rapid changes in our markets and industry; as a result we must continue to adapt to remain competitive.

We operate in highly competitive markets. The risks of competition are intensified in the current environment where investment in new technology is ongoing and there are rapid changes in the products and services our customers are seeking and our competitors are offering, as well as new technologies, sales and distribution channels. In addition to national curriculum publishers, we compete with a variety of specialized or regional publishers that focus on select disciplines and/or geographic regions in the K-12 market. There are multiple competitors in the Trade Publishing, supplemental and assessment segments offering content that school districts increasingly are using as part of their core classroom instructional materials. Our larger competitors in the educational market include Pearson Education, Inc., McGraw Hill Education, Cengage Learning, Inc., Scholastic Corporation, Curriculum Associates, LLC, Benchmark Education, LLC, Accelerate Learning, Inc., and Amplify Education, Inc. Some of these established competitors may have greater resources and less debt than us and, therefore, may be able to adapt more quickly to new or emerging technologies and changes in customer requirements or devote greater resources to the development, promotion and sale of their products and services than we can. Also competing in our market as a substitute are open educational resources. In addition, the market shift toward digital education solutions has induced both established technology companies and new start-up companies to enter certain segments of our market. These new competitors have the possible advantage of not needing to transition from a print business to a digital business. In addition, many established technology companies have substantial resources that they could devote to developing or acquiring digital educational products and/or content and, distributing their own and/or aggregated educational content to the K-12 market, which could negatively affect our business, financial condition and results of operations. There is also a risk of further disintermediation, which is the occurrence of state, district and other customers contracting directly with technology companies, enabling technology companies to develop direct relationships with our customers, and accordingly, have significant influence over access to and, pricing and distribution of digital and print education materials. We may not be able to adapt as needed to remain competitive in the market given the foregoing factors.

The availability of free and low-cost open education resources could adversely affect our net sales and exert downward pressure on prices for our education products.

In the K-12 market, we face growing competition from free, openly licensed content, often referred to as open education resources (“OER”). Free or low-cost OER content is typically delivered via the internet, and in some cases print versions and related services are available for purchase. A number of states support the use of OER by providing curated resources and a few, including New York and Texas, are funding development of OER or have done so in the past. Twenty states have signed on to the U.S Department of Education’s GoOpen campaign, which seeks to support users of OER and promote coordination and sharing of OER among states. The increased availability of free and low-cost OER could negatively affect our customers’ perception of the value of our content, reduce demand for our educational products, and/or exert downward pressure on prices for our products, and adversely impact our net sales.

Our operating results fluctuate on a seasonal and quarterly basis and our business has historically been dependent on our results of operations for the third quarter.

Our business is seasonal. Approximately 87% of our net sales for the year ended December 31, 2017 were derived from our Education segment, which is a markedly seasonal business. Purchases of K-12 products are typically made in the second and third quarters of the calendar year in preparation for the beginning of the school year, though assessment purchases have modest seasonality in the second and fourth quarters. We typically realize a significant portion of net sales during the third quarter, making third-quarter results material to full-year performance. This sales seasonality affects operating cash flow from quarter to quarter. We typically incur a net cash deficit from all of our activities through the middle of the third quarter of the year. We cannot be sure that our second and third quarter net sales will continue to be sufficient to fund our business and meet our obligations

or that they will be higher than our net sales for our other quarters or in the prior-year periods. In the event that we do not derive sufficient net sales for the second and third quarter, we may have a liquidity shortfall and be unable to fund our business and/or meet our debt service requirements and other obligations.

Our net sales, operating profit or loss and net cash provided or used by operations are impacted by the inherent seasonality of the academic calendar. As purchases of K-12 products are typically made in the second and third quarters of a given calendar year, changes in our customers' ordering patterns may impact the comparison of results between a quarter and the same quarter of the prior year, between a quarter and the prior consecutive quarter or between a fiscal year and the prior fiscal year, which can make it difficult for us to forecast the timing of customer purchases and assess our financial performance until late in the year.

Our history of operations includes periods of operating and net losses, and we may incur operating and net losses in the future. Such losses may impact our liquidity.

For the years ended December 31, 2017, 2016 and 2015, we generated operating losses of $113.5 million, $310.8 million and $116.1 million, respectively, and net losses of $103.2 million, $284.6 million and $133.9 million, respectively. If we continue to suffer operating and net losses, our liquidity may suffer and we may not be able to fund our business and/or meet our debt service requirements and other obligations. Furthermore, the market price of our common stock may decline significantly.

Our ability to enforce our intellectual property and proprietary rights may be limited, which may harm our competitive position and materially and adversely affect our business and results of operations.

Our products are largely comprised of intellectual property content delivered through a variety of media, including print, digital and web-based media. We rely on a combination of copyright, trademark and other intellectual property laws and rights as well as employee agreements and other contracts to establish and protect our proprietary rights in our products and technology. However, our efforts to protect our intellectual property and proprietary rights may not be sufficient and we cannot make assurances that our proprietary rights will not be challenged, invalidated or circumvented. Moreover, we conduct business in certain other countries where the extent of effective legal protection for intellectual property rights is uncertain. It is possible we could be involved in expensive and time-consuming litigation to maintain, defend or enforce our intellectual property.

Furthermore, despite the existence of copyright and trademark protection under applicable laws, third parties may nonetheless violate our intellectual property rights, and our ability to remedy such violations, including in certain foreign countries where we conduct or seek to conduct business, may be limited. In addition, the copying and distribution of content over the Internet creates additional challenges for us in protecting our proprietary rights. If we are unable to adequately protect and enforce our intellectual property and proprietary rights, our competitive position may be harmed, and our business and financial results could be materially and adversely affected.

Failure to comply with privacy laws or adequately protect personal data could cause financial loss and reputational damage.

Across our businesses we hold large volumes of personal data, including that of employees, customers and students. We are subject to a wide array of different privacy laws, rules, regulations and standards in the U.S. as well as in foreign jurisdictions where we conduct business, including but not limited to (i) the Children's Online Privacy Protection Act and state student data privacy laws in connection with personally identifiable information of students, (ii) the Health Insurance Portability and Accountability Act in connection with our self-insured health plan and certain of our products, (iii) the Payment Card Industry Data Security Standards in connection with collection of credit card information from customers, and (iv) various EU data protection and privacy laws. Our brands and customer relationships are important assets. Our failure to comply with applicable privacy laws, rules, regulations and standards or adequately prevent the improper use or disclosure of the personal data we hold

could lead to penalties, significant remediation costs, reputational damage to our brands and customer relationships, potential cancellation of existing business and diminished ability to compete for future business.

We are subject to risks based on Information Technology systems. A major breach in security or information technology system failure could interrupt the availability of our internet-based products and services, result in corruption and/or loss of data cause liability, reputational damage to our brands and business and/or result in financial loss.

Our business is dependent on information technology systems to support our complex operational and logistical arrangements across our businesses. We provide software and/or internet-based products and services to our customers. We also use complex information technology systems and products to support our business activities, particularly in infrastructure and as we move our products and services to an increasingly digital delivery platform.

We face several technological risks associated with software and/or internet-based product and service delivery in our educational businesses, including with respect to information technology capability, reliability and security, enterprise resource planning, system implementations and upgrades. Failures of our information technology systems and products (including because of operational failure, natural disaster, computer virus or hacker attacks) could interrupt the availability of our internet-based products and services, result in corruption or loss of data or breach in security and result in liability, reputational damage to our brands and/or adversely impact our operating results.

While we have policies, processes, internal controls and cybersecurity mechanisms in place intended to ensure the stability of our information technology, provide security from unauthorized access to our systems and maintain business continuity, no mechanisms are entirely free from the risk of failure and we have no guarantee that our security mechanisms will be adequate to prevent all possible security threats. Our brand, reputation, especially in the K-12 market, and consequently our operating results may be adversely impacted by unanticipated system failures, corruption, loss of data and/or breaches in security.

Failure to prevent or detect a malicious cyber-attack on our information technology systems could result in liability, reputational damage, loss of revenue and/or financial loss.

Cyber-attacks and hackers are becoming more sophisticated and pervasive. Our business is dependent on information technology systems to support our complex operational and logistical arrangements across our businesses. We provide software and/or internet-based products and services to our customers. We also use complex information technology systems and products to support our business activities, particularly in infrastructure and as we move our products and services to an increasingly digital delivery platform. Across our businesses we hold large volumes of personal data, including that of employees, customers and students.

Efforts to prevent cyber-attacks and hackers from entering our systems are expensive to implement and may limit the functionality of our systems. Individuals may try to gain unauthorized access to our systems and data for malicious purposes, and our security measures may fail to prevent such unauthorized access. Cyber-attacks and/or intentional hacking of our systems could adversely affect the performance or availability of our products, result in loss of customer data, adversely affect our ability to conduct business, or result in theft of our funds or proprietary information, the occurrence of which could result in liability, reputational damage, loss of revenue and/or financial loss.

We are dependent on a small number of third parties to print and bind our products and to supply paper, a principal material for our products. If we were to lose our relationship with our print vendor and/or paper merchant, our business and results of operations may be materially and adversely affected.

We outsource the printing and binding of our products and currently rely on one key third-party print vendor that handles approximately 50% of our printing requirements, and we expect a small number of print vendors

will continue to account for a substantial portion of our printing requirements for the foreseeable future. The loss of, or a significant adverse change in our relationship with our key print vendor could have a material adverse effect on our business and cost of sales.

In addition, we purchase paper, a principal raw material for our print products, primarily through one paper merchant. Further, paper merchants, including our paper merchant, rely on paper mills to produce the paper that they broker. There can be no assurance that our relationships with our print vendor and/or paper merchant will continue or that their business or operations will not be affected by disruptions in the industries that they rely on, including a disruption in the paper mill industry, major disasters or other external factors. The loss of our key print vendor and/or paper merchant, a material change in our relationship with them, a material disruption in their business or their failure to otherwise perform in the expected manner could cause disruptions in our business that may materially and adversely affect our results of operations and financial condition.

We may not be able to identify and complete any future acquisitions or achieve the expected benefits from any previous or future acquisitions, which could materially and adversely affect our business, financial condition and results of operations and/or our growth.

We have at times used acquisitions as a means of expanding our business and technologies, and expect that we will continue to do so in the future as part of our capital allocation strategy. We may be unable to identify suitable acquisition opportunities and, even if we were able to do so, we may not be able to finance or complete any such future acquisition on terms satisfactory to us. Further, we may not be able to successfully integrate previous or future acquisitions into our existing business, achieve anticipated operating advantages and/or realize anticipated cost savings or other synergies. The acquisition and integration of businesses involve a number of risks, including: use of available cash, issuance of equity or debt securities, incurrence of new indebtedness or borrowings under our revolving credit facility to consummate the acquisition and/or integrate the acquired business; diversion of management's attention from operations of our existing businesses and those of the acquired business to the integration; integration of complex systems, technologies and networks into our existing systems; difficulties in the assimilation and retention of employees; unexpected costs, delays or other risks related to transition support services provided under any transition services agreement that may be executed as part of the acquisition. These transactions may create multiple and overlapping product lines that are offered, priced and supported differently, which could cause customer confusion and delays in service. The demands on our management related to the increase in our size after an acquisition also may have potential adverse effects on our operating results.

If we are unable to finance or complete any future acquisition on terms satisfactory to us (or at all) and/or we are unable to successfully integrate any previous or future acquisitions into our existing business, achieve anticipated operating advantages and/or realize anticipated cost savings or other synergies from any such acquired business, it could materially and adversely affect our business, financial condition and results of operations.

If we are unable to attract, retain and focus a strong leadership team, a dynamic sales force, software engineers and other key personnel, it could have an adverse effect on our business and ability to remain competitive, financial condition and results from operations.

Our success depends, in part, on our ability to continue to attract, focus and retain a strong leadership team, a dynamic sales force, software engineers and other key personnel at economically reasonable compensation levels. We operate in highly competitive industry segments that continue to change to adapt to customer needs and technological advances and in which there is intense competition for experienced and highly effective personnel. If we are unable to timely attract and retain key personnel with relevant skills for our evolving industry segments it could adversely affect our business and ability to remain competitive, financial condition and results of operations.

In late summer / early fall of 2017, we added, through new hires and promotion, seven new members to our executive leadership team to serve under our President and Chief Executive Officer, who assumed his role in April 2017. Additional changes to our leadership team in the future could slow implementation of key initiatives, lead to changes in or create uncertainty about our business strategies and/or impact management's attention to operations. Any such inefficiencies and uncertainty, as well as any failure of our new leadership team to timely and successfully transition into their roles could have a material adverse effect on our business, financial condition and results from operations and/or increase volatility in our stock price.

In addition, our business results depend largely upon the experience and knowledge of local market dynamics and long-standing customer relationships of our sales personnel. Our inability to attract, retain and focus effective sales and other key personnel at economically reasonable compensation levels could materially and adversely affect our ability to operate profitably and grow our business.

If we fail to maintain strong relationships with our authors, illustrators and other creative talent, as well as to develop relationships with new creative talent, our net sales and results of operations could be adversely affected.

Our Trade publishing business and certain aspects of our K-12 business are highly dependent on maintaining strong relationships with the authors, illustrators and other creative talent who produce books and other products sold to our customers. We operate in a number of highly visible industry segments where there is intense competition for successful authors, illustrators and other creative talent. Any overall weakening of these relationships, or the failure to develop successful new relationships, could have an adverse effect on our net sales and results of operations.

Our major operating costs and expenses include employee compensation as well as paper, printing and binding costs and expenses for product-related manufacturing, and a significant increase in such costs and expenses could have a material adverse effect on our profitability.

Our major operating costs and expenses include employee compensation as well as paper, printing and binding costs for product-related manufacturing.

We offer competitive salary and benefit packages in order to attract and retain the employees required to grow and expand our businesses. Compensation costs are influenced by general economic and business factors, including those affecting the cost of health insurance, payout of commissions and incentive compensation and post-retirement benefits, as well as trends specific to the employee skillsets we require.

Paper is one of our principal raw materials. Paper prices fluctuate based on the worldwide demand for and supply of paper in general and for the specific types of paper we use. The price of paper may fluctuate significantly in the future, and changes in the market supply of, or demand for paper, could affect delivery times and prices. Paper mills and other suppliers may consolidate or there may be disruptions in their industry and as a result, there may be future shortfalls in quality and quantity supplies necessary to meet the demands of the entire marketplace, including our demands. As a result, we may need to find alternative sources for paper from time to time. In addition, we have extensive printing and binding requirements. We outsource the printing and binding of our books, workbooks and other printed products to third parties, typically under multi-year contracts. Increases in any of these operating costs and expenses could materially and adversely affect our business, profitability, financial condition and results of operations. Further, higher energy costs and other factors affecting the cost of publishing, transporting and distributing our products could adversely affect our financial results.

We also have other significant operating costs, and unanticipated increases in these costs could adversely affect our operating margins. Our inability to absorb the impact of increases in paper, printing and binding costs and other costs of publishing, transporting and distributing our products or any strategic determination not to pass on all or a portion of these increases to our customers could adversely affect our business, financial condition and results of operations.

We may not realize expected benefits from our operational efficiency and cost-savings initiatives, including those under our 2017 Restructuring Plan, and such initiatives may lead to unintended consequences that could have a material effect on our results of operations.

On an ongoing basis, we assess opportunities for improved operational effectiveness and efficiency and better alignment of expenses with net sales, while preserving our ability to make the investments in content and our people that we believe are important to our long-term success. In March 2017, we committed to certain actions under the 2017 Restructuring Plan in order to improve our operational efficiency, better focus on the needs of our customers and right-size our cost structure to create long-term shareholder value. These actions include making organizational design changes across layers of the Company below the executive team and other right-sizing initiatives expected to result in reductions in force, consolidating and/or subletting certain office space under real estate leases as well as other potential operational efficiency and cost-reduction initiatives. We have substantially completed the organizational design change actions and expect to complete the remaining actions by the end of 2018.

We estimate annualized cost savings of approximately $70.0 million to $80.0 million exiting 2018 as a result of these actions and estimate that implementation of these actions are expected to result in total charges of approximately $45.0 million to $49.0 million, of which approximately $35.0 million to $39.0 million of these charges are estimated to result in future cash outlays.

Expected costs, savings and operational efficiency benefits under such initiatives, including those under our 2017 Restructuring Plan, may differ materially from our estimates and expectations based on many factors, including timing of actions thereunder and higher than expected costs of implementation. In addition, such initiatives may lead to unintended consequences, such as management and employee distraction, inability to attract and retain key personnel, attrition beyond planned reductions, and reduced morale and productivity, which could have a material effect on our results of operations.

Exposure to litigation could have a material effect on our financial position and results of operations.

In the ordinary course of business, we are involved in legal actions, claims litigation and other matters arising from our business operations and face the risk that additional actions and claims will be filed in the future. Litigation alleging infringement of copyrights and other intellectual property rights, particularly with respect to proprietary photographs and images, is common in the educational publishing industry. While management does not expect any of the existing legal actions and claims arising from our business operations to have a material adverse effect on our results of operations, financial position or cash flows, due to the inherent uncertainty of the litigation process, the costs of pursuing or defending against any particular legal proceeding, or the resolution of any particular legal proceeding could have a material effect on our financial position and results of operations.

We have insurance in such amounts and with such coverage and deductibles as management believes is reasonable. However, our coverage for certain business lines has been exhausted and there can be no assurance that our liability insurance for other business lines will cover all events or that the limits of such coverage will be sufficient to fully cover all potential liabilities thereunder.

Operational disruption to our business caused by a major disaster or other external threats could restrict our ability to supply products and services to our customers.

Across all our businesses, we manage complex operational and logistical arrangements including distribution centers, data centers and large office facilities. Failure to recover from a major disaster (such as fire, flood or other natural disaster) or other external threat (such as terrorist attacks, strikes, weather or political unrest or other external factors) at a key center or facility could affect our business and employees, disrupt our daily business activities and/or restrict our ability to supply products and services to our customers.

We are subject to contingent liabilities that may affect liquidity and our ability to meet our obligations.

In the ordinary course of business, we issue performance-related surety bonds and letters of credit posted as security for our operating activities, some of which obligate us to make payments if we fail to perform under certain contracts in connection with the sale of instructional materials and assessment programs. The surety bonds are partially backstopped by letters of credit. As of December 31, 2017, our contingent liability for all letters of credit was approximately $25.2 million, of which $0.1 million were issued to backstop $2.5 million of surety bonds. The letters of credit reduce the borrowing availability on our revolving credit facility, which could affect liquidity and, therefore, our ability to meet our obligations. We may increase the number and amount of contracts that require the use of letters of credit, which may further restrict liquidity and, therefore, our ability to meet our obligations in the future.

Our substantial level of indebtedness could adversely affect our financial condition and results of operations.

As of December 31, 2017, we had approximately $780.0 million ($768.2 million, net of discount and issuance costs) outstanding under our term loan facility and no amounts outstanding under our revolving credit facility. Our substantial outstanding indebtedness could have important consequences, including the following:

- our high level of indebtedness could make it more difficult for us to satisfy our obligations;
- our high level of indebtedness could adversely impact our credit rating;
- the restrictions imposed on the operation of our business under the agreements governing such indebtedness may hinder our ability to take advantage of strategic opportunities to grow our business and to make attractive investments;
- our ability to obtain additional financing for working capital, capital expenditures, product development, debt service requirements, restructuring, acquisitions or general corporate purposes may be impaired, which could be exacerbated by volatility in the credit markets;
- we must use a substantial portion of our cash flow from operations to pay principal and interest on our indebtedness, which will reduce the funds available to us for operations, working capital, capital expenditures and other purposes;
- our high level of indebtedness could place us at a competitive disadvantage compared to our competitors that may have proportionately less debt;
- our flexibility in planning for, or reacting to, changes in our business and the industry in which we operate may be limited;
- our failure to satisfy our obligations under the agreements governing our indebtedness could result in an event of default, which could result in all of our debt becoming immediately due and payable and could permit our secured lenders to foreclose on our assets securing such indebtedness;
- our high level of indebtedness makes us more vulnerable to economic downturns and adverse developments in our business and industry; and
- we may be vulnerable to interest rate increases, as certain of our borrowings bear interest at variable rates. A 1% increase or decrease in the interest rate will change our interest expense by approximately $7.8 million on an annual basis for our term loan facility and $2.5 million on an annual basis for our revolving credit facility, assuming it is fully drawn.

Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations, prospects and ability to satisfy our obligations. In addition, we may incur substantial additional indebtedness in the future. The terms of the agreements governing our existing indebtedness do not, and any future debt may not, fully prohibit us from doing so. If new indebtedness is added to our current indebtedness levels, the related risks that we now face could substantially intensify.

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

Our ability to make scheduled payments or to refinance our debt obligations and to fund planned capital expenditures and other growth initiatives depends on our financial and operating performance, which is subject to prevailing economic and competitive conditions and to certain financial, business and other factors beyond our control. We may not be able to maintain a level of cash flow from operating activities sufficient to permit us to pay the principal, premium, if any, and interest on our indebtedness or to fund our other liquidity needs.

If our cash flows and capital resources are insufficient to fund our debt service obligations, we may be forced to reduce or delay capital expenditures, sell assets, seek additional capital or seek to restructure or refinance our indebtedness. These alternative measures may not be successful and may not permit us to meet our scheduled debt service obligations. In the absence of such operating results and resources, we could face substantial liquidity problems and might be required to sell material assets or operations to attempt to meet our debt service and other obligations. Our Senior Secured Credit Facilities restrict our ability to use the proceeds from asset sales. We may not be able to consummate those asset sales to raise capital or sell assets at prices that we believe are fair and proceeds that we do receive may not be adequate to meet any debt service obligations then due.

We may record future goodwill or additional indefinite-lived intangibles impairment charges related to our reporting units, which could have a material adverse impact on our results of operations.

We test our goodwill and indefinite-lived intangibles asset balances for impairment during the fourth quarter of each year, or more frequently if indicators are present or changes in circumstances suggest that impairment may exist. We assess goodwill for impairment at the reporting unit level and, in evaluating the potential for impairment of goodwill, we make assumptions regarding estimated net sales projections, growth rates, cash flows and discount rates. Although we use consistent methodologies in developing the assumptions and estimates underlying the fair value calculations used in our impairment tests, these estimates are uncertain by nature and can vary from actual results. Declines in the future performance and cash flows of the reporting unit or small changes in other key assumptions may result in future impairment charges, which could have a material adverse impact on our results of operations.

A change from up-front payment by school districts for multi-year programs and actions taken in furtherance of our long-term growth strategy could adversely affect our cash flow.

In keeping with the past practice of payments, school districts typically pay up-front when buying multi-year programs. If school districts changed their payment practices to spread their payments to us over the term of a program, our cash flow could be adversely affected. Further, as we execute on our long-term growth strategy, actions taken in furtherance of our strategy, such as transitioning to new business models could adversely impact our cash flow and our business in unforeseen ways.

The shift to sales of greater digital content or an increase in consumable print core programs may affect the comparability of our revenue to prior periods and cause increases or decreases in our sales to be reflected in our results of operations on a delayed basis.

As K-12 instructional materials transition from printed to digital products, an increasing percentage of our revenues are derived from time-based digital products. Our customers typically pay for purchased products up-front; however, we recognize a significant portion of our time-based digital sales over their respective terms, as required by Generally Accepted Accounting Principles in the United States. As a result, an increase in the portion of our sales coming from digital sales may impact the comparison of our revenue results for a period with the same prior-year or consecutive period. Further, sales of consumable print core programs typically result in net sales being recognized over a longer periods similar to time-based digital products. As more product offerings move to a consumable print format, more revenue will be deferred and recognized over a longer period of time.

Another effect of recognizing revenue from digital and consumable print core program sales over their respective terms is that any increases or decreases in sales during a particular period may not translate into proportional increases or decreases in revenue during that period. Consequently, deteriorating sales activity may be less immediately observable in our results of operations.

Changes in U.S. federal, state and local or foreign tax law, interpretations of existing tax law, or adverse determinations by tax authorities, could increase our tax burden or otherwise adversely affect our financial condition or results of operations.

As a global learning company, we are subject to taxation at the federal, state or provincial and local levels in the U.S. and various other countries and jurisdictions. As a result, our effective tax rate is derived from a combination of applicable tax rates in the various places that we operate. Our effective tax rate, however, may be different than experienced in the past due to numerous factors, including changes in the mix of our profitability from country to country, the results of examinations and audits of our tax filings, adjustments to the value of our uncertain tax positions, changes in accounting for income taxes and changes in tax laws, including the 2017 Tax Act. Any of these factors could cause us to experience an effective tax rate significantly different from previous periods or our current expectations.

We face risks of doing business abroad.

We conduct business in a number of regions outside of the U.S., including emerging markets in South America, Asia and the Middle East. Accordingly, we face exposure to the risks of doing business abroad, including, but not limited to, longer customer payment terms in certain countries; increased credit risk; difficulties in protecting intellectual property, enforcing or terminating agreements and collecting receivables under certain foreign legal systems; compliance under local privacy laws, rules, regulations and standards; the need to comply with U.S. Foreign Corrupt Practices Act and local laws, rules and regulations; and in some countries, a higher risk of political instability, economic volatility, terrorism, corruption, and social and ethnic unrest.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our principal executive office is located at 125 High Street, Boston, Massachusetts 02110. The following table describes the approximate building areas in square feet, principal uses and the years of expiration on leased premises of our significant operating properties as of December 31, 2017. We believe that these properties are suitable and adequate for our present and anticipated business needs, satisfactory for the uses to which each is put, and, in general, fully utilized.

Location	Expiration year	Approximate area	Principal use of space	Segment used by
Owned Premises:				
Indianapolis, Indiana	Owned	491,779	Warehouse	All segments
Troy, Missouri	Owned	575,000	Office and warehouse	Education
Leased Premises:				
Orlando, Florida (a)	2029	250,842	Office	Education
Evanston, Illinois	2027	111,398	Office	Education
Itasca, Illinois	2027	105,976	Office	Education
Geneva, Illinois	2022	485,989	Office and warehouse	Education
Boston, Massachusetts (Corporate office)	2033	194,946	Office	All segments
Portsmouth, New Hampshire	2019	25,145	Office	Education
New York, New York	2025	31,815	Office	Education
New York, New York	2027	101,841	Office	All segments
Austin, Texas	2028	87,570	Office	Education
Dublin, Ireland	2025	39,108	Office	Education
Orlando, Florida	2021	25,400	Warehouse	Corporate Records Center
Itasca, Illinois	2019	46,823	Warehouse	Education
St Charles, Illinois	2024	26,029	Office	Education

In addition, we lease several other offices that are not material to our operations and, in some instances, are partially or fully subleased. Portions of certain properties listed above are also subleased.

(a) Effective October 2019, lease square footage will be reduced to approximately 111,000.

Item 3. Legal Proceedings

We are involved in legal actions, claims, litigation and other matters incidental to our business. Litigation alleging infringement of copyrights and other intellectual property rights, particularly with respect to proprietary photographs and images, is common in the educational publishing industry.

While management believes there is a reasonable possibility we may incur a loss associated with the existing legal actions, claims and litigation, we are not able to estimate such amount, but we do not expect any of these matters to have a material adverse effect on our results of operations, financial position or cash flows. We have insurance in such amounts and with such coverage and deductibles as management believes is reasonable. However, there can be no assurance that our liability insurance will cover all events or that the limits of such coverage will be sufficient to fully cover all potential liabilities thereunder.

Item 4. Mine Safety Disclosures

Not applicable.

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

Market information. Our common stock has been listed on the Nasdaq Global Select Market ("Nasdaq") under the symbol "HMHC" since November 14, 2013. The following table sets forth, for the periods indicated, the high and low sales prices for our common stock as reported by Nasdaq.

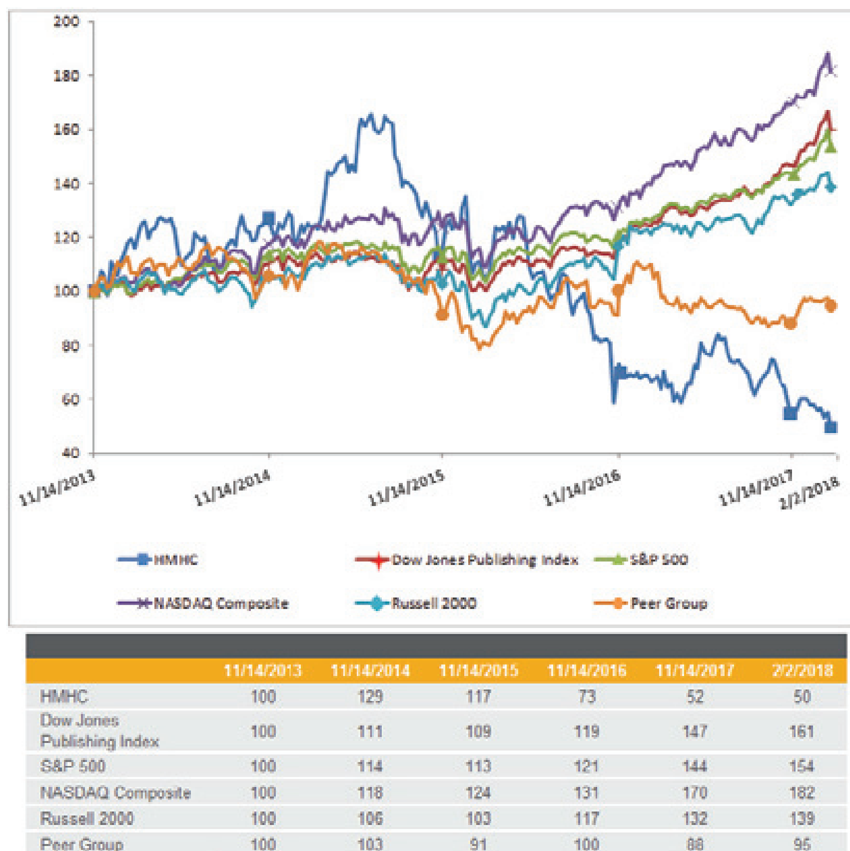
2016	**High**	**Low**
First Quarter	$21.42	$16.00
Second Quarter	21.08	14.72
Third Quarter	17.69	12.80
Fourth Quarter	13.74	9.15
2017		
First Quarter	$11.80	$ 9.25
Second Quarter	13.95	9.90
Third Quarter	12.55	9.80
Fourth Quarter	12.25	8.05

The closing price of our common stock on Nasdaq on February 2, 2018, was $7.95 per share.

Holders. As of February 2, 2018, there were approximately 16 stockholders of record of our common stock, one of which was Cede & Co., a nominee for The Depository Trust Company. All of our common stock held by brokerage firms, banks and other financial institutions as nominees for beneficial owners are considered to be held of record by Cede & Co., who is considered to be one stockholder of record. A substantially greater number of holders of our common stock are "street name" or beneficial holders, whose shares of common stock are held of record by banks, brokers and other financial institutions. Because such shares of common stock are held on behalf of stockholders, and not by the stockholders directly, and because a stockholder can have multiple positions with different brokerage firms, banks and other financial institutions, we are unable to determine the total number of stockholders we have.

Dividends. We have never paid or declared any cash dividends on our common stock. At present, we intend to retain our future earnings, if any, to fund operations, the growth of our business and, as appropriate, execute our share repurchase program. Our future decisions concerning the payment of dividends on our common stock will depend upon our results of operations, financial condition and capital expenditure plans, as well as other factors as our board of directors, in its discretion, may consider relevant, and the extent to which the declaration or payment of dividends may be limited by agreements we have entered into or cause us to lose the benefits of certain of our agreements. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources."

Performance Graph. The graph below matches the cumulative return of holders of the Company's common stock with the cumulative returns of the Dow Jones Publishing index, the S&P 500 index, the Nasdaq Composite index, the Russell 2000 index, and a Peer Group index of certain public companies in the educational space, comprised of Pearson PLC, Scholastic Corporation, K-12 Inc., and John Wiley & Sons, Inc. The Russell 2000 index was included as the Company was added to that index during 2014. The graph assumes that the value of the investment in the Company's common stock, in each index (including reinvestment of dividends) was $100 on November 14, 2013 and tracks it through February 2, 2018. All prices reflect closing prices on the last day of trading at the end of each period. Notwithstanding any general incorporation by reference of this Annual Report into any other document, the information contained in the graph shall not be deemed to be "soliciting material" or to be "filed" with the SEC or subject to Regulation 14A or 14C under the Exchange Act or to the liabilities of Section 18 of the Exchange Act, except: (i) as expressly required by applicable law or regulation; or (ii) to the extent that the Company specifically requests that such information be treated as soliciting material or specifically incorporates it by reference into a filing under the Securities Act or the Exchange Act.



	11/14/2013	11/14/2014	11/14/2015	11/14/2016	11/14/2017	2/2/2018
HMHC	100	129	117	73	52	50
Dow Jones Publishing Index	100	111	109	119	147	161
S&P 500	100	114	113	121	144	154
NASDAQ Composite	100	118	124	131	170	182
Russell 2000	100	106	103	117	132	139
Peer Group	100	103	91	100	88	95

The stock price performance shown on the graph is not necessarily indicative of future price performance. Information used in the graph was obtained from a source we believe to be reliable, but we do not assume responsibility for any errors or omissions in such information.

Recent sales of unregistered securities. There have been no sales of unregistered securities by the Company in the three year period ended December 31, 2017.

Issuer Purchases of Equity Securities

There were no purchases of equity securities in the fourth quarter of 2017 and for the year ended December 31, 2017. Our Board of Directors has authorized the repurchase of up to $1.0 billion in aggregate value of the Company's common stock. As of December 31, 2017, there was approximately $482.0 million available for share repurchases under this authorization. The aggregate share repurchase program may be executed through December 31, 2018. Repurchases under the program may be made from time to time in the open market (including under a trading plan) or in privately negotiated transactions. The extent and timing of any such repurchases would generally be at our discretion and subject to market conditions, applicable legal requirements and other considerations. Any repurchased shares may be used for general corporate purposes.

Item 6. Selected Financial Data

The following table summarizes the consolidated historical financial data of Houghton Mifflin Harcourt Company. We derived the consolidated historical financial data as of December 31, 2017 and 2016 and for the years ended December 31, 2017, 2016, and 2015 from our audited consolidated financial statements included in this Annual Report. We derived the consolidated historical financial statement data as of December 31, 2015, 2014 and 2013 and for the years ended December 31, 2014 and 2013 from our audited consolidated financial statements for such years, which are not included in this Annual Report. Historical results for any prior period are not necessarily indicative of results to be expected in any future period. The data set forth in the following table should be read together with the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and related notes thereto.

	Years Ended December 31,				
	2017 (4)	2016 (4)	2015 (4)	2014	2013
Operating Data:					
Net sales	$ 1,407,511	$ 1,372,685	$ 1,416,059	$ 1,372,316	$ 1,378,612
Cost and expenses:					
Cost of sales, excluding publishing rights and pre-publication amortization	617,802	610,715	622,668	588,726	585,059
Publishing rights amortization	46,238	61,351	81,007	105,624	139,588
Pre-publication amortization	126,038	130,243	120,506	129,693	121,715
Cost of sales	790,078	802,309	824,181	824,043	846,362
Selling and administrative	654,860	699,544	681,124	612,535	580,887
Other intangible asset amortization	30,748	26,750	22,038	12,170	18,968
Impairment charge for pre-publication costs, intangible assets, investment in preferred stock, and fixed assets (1)	3,980	139,205	—	1,679	9,000
Restructuring (2)	40,653	—	—	—	—
Severance and other charges (3)	713	15,650	4,767	7,300	10,040
Operating loss	(113,521)	(310,773)	(116,051)	(85,411)	(86,645)
Other income (expense)					
Interest expense	(42,805)	(39,181)	(32,254)	(18,495)	(21,573)
Interest income	1,338	518	209	250	229
Loss on extinguishment of debt	—	—	(3,051)	—	(598)
Change in fair value of derivative instruments	1,366	(614)	(2,362)	(1,593)	(252)
Loss before taxes	(153,622)	(350,050)	(153,509)	(105,249)	(108,839)
Income tax expense (benefit)	(50,435)	(65,492)	(19,640)	6,242	2,347
Net loss	$ (103,187)	$ (284,558)	$ (133,869)	$ (111,491)	$ (111,186)
Net loss per share attributable to common stockholders—basic	$ (0.84)	$ (2.32)	$ (0.98)	$ (0.79)	$ (0.79)
Net loss per share attributable to common stockholders—diluted	$ (0.84)	$ (2.32)	$ (0.98)	$ (0.79)	$ (0.79)
Weighted average number of common shares used in net loss per share attributable to common stockholders—basic and diluted	122,949,064	122,418,474	136,760,107	140,594,689	139,928,650
Balance Sheet Data (as of period end):					
Cash, cash equivalents and short-term investments	$ 235,428	$ 306,943	$ 432,403	$ 743,345	$ 425,349
Working capital	116,870	200,570	376,217	751,009	588,643
Total assets (5)	2,563,591	2,731,471	3,121,950	2,982,788	2,870,364
Debt (short-term and long-term) (5)	768,194	772,738	777,283	235,265	235,445
Stockholders' equity	795,193	880,040	1,198,321	1,759,680	1,850,276
Statement of Cash Flows Data:					
Net cash provided by (used in):					
Operating activities	135,130	143,751	348,359	491,043	157,203
Investing activities	(204,923)	(113,946)	(676,787)	(367,619)	(168,578)
Financing activities	(7,330)	(37,960)	106,104	19,529	(4,075)

	Years Ended December 31,				
	2017 (4)	2016 (4)	2015 (4)	2014	2013
Other Data:					
Capital expenditures:					
Pre-publication capital expenditures	139,108	124,031	103,709	115,509	126,718
Property, plant, and equipment capital expenditures	58,294	105,553	82,987	67,145	59,803
Depreciation and intangible asset amortization	152,480	167,926	176,103	190,084	220,264

(1) Primarily represents tradenames and to a lesser extent software and program development costs, along with a preferred stock investment.
(2) Represents cash and noncash charges incurred as a result of our 2017 Restructuring Plan.
(3) Represents severance and real estate charges not part of our 2017 Restructuring Plan.
(4) Includes the results of our acquisition of the EdTech business from May 29, 2015 through December 31, 2017. For further information regarding the acquisition of the EdTech business, see Note 3 to the financial statements.
(5) 2013 through 2015 include the retrospective adoption of new guidance for the recognition and measurement of debt issuance costs effective for annual reporting periods beginning after December 15, 2015.

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

The following discussion and analysis is intended to facilitate an understanding of our results of operations and financial condition and should be read in conjunction with our consolidated financial statements and the accompanying notes included elsewhere in this Annual Report. The following discussion and analysis of our financial condition and results of operations contains forward-looking statements about our business, operations and industry that involve risks and uncertainties, such as statements regarding our plans, objectives, expectations and intentions. Actual results and the timing of events may differ materially from those expressed or implied in such forward-looking statements due to a number of factors, including those set forth under "Risk Factors" and elsewhere in this Annual Report. See "Risk Factors" and "Special Note Regarding Forward-Looking Statements."

Overview

We are a global learning company, specializing in education solutions across a variety of media, delivering content, services and technology to both educational institutions and consumers, reaching over 50 million students in more than 150 countries worldwide. In the United States, we are a leading provider of K-12 educational content by market share. We believe our long-standing reputation and trusted brand enable us to capitalize on consumer and digital trends in the education market through our existing and developing channels. Furthermore, our trade and reference materials, including adult and children's fiction and non-fiction books, have won industry awards such as the Pulitzer Prize, Newbery and Caldecott medals and National Book Award.

Corporate History

Houghton Mifflin Harcourt Company was incorporated as a Delaware corporation on March 5, 2010, and was established as the holding company of the current operating group. Houghton Mifflin Harcourt was formed in December 2007 with the acquisition of Harcourt Education Group, then the second-largest K-12 U.S. publisher, by Houghton Mifflin Group. We are headquartered in Boston, Massachusetts.

Acquisition

On April 23, 2015, we entered into a stock and asset purchase agreement with Scholastic Corporation ("Scholastic") to acquire certain assets (including the stock of two of Scholastic's subsidiaries) comprising its Educational Technology and Services ("EdTech") business. On May 29, 2015, we completed the acquisition and paid an aggregate purchase price of $574.8 million in cash to Scholastic, including adjustments for working capital. The EdTech acquisition provided us with a leading position in intervention curriculum and services and extended our product offerings in other areas, including educational technology, early learning, and education services, creating a more comprehensive offering for students, teachers and schools.

Key Aspects and Trends of Our Operations

Business Segments

We are organized along two business segments: Education and Trade Publishing. Our Education segment is our largest segment and represented approximately 87% of our total net sales for the year ended December 31, 2017 and 88% of our total net sales for each of the years ended December 31, 2016 and 2015. Our Trade Publishing segment represented approximately 13% of our total net sales for the year ended December 31, 2017 and 12% of our total net sales for each of the years ended December 31, 2016 and 2015. The Corporate and Other category represents certain general overhead costs not fully allocated to the business segments, such as legal, accounting, treasury, human resources and executive functions.

Net Sales

We derive revenue primarily from the sale of print and digital content and instructional materials, trade books, reference materials, multimedia instructional programs, license fees for book rights, content, software and

services, test scoring, consulting and training. We primarily sell to customers in the United States. Our net sales are driven primarily as a function of volume and, to a certain extent, changes in price. Our net sales consist of our billings for products and services, less revenue that will be deferred until future recognition along with a provision for product returns. Deferred revenues primarily derive from online interactive digital content, digital and online learning components along with undelivered work-texts, workbooks and services. The work-texts, workbooks and services are deferred until delivered, which often extends over the life of the contract and our hosted online and digital content is typically recognized ratably over the life of the contract. The digitalization of education content and delivery is driving a shift in the education market. As the K-12 educational market transitions to purchasing more digital, personalized education solutions, we believe our ability now or in the future to offer embedded assessments, adaptive learning, real-time interaction and student specific personalization of educational content in a platform- and device-agnostic manner will provide new opportunities for growth. An increasing number of schools are utilizing digital content in their classrooms and implementing online or blended learning environments, which is altering the historical mix of print and digital educational materials in the classroom. As a result, our business model has shifted to more digital and online learning components to address the needs of the education marketplace; thus, often resulting in an increase in our billings being deferred compared to historical levels. The level of revenues being deferred can fluctuate depending upon the mix of product offering between digital and non-digital products, the length of programs and the mix of product delivered immediately or over time.

Core curriculum programs, which represent the most significant portion of our Education segment net sales, cover curriculum standards in a particular K-12 academic subject and include a comprehensive offering of teacher and student materials required to conduct the class throughout the school year. Products and services in these programs include print and digital offerings for students and a variety of supporting materials such as teacher’s editions, formative assessments, supplemental materials, whole group instruction materials, practice aids, educational games and professional services. The process through which materials and curricula are selected and procured for classroom use varies throughout the United States. Currently, nineteen states, known as adoption states, review and approve new programs usually every six to eight years on a state-wide basis. School districts in those states typically select and purchase materials from the state-approved list. The remaining states are known as open states or open territories. In those states, materials are not reviewed at the state level, and each individual school or school district is free to procure materials at any time, although most follow a five-to-ten year replacement cycle. The student population in adoption states represents over 50% of the U.S. elementary and secondary school-age population. Some adoption states provide “categorical funding” for instructional materials, which means that those state funds cannot be used for any other purpose. Our core curriculum programs, primarily in adoption states, typically have higher deferred sales than other parts of the business. The higher deferred sales are primarily due to the length of time that our programs are being delivered, along with greater component and digital product offerings. A significant portion of our Education segment net sales is dependent upon our ability to maintain residual sales, which are subsequent sales after the year of the original adoption, and our ability to continue to generate new business by developing new programs that meet our customers’ evolving needs. In addition, our market is affected by changes in state curriculum standards, which drive instruction, assessment and accountability in each state. Changes in state curriculum standards require that instructional materials be revised or replaced to align to the new standards, which historically has driven demand for core curriculum programs.

We also derive our Education segment net sales from the sale of summative, cognitive and formative or in-classroom assessments to districts and schools in all 50 states. Summative assessments are concluding or “final” exams that measure students’ proficiency in a particular academic subject or group of subjects on an aggregate level or against state standards. Formative assessments are on-going, in-classroom tests that occur throughout the school year and monitor progress in certain subjects or curriculum units. Additionally, our offerings include supplemental products that target struggling learners through comprehensive intervention solutions aimed at raising student achievement by providing solutions that combine technology, content and other educational products, as well as consulting and professional development services. We also offer products targeted at assisting English language learners.

In international markets, we predominantly export and sell K-12 books to premium private schools that utilize the U.S. curriculum, which are located primarily in Asia, the Pacific, the Middle East, Latin America, the Caribbean and Africa. Our international sales team utilizes a global network of distributors in local markets around the world.

Our Trade Publishing segment sells works of fiction and non-fiction in the General Interest and Young Reader's categories, dictionaries and other reference works. While print remains the primary format in which trade books are produced and distributed, the market for trade titles in digital format, primarily e-books, has developed over the past several years, and generally represents approximately 10% of our annual Trade Publishing net sales.

Factors affecting our net sales include:

Education

- state or district per student funding levels;
- federal funding levels;
- the cyclicality of the purchasing schedule for adoption states;
- student enrollments;
- adoption of new education standards;
- state acceptance of submitted programs and participation rates for accepted programs;
- technological advancement and the introduction of new content and products that meet the needs of students, teachers and consumers, including through strategic agreements pertaining to content development and distribution; and
- the amount of net sales subject to deferrals which is impacted by the mix of product offering between digital and non-digital products, the length of programs and the mix of product delivered immediately or over time.

Trade Publishing

- consumer spending levels as influenced by various factors, including the U.S. economy and consumer confidence;
- the publishing of bestsellers along with obtaining recognized authors;
- film and series tie-ins to our titles that spur sales of current and backlist titles, which are titles that have been on sale for more than a year; and
- market growth or contraction.

State or district per-student funding levels, which closely correlate with state and local receipts from income, sales and property taxes, impact our sales as institutional customers are affected by funding cycles. Most public school districts, the primary customers for K-12 products and services, are largely dependent on state and local funding to purchase materials.

We monitor the purchasing cycles for specific disciplines in the adoption states in order to manage our product development and to plan sales campaigns. Our sales may be materially impacted during the years that major adoption states, such as Florida, California and Texas, are or are not scheduled to make significant purchases. For example, Florida adopted social studies materials in 2016, for purchase in 2017, and adopted science in 2017 for purchase in 2018. Texas school districts purchased social studies and high school math materials in 2015 and purchased materials for languages other than English and career and technical education in

2017. The next major adoption in Texas is expected to be Reading/English Language Arts, currently scheduled for adoption in 2018 and purchase in 2019. California adopted English Language Arts materials in 2015, with purchases beginning in 2016 and continuing through 2018, and adopted history social science materials in 2017 for purchase in 2018 and continuing through 2020. Both Florida and Texas, along with several other adoption states, provide dedicated state funding for instructional materials and classroom technology, with funding typically appropriated by the legislature in the first half of the year in which materials are to be purchased. Texas has a two-year budget cycle, and in the 2017 legislative session appropriated funds for purchases in 2017 and 2018. California funds instructional materials in part with a dedicated portion of state lottery proceeds and in part out of general formula funds, with the minimum overall level of school funding determined according to the Proposition 98 funding guarantee. We do not currently have contracts with these states for future instructional materials adoptions and there is no guarantee that our programs will be accepted by the state (for example, our K-8 social science materials were not adopted in California in 2017).

Long-term growth in the U.S. K-12 market is positively correlated with student enrollments, which is a driver of growth in the educational publishing industry. Although economic cycles may affect short-term buying patterns, school enrollments are highly predictable and are expected to trend upward over the longer term. From 2013-2014 to 2025-2026, total public school enrollment, a major long-term driver of growth in the K-12 Education market, is projected to increase by 3% to 51.4 million students, according to the National Center for Education Statistics.

The digitalization of education content and delivery is also driving a shift in the education market. As the K-12 educational market transitions to purchasing more digital solutions, we believe our ability to offer embedded assessments, adaptive learning, real-time interaction and student specific personalized learning and educational content in a platform- and device-agnostic manner will provide new opportunities for growth.

Our Trade Publishing segment is heavily influenced by the U.S. and broader global economy, consumer confidence and consumer spending. As the economy continues to recover, both consumer confidence and consumer spending have increased.

While print remains the primary format in which trade books are produced and distributed, the market for trade titles in digital format, primarily e-books, has developed over the past several years, as the industry evolved to embrace new technologies for developing, producing, marketing and distributing trade works. We continue to focus on the development of innovative new digital products which capitalize on our strong content, our digital expertise and the consumer demand for these products.

In the Trade Publishing segment, annual results can be driven by bestselling trade titles. Furthermore, backlist titles can experience resurgence in sales when made into films or series. In the past years, a number of our backlist titles such as *The Hobbit*, *The Lord of the Rings*, *Life of Pi*, *The Handmaid's Tale*, *The Polar Express, The Giver* and *The Time Traveler's Wife* have benefited in popularity due to movie or series releases and have subsequently resulted in increased trade sales.

We employ several pricing models to serve various customer segments, including institutions, consumers, government agencies and other third parties. In addition to traditional pricing models where a customer receives a product in return for a payment at the time of product receipt, we currently use the following pricing models:

- Pay-up-front: Customer makes a fixed payment at time of purchase and we provide a specific product/service in return;
- Pre-pay Subscription: Customer makes a one-time payment at time of purchase, but receives a stream of goods/services over a defined time horizon; for example, we currently provide customers the option to purchase a multi-year subscription to textbooks where for a one-time charge, a new copy of the work text is delivered to the customer each year for a defined time period. Pre-pay subscriptions to online textbooks are another example where the customer receives access to an online book for a specific period of time; and

- Pay-as-you-go Subscription: Similar to the pre-pay subscription, except that the customer makes periodic payments in a pre-described manner. With the exception of our professional services business, this pricing model is the least prevalent of the three models.

Cost of sales, excluding publishing rights and pre-publication amortization

Cost of sales, excluding publishing rights and pre-publication amortization, include expenses directly attributable to the production of our products and services, including the non-capitalizable costs associated with our content and platform development group. The expenses within cost of sales include variable costs such as paper, printing and binding costs of our print materials, royalty expenses paid to our authors, gratis costs or products provided at no charge as part of the sales transaction, and inventory obsolescence. Also included in cost of sales are labor costs related to professional services and the non-capitalized costs associated with our content and platform development group. We also include amortization expense associated with our customer-facing software platforms. Certain products such as trade books and products associated with our renowned authors carry higher royalty costs; conversely, digital offerings usually have a lower cost of sales due to lower costs associated with their production. Also, sales to adoption states usually contain higher cost of sales. A change in the sales mix of our products or services can impact consolidated profitability.

Publishing rights and Pre-publication amortization

A publishing right is an acquired right that allows us to publish and republish existing and future works as well as create new works based on previously published materials. As part of our March 9, 2010 restructuring, we recorded an intangible asset for publishing rights and amortize such asset on an accelerated basis over the useful lives of the various copyrights involved. This amortization will continue to decrease approximately 25% annually through March of 2023.

We capitalize the art, prepress, manuscript and other costs incurred in the creation of the master copy of our content, known as the pre-publication costs. Pre-publication costs are primarily amortized from the year of sale over five years using the sum-of-the-years-digits method, which is an accelerated method for calculating an asset's amortization. Under this method, the amortization expense recorded for a pre-publication cost asset is approximately 33% (year 1), 27% (year 2), 20% (year 3), 13% (year 4) and 7% (year 5). We utilize this policy for all pre-publication costs, except with respect to our Trade Publishing segment's consumer books, which we generally expense such costs as incurred, our assessment products, which we use the straight-line amortization method and the acquired content of our 2015 acquisition, which we amortize over 7 years using an accelerated amortization method. The amortization methods and periods chosen best reflect the pattern of expected sales generated from individual titles or programs. We periodically evaluate the remaining lives and recoverability of capitalized pre-publication costs, which are often dependent upon program acceptance by state adoption authorities.

Selling and administrative expenses

Our selling and administrative expenses include the salaries, benefits and related costs of employees engaged in sales and marketing, fulfillment and administrative functions. Also included within selling and administrative costs are variable costs such as commission expense, outbound transportation costs and depository fees, which are fees paid to state-mandated depositories that fulfill centralized ordering and warehousing functions for specific states. Additionally, significant fixed and discretionary costs include facilities, telecommunications, professional fees, promotions, sampling and advertising.

Other intangible asset amortization

Our other intangible asset amortization expense primarily includes the amortization of acquired intangible assets consisting of tradenames, customer relationships, content rights and licenses. The tradenames, customer

relationships, content rights and licenses are amortized over varying periods of 6 to 25 years. The expense for the year ending December 31, 2017 was $30.7 million, of which $9.4 million related to the tradenames that were changed from indefinite-lived intangible assets to definite-lived intangible assets on October 1, 2016 due to the strategic decision to gradually migrate away from specific imprints, primarily the Holt McDougal and various supplemental brands, and to market our products under the Houghton Mifflin Harcourt and HMH names.

Interest expense

Our interest expense includes interest accrued on our term loan facility along with, to a lesser extent, our revolving credit facility, capital leases, the amortization of any deferred financing fees and loan discounts, and payments in connection with interest rate hedging agreements. Our interest expense for the year ended December 31, 2017 was $42.8 million.

Results of Operations

Consolidated Operating Results for the Years Ended December 31, 2017 and 2016

(dollars in thousands)	Year Ended December 31, 2017	Year Ended December 31, 2016	Dollar change	Percent Change
Net sales	$1,407,511	$1,372,685	$ 34,826	2.5%
Costs and expenses:				
Cost of sales, excluding publishing rights and pre-publication amortization	617,802	610,715	7,087	1.2%
Publishing rights amortization	46,238	61,351	(15,113)	(24.6)%
Pre-publication amortization	126,038	130,243	(4,205)	(3.2)%
Cost of sales	790,078	802,309	(12,231)	(1.5)%
Selling and administrative	654,860	699,544	(44,684)	(6.4)%
Other intangible asset amortization	30,748	26,750	3,998	14.9%
Impairment charge for pre-publication costs and intangible assets	3,980	139,205	(135,225)	NM
Restructuring	40,653	—	40,653	NM
Severance and other charges	713	15,650	(14,937)	NM
Operating loss	(113,521)	(310,773)	197,252	63.5%
Other expense:				
Interest expense	(42,805)	(39,181)	(3,624)	(9.2)%
Interest income	1,338	518	820	NM
Change in fair value of derivative instruments	1,366	(614)	1,980	NM
Loss before taxes	(153,622)	(350,050)	196,428	56.1%
Income tax benefit	(50,435)	(65,492)	15,057	23.0%
Net loss	$ (103,187)	$ (284,558)	$ 181,371	63.7%

NM = not meaningful

Net sales for the year ended December 31, 2017 increased $34.8 million, or 2.5%, from $1,372.7 million for the same period in 2016 to $1,407.5 million. The net sales increase was driven by an $18.9 million increase in our Trade Publishing segment and a $15.9 million increase in our Education segment during the current period. Within our Trade business, the increase was primarily due to sales of the *Whole30* series and Tim Ferriss' *Tribe of Mentors and Tools of Titans*, stronger eBook sales, such as *The Handmaid's Tale* and *1984*, and backlist print title sales, such as *The Polar Express* and *The Giver,* along with a lower product return rate and higher

subrights income. Within our Education segment, the increase was primarily due to greater sales from our Extension businesses, which primarily consist of Heinemann, intervention, supplemental and assessment products as well as professional services. Extension businesses net sales for the current period increased $22.0 million from $565.0 million in 2016 to $587.0 million primarily driven by higher Heinemann and supplemental net sales in 2017. The primary drivers of the increase in our Heinemann net sales were sales of Classroom Libraries along with the introduction of *Fountas & Pinnell Classroom* product. The primary drivers of the increase in our supplemental net sales were sales of custom book bundles. Also within our Extension businesses, assessment and intervention net sales declined year over year, offsetting a portion of the above increases. Partially offsetting the increase in our Extension businesses net sales were lower Core Solutions sales, inclusive of international sales, which declined by $6.0 million from $642.0 million in the 2016 period to $636.0 million in the current period. The primary drivers of the decrease in our Core Solutions business were lower Reading and Math program net sales in open territory states, lower Math program sales in adoption states and lower sales from our international business, primarily due to a large Department of Defense order in 2016 not repeating in 2017. Partially offsetting the decrease in Core Solutions net sales was a $5.0 million one-time fee we recognized in 2017 in connection with the expiration of a distribution agreement.

Operating loss for the year ended December 31, 2017 favorably changed by $197.3 million from a loss of $310.8 million for the same period in 2016 to a loss of $113.5 million, due primarily to the following:

- A reduction in Impairment charge for pre-publication costs and intangible assets of $135.2 million. In 2016, we incurred an impairment charge pertaining to certain tradenames within the education business due to a strategic decision to gradually migrate away from specific imprints, primarily Holt McDougal, and our various supplemental brands, in favor of branding our products under the HMH and Houghton Mifflin Harcourt names. In 2017, we impaired $4.0 million of pre-publication costs for products that will not have sales in future periods,
- An increase in net sales of $34.8 million,
- A $44.7 million decrease in selling and administrative costs primarily due to lower professional fees of $18.9 million (of which $10.0 million relates to legal settlement costs for copyright litigation during the prior year period coupled with a net $3.6 million insurance reimbursement during the 2017 period), a reduction of internal and outside labor related costs of $18.9 million, and lower discretionary expense such as promotion and travel and entertainment expenses of $15.8 million, all largely due to actions taken under the 2017 Restructuring Plan. Additionally, variable expenses such as samples, transportation and depository fees were $7.6 million lower in the period, and fixed costs and depreciation were $6.8 million lower. The decrease in selling and administrative costs was partially offset by $18.6 million of higher commission expense and annual incentive plan compensation due to greater achievement of targeted levels than in the prior-year period, and $4.4 million of higher office lease cost due to the expiration of favorable office leases,
- A $15.3 million net reduction in amortization expense related to publishing rights, pre-publication and other intangible assets, primarily due to our use of accelerated amortization methods for publishing rights amortization, partially offset by the amortization of certain previously unamortized tradenames, due to a change in estimate of their useful lives during the fourth quarter of 2016,
- A $14.9 million reduction in severance and other charges as the majority of such expenses during the 2017 period were under our 2017 Restructuring Plan and have been included within the restructuring line item,
- Partially offsetting the favorable change in operating loss was a $40.7 million charge associated with our 2017 Restructuring Plan, which includes severance and termination benefits of $16.2 million, real estate consolidation costs of $7.9 million, implementation costs of $7.5 million and an impairment charge related to a certain long-lived asset included within property, plant, and equipment of $9.1 million, and

- Our cost of sales, excluding publishing rights and pre-publication amortization, increased $7.1 million of which $15.5 million is attributed to higher sales volume offset by $8.4 million of improved profitability as our cost of sales, excluding publishing rights and pre-publication amortization, as a percentage of net sales decreased to 43.9% from 44.5% due to product mix, increased Trade eBook sales, and a $5.0 million one-time fee we recognized associated with the expiration of distribution agreement that did not carry any cost of sales.

Interest expense for the year ended December 31, 2017 increased $3.6 million, or 9.2%, from $39.2 million for the same period in 2016 to $42.8 million, primarily due to $4.1 million of net settlement payments on our interest rate derivative instruments during the current period, offset by the lower outstanding balance on our term loan facility.

Interest income for the year ended December 31, 2017 increased $0.8 million from $0.5 million for the same period in 2016 to $1.3 million, primarily due to increases in interest rates on our investments.

Change in fair value of derivative instruments for the year ended December 31, 2017 favorably changed by $2.0 million from a loss of $0.6 million for the same period in 2016 to a gain of $1.4 million in 2017. The change in fair value of derivative instruments was related to foreign exchange forward contracts executed on the Euro that were favorably impacted by the weaker U.S. dollar against the Euro.

Income tax benefit for the year ended December 31, 2017 decreased $15.1 million, from a benefit of $65.5 million in 2016 to a benefit of $50.4 million in 2017. The 2017 income tax benefit was primarily related to the following effects of U.S. tax reform:

- A $31.5 million benefit related to the remeasurement of U.S. net deferred tax liabilities associated with indefinite-lived intangible assets to reflect the change in U.S. corporate tax rate from 35% to 21%, and
- A $40.4 million benefit related to the release of valuation allowance due to the Company's ability to utilize indefinite-lived deferred tax liabilities as a source of future taxable income in its assessment of realization of deferred tax assets. This is a result of the U.S. tax law change that would extend net operating losses generated in taxable years beginning after December 31, 2017 to an unlimited carryforward period subject to an 80% utilization against future taxable earnings.

The 2017 income tax benefit was partially offset by movement in the deferred tax liability associated with tax amortization on indefinite-lived intangibles, and state and foreign taxes. The 2016 income tax benefit was primarily related to a change from indefinite-lived intangibles to definite-lived, partially offset by movement in the deferred tax liability associated with tax amortization on indefinite-lived intangibles, and state and foreign taxes. For both periods, the income tax benefit was impacted by certain discrete tax items including the accrual of potential interest and penalties on uncertain tax positions. Including the effects of these discrete items, the effective tax rate was 32.8% and 18.7% for years ended December 31, 2017 and 2016.

Consolidated Operating Results for the Years Ended December 31, 2016 and 2015

(dollars in thousands)	Year Ended December 31, 2016	Year Ended December 31, 2015	Dollar change	Percent Change
Net sales	$1,372,685	$1,416,059	$ (43,374)	(3.1)%
Costs and expenses:				
Cost of sales, excluding publishing rights and pre-publication amortization	610,715	622,668	(11,953)	(1.9)%
Publishing rights amortization	61,351	81,007	(19,656)	(24.3)%
Pre-publication amortization	130,243	120,506	9,737	8.1%
Cost of sales	802,309	824,181	(21,872)	(2.7)%
Selling and administrative	699,544	681,124	18,420	2.7%
Other intangible asset amortization	26,750	22,038	4,712	21.4%
Impairment charge for intangible assets	139,205	—	139,205	NM
Severance and other charges	15,650	4,767	10,883	NM
Operating loss	(310,773)	(116,051)	(194,722)	NM
Other expense:				
Interest expense	(39,181)	(32,254)	(6,927)	(21.5)%
Interest income	518	209	309	NM
Change in fair value of derivative instruments	(614)	(2,362)	1,748	74.0%
Loss on debt extinguishment	—	(3,051)	3,051	NM
Loss before taxes	(350,050)	(153,509)	(196,541)	NM
Income tax expense (benefit)	(65,492)	(19,640)	(45,852)	NM
Net loss	$ (284,558)	$ (133,869)	$(150,689)	NM

NM = not meaningful

Net sales for the year ended December 31, 2016 decreased $43.4 million, or 3.1%, from $1,416.1 million for the same period in 2015 to $1,372.7 million. The net sales decrease was driven by a decline in the Company's Core Solutions and supplemental education business net sales of $108.0 million due to a smaller new adoption market in 2016 versus 2015 coupled with lower market share and $21.0 million of lower net sales from the assessment business, primarily clinical, due to natural attrition of sales over time following the initial release of a new product version. Partially offsetting this decrease was a $49.0 million incremental contribution from the EdTech business acquired in May 2015. Further, there was an $18.0 million increase in net sales of our Heinemann intervention and professional publishing products, an $11.0 million increase in net sales of the international business due primarily to Department of Defense sales, and to a lesser extent, greater sales in Asia Pacific.

Operating loss for the year ended December 31, 2016 unfavorably changed $194.7 million from a loss of $116.1 million for the same period in 2015 to a loss of $310.8 million, due primarily to the following:

- A $139.2 million impairment charge for intangible assets pertaining to certain tradenames within the education business as the Company has made a strategic decision to gradually migrate away from specific imprints, primarily Holt McDougal and our various supplemental brands, in favor of branding our products under the HMH and Houghton Mifflin Harcourt names,
- A $18.4 million increase in selling and administrative costs primarily due to higher fixed and discretionary expenses attributed to the full-year effect of the EdTech business, primarily with respect to internal and external labor and higher depreciation, coupled with higher office lease cost due to the expiration of favorable office leases. Partially offsetting the increase were $19.0 million

of lower commission expenses in 2016 versus the prior period due to the sales performance shortfall. Further offsetting the increase was $4.7 million of lower transactional expenses relating to legal settlements and integration activity in 2016 as compared to 2015 where we incurred $30.1 million of transaction expenses relating to equity, acquisition and integration activity,

- Additionally, there was a $10.9 million increase in severance and other charges attributed to changes in executive management as well as cost-reduction activities in 2016,
- Partially offsetting the aforementioned was a $5.2 million net reduction in amortization expense related to publishing rights, pre-publication costs, and other intangible assets, due primarily to our use of accelerated amortization methods for publishing rights amortization, partially offset by the amortization of certain tradenames, previously unamortized, due to a change in estimate of the useful lives, and
- Our cost of sales, excluding publishing rights and pre-publication amortization, decreased $12.0 million of which $19.1 million of the decrease is attributed to lower volume partially offset by $7.1 million as our cost of sales, excluding publishing rights and pre-publication amortization, as a percent of net sales increased to 44.5% from 44.0% due to product mix, as we sold more product carrying higher cost this year and had higher technology costs to support our digital products.

Interest expense for the year ended December 31, 2016 increased $6.9 million, or 21.5%, from $32.3 million for the same period in 2015 to $39.2 million, primarily as a result of the increase to our outstanding term loan facility from $243.1 million to $800.0 million, all of which was drawn at closing of the EdTech acquisition in May 2015. Further, interest expense increased $1.2 million in 2016 due to our interest rate derivative contracts.

Interest income for the year ended December 31, 2016 increased $0.3 million, from $0.2 million for the same period in 2015 to $0.5 million, primarily as a result of the increased investment in money market accounts and short term investments.

Change in fair value of derivative instruments for the year ended December 31, 2016 favorably changed by $1.7 million from an expense of $2.4 million in 2015 to an expense of $0.6 million in 2016. The current year loss on change in fair value of derivative instruments was related to unfavorable foreign exchange forward and option contracts executed on the Euro that were unfavorably impacted by the stronger U.S. dollar against the Euro. Although a similar instance existed in the prior year, the change of the U.S dollar against the Euro was greater than the current year based on the timing of the execution of the derivative instruments.

Loss on extinguishment of debt for the year ended December 31, 2015 consisted of a $2.2 million write-off of the portion of the unamortized deferred financing fees associated with the portion of our previous term loan facility accounted for as an extinguishment. Further, there was a $0.9 million write-off of the portion of the unamortized deferred financing fees associated with the portion of our previous revolving credit facility which was also accounted for as an extinguishment.

Income tax benefit for the year ended December 31, 2016 increased $45.9 million from a benefit of $19.6 million for the same period in 2015 to a benefit of $65.5 million in 2016. The 2016 income tax benefit was primarily related to a change from indefinite-lived intangibles to definite-lived, partially offset by movement in the deferred tax liability associated with tax amortization on indefinite-lived intangibles, and state and foreign taxes. The income tax benefit of $19.6 million for the year ended December 31, 2015 was primarily related to a $34.9 million release of an accrual for uncertain tax positions due to the lapsing of the statute, partially offset by movement in the deferred tax liability associated with tax amortization on indefinite-lived intangibles, and state and foreign taxes. For both periods, the income tax benefit was impacted by certain discrete tax items including the accrual of potential interest and penalties on uncertain tax positions. Including the tax effects of these discrete tax items, the effective tax rate was 18.7% and 12.8% for the years ended December 31, 2016 and 2015, respectively.

Adjusted EBITDA

To supplement our financial statements presented in accordance with GAAP, we have presented Adjusted EBITDA, which is not prepared in accordance with GAAP. This information should be considered as supplemental in nature and should not be considered in isolation or as a substitute for the related financial information prepared in accordance with GAAP. Management believes that the presentation of Adjusted EBITDA provides useful information to investors regarding our results of operations because it assists both investors and management in analyzing and benchmarking the performance and value of our business. Adjusted EBITDA provides an indicator of general economic performance that is not affected by debt restructurings, fluctuations in interest rates or effective tax rates, non-cash charges, or levels of depreciation or amortization along with costs such as severance, separation and facility closure costs, acquisition-related activity costs, restructuring costs and integration costs. Accordingly, our management believes that this measurement is useful for comparing general operating performance from period to period. In addition, targets in Adjusted EBITDA (further adjusted to include changes in deferred revenue) are used as performance measures to determine certain compensation of management, and Adjusted EBITDA is used as the base for calculations relating to incurrence covenants in our debt agreements. Other companies may define Adjusted EBITDA differently and, as a result, our measure of Adjusted EBITDA may not be directly comparable to Adjusted EBITDA of other companies. Although we use Adjusted EBITDA as a financial measure to assess the performance of our business, the use of Adjusted EBITDA is limited because it does not include certain material costs, such as interest and taxes, necessary to operate our business. Adjusted EBITDA should be considered in addition to, and not as a substitute for, net loss/income in accordance with GAAP as a measure of performance. Adjusted EBITDA is not intended to be a measure of liquidity or free cash flow for discretionary use. You are cautioned not to place undue reliance on Adjusted EBITDA.

Below is a reconciliation of our net loss to Adjusted EBITDA for the years ended December 31, 2017, 2016 and 2015:

	Years Ended December 31,		
	2017	2016	2015
Net loss	$(103,187)	$(284,558)	$(133,869)
Interest expense	42,805	39,181	32,254
Interest income	(1,338)	(518)	(209)
Provision (benefit) for income taxes	(50,435)	(65,492)	(19,640)
Depreciation expense	75,494	79,825	72,639
Amortization expense	203,024	218,344	223,551
Non-cash charges—stock-compensation	10,828	10,567	12,452
Non-cash charges—(gain) loss on derivative instruments	(1,366)	614	2,362
Non-cash charges—asset impairment charges	3,980	139,205	—
Purchase accounting adjustments	—	5,116	7,487
Fees, expenses or charges for equity offerings, debt or acquisitions	1,464	1,123	25,562
2017 Restructuring Plan	40,653	—	—
Restructuring/Integration	—	14,364	4,572
Severance, separation costs and facility closures	713	15,650	4,767
Loss on extinguishment of debt	—	—	3,051
Legal (reimbursement) settlement	(3,633)	10,000	—
Adjusted EBITDA	$ 219,002	$ 183,421	$ 234,979

Segment Operating Results

Results of Operations—Comparing Years Ended December 31, 2017, 2016 and 2015

Education

	Years Ended December 31,			2017 vs. 2016		2016 vs. 2015	
	2017	2016	2015	Dollar change	Percent change	Dollar change	Percent change
Net sales	$1,222,971	$1,207,070	$1,251,122	$ 15,901	1.3%	$ (44,052)	(3.5)%
Costs and expenses:							
Cost of sales, excluding publishing rights and pre-publication amortization	502,209	498,991	511,706	3,218	0.6%	(12,715)	(2.5)%
Publishing rights amortization	38,721	52,660	71,109	(13,939)	(26.5)%	(18,449)	(25.9)%
Pre-publication amortization	125,670	129,836	119,894	(4,166)	(3.2)%	9,942	8.3%
Cost of sales	666,600	681,487	702,709	(14,887)	(2.2)%	(21,222)	(3.0)%
Selling and administrative	520,354	545,433	534,477	(25,079)	(4.6)%	10,956	2.0%
Other intangible asset amortization	24,936	23,250	18,840	1,686	7.3%	4,410	23.4%
Impairment charge for pre-publication costs and intangible assets	3,980	139,205	—	(135,225)	(97.1)%	139,205	NM
Operating income (loss)	$ 7,101	$ (182,305)	$ (4,904)	$ 189,406	NM	$(177,401)	NM
Net income (loss)	$ 7,101	$ (182,305)	$ (4,904)	$ 189,406	NM	$(177,401)	NM
Adjustments from net income (loss) to Education segment Adjusted EBITDA							
Depreciation expense	$ 53,192	$ 57,910	$ 56,960	$ (4,718)	(8.1)%	$ 950	1.7%
Amortization expense	189,327	205,746	209,843	(16,419)	(8.0)%	(4,097)	(2.0)%
Non-cash charges—asset impairment charges	3,980	139,205	—	(135,225)	(97.1)%	139,205	NM
Purchase accounting adjustments	—	5,116	7,487	(5,116)	NM	(2,371)	(31.7)%
Education segment Adjusted EBITDA	$ 253,600	$ 225,672	$ 269,386	$ 27,928	12.4%	$ (43,714)	(16.2)%
Education segment Adjusted EBITDA as a % of net sales	20.7%	18.7%	21.5%				

NM = not meaningful

Our Education segment net sales for the year ended December 31, 2017 increased $15.9 million, or 1.3%, from $1,207.1 million for the same period in 2016 to $1,223.0 million. The net sales increase was primarily due to greater sales from our Extension businesses, which primarily consist of Heinemann, intervention, supplemental and assessment products as well as professional services. Extension businesses net sales for the current period increased $22.0 million from $565.0 million in the 2016 period to $587.0 million primarily driven by higher Heinemann and supplemental net sales. The primary drivers of the increase in our Heinemann net sales were sales of our Classroom Libraries offering along with the introduction of our *Fountas & Pinnell Classroom*

product. The primary drivers of the increase in our supplemental net sales for the year ended December 31, 2017, were sales of custom book bundles. Also within our Extension businesses, our assessment and intervention net sales declined year over year, offsetting a portion of the above increases. Partially offsetting the increase in our Extension businesses net sales were lower Core Solutions sales, inclusive of international sales, which declined by $6.0 million from $642.0 million in the 2016 period to $636.0 million. The primary drivers behind the decrease in our Core Solutions business were lower net sales of open territory programs, Core Solutions math programs across adoption states and lower sales from our international business, primarily due to a large Department of Defense order in the prior year not repeating in 2017. Partially offsetting the decrease in Core Solutions net sales was a $5.0 million one-time fee we recognized in connection with the expiration of a distribution agreement.

Our Education segment net sales for the year ended December 31, 2016 decreased $44.1 million, or 3.5%, from $1,251.1 million for the same period in 2015 to $1,207.1 million. The net sales decrease was driven by a decline in the Company's Core Solutions and supplemental education business net sales of $108.0 million due to a smaller new adoption market in 2016 versus 2015 coupled with lower market share, and $21.0 million of lower net sales from the assessment business, primarily clinical, due to natural attrition of sales over time following the initial release of a new product version. Partially offsetting this decrease was a $49.0 million incremental contribution from the EdTech business, which was acquired in May 2015. Further, there was an $18.0 million increase in net sales of our Heinemann intervention and professional publishing products, an $11.0 million increase in net sales of the international business due primarily to Department of Defense sales, and to a lesser extent, greater sales in Asia Pacific.

Our Education segment cost of sales for the year ended December 31, 2017, decreased $14.9 million, or 2.2%, from $681.5 million for the same period in 2016 to $666.6 million. Publishing rights and pre-publication amortization decreased by $18.1 million from the same period last year primarily due to our use of accelerated amortization methods for publishing rights amortization. Our cost of sales, excluding publishing rights and pre-publication amortization, increased $3.2 million of which $6.6 million is attributed to higher sales volume offset by $3.4 million of improved profitability as our cost of sales, excluding publishing rights and pre-publication amortization, as a percentage of net sales decreased to 41.1% from 41.3%, primarily due to product mix and a $5.0 million one-time fee we recognized associated with a distribution agreement that did not carry any cost of sales.

Our Education segment cost of sales for the year ended December 31, 2016, decreased $21.2 million, or 3.0%, from $702.7 million for the same period in 2015, to $681.5 million. The decrease was attributed to a reduction in our cost of sales, excluding publishing rights and pre-publication amortization of $12.7 million, of which $18.0 million is attributed to lower volume. Our cost of sales, excluding publishing rights and pre-publication amortization, as a percent of net sales increased to 41.3% from 40.9%, resulting in an approximate $5.3 million decrease in profitability primarily attributed to our product mix as we sold more product carrying higher cost this year. Further, there was an $8.5 million reduction in net amortization expense related to publishing rights and pre-publication costs, primarily due to our use of accelerated amortization methods for publishing rights.

Our Education segment selling and administrative expense for the year ended December 31, 2017 decreased $25.1 million, or 4.6%, from $545.4 million for the same period in 2016 to $520.4 million. The decrease was driven by a reduction in internal and outside labor related costs of $15.0 million, a reduction in marketing and advertising costs of $6.0 million along with lower travel and entertainment expenses of $3.0 million, primarily as a result of actions taken under the 2017 Restructuring Plan. Further, samples, transportation and depository fees were $9.0 million lower in 2017. The decrease was partially offset by higher incentive compensation, and higher commission expense due to greater achievement levels than in 2016 along with higher office lease cost due to the expiration of favorable office leases.

Our Education segment selling and administrative expense for the year ended December 31, 2016 increased $11.0 million, or 2.0%, from $534.5 million for the same period in 2015 to $545.4 million. The increase was primarily due to higher fixed and discretionary expenses attributed to the full year effect of the EdTech business, primarily with respect to internal and external labor, coupled with higher office lease cost due to the expiration of favorable office leases. Partially offsetting the increase are $19.0 million of lower commission expenses in 2016 versus the prior period due to the sales performance shortfall.

Our Education segment other intangible asset amortization expense for the year ended December 31, 2017 increased $1.7 million from the same period in 2016, which was related to the amortization of certain previously unamortized tradenames, due to a change in estimate of their useful lives during the fourth quarter of 2016, partially offset by decline of other existing intangible assets.

Our Education segment other intangible asset amortization expense for the year ended December 31, 2016 increased $4.4 million from the same period in 2015, which was related to the amortization of certain previously unamortized tradenames, due to a change in estimate of their useful lives during the fourth quarter of 2016, offset by our use of accelerated amortization methods.

Our Education segment impairment charge for pre-publication costs and intangible assets decreased $135.2 million in 2017 from the same period in 2016. In 2016, the impairment charge of $139.2 million was for intangible assets, as the Company made the strategic decision to gradually migrate away from specific imprints, primarily Holt McDougal and various supplemental brands, in favor of branding our products under the HMH and Houghton Mifflin Harcourt names. In 2017, the impairment charge of $4.0 million was related to a certain program included within pre-publication costs.

Our Education segment impairment charge pre-publication costs and intangible assets increased $139.2 million in 2016 from no expense for the same period in 2015. The increase is due to an impairment charge for intangible assets, as the Company made the strategic decision to gradually migrate away from specific imprints, primarily the Holt McDougal and our various supplemental brands, in favor of branding our products under the HMH and Houghton Mifflin Harcourt names.

Our Education segment Adjusted EBITDA for the year ended December 31, 2017, improved $27.9 million, or 12.4%, from $225.7 million for the same period in 2016 to $253.6 million in 2017. Our Education segment Adjusted EBITDA excludes depreciation, amortization, asset impairment charges and purchase accounting adjustments. The 2016 purchase accounting adjustments primarily relate to a 2015 acquisition. The increase is due to the identified factors impacting net sales, cost of sales and selling and administrative expenses after removing those items not included in Education segment Adjusted EBITDA. Education segment Adjusted EBITDA as a percentage of net sales was 20.7% and 18.7% for each of the years ended December 31, 2017 and 2016, respectively.

Our Education segment Adjusted EBITDA for the year ended December 31, 2016, decreased $43.7 million, or 16.2%, from $269.4 million for the same period in 2015 to $225.7 million. The purchase accounting adjustments primarily relate to the acquisition of the EdTech business. Education segment Adjusted EBITDA as a percentage of net sales decreased from 21.5% of net sales for the year ended December 31, 2015 to 18.7% for the same period in 2016 due to the identified factors impacting net sales, cost of sales and selling and administrative expense after removing those items not included in Education segment Adjusted EBITDA.

Trade Publishing

	Years Ended December 31,			2017 vs. 2016		2016 vs. 2015	
	2017	2016	2015	Dollar change	Percent change	Dollar change	Percent change
Net sales	$184,540	$165,615	$164,937	$18,925	11.4%	$ 678	0.4%
Costs and expenses:							
Cost of sales, excluding publishing rights and pre-publication amortization	115,593	111,724	110,962	3,869	3.5%	762	0.7%
Publishing rights amortization	7,517	8,691	9,898	(1,174)	(13.5)%	(1,207)	(12.2)%
Pre-publication amortization	368	407	612	(39)	(9.6)%	(205)	(33.5)%
Cost of sales	123,478	120,822	121,472	2,656	2.2%	(650)	(0.5)%
Selling and administrative	53,288	48,227	47,363	5,061	10.5%	864	1.8%
Other intangible asset amortization	5,812	3,500	3,198	2,312	66.1%	302	9.4%
Operating income (loss)	$ 1,962	$ (6,934)	$ (7,096)	$ 8,896	NM	$ 162	2.3%
Net income (loss)	$ 1,962	$ (6,934)	$ (7,096)	$ 8,896	NM	$ 162	2.3%
Adjustments from net income (loss) to Trade Publishing segment Adjusted EBITDA							
Depreciation expense	$ 401	$ 591	$ 1,091	$ (190)	(32.1)%	$ (500)	(45.8)%
Amortization expense	13,697	12,598	13,708	1,099	8.7%	(1,110)	(8.1)%
Trade Publishing segment Adjusted EBITDA	$ 16,060	$ 6,255	$ 7,703	$ 9,805	NM	$(1,448)	(18.8)%
Trade Publishing segment Adjusted EBITDA as a % of net sales	8.7%	3.8%	4.7%				

NM = not meaningful

Our Trade Publishing segment net sales for the year ended December 31, 2017 increased $18.9 million, or 11.4%, from $165.6 million for the same period in 2016 to $184.5 million. The increase in net sales was driven by 2017 sales of the *Whole30* series and Tim Ferriss' *Tribe of Mentors* and *Tools of Titans*, stronger eBook sales, such as *The Handmaid's Tale and 1984*, and backlist print title sales, such as *The Polar Express* and *The Giver*, along with favorable product return experience and higher subrights income.

Our Trade Publishing segment net sales for the year ended December 31, 2016 increased $0.7 million, or 0.4%, from $164.9 million for the same period in 2015 to $165.6 million. The increase in net sales was driven by increased net sales of frontlist titles *The Whole30, Tools for Titans*, Property Brothers *Dream Home,* and *Food Freedom Forever*. Partially offsetting the aforementioned was a decline in ebook net sales due to lower subscriptions.

Our Trade Publishing segment cost of sales for the year ended December 31, 2017 increased $2.7 million, or 2.2%, from $120.8 million for the same period in 2016 to $123.5 million. Approximately $12.8 million of the increase was driven by higher sales volume, partially offset by $8.9 million of lower costs as our cost of sales, excluding publishing rights and pre-publication amortization, as a percentage of net sales decreased to 62.6% from 67.5%. The decline in rate was due to a product mix partially driven by an increase in eBook sales. Further, the increase in our costs of sales was also slightly offset by $1.2 million of lower amortization expense of publishing rights and pre-publication amortization due to our use of accelerated amortization methods.

Our Trade Publishing segment cost of sales for the year ended December 31, 2016 decreased $0.7 million, or 0.5%, from $121.5 million for the same period in 2015 to $120.8 million. The decrease in cost of sales was driven by lower amortization expense of $1.1 million primarily related to publishing rights, which was lower due to our use of accelerated amortization methods. Partially offsetting the decrease was a $0.8 million increase in cost of sales, excluding publishing rights and pre-publication amortization, of which $0.5 million is due to increased sales and $0.3 million is due to our cost of sales, excluding publishing rights and pre-publication amortization, as a percent of sales increasing to 67.5% from 67.3% primarily due to increased royalty costs due to product mix.

Our Trade Publishing segment selling and administrative expense for the year ended December 31, 2017 increased $5.1 million from $48.2 million in the same period in 2016, to $53.3 million. The increase was primarily due to higher transportation costs associated with increased sales volume along with higher costs to support consumer products, partially offset by a reduction of internal and outside labor related costs and lower discretionary costs, all largely due to actions taken under the 2017 Restructuring Plan. Our Trade Publishing segment other intangible asset amortization expense for the year ended December 31, 2017 increased $2.3 million from the same period in 2016, which was related to the amortization of previously unamortized certain tradenames, due to a change in estimate of the useful lives during the fourth quarter of 2016.

Our Trade Publishing segment selling and administrative expense for the year ended December 31, 2016 increased $0.9 million, or 1.8%, from $47.4 million for the same period in 2015 to $48.2 million. The increase was primarily related to higher rent expense associated with new office space along with higher bad debt expense, partially offset by lower advertising, promotion expense and development costs.

Our Trade Publishing segment Adjusted EBITDA for the year ended December 31, 2017 improved $9.8 million, from $6.3 million for the same period in 2016 to $16.1 million in 2017. Our Trade Publishing segment Adjusted EBITDA excludes depreciation and amortization costs. Our Trade Publishing segment Adjusted EBITDA as a percentage of net sales was 8.7% for the year ended December 31, 2017, which was a favorable change from 3.8% for the same period in 2016 due to the identified factors impacting net sales, cost of sales and selling and administrative expenses after removing those items not included in Trade Publishing segment Adjusted EBITDA.

Our Trade Publishing segment Adjusted EBITDA for the year ended December 31, 2016 decreased $1.4 million, from $7.7 million for the same period in 2015 to $6.3 million in 2016. Our Trade Publishing segment Adjusted EBITDA as a percentage of net sales was 3.8% for the year ended December 31, 2016, which decreased from 4.7% for the same period in 2015 due to the identified factors impacting net sales, cost of sales and selling and administrative expenses after removing those items not included in segment Adjusted EBITDA.

Corporate and Other

	Years Ended December 31,			2017 vs. 2016		2016 vs. 2015	
	2017	2016	2015	Dollar change	Percent change	Dollar change	Percent change
Net sales	$ —	$ —	$ —	$ —	NM	$ —	NM
Costs and expenses:							
Cost of sales, excluding publishing rights and pre-publication amortization	—	—	—	—	NM	—	NM
Publishing rights amortization	—	—	—	—	NM	—	NM
Pre-publication amortization	—	—	—	—	NM	—	NM
Cost of sales	—	—	—	—	NM	—	NM
Selling and administrative	81,218	105,884	99,284	(24,666)	(23.3)%	6,600	6.6%
Restructuring	40,653	—	—	40,653	NM	—	NM
Severance and other charges	713	15,650	4,767	(14,937)	(95.4)%	10,883	NM
Operating loss	$(122,584)	$(121,534)	$(104,051)	$ (1,050)	(0.9)%	$(17,483)	(16.8)%
Interest expense	(42,805)	(39,181)	(32,254)	(3,624)	(9.2)%	(6,927)	(21.5)%
Interest income	1,338	518	209	820	NM	309	NM
Change in fair value of derivative instruments	1,366	(614)	(2,362)	1,980	NM	1,748	74.0%
Loss on extinguishment of debt	—	—	(3,051)	—	NM	3,051	NM
Loss before taxes	(162,685)	(160,811)	(141,509)	(1,874)	(1.2)%	(19,302)	(13.6)%
Income tax (benefit) expense	(50,435)	(65,492)	(19,640)	15,057	NM	(45,852)	NM
Net loss	$(112,250)	$ (95,319)	$(121,869)	$(16,931)	(17.8)%	$ 26,550	21.8%
Adjustments from net loss to Corporate and Other Adjusted EBITDA							
Interest expense	$ 42,805	$ 39,181	$ 32,254	$ 3,624	9.2%	$ 6,927	21.5%
Interest income	(1,338)	(518)	(209)	(820)	NM	(309)	NM
Provision (benefit) for income taxes	(50,435)	(65,492)	(19,640)	15,057	NM	(45,852)	NM
Depreciation expense	21,901	21,324	14,588	577	2.7%	6,736	46.2%
Non-cash charges—loss on derivative instruments	(1,366)	614	2,362	(1,980)	NM	(1,748)	(74.0)%
Non-cash charges—stock-compensation	10,828	10,567	12,452	261	2.5%	(1,885)	(15.1)%
Fees, expenses or charges for equity offerings, debt or acquisitions	1,464	1,123	25,562	341	30.4%	(24,439)	(95.6)%
2017 Restructuring Plan	40,653	—	—	40,653	NM	—	NM
Restructuring/integration	—	14,364	4,572	(14,364)	NM	9,792	NM
Severance separation costs and facility closures	713	15,650	4,767	(14,937)	(95.4)%	10,883	NM
Loss on extinguishment of debt	—	—	3,051	—	NM	(3,051)	NM
Legal (reimbursement) settlement	(3,633)	10,000	—	(13,633)	NM	10,000	NM
Corporate and Other Adjusted EBITDA	$ (50,658)	$ (48,506)	$ (42,110)	$ (2,152)	(4.4)%	$ (6,396)	(15.2)%

NM= not meaningful

The Corporate and Other category represents certain general overhead costs not fully allocated to the business segments such as, but not limited to, legal, accounting, treasury, human resources, technology and executive functions.

Our selling and administrative expense for the Corporate and Other category for the year ended December 31, 2017 decreased $24.7 million, or 23.3%, from $105.9 million for the same period in 2016 to $81.2 million. The decrease was primarily due to legal settlement costs for permissions litigation of $10.0 million in 2016 and a subsequent insurance net reimbursement of $3.6 million which occurred in 2017, and lower travel and entertainment expenses. Further, there were lower restructuring/integration costs as 2016 had costs associated with integration of systems to support the 2015 acquisition, partially offsetting the decrease were higher annual incentive plan compensation costs in 2017 and costs under our 2017 Restructuring Plan. Our 2017 Restructuring Plan costs for the year ended December 31, 2017 were $40.7 million, which includes severance and termination benefits of $16.2 million, real estate consolidation costs of $7.9 million, implementation costs of $7.5 million and an impairment charge related to a certain long-lived asset included within property, plant, and equipment of $9.1 million.

Our selling and administrative expense for the Corporate and Other category for the year ended December 31, 2016 increased $6.6 million, or 6.6%, from $99.3 million for the same period in 2015 to $105.9 million. The increase was primarily due to an increase of $6.7 million of higher depreciation as a result of our increased investment in our infrastructure in addition to higher labor costs and higher office lease cost due to the expiration of favorable office leases. The increase was partially offset by legal settlements and integration expenses amounting to $24.4 million in 2016, which were lower by $5.7 million from the $30.1 million of transaction expenses in the prior year related to equity, acquisition and integration activities.

Our interest expense for the Corporate and Other category for the year ended December 31, 2017 increased $3.6 million, or 9.2%, from $39.2 million for the same period in 2016 to $42.8 million, primarily due to $4.1 million of net settlement payments on our interest rate derivative instruments during the current period, partially offset by the lower outstanding balance on our term loan facility.

Our interest expense for the Corporate and Other category for the year ended December 31, 2016 increased $6.9 million, or 21.5%, to $39.2 million from $32.3 million for the same period in 2015, primarily as a result of the increase to our outstanding term loan credit facility from $243.1 million to $800.0 million, all of which was drawn at closing of the EdTech acquisition in May 2015. Further, interest expense increased $1.2 million in 2016 due to our interest rate derivative contracts.

Interest income for the year ended December 31, 2017 increased $0.8 million from $0.5 million for the same period in 2016 to $1.3 million, primarily due to increases in interest rates on our investments.

Interest income for the year ended December 31, 2016 increased $0.3 million, from $0.2 million for the same period in 2015 to $0.5 million, primarily as a result of the increased investment in money market accounts and short term investments.

Change in fair value of derivative instruments for the year ended December 31, 2017 favorably changed by $2.0 million from a loss of $0.6 million for the same period in 2016 to a gain of $1.4 million in 2017. The change in fair value of derivative instruments was related to foreign exchange forward contracts executed on the Euro that were favorably impacted by the weaker U.S. dollar against the Euro.

Change in fair value of derivative instruments for the year ended December 31, 2016 favorably changed by $1.7 million from an expense of $2.4 million in 2015 to an expense of $0.6 million in 2016. The loss on change in fair value of derivative instruments was related to unfavorable foreign exchange forward and option contracts

executed on the Euro that were favorably impacted by the stronger U.S. dollar against the Euro. Although a similar instance existed in the prior year, the change of the U.S dollar against the Euro was greater than the current year based on the timing of the execution of the derivative instruments.

Our loss on extinguishment of debt for the Corporate and Other category for the year ended December 31, 2015 consisted of a $2.2 million write off of the portion of the unamortized deferred financing fees associated with the portion of our previous term loan credit facility accounted for as an extinguishment. Further, there was a $0.9 million write off of the portion of the unamortized deferred financing fees associated with the portion of our previous revolving credit facility which was also accounted for as an extinguishment.

Income tax benefit for the year ended December 31, 2017 decreased $15.1 million from a benefit of $65.5 million in 2016 to a benefit of $50.4 million in 2017. The 2017 income tax benefit was primarily related to the effects of new tax legislation, commonly referred to as the Tax Cuts and Jobs Act that was enacted on December 22, 2017. As a result of the effects of new tax legislation, the Company recognized a $31.5 million benefit related to the remeasurement of U.S. deferred tax liabilities associated with indefinite-lived intangible assets to reflect the change in U.S. corporate tax rate from 35% to 21% and a $40.4 million benefit related to the release of valuation allowance due to the Company's ability to utilize indefinite-lived deferred tax liabilities as a source of future taxable income in the Company's assessment of its realization of deferred tax assets. This is a result of the U.S. tax law change that would extend net operating losses generated in taxable years beginning after December 31, 2017 to an unlimited carryforward period subject to an 80% utilization against future taxable earnings. The income tax benefit recognized from the effects of U.S. tax reform was partially offset by movement in the deferred tax liability associated with tax amortization on indefinite-lived intangibles, and state and foreign taxes. The income tax benefit of $65.5 million for the year ended December 31, 2016 was primarily related to a change from indefinite-lived intangibles to definite-lived, partially offset by movement in the deferred tax liability associated with tax amortization on indefinite-lived intangibles, and state and foreign taxes. For both periods, the income tax benefit was impacted by certain discrete tax items including the accrual of potential interest and penalties on uncertain tax positions. Including the tax effects of these discrete tax items, the effective tax rate was 32.8% and 18.7% for the years ended December 31, 2017 and 2016, respectively.

Income tax benefit for the year ended December 31, 2016 increased $45.9 million from a benefit of $19.6 million for the same period in 2015 to a benefit of $65.5 million in 2016. The 2016 income tax benefit was primarily related to a change from indefinite-lived intangibles to definite-lived, partially offset by movement in the deferred tax liability associated with tax amortization on indefinite-lived intangibles, and state and foreign taxes. The income tax benefit of $19.6 million for the year ended December 31, 2015 was primarily related to a $34.9 million release of an accrual for uncertain tax positions due to the lapsing of the statute, partially offset by movement in the deferred tax liability associated with tax amortization on indefinite-lived intangibles, and state and foreign taxes. For both periods, the income tax benefit was impacted by certain discrete tax items including the accrual of potential interest and penalties on uncertain tax positions. Including the tax effects of these discrete tax items, the effective tax rate was 18.7% and 12.8% for the years ended December 31, 2016 and 2015, respectively.

Adjusted EBITDA for the Corporate and Other category for the year ended December 31, 2017 changed unfavorably by $2.2 million, or 4.4%, from a loss of $48.5 million for the same period in 2016 to a loss of $50.7 million. Our Adjusted EBITDA for the Corporate and Other category excludes interest, taxes, depreciation, derivative instruments charges, equity compensation charges, acquisition-related activity, restructuring costs, integration costs, severance and facility vacant space costs, and legal settlement charges/reimbursements. The unfavorable change in our Adjusted EBITDA for the Corporate and Other category was due to the factors described above after removing those items not included in Adjusted EBITDA for the Corporate and Other category.

Adjusted EBITDA for the Corporate and Other category for the year ended December 31, 2016 changed unfavorably by $6.4 million, or 15.2%, from a loss of $42.1 million for the same period in 2015 to a loss of

$48.5 million. The unfavorable change in our Adjusted EBITDA for the Corporate and Other category was due to the factors described above after removing those items not included in Adjusted EBITDA for the Corporate and Other category.

Seasonality and Comparability

Our net sales, operating profit or loss and net cash provided by or used in operations are impacted by the inherent seasonality of the academic calendar. Consequently, the performance of our businesses may not be comparable quarter to consecutive quarter and should be considered on the basis of results for the whole year or by comparing results in a quarter with results in the same quarter for the previous year.

Approximately 87% of our net sales for the year ended December 31, 2017 were derived from our Education segment, which is a markedly seasonal business. Schools conduct the majority of their purchases in the second and third quarters of the calendar year in preparation for the beginning of the school year. Thus, over the past three completed fiscal years, approximately 67% of our consolidated net sales were realized in the second and third quarters. Sales of K-12 instructional materials and customized testing products are also cyclical, with some years offering more sales opportunities than others in light of the state adoption calendar. The amount of funding available at the state level for educational materials also has a significant effect on year-to-year net sales. Although the loss of a single customer would not have a material adverse effect on our business, schedules of school adoptions and market acceptance of our products can materially affect year-to-year net sales performance.

The following table is indicative of the seasonality of our business and the related results:

Quarterly Results of Operations

(in thousands)	First Quarter 2016	Second Quarter 2016	Third Quarter 2016	Fourth Quarter 2016	First Quarter 2017	Second Quarter 2017	Third Quarter 2017	Fourth Quarter 2017
Education segment	$ 174,305	$353,384	$487,209	$ 192,172	$ 185,384	$350,607	$480,851	$206,129
Trade Publishing segment	31,511	38,658	45,812	49,634	36,533	42,444	51,189	54,374
Net sales	205,816	392,042	533,021	241,806	221,917	393,051	532,040	260,503
Costs and expenses:								
Cost of sales, excluding publishing rights and pre-publication amortization	105,518	173,466	206,177	125,554	107,536	175,693	209,694	124,879
Publishing rights amortization	17,793	14,413	14,573	14,572	13,398	10,867	10,987	10,986
Pre-publication amortization	28,281	31,315	33,903	36,744	27,577	29,758	33,757	34,946
Cost of sales	151,592	219,194	254,653	176,870	148,511	216,318	254,438	170,811
Selling and administrative	168,675	184,479	185,252	161,138	156,352	166,165	178,104	154,239
Other intangible asset amortization	6,176	5,968	5,980	8,626	8,076	8,128	7,248	7,296
Impairment charge for intangible assets	—	—	—	139,205	—	—	—	3,980
Restructuring	—	—	—	—	3,875	33,393	1,768	1,617
Severance and other charges	1,577	3,553	3,765	6,755	1,206	213	272	(978)
Operating income (loss)	(122,204)	(21,152)	83,371	(250,788)	(96,103)	(31,166)	90,210	(76,462)
Other income (expense)								
Interest expense	(9,487)	(9,466)	(9,550)	(10,678)	(10,453)	(10,547)	(10,980)	(10,825)
Interest income	154	64	57	243	245	115	281	697
Change in fair value of derivative instruments	784	(619)	257	(1,036)	45	851	377	93
Income (loss) before taxes	(130,753)	(31,173)	74,135	(262,259)	(106,266)	(40,747)	79,888	(86,497)
Income tax expense (benefit)	34,395	(2,782)	(15,887)	(81,218)	14,392	6,120	(10,618)	(60,329)
Net income (loss)	$(165,148)	$ (28,391)	$ 90,022	$(181,041)	$(120,658)	$ (46,867)	$ 90,506	$ (26,168)

Liquidity and Capital Resources

(in thousands)	December 31, 2017	2016	2015
Cash and cash equivalents	$ 148,979	$ 226,102	$ 234,257
Short-term investments	86,449	80,841	198,146
Current portion of long-term debt	8,000	8,000	8,000
Long-term debt, net of discount	760,194	764,738	769,283

	Years ended December 31, 2017	2016	2015
Net cash provided by operating activities	$ 135,130	$ 143,751	$ 348,359
Net cash used in investing activities	(204,923)	(113,946)	(676,787)
Net cash (used in) provided by financing activities	(7,330)	(37,960)	106,104

Operating activities

Net cash provided by operating activities was $135.1 million for the year ended December 31, 2017, a $8.6 million decrease from the $143.8 million of net cash provided by operating activities for the year ended December 31, 2016. The decrease in cash provided by operating activities from 2016 to 2017 was primarily driven by unfavorable net changes in operating assets and liabilities of $65.4 million offset by more profitable operations, net of non-cash items, of $56.8 million. The unfavorable net changes in operating assets and liabilities were primarily due to unfavorable changes in deferred revenue of $52.9 due to lower billings of Core Solutions products, which typically carry a high deferral rate, unfavorable changes in accounts receivable of $25.2 million due to timing of collections and fourth quarter net sales, and unfavorable changes in pension and post-retirement benefits of $10.6 million, offset by favorable changes in accounts payable and royalties of $16.5 million and $11.0 million, respectively, due to timing of payments.

Net cash provided by operating activities was $143.8 million for the year ended December 31, 2016, a $204.6 million decrease from the $348.4 million provided by operating activities for the year ended December 31, 2015. The decrease in cash provided by operating activities from 2015 to 2016 was primarily driven by less profitable operations, net of non-cash items, of $136.2 million, attributed largely to lower sales and higher selling and administrative expenses, along with unfavorable net changes in operating assets and liabilities of $68.4 million. The unfavorable net changes in operating assets and liabilities were primarily due to lower deferred revenue of $86.8 million attributed to greater recognition of revenue attributed to product mix when compared to the prior year period along with lower billings in 2016, unfavorable changes in accounts payable of $36.8 million and in royalties of $19.0 million due to timing of payments, and unfavorable changes in inventory of $17.2 million as the reduction in inventory was due to better inventory management and was not as large as the prior year. These unfavorable changes were partially offset by favorable changes primarily due to a reversal of a $74.3 million accrual related to uncertain tax positions as the statutory period expired in the prior period, favorable changes in accounts receivable of $9.3 million due to lower fourth quarter sales and net favorable changes in other assets and liabilities of $7.8 million due to timing of disbursements.

Investing activities

Net cash used in investing activities was $204.9 million for the year ended December 31, 2017, an increase of $91.0 million from the $113.9 million used in investing activities for the year ended December 31, 2016. The increase in investing activities was primarily due to lower net proceeds from short-term investments of $122.2 million compared to 2016 along with $15.1 million of higher pre-publication costs in advance of 2018 adoptions. Partially offsetting, capital investing expenditures related to property, plant, and equipment decreased by $47.3 million, primarily due to lower spend on leasehold improvements related to various office moves and technology infrastructure.

Net cash used in investing activities was $113.9 million for the year ended December 31, 2016, a decrease of $562.8 million from the $676.8 million used in investing activities for the year ended December 31, 2015. The decrease in investing activities was primarily due to the acquisition of the EdTech business in May 2015, and by higher net proceeds from sales and maturities of short-term investments of $28.5 million compared to 2015. Offsetting the decrease, capital investing expenditures related to pre-publication costs and property, plant and equipment increased by $42.9 million, due to capital spend pertaining to the EdTech business, and increased spend on leasehold improvements related to various office moves, technology infrastructure and timing of spend.

Financing activities

Net cash used in financing activities was $7.3 million for the year ended December 31, 2017, a decrease of $30.6 million from the $38.0 million of net cash used in financing activities for the year ended December 31, 2016. The decrease in cash used in financing activities was primarily due to there being no share repurchases in 2017 under our share repurchase program for our common stock, compared to $55.0 million of share repurchases in 2016, partially offset by $24.0 million less proceeds related to stock option exercises during 2017 compared to 2016.

Net cash used in financing activities was $38.0 million for the year ended December 31, 2016, an increase of $144.1 million from the $106.1 million of net cash provided by financing activities for the year ended December 31, 2015. The increase in cash used in financing activities was primarily due to the prior period benefiting from net proceeds of $796.0 million from our term loan facility partially offset by an increase in principal payments on our previously existing term loan of $243.1 million in connection with the acquisition of the EdTech business in May 2015. Further, we incurred $15.3 million in the prior period for deferred financing fees related to the closing of the term loan facility and the amendment to the revolving credit facility. In 2016, we made $8.0 million of principal payments under our term loan facility compared with $4.0 million in 2015. Offsetting the aforementioned, our share repurchases under our share repurchase program for our common stock were $408.0 million less during 2016 compared to the prior period. Also, we received $11.6 million of less proceeds during 2016 related to stock option exercises partially offset by proceeds received of $2.2 million related to our employee stock purchase program.

Debt

Under both our revolving credit facility and term loan facility, Houghton Mifflin Harcourt Publishers Inc., HMH Publishers LLC and Houghton Mifflin Harcourt Publishing Company are the borrowers (collectively, the "Borrowers"), and Citibank, N.A. acts as both the administrative agent and the collateral agent.

The obligations under these senior secured facilities are guaranteed by the Company and each of its direct and indirect for-profit domestic subsidiaries (other than the Borrowers) (collectively, the "Guarantors") and are secured by all capital stock and other equity interests of the Borrowers and the Guarantors and substantially all of the other tangible and intangible assets of the Borrowers and the Guarantors, including, without limitation, receivables, inventory, equipment, contract rights, securities, patents, trademarks, other intellectual property, cash, bank accounts and securities accounts and owned real estate. The revolving credit facility is secured by first priority liens on receivables, inventory, deposit accounts, securities accounts, instruments, chattel paper and other assets related to the foregoing (the "Revolving First Lien Collateral"), and second priority liens on the collateral which secures the term loan facility on a first priority basis. The term loan facility is secured by first priority liens on the capital stock and other equity interests of the Borrower and the Guarantors, equipment, owned real estate, trademarks and other intellectual property, general intangibles that are not Revolving First Lien Collateral and other assets related to the foregoing, and second priority liens on the Revolving First Lien Collateral.

Term Loan Facility

In connection with our closing of the EdTech acquisition, we entered into an amended and restated term loan credit facility (the "term loan facility") dated as of May 29, 2015 to, among other things, increase our

outstanding term loan credit facility to $800.0 million, all of which was drawn at closing. As of December 31, 2017, we had approximately $780.0 million ($768.2 million, net of discount and issuance costs) outstanding under the term loan facility.

The term loan facility has a six-year term and matures on May 29, 2021. The interest rate applicable to borrowings under the facility is based, at our election, on LIBOR plus 3.0% or an alternative base rate plus applicable margins. LIBOR is subject to a floor of 1.0%, with the length of the LIBOR contracts ranging up to six months at the option of the Company. As of December 31, 2017, the interest rate of the term loan facility was 4.6%.

The term loan facility may be prepaid, in whole or in part, at any time, without premium. The term loan facility is required to be repaid in quarterly installments of $2.0 million.

The term loan facility does not require us to comply with financial maintenance covenants. We are currently required to meet certain incurrence based financial covenants as defined under our term loan facility.

The term loan facility is subject to usual and customary conditions, representations, warranties and covenants, including restrictions on additional indebtedness, liens, investments, mergers, acquisitions, asset dispositions, dividends to stockholders, repurchase or redemption of our stock, transactions with affiliates and other matters. The term loan facility is subject to customary events of default. If an event of default occurs and is continuing, the administrative agent may, or at the request of certain required lenders shall, accelerate the obligations outstanding under the term loan facility.

We are subject to an excess cash flow provision under the term loan facility which is predicated upon our leverage ratio and cash flow. We were not required to make a payment under the excess cash flow provision in 2017 and 2016.

Revolving Credit Facility

On July 22, 2015, we entered into an amended and restated revolving credit facility (the "revolving credit facility") to, among other things, reduce the pricing, extend the maturity, conform certain terms to those of our term loan facility and to provide greater availability and operational flexibility. The revolving credit facility provides borrowing availability in an amount equal to the lesser of $250.0 million and a borrowing base that is computed monthly or weekly as the case may be and comprised of the Borrowers' and certain Guarantors' eligible inventory and receivables.

The revolving credit facility includes a letter of credit subfacility of $50.0 million, a swingline subfacility of $20.0 million and the option to expand the facility by up to $100.0 million in the aggregate under certain specified conditions. The amount of any outstanding letters of credit reduces borrowing availability under the revolving credit facility on a dollar-for-dollar basis. As of December 31, 2017, we had approximately $25.2 million of outstanding letters of credit and approximately $135.3 million of borrowing availability under the revolving credit facility. No loans have been drawn on the revolving credit facility as of February 22, 2018.

The revolving credit facility has a five year term and matures on July 22, 2020. The interest rate applicable to borrowings under the facility is based, at our election, on LIBOR plus 1.75% or an alternative base rate plus 0.75%; such applicable margins may increase up to 2.25% and 1.25%, respectively, based on average daily availability. The revolving credit facility may be prepaid, in whole or in part, at any time, without premium.

The revolving credit facility requires us to maintain a minimum fixed charge coverage ratio of 1.0 to 1.0 on a trailing four-quarter basis for periods in which excess availability under the facility is less than the greater of $25.0 million and 12.5% of the lesser of the total commitment and the borrowing base then in effect, or less than $20.0 million if certain conditions are met. The minimum fixed charge coverage ratio was not applicable under the facility as of December 31, 2017, due to our level of borrowing availability.

The revolving credit facility is subject to usual and customary conditions, representations, warranties and covenants, including restrictions on additional indebtedness, liens, investments, mergers, acquisitions, asset dispositions, dividends to stockholders, repurchase or redemption of our stock, transactions with affiliates and other matters. The revolving credit facility is subject to customary events of default. If an event of default occurs and is continuing, the administrative agent may, or at the request of certain required lenders shall, accelerate the obligations outstanding under the revolving credit facility.

General

We had $149.0 million of cash and cash equivalents and $86.4 million of short-term investments at December 31, 2017. We had $226.1 million of cash and cash equivalents and $80.8 million of short-term investments at December 31, 2016.

We expect our net cash provided by operations combined with our cash and cash equivalents and borrowings under our revolving credit facility to provide sufficient liquidity to fund our current obligations, capital spending, debt service requirements and working capital requirements over at least the next twelve months.

Critical Accounting Policies and Estimates

The preparation of financial statements in conformity with U.S. GAAP requires the use of estimates, assumptions and judgments by management that affect the reported amounts of assets, liabilities, net sales, expenses and related disclosure of contingent assets and liabilities in the amounts reported in the financial statements and accompanying notes. On an on-going basis, we evaluate our estimates and assumptions, including, but not limited to, book returns, allowance for bad debts, recoverability of advances to authors, valuation of inventory, financial instruments, depreciation and amortization periods, recoverability of long-term assets such as property, plant and equipment, capitalized pre-publication costs, other identified intangibles, goodwill, deferred revenue, income taxes, pensions and other postretirement benefits, contingencies, litigation and purchase accounting. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from those estimates. For a complete description of our significant accounting policies, see Note 2 of Notes to Consolidated Financial Statements included in Item 8, “Financial Statements and Supplementary Data.” The following policies and account descriptions include those identified as critical to our business operations and the understanding of our results of operations.

Revenue Recognition

Revenue is recognized only once persuasive evidence of an arrangement with the customer exists, the sales price is fixed or determinable, delivery of products or services has occurred, title and risk of loss with respect to products have transferred to the customer, all significant obligations, if any, have been performed, and collection is reasonably assured.

We enter into certain contractual arrangements that have multiple elements, one or more of which may be delivered subsequent to the delivery of other elements. These multiple-deliverable arrangements may include print and digital media, professional development services, training, software licenses, access to hosted content, and various services related to the software including but not limited to hosting, maintenance and support, and implementation. For these multiple-element arrangements, we allocate revenue to each deliverable of the arrangement based on the relative selling prices of the deliverables. In such circumstances, we first determine the selling price of each deliverable based on (i) vendor-specific objective evidence of fair value (“VSOE”) if that exists, (ii) third-party evidence of selling price (“TPE”) when VSOE does not exist, or (iii) our best estimate of the selling price when neither VSOE nor TPE exists. Revenue is then allocated to the non-software deliverables

as a group and to the software deliverables as a group using the relative selling prices of each of the deliverables in the arrangement, based on the selling price hierarchy. Non-software deliverables include print and digital textbooks and instructional materials, trade books, reference materials, assessment materials and multimedia instructional programs; licenses to book rights and content; access to hosted content; and services including test development, test delivery, test scoring, professional development, consulting and training when those services do not relate to software deliverables. Software deliverables include software licenses, software maintenance and support services, professional services and training when those services relate to software deliverables.

For the non-software deliverables, we determine the revenue for each deliverable based on its relative selling price in the arrangement and we recognize revenue upon delivery of the product or service, assuming all other revenue recognition criteria have been met. Revenue for test delivery, test scoring and training is recognized when the service has been completed. Revenue for test development, professional development, consulting and training is recognized as the service is provided. Revenue for access to hosted interactive content is recognized ratably over the term of the arrangement.

For the software deliverables as a group, we recognize revenue in accordance with the authoritative guidance for software revenue recognition. As our software licenses are typically sold with maintenance and support, professional services or training, we use the residual method to determine the amount of software license revenue to be recognized in instances where VSOE has not been established for an element sold in the arrangement.

Under the residual method, arrangement consideration of the software deliverables as a group is allocated to the undelivered elements based upon VSOE of those elements, with the residual amount of the arrangement fee allocated to and recognized as license revenue upon delivery, assuming all other revenue recognition criteria have been met. If VSOE of one or more of the undelivered services or other elements does not exist, all revenues of the software-deliverables arrangement are deferred until delivery of all of those services or other elements has occurred, or until VSOE of each of those services or other elements can be established.

As products are shipped with right of return, a provision for estimated returns on these sales is made at the time of sale based on historical experience by product line or customer.

Shipping and handling fees charged to customers are included in net sales.

As discussed in Note 2, effective January 1, 2018, we will be accounting for revenue under the FASB's new revenue recognition standard.

Allowance for Doubtful Accounts and Reserves for Book Returns

Accounts receivable are recorded net of allowances for doubtful accounts and reserves for book returns. In the normal course of business, we extend credit to customers that satisfy predefined criteria. We estimate the collectability of our receivables. Allowances for doubtful accounts are established through the evaluation of accounts receivable aging, prior collection experience and specific facts and circumstances. Reserves for book returns are based on historical return rates and sales patterns. We determine the required reserves by segregating our returns into the applicable product or sales channel pools. Returns in the K-12 market have been historically low. We have experienced higher returns with respect to sales to resellers, international sales and Trade Publishing sales, which all result in a greater degree of risk and subjectivity when establishing the appropriate level of reserves for this customer base. At the time we determine that a receivable balance, or any portion thereof, is deemed to be permanently uncollectible, the balance is written off. The allowance for doubtful accounts and reserve for returns are reported as reductions of the accounts receivable balance and amounted to $2.6 million and $21.0 million, and $3.6 million and $19.0 million as of December 31, 2017 and 2016, respectively.

Inventories

Inventories are substantially stated at the lower of weighted average cost or net realizable value. The level of obsolete and excess inventory is estimated on a program or title-level basis by comparing the number of units in stock with the expected future demand. The expected future demand of a program or title is determined by the copyright year, the previous years' sales history, the subsequent year's sales forecast, known forward-looking trends including our development cycle to replace the title or program and competing titles or programs. A change in sales trends could affect the estimated reserve. The inventory obsolescence reserve is reported as a reduction of the inventories balance and amounted to $48.3 million and $53.6 million as of December 31, 2017 and 2016, respectively.

Pre-publication Costs

Pre-publication costs are capitalized and are primarily amortized from the year of sale over five years using the sum-of-the-years-digits method, which is an accelerated method for calculating an asset's amortization. Under this method, the amortization expense recorded for a pre-publication cost asset is approximately 33% (year 1), 27% (year 2), 20% (year 3), 13% (year 4) and 7% (year 5). We utilize this policy for all pre-publication costs, except with respect to our Trade Publishing young readers and general interest books, for which we expense such costs as incurred, and our assessment products, for which we use the straight-line amortization method. Additionally, pre-publication costs recorded in connection with the acquisition of the EdTech business are amortized over 7 years on a projected sales pattern. The amortization methods and periods chosen best reflect the pattern of expected sales generated from individual titles or programs. On a quarterly basis, we evaluate the remaining lives and recoverability of capitalized pre-publication costs, which are often dependent upon program acceptance by state adoption authorities.

Amortization expense related to pre-publication costs for the years ended December 31, 2017, 2016 and 2015 were $126.0 million, $130.2 million and $120.5 million, respectively.

For the year ended December 31, 2017, the Company recorded an impairment charge of $4.0 million related to assets that had no future value. For the years ended December, 31, 2016 and 2015, no pre-publication costs were deemed to be impaired.

Goodwill and Indefinite-Lived Intangible Assets

Goodwill and indefinite-lived intangible assets (certain tradenames) are not amortized but are reviewed at least annually for impairment or earlier, if an indication of impairment exists. Goodwill is allocated entirely to our Education reporting unit. Determining the fair value of a reporting unit is judgmental in nature, and involves the use of significant estimates and assumptions. These estimates and assumptions may include net sales growth rates and operating margins used to calculate projected future cash flows, risk-adjusted discount rates, future economic and market conditions, the determination of appropriate market comparables as well as the fair value of individual assets and liabilities.

We have the option of first assessing qualitative factors to determine whether it is necessary to perform the current two-step impairment test for goodwill or we can perform the two-step impairment test without performing the qualitative assessment. In performing the qualitative (Step 0) assessment, we consider certain events and circumstances specific to the reporting unit and to the entity as a whole, such as macroeconomic conditions, industry and market considerations, overall financial performance and cost factors when evaluating whether it is more likely than not that the fair value of the reporting unit is less than its carrying amount.

Recoverability of goodwill can also be evaluated using a two-step process. In the first step, the fair value of a reporting unit is compared to its carrying value. If the fair value of a reporting unit exceeds the carrying value of the net assets assigned to a reporting unit, goodwill is considered not impaired and no further testing is

required. If the carrying value of the net assets assigned to a reporting unit exceeds the fair value of a reporting unit, the second step of the impairment test is performed in order to determine the implied fair value of a reporting unit's goodwill. Determining the implied fair value of goodwill requires valuation of a reporting unit's tangible and intangible assets and liabilities in a manner similar to the allocation of purchase price in a business combination. If the carrying value of a reporting unit's goodwill exceeds its implied fair value, goodwill is deemed impaired and is written down to the extent of the difference. We estimate total fair value of the Education reporting unit by preparing a discounted cash flow analysis using forward looking projections of the Education reporting units' future operating results and by comparing the value of the Education reporting unit to the implied market value of selected peers. The significant assumptions used in the discounted cash flow analysis include: future net sales and net sales growth, gross margins, other operating expenses, working capital levels, investments in new products, capital spending, tax, cash flows, the discounted rate used to present value future cash flows and the terminal value of the Education reporting unit. The discount rate is based on the weighted-average cost of capital method at the date of the evaluation. With regard to indefinite-lived intangible assets, the recoverability is evaluated using a one-step process whereby we determine the fair value by asset, which is then compared to its carrying value to determine if the assets are impaired.

We completed our annual goodwill impairment tests as of October 1, 2017 and 2016. In 2017 and 2016, we used income and market valuation approaches to establish the fair value of the reporting unit and used the most recent five year strategic plan as the initial basis of our analysis. We performed an interim quantitative evaluation as of December 31, 2017 related to our decreased market capitalization. The fair value of the Education reporting unit substantially exceeded its carrying value as of the evaluation dates. There was no goodwill impairment for the years ended December 31, 2017, 2016 and 2015. We will continue to monitor and evaluate the carrying value of goodwill. If market and economic conditions or business performance deteriorate, this could increase the likelihood of us recording an impairment charge.

We completed our annual indefinite-lived assets impairment tests as of October 1, 2017 and 2016. We recorded a non-cash impairment charge of $139.2 million for the year ended December 31, 2016. The impairment charge related to four specific tradenames within the Education segment in 2016 and primarily resulted from the strategic decision to market our products under the Houghton Mifflin Harcourt and HMH name rather than legacy imprints and certain declining sales projections. No indefinite-lived intangible assets were deemed to be impaired for the years ended December 31, 2017 and 2015.

Royalty Advances

Royalty advances to authors are capitalized and represent amounts paid in advance of the sale of an author's product and are recovered as earned. As advances are recorded, a partial reserve may be recorded immediately based primarily upon historical sales experience to estimate the likelihood of recovery. Advances are evaluated periodically to determine if they are expected to be recovered. Any portion of a royalty advance that is not expected to be recovered is fully reserved. The reserve for royalty advances is reported as a reduction of the royalty advances to authors balance and amounted to $103.6 million and $85.5 million as of December 31, 2017 and 2016, respectively.

Stock-Based Compensation

The fair value of each restricted stock and restricted stock unit was estimated at the date of the grant based upon the target value of the award and the current market price. The fair value of each market-based restricted stock unit was estimated at the date of grant using the Monte Carlo simulation, which requires management's use of highly subjective estimates and assumptions. The fair value of each stock option grant was estimated on the date of grant using the Black-Scholes option pricing model, which also requires management's use of highly subjective estimates and assumptions. The use of different estimates and assumptions in the option pricing model could have a material impact on the estimated fair value of option grants and the related expense. We estimate our expected volatility based on the historical volatility of our publicly traded peer companies (including our

own) and expect to continue to do so until such time as we have adequate historical data regarding the volatility of our traded stock price. The expected life assumption is based on the simplified method for estimating expected term for awards. This option has been elected as we do not have sufficient stock option exercise experience to support a reasonable estimate of the expected term. The risk-free interest rate is the yield currently available on U.S. Treasury zero-coupon issues with a remaining term approximating the expected term of the option. The expected dividend yield is based on actual dividends paid or to be paid. We recognize stock-based compensation expense over the awards requisite service period on a straight-line basis for time based stock options, restricted stock and restricted stock units and on a graded basis for restricted stock and restricted stock units that are contingent on the achievement of performance conditions. We recognize compensation expense for only the portion of stock based awards that are expected to vest. Accordingly, we have estimated expected forfeitures of stock based awards based on our historical forfeiture rates and used these rates in developing a future forfeiture rate. If our actual forfeiture rate varies from our historical rates and estimates, additional adjustments to compensation expense may be required in future periods.

Income Taxes

We have accounted for the tax effects of The Tax Cuts and Jobs Act, enacted on December 22, 2017, on a provisional basis. Our accounting for certain income tax effects is incomplete, but we have determined reasonable estimates for those effects. Our reasonable estimates are included in our financial statements as of December 31, 2017. We expect to complete our accounting during the one year measurement period from the enactment date. See Note 8 to the consolidated financial statements for further detail.

Impact of Inflation and Changing Prices

Although inflation during the years ended December 31, 2017, 2016 and 2015 was well below levels in prior years and, therefore, benefited results, particularly in the area of manufacturing costs, there were offsetting costs. Our ability to adjust selling prices has always been limited by competitive factors and long-term contractual arrangements which either prohibit price increases or limit the amount by which prices may be increased. Further, a weak domestic economy at a time of low inflation could cause lower tax receipts at the state and local level, and the funding and buying patterns for textbooks and other educational materials could be adversely affected. Prices for paper moderated during the last three years.

The most significant assets affected by inflation include pre-publication, other property, plant and equipment and inventories. We use the weighted average cost method to value substantially all inventory. We have negotiated favorable pricing through contractual agreements with our two top print and sourcing vendors, and from our other major vendors, which has helped to stabilize our unit costs, and therefore our cost of inventories sold. Our publishing business requires a high level of investment in pre-publication for our educational works, and in other property, plant and equipment. We expect to continue to commit funds to the publishing areas through both internal growth and acquisitions. We believe that by continuing to emphasize cost controls, technological improvements and quality control, we can continue to moderate the impact of inflation on our operating results and financial position.

Covenant Compliance

As of December 31, 2017, we were in compliance with all of our debt covenants.

We are currently required to meet certain incurrence based financial covenants as defined under our term loan facility and revolving credit facility. We have incurrence based financial covenants primarily pertaining to a maximum leverage ratio, fixed charge coverage ratio, and liquidity. A breach of any of these covenants, ratios, tests or restrictions, as applicable, for which a waiver is not obtained could result in an event of default, in which case our lenders could elect to declare all amounts outstanding to be immediately due and payable and result in a cross-default under other arrangements containing such provisions. A default would permit lenders to accelerate

the maturity for the debt under these agreements and to foreclose upon any collateral securing the debt owed to these lenders and to terminate any commitments of these lenders to lend to us. If the lenders accelerate the payment of the indebtedness, our assets may not be sufficient to repay in full the indebtedness and any other indebtedness that would become due as a result of any acceleration. Further, in such an event, the lenders would not be required to make further loans to us, and assuming similar facilities were not established and we are unable to obtain replacement financing, it would materially affect our liquidity and results of operations.

Contractual Obligations

The following table provides information with respect to our estimated commitments and obligations as of December 31, 2017:

Contractual Obligations	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
			(in thousands)		
Term loan facility due May 29, 2021 (1)	$ 780,000	$ 8,000	$ 16,000	$756,000	$ —
Interest payable on term loan facility due May 29, 2021 (2)	134,523	37,567	80,303	16,653	—
Payments on derivative instruments	1,305	1,483	(178)	—	—
Operating leases (3)	369,934	38,854	65,460	56,135	209,485
Purchase obligations (4)	48,609	30,854	16,183	1,522	50
Total cash contractual obligations	$1,334,371	$116,758	$177,768	$830,310	$209,535

(1) The term loan facility amortizes at a rate of 1.0% per annum of the original $800.0 million amount.
(2) As of December 31, 2017, the interest rate was 4.6%.
(3) Represents minimum lease payments under non-cancelable operating leases.
(4) Purchase obligations are agreements to purchase goods or services that are enforceable and legally binding. These goods and services consist primarily of author advances, subcontractor expenses, information technology licenses, and outsourcing arrangements.

In addition to the payments described above, we have employee benefit obligations that require future payments. For example, we expect to make $1.6 million of contributions in 2018 relating to our pension and postretirement benefit plans. We expect to periodically draw and repay borrowings under the revolving credit facility. We believe that we will be able to meet our cash interest obligations on our outstanding debt when they are due and payable.

Off-Balance Sheet Arrangements

We have no off-balance sheet arrangements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

We are exposed to market risk from foreign currency exchange rates and interest rates, which could affect operating results, financial position and cash flows. We manage exposure to these market risks through our regular operating and financing activities and, when appropriate, through the use of derivative financial instruments. These derivative financial instruments are utilized to hedge economic exposures as well as reduce our earnings and cash flow volatility resulting from shifts in market rates. As permitted, we may designate certain of these derivative contracts for hedge accounting treatment in accordance with authoritative guidance regarding accounting for derivative instruments and hedging activities. However, certain of these instruments may not qualify for, or we may choose not to elect, hedge accounting treatment and, accordingly, the results of our operations may be exposed to some level of volatility. Volatility in our results of operations will vary with the type and amount of derivative hedges outstanding, as well as fluctuations in the currency and interest rate market during the period. Periodically, we may enter into derivative contracts, including interest rate swap agreements and interest rate caps and collars to manage interest rate exposures, and foreign currency spot, forward, swap and option contracts to manage foreign currency exposures. The fair market values of all of these derivative contracts change with fluctuations in interest rates and/or currency rates and are designed so that any changes in their values are offset by changes in the values of the underlying exposures. Derivative financial instruments are held solely as risk management tools and not for trading or speculative purposes.

By their nature, all derivative instruments involve, to varying degrees, elements of market and credit risk not recognized in our financial statements. The market risk associated with these instruments resulting from currency exchange and interest rate movements is expected to offset the market risk of the underlying transactions, assets and liabilities being hedged. Our policy is to deal with counterparties having a single A or better credit rating at the time of the execution. We manage our exposure to counterparty risk of derivative instruments by entering into contracts with a diversified group of major financial institutions and by actively monitoring outstanding positions.

We continue to review liquidity sufficiency by performing various stress test scenarios, such as cash flow forecasting which considers hypothetical interest rate movements. Furthermore, we continue to closely monitor current events and the financial institutions that support our credit facility, including monitoring their credit ratings and outlooks, credit default swap levels, capital raising and merger activity.

As of December 31, 2017, we had $780.0 million ($768.2 million, net of discount and issuance costs) of aggregate principal amount indebtedness outstanding under our term loan facility that bears interest at a variable rate. An increase or decrease of 1% in the interest rate will change our interest expense by approximately $7.8 million on an annual basis. We also have up to $250.0 million of borrowing availability, subject to borrowing base availability, under our revolving credit facility, and borrowings under the revolving credit facility bear interest at a variable rate. We had no borrowings outstanding under the revolving credit facility at December 31, 2017. Assuming that the revolving credit facility is fully drawn, an increase or decrease of 1% in the interest rate will change our interest expense associated with the revolving credit facility by $2.5 million on an annual basis.

Our interest rate risk relates primarily to U.S. dollar borrowings partially offset by U.S. dollar cash investments. We have historically used interest rate derivative instruments to manage our earnings and cash flow exposure to changes in interest rates. On August 17, 2015, we entered into interest rate derivative contracts with various financial institutions having an aggregate notional amount of $400.0 million to convert floating rate debt into fixed rate debt, which we designated as cash flow hedges, and for which we had $400.0 million outstanding as of December 31, 2017. These contracts were effective beginning September 30, 2016 and mature on July 22, 2020.

We conduct various digital development activities in Ireland, and as such, our cash flows and costs are subject to fluctuations from changes in foreign currency exchange rates. We manage our exposures to this market risk through the use of short-term foreign exchange forward and option contracts, when deemed appropriate, which were not significant as of December 31, 2017 and December 31, 2016. We do not enter into derivative transactions or use other financial instruments for trading or speculative purposes.

Item 8. Financial Statements and Supplementary Data

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of
Houghton Mifflin Harcourt Company:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the consolidated financial statements, including the related notes, as listed in the index appearing under Item 15(a)(1), of Houghton Mifflin Harcourt Company and its subsidiaries (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control—Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

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

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

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

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

Definition and Limitations of Internal Control over Financial Reporting

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

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

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
February 22, 2018

We have served as the Company's auditor since 2003.

Houghton Mifflin Harcourt Company
Consolidated Balance Sheets

(in thousands of dollars, except share information)	December 31, 2017	December 31, 2016
Assets		
Current assets		
Cash and cash equivalents	$ 148,979	$ 226,102
Short-term investments	86,449	80,841
Accounts receivable, net of allowances for bad debts and book returns of $23.6 million and $22.5 million, respectively	201,080	216,006
Inventories	154,644	162,415
Prepaid expenses and other assets	29,947	20,356
Total current assets	621,099	705,720
Property, plant, and equipment, net	153,906	175,202
Pre-publication costs, net	324,897	314,784
Royalty advances to authors, net	46,469	43,977
Goodwill	783,073	783,073
Other intangible assets, net	610,663	685,649
Deferred income taxes	3,593	3,458
Other assets	19,891	19,608
Total assets	$ 2,563,591	$ 2,731,471
Liabilities and Stockholders' Equity		
Current liabilities		
Current portion of long-term debt	$ 8,000	$ 8,000
Accounts payable	61,502	76,181
Royalties payable	72,992	72,233
Salaries, wages, and commissions payable	54,970	41,289
Deferred revenue	275,111	272,828
Interest payable	322	193
Severance and other charges	6,926	8,863
Accrued postretirement benefits	1,618	1,928
Other liabilities	22,788	23,635
Total current liabilities	504,229	505,150
Long-term debt, net of discount and issuance costs	760,194	764,738
Long-term deferred revenue	419,096	436,627
Accrued pension benefits	24,133	28,956
Accrued postretirement benefits	20,285	22,084
Deferred income taxes	22,269	71,381
Other liabilities	18,192	22,495
Total liabilities	1,768,398	1,851,431
Commitments and contingencies (Note 12)		
Stockholders' equity		
Preferred stock, $0.01 par value: 20,000,000 shares authorized; no shares issued and outstanding at December 31, 2017 and 2016	—	—
Common stock, $0.01 par value: 380,000,000 shares authorized; 147,911,466 and 147,556,804 shares issued at December 31, 2017 and 2016, respectively; 123,334,432 and 122,979,770 shares outstanding at December 31, 2017 and 2016, respectively	1,479	1,475
Treasury stock, 24,577,034 shares as of December 31, 2017 and 2016, respectively, at cost (related parties of $193,493 at 2017 and 2016)	(518,030)	(518,030)
Capital in excess of par value	4,879,793	4,868,230
Accumulated deficit	(3,521,527)	(3,418,340)
Accumulated other comprehensive loss	(46,522)	(53,295)
Total stockholders' equity	795,193	880,040
Total liabilities and stockholders' equity	$ 2,563,591	$ 2,731,471

The accompanying notes are an integral part of these consolidated financial statements.

Houghton Mifflin Harcourt Company
Consolidated Statements of Operations

(in thousands of dollars, except share and per share data)	Years Ended December 31, 2017	2016	2015
Net sales	$ 1,407,511	$ 1,372,685	$ 1,416,059
Costs and expenses			
Cost of sales, excluding publishing rights and pre-publication amortization	617,802	610,715	622,668
Publishing rights amortization	46,238	61,351	81,007
Pre-publication amortization	126,038	130,243	120,506
Cost of sales	790,078	802,309	824,181
Selling and administrative (related parties of $10,489 in 2015—Note 14)	654,860	699,544	681,124
Other intangible asset amortization	30,748	26,750	22,038
Impairment charge for pre-publication costs and intangible assets	3,980	139,205	—
Restructuring	40,653	—	—
Severance and other charges	713	15,650	4,767
Operating loss	(113,521)	(310,773)	(116,051)
Other income (expense)			
Interest expense	(42,805)	(39,181)	(32,254)
Interest income	1,338	518	209
Change in fair value of derivative instruments	1,366	(614)	(2,362)
Loss on extinguishment of debt	—	—	(3,051)
Loss before taxes	(153,622)	(350,050)	(153,509)
Income tax (benefit) expense	(50,435)	(65,492)	(19,640)
Net loss	$ (103,187)	$ (284,558)	$ (133,869)
Net loss per share attributable to common stockholders			
Basic	$ (0.84)	$ (2.32)	$ (0.98)
Diluted	$ (0.84)	$ (2.32)	$ (0.98)
Weighted average shares outstanding			
Basic	122,949,064	122,418,474	136,760,107
Diluted	122,949,064	122,418,474	136,760,107

The accompanying notes are an integral part of these consolidated financial statements.

Houghton Mifflin Harcourt Company
Consolidated Statements of Comprehensive Loss

(in thousands of dollars)	Years Ended December 31, 2017	2016	2015
Net loss	$(103,187)	$(284,558)	$(133,869)
Other comprehensive income (loss), net of taxes:			
Foreign currency translation adjustments, net of tax	109	(1,220)	(2,140)
Net change in pension and benefit plan liabilities, net of tax	1,734	(9,937)	(7,100)
Unrealized gain (loss) on short-term investments, net of tax	(18)	57	(58)
Net change in unrealized gain (loss) on derivative financial instruments, net of tax	4,948	(2,467)	(3,641)
Other comprehensive income (loss), net of taxes	6,773	(13,567)	(12,939)
Comprehensive loss	$ (96,414)	$(298,125)	$(146,808)

The accompanying notes are an integral part of these consolidated financial statements.

Houghton Mifflin Harcourt Company
Consolidated Statements of Cash Flows

(in thousands of dollars)	Years Ended December 31, 2017	2016	2015
Cash flows from operating activities			
Net loss	$(103,187)	$(284,558)	$(133,869)
Adjustments to reconcile net loss to net cash provided by operating activities			
Depreciation and amortization expense	278,518	298,169	296,609
Amortization of debt discount and deferred financing costs	4,181	4,181	7,216
Deferred income taxes	(49,247)	(68,347)	48,214
Stock-based compensation expense	10,828	10,567	12,452
Loss on extinguishment of debt	—	—	3,051
Impairment charge for pre-publication costs and intangible assets	3,980	139,205	—
Restructuring charges related to property, plant, and equipment	10,167	—	—
Change in fair value of derivative instruments	1,366	614	2,362
Changes in operating assets and liabilities, net of acquisitions			
Accounts receivable	14,926	40,094	30,808
Inventories	7,771	9,031	26,228
Other assets	(10,548)	6,673	(2,562)
Accounts payable and accrued expenses	(7,149)	(23,685)	13,145
Royalties payable and author advances, net	(1,733)	(12,774)	6,238
Deferred revenue	(15,248)	37,658	124,489
Interest payable	129	87	59
Severance and other charges	221	4,315	(3,615)
Accrued pension and postretirement benefits	(6,932)	3,675	(4,869)
Other liabilities	(2,913)	(21,154)	(77,597)
Net cash provided by operating activities	135,130	143,751	348,359
Cash flows from investing activities			
Proceeds from sales and maturities of short-term investments	80,690	197,724	286,732
Purchases of short-term investments	(86,211)	(81,086)	(198,633)
Additions to pre-publication costs	(139,108)	(124,031)	(103,709)
Additions to property, plant, and equipment	(58,294)	(105,553)	(82,987)
Acquisition of business, net of cash acquired	—	—	(578,190)
Acquisition of intangible asset	(2,000)	—	—
Investment in preferred stock	—	(1,000)	—
Net cash used in investing activities	(204,923)	(113,946)	(676,787)
Cash flows from financing activities			
Proceeds from term loan, net of discount	—	—	796,000
Payments of long-term debt	(8,000)	(8,000)	(247,125)
Payments of deferred financing fees	—	—	(15,255)
Repurchases of common stock (related parties of $193,493 in 2015)	—	(55,017)	(463,013)
Tax withholding payments related to net share settlements of restricted stock units and awards	(1,450)	(1,672)	(658)
Proceeds from stock option exercises	512	24,532	36,155
Issuance of common stock under employee stock purchase plan	1,608	2,197	—
Net cash (used in) provided by financing activities	(7,330)	(37,960)	106,104
Net decrease in cash and cash equivalents	(77,123)	(8,155)	(222,324)
Cash and cash equivalent at the beginning of the period	226,102	234,257	456,581
Cash and cash equivalent at the end of the period	$ 148,979	$ 226,102	$ 234,257
Supplemental disclosure of cash flow information			
Interest paid	$ 38,295	$ 34,884	$ 24,412
Income taxes paid	715	5,104	2,987
Non-cash investing and financing activities			
Pre-publication costs included in accounts payable	$ 16,681	$ 14,397	$ 14,642
Property, plant, and equipment included in accounts payable	11,403	5,707	6,202
Property, plant, and equipment acquired under capital leases	—	—	1,356
Amounts due from seller for acquisition	—	—	2,884
Issuance of common stock upon exercise of warrants	—	—	1,815

The accompanying notes are an integral part of these consolidated financial statements.

Houghton Mifflin Harcourt Company
Consolidated Statements of Stockholders' Equity

(in thousands of dollars, except share information)	Common Stock Shares Issued	Common Stock Par Value	Treasury Stock	Capital in excess of Par Value	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total
Balance at December 31, 2014	142,000,019	$1,420	$ —	$4,784,962	$(2,999,913)	$(26,789)	$1,759,680
Net loss	—	—	—	—	(133,869)	—	(133,869)
Other comprehensive loss, net of tax	—	—	—	—	—	(12,939)	(12,939)
Issuance of common stock for exercise of warrants	70,513	1	—	(1)	—	—	—
Issuance of common stock for vesting of restricted stock units	67,725	1	—	(1)	—	—	—
Issuance of common stock for exercise of stock options	2,932,839	29	—	36,926	—	—	36,955
Issuance of restricted stock	542,882	5	—	(5)	—	—	—
Stock withheld to cover tax withholdings requirements upon vesting of restricted stock units	—	—	—	(658)	—	—	(658)
Repurchases of common stock (related parties of $193,493)	—	—	(463,013)	—	—	—	(463,013)
Stock-based compensation expense	—	—	—	12,165	—	—	12,165
Balance at December 31, 2015	145,613,978	1,456	(463,013)	4,833,388	(3,133,782)	(39,728)	1,198,321
Net loss	—	—	—	—	(284,558)	—	(284,558)
Other comprehensive loss, net of tax	—	—	—	—	—	(13,567)	(13,567)
Issuance of common stock for employee purchase plan	140,579	1	—	2,777	—	—	2,778
Issuance of common stock for vesting of restricted stock units and awards	102,151	1	—	(1)	—	—	—
Issuance of common stock for exercise of stock options	1,879,924	19	—	23,714	—	—	23,733
Stock withheld to cover tax withholdings requirements upon vesting of restricted stock units and awards	—	—	—	(1,672)	—	—	(1,672)
Restricted stock forfeitures and cancellations	(179,828)	(2)	—	2	—	—	—
Repurchases of common stock	—	—	(55,017)	—	—	—	(55,017)
Stock-based compensation expense	—	—	—	10,022	—	—	10,022
Balance at December 31, 2016	147,556,804	1,475	(518,030)	4,868,230	(3,418,340)	(53,295)	880,040
Net loss	—	—	—	—	(103,187)	—	(103,187)
Other comprehensive loss, net of tax	—	—	—	—	—	6,773	6,773
Issuance of common stock for employee purchase plan	176,749	2	—	2,130	—	—	2,132
Issuance of common stock for vesting of restricted stock units and awards	175,555	2	—	(2)	—	—	—
Issuance of common stock for exercise of stock options	39,200	—	—	512	—	—	512
Stock withheld to cover tax withholdings requirements upon vesting of restricted stock units and awards	—	—	—	(1,450)	—	—	(1,450)
Restricted stock forfeitures and cancellations	(36,842)	—	—	—	—	—	—
Stock-based compensation expense	—	—	—	10,373	—	—	10,373
Balance at December 31, 2017	147,911,466	$1,479	$(518,030)	$4,879,793	$(3,521,527)	$(46,522)	$ 795,193

The accompanying notes are an integral part of these consolidated financial statements.

(in thousands of dollars, except share and per share information)

1. Basis of Presentation

Houghton Mifflin Harcourt Company ("HMH", "Houghton Mifflin Harcourt", "we", "us", "our", or the "Company") is a global learning company, specializing in world-class content, services and cutting edge technology solutions that enable learning in a changing landscape. We provide dynamic, engaging, and effective solutions across a variety of media and in three key focus areas: early learning, kindergarten through 12th grade ("K-12") and beyond the classroom, reaching over 50 million students in more than 150 countries worldwide.

The K-12 market is our primary market, and in the United States, we are a leading provider of educational content by market share. Some of our core educational offerings include *HMH Science Dimensions*, *Collections*, *GO! Math*, *Read 180* Universal, and *Journeys*. We believe our long-standing reputation and trusted brand enable us to capitalize on trends in the education market through our existing and developing channels.

Furthermore, for nearly two centuries, we have published renowned and awarded children's, fiction, nonfiction, culinary and reference titles enjoyed by readers throughout the world. Our distinguished author list includes ten Nobel Prize winners, forty-eight Pulitzer Prize winners, and fifteen National Book Award winners. We are home to popular characters and titles such as Curious George, Carmen Sandiego, *The Lord of the Rings, The Whole30,* The Best American Series, the Peterson Field Guides, CliffsNotes, and *The Polar Express,* and published distinguished authors such as Philip Roth, Temple Grandin, Tim O'Brien, Amos Oz, Kwame Alexander, Lois Lowry, and Chris Van Allsburg.

We sell our products and services across multiple media and distribution channels. Leveraging our portfolio of content, including some of our best-known children's brands and titles, such as Carmen Sandiego and Curious George, we have created interactive digital content, mobile applications and educational games that can be used by families at home or on the go.

Our digital products portfolio, combined with our content development or distribution agreements with recognized technology leaders such as Apple, Google, Intel and Microsoft, enable us to bring our next-generation educational solutions and content to learners across virtually all platforms and devices. Additionally, we believe our technology and development capabilities allow us to enhance content engagement and effectiveness with embedded assessment, interactivity and personalized adaptable content as well as increased accessibility.

The consolidated financial statements of HMH include the accounts of all of our wholly-owned subsidiaries as of December 31, 2017 and 2016 and for the periods ended December 31, 2017, 2016 and 2015.

The accompanying consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP"). Our accompanying consolidated financial statements include the results of operations of the Company and our wholly-owned subsidiaries. All material intercompany accounts and transactions are eliminated in consolidation.

Seasonality and Comparability

Our net sales, operating profit or loss and net cash provided by or used in operations are impacted by the inherent seasonality of the academic calendar. Consequently, the performance of our businesses may not be comparable quarter to consecutive quarter and should be considered on the basis of results for the whole year or by comparing results in a quarter with results in the same quarter for the previous year.

Approximately 87% of our net sales for the year ended December 31, 2017 were derived from our Education segment, which is a markedly seasonal business. Schools conduct the majority of their purchases in the second and third quarters of the calendar year in preparation for the beginning of the school year. Thus, for the years ended December 31, 2017, 2016 and 2015, approximately 67% of our consolidated net sales were realized in the second and third quarters. Sales of K-12 instructional materials and customized testing products are also cyclical with some years offering more sales opportunities than others in light of the state adoption calendar. The amount of funding available at the state level for educational materials also has a significant effect on year-to-year net sales. Although the loss of a single customer would not have a material adverse effect on our business, schedules of school adoptions and market acceptance of our products can materially affect year-to-year net sales performance.

2. Significant Accounting Policies

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires the use of estimates, assumptions and judgments by management that affect the reported amounts of assets, liabilities, revenues, expenses, and related disclosure of contingent assets and liabilities in the amounts reported in the financial statements and accompanying notes. On an ongoing basis, we evaluate our estimates and assumptions including, but not limited to, book returns, allowance for bad debts, recoverability of advances to authors, valuation of inventory, depreciation and amortization periods, recoverability of long-term assets such as property, plant, and equipment, capitalized pre-publication costs, other identified intangibles, goodwill, deferred revenue, income taxes, pensions and other postretirement benefits, contingencies, and litigation. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from those estimates.

Revenue Recognition

We derive revenue primarily from the sale of print and digital content and instructional materials, trade books, reference materials, assessment materials and multimedia instructional programs; license fees for book rights, content and software; and services that include test development, test delivery, test scoring, professional development, consulting and training as well as access to hosted interactive content. Revenue is recognized only once persuasive evidence of an arrangement with the customer exists, the sales price is fixed or determinable, delivery of products or services has occurred, title and risk of loss with respect to products have transferred to the customer, all significant obligations, if any, have been performed, and collection is reasonably assured.

We enter into certain contractual arrangements that have multiple elements, one or more of which may be delivered subsequent to the delivery of other elements. These multiple-deliverable arrangements may include print and digital media, professional development services, training, software licenses, access to hosted content, and various services related to the software including but not limited to hosting, maintenance and support, and implementation. For these multiple-element arrangements, we allocate revenue to each deliverable of the arrangement based on the relative selling prices of the deliverables. In such circumstances, we first determine the selling price of each deliverable based on (i) vendor-specific objective evidence of fair value (“VSOE”) if that exists, (ii) third-party evidence of selling price (“TPE”) when VSOE does not exist, or (iii) our best estimate of the selling price when neither VSOE nor TPE exists.

Revenue is then allocated to the non-software deliverables as a group and to the software deliverables as a group using the relative selling prices of each of the deliverables in the arrangement, based on the selling price hierarchy. Non-software deliverables include print and digital textbooks and instructional materials, trade books, reference materials, assessment materials and multimedia instructional programs; licenses to book rights and content; access to hosted content; and services including test development, test delivery, test scoring, professional development, consulting and training when those services do not relate to software deliverables. Software deliverables include software licenses, software maintenance and support services, professional services and training when those services relate to software deliverables.

For the non-software deliverables, we determine the revenue for each deliverable based on its relative selling price in the arrangement and we recognize revenue upon delivery of the product or service, assuming all other revenue recognition criteria have been met. Revenue for test delivery, test scoring and training is recognized when the service has been completed. Revenue for test development, professional development, consulting and training is recognized as the service is provided. Revenue for access to hosted interactive content is recognized ratably over the term of the arrangement.

For the software deliverables as a group, we recognize revenue in accordance with the authoritative guidance for software revenue recognition. As our software licenses are typically sold with maintenance and support, professional services or training, we use the residual method to determine the amount of software license revenue to be recognized if VSOE has not been established for all deliverables. Under the residual method, arrangement consideration of the software deliverables as a group is allocated to the undelivered elements based upon VSOE of those elements, with the residual amount of the arrangement fee allocated to and recognized as license revenue upon delivery, assuming all other revenue recognition criteria have been met. If VSOE of one or more of the undelivered services or other elements does not exist, all revenues of the software-deliverables arrangement are deferred until delivery of all of those services or other elements has occurred, or until VSOE of each of those services or other elements can be established.

As products are shipped with right of return, a provision for estimated returns on these sales is made at the time of sale based on historical experience by product line or customer.

Shipping and handling fees charged to customers are included in net sales.

Refer to “Recent Accounting Standards” for the expected impact of our adoption of the new revenue standard.

Advertising Costs and Sample Expenses

Advertising costs are charged to selling and administrative expenses as incurred. Advertising costs were $12.6 million, $11.2 million and $9.1 million for the years ended December 31, 2017, 2016 and 2015, respectively. Sample expenses are charged to selling and administrative expenses when the samples are shipped.

Cash and Cash Equivalents

Cash and cash equivalents consist primarily of cash in banks and highly liquid investment securities that have maturities of three months or less when purchased. The carrying amount of cash equivalents approximates fair value because of the short-term maturity of these investments.

Short-term Investments

Short-term investments typically consist of marketable securities with maturities between three and twelve months at the balance sheet date. We have classified all of our short-term investments as available-for-sale at December 31, 2017 and 2016. The investments are reported at fair value with any unrealized gains or losses excluded from earnings and reported as a separate component of stockholders' equity as other comprehensive income (loss).

Accounts Receivable

Accounts receivable are recorded net of allowances for doubtful accounts and reserves for returns. In the normal course of business, we extend credit to customers that satisfy predefined criteria. We estimate the collectability of our receivables. Allowances for doubtful accounts are established through the evaluation of accounts receivable aging and prior collection experience to estimate the ultimate collectability of these receivables. Reserves for returns are based on historical return rates and sales patterns.

Inventories

Inventories are stated at the lower of weighted-average cost or net realizable value. The level of obsolete and excess inventory is estimated on a program or title level-basis by comparing the number of units in stock with past usage and the expected future demand. The expected future demand of a program or title is determined by the copyright year, the previous year's usage, the subsequent years' sales forecast, and known forward-looking trends including our development cycle to replace the title or program and competing titles or programs.

Property, Plant, and Equipment

Property, plant, and equipment are stated at cost, or in the case of assets acquired in business combinations, at fair value as of the acquisition date, less accumulated depreciation. Equipment under capital lease is stated at fair value at inception of the lease, less accumulated depreciation. Maintenance and repair costs are charged to expense as incurred, and renewals and improvements that extend the useful life of the assets are capitalized. Depreciation on property, plant, and equipment is calculated using the straight-line method over the estimated useful lives of the assets or, in the case of assets acquired in business combinations, over their remaining lives. Equipment held under capital leases and leasehold improvements are amortized using the straight-line method over the shorter of the lease term or estimated useful life of the asset. Estimated useful lives of property, plant, and equipment are as follows:

	Estimated Useful Life
Building and building equipment	10 to 35 years
Machinery and equipment	2 to 15 years
Capitalized software	3 to 5 years
Leasehold improvements	Lesser of useful life or lease term

Capitalized Internal-Use Software and Software Development Costs

Capitalized internal-use and external-use software are included in property, plant and equipment on the consolidated balance sheets.

We capitalize certain costs related to obtaining or developing computer software for internal use including external customer-facing websites. Costs incurred during the application development stage, including external direct costs of materials and services, and payroll and payroll related costs for employees who are directly associated with the internal-use software project, are capitalized and amortized on a straight-line basis over the expected useful life of the related software. The application development stage includes design of chosen path, software configuration and integration, coding, hardware installation and testing. Costs incurred during the preliminary project stage, as well as maintenance, training and upgrades that do not result in additional functionality subsequent to general release are expensed as incurred.

Certain computer software development costs for software that is to be sold or marketed are capitalized in the consolidated balance sheets. Capitalization of computer software development costs begins upon the establishment of technological feasibility. We define the establishment of technological feasibility as a working model. Amortization of capitalized computer software development costs is provided on a product-by-product basis using the straight-line method, beginning upon commercial release of the product, and continuing over the remaining estimated economic life of the product. The carrying amounts of computer software development costs are annually compared to net realizable value and impairment charges are recorded, as appropriate, when amounts expected to be realized are lower.

We review internal-use software and software development costs for impairment. For the years ended December 31, 2017, 2016 and 2015, there was no impairment of software developments costs.

Pre-publication Costs

We capitalize the art, prepress, manuscript and other costs incurred in the creation of the master copy of a book or other media (the "pre-publication costs"). Pre-publication costs are primarily amortized from the year of sale over five years using the sum-of-the-years-digits method, which is an accelerated method for calculating an asset's amortization. Under this method, the amortization expense recorded for a pre-publication cost asset is approximately 33% (year 1), 27% (year 2), 20% (year 3), 13% (year 4) and 7% (year 5). This policy is used throughout the Company, except for the Trade Publishing young readers and general interest books, which generally expenses such costs as incurred, and the assessment products, which uses the straight-line amortization method. Additionally, pre-publication costs recorded in connection with the acquisition of the EdTech business are amortized over 7 years on a projected sales pattern. The amortization methods and periods chosen best reflect the pattern of expected sales generated from individual titles or programs. We periodically evaluate the remaining lives and recoverability of capitalized pre-publication costs, which are often dependent upon program acceptance by state adoption authorities.

Amortization expense related to pre-publication costs for the years ended December 31, 2017, 2016 and 2015 were $126.0 million, $130.2 million and $120.5 million, respectively.

For the year ended December 31, 2017, an impairment charge for pre-publication costs of $4.0 million was recorded as certain products will no longer be sold in the marketplace. For the years ended December 31, 2016 and 2015, there was no impairment of pre-publication costs.

Goodwill and Indefinite-lived Intangible Assets

Goodwill is the excess of the purchase price paid over the fair value of the net assets of the business acquired. Other intangible assets principally consist of branded trademarks and trade names, acquired publishing rights and customer relationships. Goodwill and indefinite-lived intangible assets (certain tradenames) are not amortized but are reviewed at least annually for impairment or earlier, if an indication

of impairment exists. Goodwill is allocated entirely to our Education reporting unit. Determining the fair value of a reporting unit is judgmental in nature, and involves the use of significant estimates and assumptions. These estimates and assumptions may include revenue growth rates and operating margins used to calculate projected future cash flows, risk-adjusted discount rates, future economic and market conditions, the determination of appropriate market comparables as well as the fair value of individual assets and liabilities.

We have the option of first assessing qualitative factors to determine whether it is necessary to perform the current two-step impairment test for goodwill or we can perform the two-step impairment test without performing the qualitative assessment. In performing the qualitative (Step 0) assessment, events and circumstances specific to the reporting unit and to the entity as a whole, such as macroeconomic conditions, industry and market considerations, overall financial performance and cost factors are considered when evaluating whether it is more likely than not that the fair value of the reporting unit is less than its carrying amount.

Recoverability of goodwill can also be evaluated using a two-step process. In the first step, the fair value of a reporting unit is compared to its carrying value. If the fair value of a reporting unit exceeds the carrying value of the net assets assigned to a reporting unit, goodwill is considered not impaired and no further testing is required. If the carrying value of the net assets assigned to a reporting unit exceeds the fair value of a reporting unit, the second step of the impairment test is performed in order to determine the implied fair value of a reporting unit's goodwill. Determining the implied fair value of goodwill requires valuation of a reporting unit's tangible and intangible assets and liabilities in a manner similar to the allocation of purchase price in a business combination. If the carrying value of a reporting unit's goodwill exceeds its implied fair value, goodwill is deemed impaired and is written down to the extent of the difference. We estimate total fair value of the Education reporting unit by preparing a discounted cash flow analysis using forward looking projections of the Education reporting units' future operating results and by comparing the value of the Education reporting unit to the implied market value of selected peers. The significant assumptions used in the discounted cash flow analysis include: future net sales and net sales growth, gross margins, other operating expenses, working capital levels, investments in new products, capital spending, tax, cash flows, the discounted rate used to present value future cash flows and the terminal value of the Education reporting unit. The discount rate is based on the weighted-average cost of capital method at the date of the evaluation. With regard to indefinite-lived intangible assets, the recoverability is evaluated using a one-step process whereby we determine the fair value by asset, which is then compared to its carrying value to determine if the assets are impaired.

We completed our annual goodwill impairment tests as of October 1, 2017 and 2016. In 2017 and 2016, we used income and market valuation approaches to determine the fair value of the Education reporting unit and used the most recent five year strategic plan as the initial basis of our analysis. We performed an interim quantitative evaluation as of December 31, 2017 related to our decreased market capitalization. The fair value of the Education reporting unit substantially exceeded its carrying value as of the evaluation dates. No goodwill was deemed to be impaired for the years ended December 31, 2017, 2016 and 2015, respectively.

We completed our annual indefinite-lived intangible assets impairment tests as of October 1, 2017 and 2016. We recorded non-cash impairment charges of $139.2 million for the year ended December 31, 2016. The impairment charges related to four specific tradenames within the Education segment in 2016 and primarily resulted from the strategic decision to market our products under the Houghton Mifflin Harcourt and HMH name rather than legacy imprints along with certain declining sales projections. No indefinite-lived intangible assets were deemed to be impaired for the years ended December 31, 2017 and 2015.

Publishing Rights

A publishing right is an acquired right that allows us to publish and republish existing and future works as well as create new works based on previously published materials. We determine the fair market value of the publishing rights arising from business combinations by discounting the after-tax cash flows projected to be derived from the publishing rights and titles to their net present value using a rate of return that accounts for the time value of money and the appropriate degree of risk. The useful life of the publishing rights is based on the lives of the various copyrights involved. We calculate amortization using the percentage of the projected operating income before taxes derived from the titles in the current year as a percentage of the total estimated operating income before taxes over the remaining useful life. Acquired publication rights, as well as customer-related intangibles with definitive lives, are primarily amortized on an accelerated basis over periods ranging from 3 to 20 years.

Impairment of Other Long-lived Assets

We review our other long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be fully recoverable. If the future undiscounted cash flows are less than their book value, impairment exists. The impairment is measured as the difference between the book value and the fair value of the underlying asset. Fair value is normally determined using an undiscounted cash flow model.

Severance

We accrue postemployment benefits if the obligation is attributable to services already rendered, rights to those benefits accumulate, payment of benefits is probable, and amount of benefit is reasonably estimated. Postemployment benefits include severance benefits.

Subsequent to recording such accrued severance liabilities, changes in market or other conditions may result in changes to assumptions upon which the original liabilities were recorded that could result in an adjustment to the liabilities.

Royalty Advances

Royalty advances to authors are capitalized and represent amounts paid in advance of the sale of an author’s product and are recovered as earned. As advances are recorded, a partial reserve may be recorded immediately based primarily upon historical sales experience. Advances are evaluated periodically to determine if they are expected to be recovered. Any portion of a royalty advance that is not expected to be recovered is fully reserved. Cash payments for royalty advances are included within cash flows from operating activities, under the caption “Royalties payable and author advances, net,” in our consolidated statements of cash flows.

Income Taxes

We record income taxes using the asset and liability method. Deferred income tax assets and liabilities are recognized for future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective income tax basis, and operating loss and tax credit carryforwards. Our consolidated financial statements contain certain deferred tax assets which have arisen primarily as a result of interest expense limitations, as well as other temporary differences between

financial and tax accounting. We establish a valuation allowance if the likelihood of realization of the deferred tax assets is reduced based on an evaluation of objective verifiable evidence. Significant management judgment is required in determining our provision for income taxes, our deferred tax assets and liabilities and any valuation allowance recorded against those deferred tax assets. We evaluate the weight of all available evidence to determine whether it is more likely than not that some portion or all of the deferred income tax assets will not be realized.

We also evaluate any uncertain tax positions and only recognize the tax benefit from an uncertain tax position if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based on the technical merits of the position. The tax benefits recognized in the financial statements from such positions are then measured based on the largest benefit that has a greater than 50 percent likelihood of being realized upon settlement. We record a liability for unrecognized tax benefits resulting from uncertain tax positions taken or expected to be taken in a tax return. Any change in judgment related to the expected ultimate resolution of uncertain tax positions is recognized in earnings in the period in which such change occurs. Interest and penalties, if any, related to unrecognized tax benefits are recorded in income tax expense.

We have accounted for the tax effects of The Tax Cuts and Jobs Act, enacted on December 22, 2017, on a provisional basis. Our accounting for certain income tax effects is incomplete, but we have determined reasonable estimates for those effects. Our reasonable estimates are included in our financial statements as of December 31, 2017. We expect to complete our accounting during the one year measurement period from the enactment date. See Note 8 to the consolidated financial statements for further detail.

Stock-Based Compensation

Certain employees and directors have been granted stock options, restricted stock and restricted stock units in our common stock. Stock-based compensation expense reflects the fair value of stock-based awards measured at the grant date and recognized over the relevant service period. We estimate the fair value of each stock-based award on the measurement date using the current market price based on the target value of the award for restricted stock and restricted stock units, the Monte Carlo simulation for market-based restricted stock units and the Black-Scholes valuation model for stock options. We recognize stock-based compensation expense over the awards requisite service period on a straight-line basis for time based stock options, restricted stock and restricted stock units and on a graded basis for restricted stock and restricted stock units that are contingent on the achievement of performance conditions.

Comprehensive Loss

Comprehensive loss is defined as changes in the equity of an enterprise except those resulting from stockholder transactions. The amounts shown on the consolidated statements of stockholders' equity and comprehensive loss relate to the cumulative effect of changes in pension and postretirement liabilities, foreign currency translation gain and loss adjustments, unrealized gains and losses on short-term investments and gains and losses on derivative instruments.

Foreign Currency Translation

The functional currency for each of our subsidiaries is the currency of the primary economic environment in which the subsidiary operates, generally defined as the currency in which the entity generates and expends

cash. Foreign currency denominated assets and liabilities are translated into United States dollars at current rates as of the balance sheet date and the revenue, costs and expenses are translated at the average rates established during each reporting period. Cumulative translation gains or losses are recorded in equity as an element of accumulated other comprehensive income.

Financial Instruments

Derivative financial instruments are employed to manage risks associated with interest rate exposures and are not used for trading or speculative purposes. We recognize all derivative instruments in our consolidated balance sheets at fair value. Changes in the fair value of derivatives are recognized periodically either in earnings or in stockholders' equity as a component of accumulated other comprehensive loss, depending on whether the derivative financial instrument qualifies for hedge accounting and, if so, whether it qualifies as a fair value hedge or a cash flow hedge. Gains and losses on derivatives designated as hedges, to the extent they are effective, are recorded in other comprehensive loss, and subsequently reclassified to earnings to offset the impact of the hedged items when they occur. Changes in the fair value of derivatives not qualifying as hedges are reported in earnings. During 2017 and 2016, our interest rate swaps were designated as hedges and qualify for hedge accounting. Accordingly, we recorded an unrealized gain of $4.9 million and an unrealized loss of $2.5 million in our statements of comprehensive loss to account for the changes in fair value of these derivatives during the periods ended December 31, 2017 and 2016, respectively. The corresponding $1.2 million and $6.1 million hedge liability is included within long-term other liabilities in our consolidated balance sheet as of December 31, 2017 and 2016, respectively. Our foreign exchange forward contracts did not qualify for hedge accounting because we did not contemporaneously document our hedging strategy upon entering into the hedging arrangements.

Treasury Stock

We account for treasury stock under the cost method. When shares are reissued or retired from treasury stock they are accounted for at an average price. Upon retirement the excess over par value is charged against capital in excess of par value.

Net Loss per Share

Basic net loss per share attributable to common stockholders is computed by dividing net loss attributable to common stockholders by the weighted-average common shares outstanding during the period. Except where the result would be anti-dilutive, net loss per share is computed using the treasury stock method for the exercise of stock options. For periods in which the Company has reported net losses, diluted net loss per share attributable to common stockholders is the same as basic net loss per share attributable to common stockholders, since dilutive common shares are not assumed to have been issued if their effect is anti-dilutive. Diluted net loss per share attributable to common stockholders is the same as basic net loss per share attributable to common stockholders for the years ended December 31, 2017, 2016 and 2015.

Recent Accounting Standards

Recent accounting pronouncements, not included below, are not expected to have a material impact on our consolidated financial position and results of operations.

Recently Issued Accounting Standards

In March 2017, the Financial Accounting Standards Board ("FASB") issued guidance to improve the presentation of net periodic pension cost and net periodic post-retirement benefit cost. The changes to the guidance require employers to report the service cost component in the same line item as other compensation costs arising from services rendered by employees during the reporting period. The other components of net benefit costs will be presented in the income statement separately from the service cost and outside of a subtotal of income from operations. The guidance will be effective in 2018, and we believe it will not have a material impact on our consolidated financial statements.

In January 2017, the FASB issued updated guidance to simplify the test for goodwill impairment by the elimination of Step 2 in the determination on whether goodwill should be considered impaired. The annual assessments are still required to be completed. The guidance will be effective in 2020, with early adoption permitted. We are currently in the process of evaluating the impact of this guidance, but we do not expect it to have a material impact on our consolidated financial statements.

In November 2016, the FASB issued guidance on restricted cash, which requires amounts generally described as restricted cash and restricted cash equivalents be included with cash and cash equivalents when reconciling the total beginning and ending amounts for the periods shown on the statement of cash flows. The guidance will be effective in 2019 using a retrospective transition method to each period presented. We do not expect it to have a material impact on our consolidated financial statements.

In August 2016, the FASB issued a guidance update to classifications of certain cash receipts and cash payments on the Statement of Cash Flows with the objective of reducing the existing diversity in practice. This updated guidance addresses the following eight specific cash flow issues: debt prepayment or debt extinguishment costs; settlement of zero-coupon debt instruments or other debt instruments with coupon interest rates that are insignificant in relation to the effective interest rate of the borrowing; contingent consideration payments made after a business combination; proceeds from the settlement of insurance claims; proceeds from the settlement of corporate-owned life insurance policies (including bank-owned life insurance policies); distributions received from equity method investees; beneficial interests in securitization transactions; and separately identifiable cash flows and application of the predominance principle. The guidance will be effective in 2018, and we do not expect it to have a material impact on our consolidated financial statements.

In February 2016, the FASB issued guidance that primarily requires lessees to recognize most leases on their balance sheets but record expenses on their income statements in a manner similar to current accounting. For lessors, the guidance modifies the classification criteria and the accounting for sales-type and direct financing leases. The guidance is effective in 2019 with early adoption permitted. We are currently in the process of evaluating the impact of this guidance on our consolidated financial statements and footnote disclosures, but we believe the adoption of this guidance will have a material impact on our consolidated balance sheets due to the recognition of the lease rights and obligations related to our office space leases as assets and liabilities.

In May 2014, the FASB issued new guidance related to revenue recognition. This new accounting standard will replace most current U.S. GAAP guidance on this topic and eliminate most industry-specific guidance. The new revenue recognition standard provides a unified model to determine when and how revenue is recognized. The core principle is that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration for which the entity expects to be

entitled in exchange for those goods or services. Entities may adopt the new standard either retrospectively to all periods presented in the financial statements (the full retrospective method) or as a cumulative-effect adjustment as of the date of adoption (modified retrospective method) in the year of adoption without applying to comparative periods financial statements. Further, in August 2015, the FASB issued guidance to defer the effective adoption date by one year to December 15, 2017 for annual reporting periods beginning after that date and permitted early adoption of the standard, but not before fiscal years beginning after the original effective date of December 15, 2016. We will adopt the guidance for the annual reporting period beginning on January 1, 2018 using the modified retrospective method.

As the new standard will supersede substantially all existing revenue recognition guidance, we believe it will impact the revenue recognition for a significant number of our contracts, in addition to our business processes and our information technology systems. As a result, we established a cross-functional coordinated team to implement the new revenue recognition standard. We have implemented changes to our systems, processes and internal controls to meet the standard's reporting and disclosure requirements.

We have evaluated the impact of the adoption of the new revenue recognition standard and expect it will be significant to our consolidated financial statements and footnote disclosures, principally as it relates to the following areas:

- **Software licenses** – we believe there will be an impact to our accounting for software license revenue. Under the current guidance, our software licenses may be recognized ratably over the life of the service period. This is due to vendor specific objective evidence ("VSOE") not being established for the undelivered maintenance services as they are not sold separately from the software licenses. The requirement for establishing VSOE does not exist under the new standard and will require us to recognize the software license revenue at a point in time, which is predominately at the time of delivery.
- **Incremental costs to acquire new contracts** – in accordance with the new guidance, we plan to capitalize and amortize sales commission fees based on the transfer of goods or services to which the assets relate, whereas we currently expense those costs as incurred. Further, we expect to apply a practical expedient whereby we recognize the incremental costs of obtaining contracts as an expense when incurred if the amortization period of the assets that we otherwise would have recognized is one year or less. These costs are included in selling, general, and administrative expenses.

Recently Adopted Accounting Standards

In March 2016, the FASB issued guidance that changes the accounting for certain aspects of share-based payments to employees. The guidance requires the recognition of the income tax effects of awards in the income statement when the awards vest or are settled, thus eliminating additional paid-in capital pools. The guidance also allows for the employer to repurchase more of an employee's shares for tax withholding purposes without triggering liability accounting. In addition, the guidance allows for a policy election to account for forfeitures as they occur rather than on an estimated basis. The guidance became effective January 1, 2017. The adoption of the guidance resulted in the recognition of approximately $12.3 million (tax effected) of previously unrecorded additional paid-in capital net operating losses as of January 1, 2017. The additional net operating losses were offset by an increase to the valuation allowance, accordingly no income tax benefit was recognized as a result of the adoption.

3. Acquisitions

On April 23, 2015, we entered into a stock and asset purchase agreement with Scholastic Corporation ("Scholastic") to acquire certain assets (including the stock of two of Scholastic's subsidiaries) comprising its Educational Technology and Services ("EdTech") business. On May 29, 2015, we completed the acquisition and paid an aggregate purchase price of $574.8 million in cash to Scholastic, including adjustments for working capital. The acquisition provided us with a leading position in intervention curriculum and services and extends our product offerings in key growth areas, including educational technology, early learning, and education services, creating a more comprehensive offering for students, teachers and schools. The transaction was accounted for under the acquisition method of accounting. Accordingly, the results of operations of the purchased assets of EdTech are included in our consolidated financial statements from the date of acquisition. Transaction costs related to the acquisition were approximately $5.2 million during the year ended December 31, 2015 and are included in the selling and administrative line item in our consolidated statements of operations.

The unaudited pro forma information presented in the following table summarizes the consolidated results of operations for the periods presented as if the acquisition of EdTech had occurred on January 1, 2014. The pro forma financial information is presented for comparative purposes only and is not necessarily indicative of the results of operations that actually would have been achieved if the acquisition had occurred at the beginning of the period, nor is it intended to be a projection of future results. The pro forma results include estimates of the interest expense on debt used to finance the acquisition, the amortization of the other intangible assets recorded in connection with the acquisition, the impact of the write-down of acquired deferred revenue to fair value and the related tax effects of the adjustments.

	Unaudited
	Year Ended December 31, 2015
Net sales	$1,486,810
Net loss	(144,830)

For the 2015 fiscal year, we recorded approximately $142.2 million of net sales and $25.9 million of operating income attributable to EdTech within our consolidated statements of operations since the date of acquisition, May 29, 2015.

4. Balance Sheet Information

Short-term Investments

The following table shows the gross unrealized losses and market value of our available-for-sale securities with unrealized losses that are not deemed to be other-than-temporary, aggregated by investment category:

	December 31, 2017			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value
Short-term investments:				
U.S. Government and agency securities	$86,467	$—	$(18)	$86,449

	December 31, 2016			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value
Short-term investments:				
U.S. Government and agency securities	$80,784	$91	$(34)	$80,841

The contractual maturities of our short-term investments are one year or less.

Account Receivable

Accounts receivable at December 31, 2017 and 2016 consisted of the following:

	2017	2016
Accounts receivable	$224,664	$238,553
Allowance for bad debt	(2,598)	(3,576)
Reserve for book returns	(20,986)	(18,971)
	$201,080	$216,006

As of December 31, 2017, there was one individual customer that comprised approximately 10% of our accounts receivable, net balance. As of December 31, 2016, no individual customer comprised more than 10% of our accounts receivable, net balance. We believe that our accounts receivable credit risk exposure is limited and we have not experienced significant write-downs in our accounts receivable balances.

Inventories

Inventories at December 31, 2017 and 2016 consisted of the following:

	2017	2016
Finished goods	$145,875	$157,925
Raw materials	8,769	4,490
Inventories	$154,644	$162,415

Property, Plant, and Equipment

Balances of major classes of assets and accumulated depreciation and amortization at December 31, 2017 and 2016 were as follows:

	2017	2016
Land and land improvements	$ 4,923	$ 4,923
Building and building equipment	9,867	9,867
Machinery and equipment	31,843	23,339
Capitalized software	539,517	497,803
Leasehold improvements	23,652	27,196
	609,802	563,128
Less: Accumulated depreciation and amortization	(455,896)	(387,926)
Property, plant, and equipment, net	$ 153,906	$ 175,202

For the year ended December 31, 2017, 2016 and 2015, depreciation and amortization expense related to property, plant, and equipment were $75.5 million, $79.8 million and $72.6 million, respectively.

Property, plant, and equipment at December 31, 2017 and 2016 included approximately $6.9 million acquired under capital lease agreements, of which the majority is included in machinery and equipment. There are no future minimum lease payments required under non-cancelable capital leases as of December 31, 2017.

Substantially all property, plant, and equipment are pledged as collateral under our Term Loan and Revolving Credit Facility.

5. Goodwill and Other Intangible Assets

Goodwill and other intangible assets consisted of the following:

	December 31, 2017			December 31, 2016		
	Cost	Accumulated Amortization	Total	Cost	Accumulated Amortization	Total
Goodwill	$ 783,073	$ —	$783,073	$ 783,073	$ —	$783,073
Trademarks and tradenames: indefinite-lived	$ 161,000	$ —	$161,000	$ 161,000	$ —	$161,000
Trademarks and tradenames: definite-lived	194,130	(19,101)	175,029	194,130	(6,961)	187,169
Publishing rights	1,180,000	(1,078,156)	101,844	1,180,000	(1,031,918)	148,082
Customer related and other	444,640	(271,850)	172,790	442,640	(253,242)	189,398
Other intangible assets, net	$1,979,770	$(1,369,107)	$610,663	$1,977,770	$(1,292,121)	$685,649

There were no changes in the carrying amount of goodwill for the year ended December 31, 2017.

In accordance with the provisions of the accounting standard for goodwill and other intangible assets, goodwill and certain indefinite-lived tradenames are not amortized but rather are assessed for impairment on an annual basis. In connection with this assessment, we recorded an impairment charge of approximately $139.2 million for certain of our indefinite-lived intangible assets, which has been reflected as of the measurement date of October 1, 2016. There was no impairment charge recorded in the years ended December 31, 2017 and 2015. There was no goodwill impairment for the years ended December 31, 2017, 2016 and 2015, respectively.

During 2016, certain tradenames were deemed to be definite-lived and accordingly, are being amortized over their estimated useful lives. This was due to our strategic decision to gradually migrate away from specific imprints, primarily the Holt McDougal and various supplemental brands, and in favor of marketing our products under the Houghton Mifflin Harcourt and HMH names. As a result of this change in estimate from indefinite-lived to definite-lived intangible assets, we recorded amortization expense of $9.6 million and $2.4 million during 2017 and 2016, respectively, related to these tradenames. During 2016, $139.4 million of previously indefinite-lived intangible assets were transferred to definite-lived intangible assets and $139.2 million of indefinite-lived intangible assets were impaired. Amortization expense for publishing rights and customer related and other intangibles were $77.0 million, $88.1 million and $103.0 million for the years ended December 31, 2017, 2016 and 2015, respectively.

During 2017, we acquired the remaining intellectual property rights to certain educational content and recorded an intangible asset of $2.0 million.

Estimated aggregate amortization expense expected for each of the next five years related to intangibles subject to amortization is as follows:

	Trademarks and Tradenames	Publishing Rights	Other Intangible Assets
2018	$ 12,362	$34,713	$ 16,059
2019	12,362	26,557	13,444
2020	12,362	20,056	9,594
2021	12,362	11,642	9,320
2022	12,362	7,569	9,119
Thereafter	113,219	1,307	115,254
	$175,029	$101,844	$172,790

6. Debt

Our debt consisted of the following:

	December 31, 2017	December 31, 2016
$800,000 term loan due May 29, 2021 interest payable quarterly (net of discount and issuance costs)	$768,194	$772,738
Less: Current portion of long-term debt	8,000	8,000
Total long-term debt, net of discount and issuance costs	$760,194	$764,738

During 2016, we retrospectively adopted the new standard relating to simplifying the presentation of debt issuance costs and reclassified debt issuance costs from other assets to long-term debt, net of discount and issuance costs, as of December 31, 2015.

Long-term debt repayments due in each of the next five years and thereafter is as follows:

Year	
2018	$ 8,000
2019	8,000
2020	8,000
2021	756,000
	$780,000

Term Loan Facility

In connection with our closing of the EdTech acquisition referred to in Note 3, we entered into an amended and restated term loan credit facility (the "term loan facility") dated as of May 29, 2015 to increase our outstanding term loan credit facility from $250.0 million, of which $178.9 million was outstanding, to $800.0 million, all of which was drawn at closing. The term loan facility matures on May 29, 2021 and the interest rate is based on LIBOR plus 3.0% or an alternative base rate plus applicable margins. LIBOR is subject to a floor of 1.0% with the length of the LIBOR contracts ranging up to six months at the option of the Company.

The term loan facility may be prepaid, in whole or in part, at any time, without premium. The term loan facility is required to be repaid in quarterly installments of $2.0 million.

The term loan facility was issued at a discount equal to 0.5% of the outstanding borrowing commitment. As of December 31, 2017, the interest rate of the term loan facility was 4.6%.

The term loan facility does not require us to comply with financial maintenance covenants. The term loan facility is subject to usual and customary conditions, representations, warranties and covenants, including restrictions on additional indebtedness, liens, investments, mergers, acquisitions, asset dispositions, dividends to stockholders, repurchase or redemption of our stock, transactions with affiliates and other matters. The term loan facility is subject to customary events of default. If an event of default occurs and is continuing, the administrative agent may, or at the request of certain required lenders shall, accelerate the obligations outstanding under the term loan facility.

We are subject to an excess cash flow provision under our term loan facility which is predicated upon our leverage ratio and cash flow. There was no payment required under the excess cash flow provision in 2017 and 2016. In accordance with the excess cash flow provision of the previous term loan facility, we made a $63.6 million principal payment on March 5, 2015. In connection with this principal payment, we accelerated the amortization of deferred financing costs of $2.0 million, which was recognized as interest expense in the consolidated statements of operations for the year ended December 31, 2015.

On May 29, 2015, in connection with the term loan facility described above, we paid off the remaining outstanding balance of our previous $250.0 million term loan facility of approximately $178.9 million. The transaction was accounted for under the guidance for debt modifications and extinguishments. We incurred a loss on extinguishment of debt of approximately $2.2 million related to the write-off of the portion of the unamortized deferred financing fees associated with the portion of the term loan accounted for as extinguishment associated with the term loan facility. We incurred approximately $15.6 million of third-party fees for the transaction, of which approximately $13.6 million were capitalized as deferred financing fees and approximately $2.0 million was recorded to expense and included in the selling and administrative line item in our consolidated statements of operations for the year ended December 31, 2015.

Interest Rate Hedging

On August 17, 2015, we entered into interest rate derivative contracts with various financial institutions having an aggregate notional amount of $400.0 million to convert floating rate debt into fixed rate debt and had $400.0 million outstanding as of December 31, 2017. We assessed at inception, and re-assess on an ongoing basis, whether the interest rate derivative contracts are highly effective in offsetting changes in the fair value of the hedged variable rate debt.

These interest rate swaps were designated as cash flow hedges and qualify for hedge accounting under the accounting guidance related to derivatives and hedging. Accordingly, we recorded an unrealized gain of $4.9 million and an unrealized loss of $2.5 million and $3.6 million in our statements of comprehensive loss to account for the changes in fair value of these derivatives during the periods ended December 31, 2017, 2016 and 2015, respectively. The corresponding $1.2 million and $6.1 million hedge liability is included within long-term other liabilities in our consolidated balance sheet as of December 31, 2017 and 2016, respectively. The interest rate derivative contracts mature on July 22, 2020.

Revolving Credit Facility

On July 22, 2015, we entered into an amended and restated revolving credit facility (the "revolving credit facility"). The revolving credit facility provides borrowing availability in an amount equal to the lesser of either $250.0 million or a borrowing base that is computed monthly or weekly and comprised of the borrowers' and the guarantors' eligible inventory and receivables. The revolving credit facility includes a letter of credit subfacility of $50.0 million, a swingline subfacility of $20.0 million and the option to expand the facility by up to $100.0 million in the aggregate under certain specified conditions. The revolving credit facility may be prepaid, in whole or in part, at any time, without premium. The transaction was accounted for under the accounting guidance for modifications to or exchanges of revolving debt arrangements. We incurred a loss on extinguishment of debt of approximately $0.9 million related to the write-off of the portion of the unamortized deferred financing fees associated with the portion of the revolving credit facility accounted for as an extinguishment. We incurred approximately $1.6 million of third-party fees which were capitalized as deferred financing fees.

The revolving credit facility requires the Company to maintain a minimum fixed charge coverage ratio of 1.0 to 1.0 on a trailing four-quarter basis only during certain periods commencing when excess availability under the revolving credit facility is less than certain limits prescribed by the terms of the revolving credit facility. The revolving credit facility is subject to usual and customary conditions, representations, warranties and covenants, including restrictions on additional indebtedness, liens, investments, mergers, acquisitions, asset dispositions, dividends to stockholders, repurchase or redemption of our stock, transactions with affiliates and other matters. The revolving credit facility is subject to customary events of default. No amounts have been drawn on the revolving credit facility as of December 31, 2017.

As of December 31, 2017, the minimum fixed charge coverage ratio covenant under our revolving credit facility was not applicable, due to our level of borrowing availability. The minimum fixed charge coverage ratio, which is only tested in limited situations, is 1.0 to 1.0 through the end of the facility.

Guarantees

Under both the revolving credit facility and the term loan facility, Houghton Mifflin Harcourt Publishers Inc., HMH Publishers LLC and Houghton Mifflin Harcourt Publishing Company are the borrowers (collectively, the "Borrowers"), and Citibank, N.A. acts as both the administrative agent and the collateral agent.

The obligations under our senior secured facilities are guaranteed by the Company and each of its direct and indirect for-profit domestic subsidiaries (other than the Borrowers) (collectively, the "Guarantors") and are secured by all capital stock and other equity interests of the Borrowers and the Guarantors and substantially all of the other tangible and intangible assets of the Borrowers and the Guarantors, including, without limitation, receivables, inventory, equipment, contract rights, securities, patents, trademarks, other intellectual property, cash, bank accounts and securities accounts and owned real estate. The revolving credit facility is secured by first priority liens on receivables, inventory, deposit accounts, securities accounts, instruments, chattel paper and other assets related to the foregoing (the "Revolving First Lien Collateral"), and second priority liens on the collateral which secures the term loan facility on a first priority basis. The term loan facility is secured by first priority liens on the capital stock and other equity interests of the Borrowers and the Guarantors, equipment, owned real estate, trademarks and other intellectual property, general intangibles that are not Revolving First Lien Collateral and other assets related to the foregoing, and second priority liens on the Revolving First Lien Collateral.

7. Restructuring, Severance and Other Charges

2017 Restructuring Plan

On an ongoing basis, we assess opportunities for improved operational effectiveness and efficiency and better alignment of expenses with net sales, while preserving our ability to make the investments in content and our people that we believe are important to our long-term success. As a result of these assessments, we have undertaken a restructuring initiative in order to enhance our growth potential and better position us for long-term success. This initiative is described below.

Beginning at the end of 2016, we worked with a third party consultant to review our operating model and organizational design in order to improve our operational efficiency, better focus on the needs of our customers and right-size our cost structure to create long-term shareholder value.

In March 2017, we committed to certain operational efficiency and cost-reduction actions we planned to take in order to accomplish these objectives ("2017 Restructuring Plan"). These actions include making organizational design changes across layers of the Company below the executive team and other right-sizing initiatives expected to result in reductions in force, consolidating and/or subletting certain office space under real estate leases as well as other potential operational efficiency and cost-reduction initiatives. We have substantially completed the organizational design change actions and expect to substantially complete the remaining actions by the end of 2018.

Implementation of actions under the 2017 Restructuring Plan is expected to result in total charges of approximately $45.0 million to $49.0 million, of which approximately $35.0 million to $39.0 million of these charges are estimated to result in future cash outlays. Previously, the range of expected charges for the 2017 Restructuring Plan was $41.0 million to $45.0 million of which approximately $32.0 million to $36.0 million was estimated to result in future cash outlays. The increase is primarily due to a change in the estimate of office space that the Company will be able to vacate along with higher cost of implementation. We recorded cash-related costs of $30.5 million for the year ended December 31, 2017, of which a portion of these expenses totaling approximately $16.2 million were related to severance and termination benefits for the year ended December 31, 2017, with the remaining amount of approximately $14.3 million related to implementation of the plan and real estate consolidation costs. These costs are included in the restructuring line item within our consolidated statements of operations.

The following table provides a summary of our total costs associated with the 2017 Restructuring Plan, included in the restructuring line item within our consolidated statements of operations, for the year ended December 31, 2017 by major type of cost:

Type of Cost	Year Ended December 31, 2017	Total Amount Incurred to Date
Restructuring charges: (1)		
Severance and termination benefits	$16,206	$16,206
Office space consolidation (2)	7,857	7,857
Implementation and impairment (3)	16,590	16,990
	$40,653	$41,053

(1) All restructuring charges are included within Corporate and Other.
(2) During the year ended December 31, 2017, we recorded a non-cash charge for a write-off of property, plant, and equipment of approximately $1.0 million and $6.8 million of accruals related to vacating certain office space in three of our locations.
(3) During the year ended December 31, 2017, we recorded a non-cash impairment charge of approximately $9.1 million related to a certain long-lived asset included within property, plant, and equipment.

Our restructuring liabilities are primarily comprised of accruals for severance and termination benefits and office space consolidation. The following is a rollforward of our liabilities associated with the 2017 Restructuring Plan:

	2017			
	Restructuring accruals at December 31, 2016	Charges	Cash payments	Restructuring accruals at December 31, 2017
Severance and termination benefits	$—	$16,206	$(11,900)	$4,306
Office space consolidation	—	6,808	(1,512)	5,296
Implementation	—	7,472	(7,472)	—
	$—	$30,486	$(20,884)	$9,602

The following table provides a summary of our updated estimates of costs associated with the 2017 Restructuring Plan through the end of 2018 by major type of cost:

Type of Cost	Total Estimated Amount Expected to be Incurred		
Restructuring charges:			
Severance and termination benefits	$15,000	to	$16,500
Office space consolidation	13,000	to	15,000
Implementation and impairment	17,000	to	17,500
	$45,000	to	$49,000

Severance and Other Charges

2017

Exclusive of the 2017 Restructuring Plan, during the year ended December 31, 2017, $7.0 million of severance payments were made to employees whose employment ended in 2017 and prior years and $3.1 million of net payments were made for office space no longer utilized by the Company as a result of prior savings initiatives. Further, we recorded an expense in the amount of $0.9 million to reflect costs for severance, which we expect to be paid over the next twelve months, along with a favorable $0.2 million adjustment for office space no longer occupied.

2016

During the year ended December 31, 2016, $7.4 million of severance payments were made to employees whose employment ended in 2016 and prior years and $3.9 million of net payments for office space no longer utilized by the Company. Further, we recorded an expense in the amount of $12.4 million to reflect additional costs for severance, which we expect to be paid over the next twelve months, along with a $3.3 million accrual for vacated space.

2015

During the year ended December 31, 2015, $4.2 million of severance payments were made to employees whose employment ended in 2015 and prior years and $4.2 million of net payments for office space no longer utilized by the Company. Further, we recorded an expense in the amount of $4.3 million to reflect additional costs for severance, which have been fully paid, along with a $0.4 million accrual for vacated space.

A summary of the significant components of the severance/restructuring and other charges, which are not allocated to our segments and included in Corporate and Other, is as follows:

	2017			
	Severance/ other accruals at December 31, 2016	Severance/ other expense	Cash payments	Severance/ other accruals at December 31, 2017
Severance costs	$ 6,417	$ 889	$ (6,965)	$ 341
Other accruals	4,604	(176)	(3,129)	1,299
	$11,021	$ 713	$(10,094)	$1,640

	2016			
	Severance/ other accruals at December 31, 2015	Severance/ other expense	Cash payments	Severance/ other accruals at December 31, 2016
Severance costs	$1,455	$12,350	$ (7,388)	$ 6,417
Other accruals	5,251	3,300	(3,947)	4,604
	$6,706	$15,650	$(11,335)	$11,021

	2015			
	Severance/ other accruals at December 31, 2014	Severance/ other expense	Cash payments	Severance/ other accruals at December 31, 2015
Severance costs	$ 1,271	$4,338	$(4,154)	$1,455
Other accruals	9,050	429	(4,228)	5,251
	$10,321	$4,767	$(8,382)	$6,706

The current portion of the severance and other charges was $6.9 million (inclusive of the 2017 Restructuring Plan) and $8.9 million as of December 31, 2017 and 2016, respectively.

8. Income Taxes

Effects of the Tax Cuts and Jobs Act

New tax legislation, commonly referred to as the Tax Cuts and Jobs Act (the "2017 Tax Act"), was enacted on December 22, 2017. Accounting for income taxes requires companies to recognize the effect of tax law changes in the period of enactment even though the effective date for most provisions of the 2017 Tax Act is for tax years beginning after December 31, 2017.

Given the significance of the legislation, the SEC staff issued Staff Accounting Bulletin No. 118 ("SAB 118"), which allows registrants to record provisional amounts during a one year "measurement period" similar to that used when accounting for business combinations. However, the measurement period is deemed to have ended earlier when the registrant has obtained, prepared and analyzed the information necessary to finalize its accounting. During the measurement period, impacts of the law are expected to be recorded at the time a reasonable estimate for all or a portion of the effects can be made, and provisional amounts can be recognized and adjusted as information becomes available, prepared or analyzed.

SAB 118 summarizes a three-step process to be applied at each reporting period to account for and qualitatively disclose: (1) the effects of the change in tax law for which accounting is complete; (2) provisional amounts (or adjustments to provisional amounts) for the effects of the tax law where accounting is not complete, but that a reasonable estimate has been determined; and (3) a reasonable estimate cannot yet be made and therefore taxes are reflected in accordance with law prior to the enactment of the Tax Cuts and Jobs Act.

The 2017 Tax Act reduces the U.S. federal corporate income tax rate from 35% to 21%, provides for an indefinite carryforward of net operating losses arising from tax years ending after December 31, 2017 limited to a deduction of 80% of taxable income, requires companies to pay a one-time transition tax on earnings of certain foreign subsidiaries that were previously tax deferred and creates new taxes on certain foreign earnings. We have not completed our accounting for the effects of the 2017 Tax Act; however, we have made a reasonable estimate of those effects. Accordingly, we have recognized a provisional income tax benefit of $71.9 million, which is included as a component of the income tax provision on our consolidated statement of operations.

Included in this provisional amount is (i) a $31.5 million benefit reflecting the revaluation of our net deferred tax liability resulting from indefinite-lived intangibles based on a U.S. federal tax rate of 21% and (ii) a $40.4 million benefit from a release of valuation allowance against net deferred tax assets. This is as a result of the provisions of the 2017 Tax Act that would extend net operating losses generated in taxable years beginning after December 31, 2017 to an unlimited carryforward period subject to an 80% utilization against future taxable earnings. The Company scheduled out the reversal of deferred tax assets and liabilities as of December 31, 2017 and determined that they would reverse into an indefinite-lived net operating loss. As a result, the Company’s indefinite-lived deferred tax liabilities could be used as a source of future taxable income in the Company’s assessment of its realization of the net indefinite-lived deferred tax asset. Our preliminary estimate is subject to the finalization of management’s analysis related to certain matters, such as developing interpretations of the provisions of the 2017 Tax Act and its effect on state income taxes. U.S. Treasury regulations, administrative interpretations or court decisions interpreting the 2017 Tax Act may require further adjustments and changes in our estimates. The final determination of the revaluation of our net deferred tax liability and release of the valuation allowance against net deferred tax assets will be completed as additional information becomes available, but no later than one year from the enactment of the 2017 Tax Act.

The new law also includes a one-time mandatory repatriation transition tax on the net accumulated earnings and profits of a U.S. taxpayer’s foreign subsidiaries. The Company has performed an earnings and profits analysis, and as a result of accumulated losses since inception of the Company, there will be no income tax effect in the current or any future period.

Effects of tax law changes where a reasonable estimate of the accounting effects has not yet been made include the inclusion of commissions and performance based compensation in determining the excessive compensation limitation. Other significant provisions that are not yet effective but may impact income taxes in future years include: an exemption from U.S. tax on dividends of future foreign earnings, limitation on the current deductibility of net interest expense in excess of 30 percent of adjusted taxable income, an incremental tax (base erosion anti-abuse tax, or “BEAT”) on excessive amounts paid to foreign related parties, and a minimum tax on certain foreign earnings in excess of 10% of the foreign subsidiaries tangible assets (i.e., global intangible low-taxed income, or “GILTI”).

For the GILTI provisions of the 2017 Tax Act, a provisional estimate could not be made as the Company has not completed its assessment or elected an accounting policy to either recognize deferred taxes for basis differences expected to reverse as GILTI or to record GILTI as period costs if and when incurred.

The substantial 2017 impact of the enactment of the 2017 Tax Act is reflected in the tables below.

The components of loss before taxes by jurisdiction are as follows:

	For the Year Ended December 31, 2017	For the Year Ended December 31, 2016	For the Year Ended December 31, 2015
U.S.	$(154,065)	$(353,038)	$(161,513)
Foreign	443	2,988	8,004
Loss before taxes	$(153,622)	$(350,050)	$(153,509)

Total income taxes by jurisdiction are as follows:

	For the Year Ended December 31, 2017	For the Year Ended December 31, 2016	For the Year Ended December 31, 2015
Income tax expense (benefit)			
U.S.	$(50,122)	$(66,677)	$(21,956)
Foreign	(313)	1,185	2,316
	$(50,435)	$(65,492)	$(19,640)

Significant components of the (benefit) expense for income taxes attributable to loss from continuing operations consist of the following:

	For the Year Ended December 31, 2017	For the Year Ended December 31, 2016	For the Year Ended December 31, 2015
Current			
Foreign	$ (259)	$ 437	$ 1,413
U.S.—Federal	—	92	(9,917)
U.S.—State and other	(930)	2,320	(59,296)
Total current	(1,189)	2,849	(67,800)
Deferred			
Foreign	(54)	748	903
U.S.—Federal	(54,666)	(63,422)	28,937
U.S.—State and other	5,474	(5,667)	18,320
Total deferred	(49,246)	(68,341)	48,160
Income tax (benefit) expense	$(50,435)	$(65,492)	$(19,640)

The reconciliation of the income tax rate computed at the statutory tax rate to the reported income tax expense (benefit) attributable to continuing operations is as follows:

	For the Year Ended December 31, 2017	For the Year Ended December 31, 2016	For the Year Ended December 31, 2015
Statutory rate	(35.0)%	(35.0)%	(35.0)%
Permanent items	4.0	0.8	1.8
Release/(accrual) of uncertain tax positions	0.2	(0.3)	(33.6)
Foreign rate differential	0.3	(0.1)	(0.2)
State and local taxes	(18.3)	(5.9)	(10.9)
State and local net operating loss re-establishment	—	(3.3)	—
Increase in valuation allowance	72.2	25.9	71.6
Change in valuation allowance due to 2017 Tax Act	49.0	—	—
Impact of federal rate change on deferred tax assets and liabilities due to 2017 Tax Act	(95.9)	—	—
Tax credits	(1.3)	(0.8)	(6.5)
Adoption of 2016 Accounting Standard related to accounting changes for certain aspects of share-based payments to employees (1)	(8.0)	—	—
Effective tax rate	(32.8)%	(18.7)%	(12.8)%

The significant components of the net deferred tax assets and liabilities are shown in the following table:

	2017	2016
Tax assets related to		
Net operating loss and other carryforwards	$ 229,595	$ 199,008
Returns reserve/inventory expense	40,687	64,736
Pension benefits	6,977	12,184
Postretirement benefits	6,285	9,988
Deferred interest (2)	280,246	428,346
Deferred revenue	122,192	182,051
Stock-based compensation	3,992	7,808
Deferred compensation	5,872	4,557
Other, net	8,875	12,127
Valuation allowance	(571,653)	(759,887)
	133,068	160,918

	2017	2016
Tax liabilities related to		
Indefinite-lived intangible assets	(62,593)	(71,380)
Definite-lived intangible assets	(45,644)	(82,225)
Depreciation and amortization expense	(43,426)	(75,236)
Other, net	(81)	—
	(151,744)	(228,841)
Net deferred tax liabilities	$ (18,676)	$ (67,923)

(1) In March 2016, the FASB issued guidance that changes the accounting for certain aspects of shared-based payments to employees. The guidance requires the recognition of the income tax effects of awards in the income statement when the awards vest or are settled, thus eliminating additional paid-in capital pools. The guidance became effective January 1, 2017 which resulted in the recognition of $12.3 million of previously unrecorded additional paid-in capital net operating losses at that time. The additional net operating losses were offset by an increase in the valuation allowance, accordingly no net income tax benefit was recognized as a result of the adoption.

(2) The deferred interest tax asset represents disallowed interest deductions under IRC Section 163(j) (Limitation on Deduction for interest on Certain Indebtedness) for the current and prior years. At December 31, 2017 and 2016, we had gross deferred interest deductions totaling $1,042.1 million and $1,079.0 million, respectively. The disallowed interest is able to be carried forward indefinitely and utilized in future years pursuant to IRC Section 163(j). A full valuation allowance has been provided against deferred tax assets, excluding $3.6 million of foreign deferred tax assets which are expected to be realized, net of deferred tax liabilities resulting from indefinite-lived intangibles.

The net deferred tax liability balance is stated at prevailing statutory income tax rates. Deferred tax assets and liabilities are reflected on our consolidated balance sheets as follows:

	2017	2016
Non-current deferred tax assets	$ 3,593	$ 3,458
Non-current deferred tax liabilities	(22,269)	(71,381)
	$(18,676)	$(67,923)

A reconciliation of the gross amount of unrecognized tax benefits, excluding accrued interest and penalties, is as follows:

Balance at December 31, 2014	$ 78,634
Reductions based on tax positions related to the prior year	(62,323)
Additions based on tax positions related to the current year	—
Balance at December 31, 2015	16,311
Reductions based on tax positions related to the prior year	(855)
Additions based on tax positions related to the current year	52
Balance at December 31, 2016	15,508
Reductions based on tax positions related to the prior year	—
Additions based on tax positions related to the prior year	172
Balance at December 31, 2017	$ 15,680

For the year ended December 31, 2017, the Company recorded $0.2 million of uncertain tax benefits due to its uncertainty around net operating losses that were generated in tax years ended December 31, 2014 and 2015. For the year ended December 31, 2016, the Company recognized $0.9 million of uncertain tax benefits (excluding interest and penalties) due to the expiration of the statute of limitations. We are currently open for audit under the statute of limitation for Federal, state and foreign jurisdictions for years 2011 to 2016. However, carryforward attributes from prior years may still be adjusted upon examination by tax authorities if they are used in a future period.

We report penalties and tax-related interest expense on unrecognized tax benefits as a component of the provision for income taxes in the accompanying consolidated statement of operations. At December 31,

2017 and 2016, we had $0.02 million and $0.02 million, respectively, of accrued interest and penalties in the accompanying consolidated balance sheet. Interest and penalties included in the provision for income taxes for the years ended December 31, 2017, 2016 and 2015 were $0.002 million, $0.02 million and $0.2 million, respectively.

On January 1, 2013, as part of the 2012 Chapter 11 Reorganization, we realized approximately $1.3 billion of cancellation of debt income. We excluded cancellation of debt income of $1.3 billion from taxable income since the Company was insolvent (liabilities greater than the fair value of its assets) by this amount at the time of the exchange. Although we did not need to pay current cash taxes from this transaction, we were required to reduce our tax attributes, such as net operating loss carryovers and tax credit carryovers and our tax basis of our assets to offset the $1.3 billion of taxable income that did not have to be recognized due to insolvency. As a result, our net operating losses and credit carryforwards were reduced on January 1, 2013, and a portion of our tax basis in our assets were reduced at that time. The Company completed an analysis of the state-by-state attribute reduction as of December 31, 2016 and as a result re-established $11.4 million of state net operating loss carryforwards (net of federal benefit) for states that decouple from IRC Sec. 1502.

As of December 31, 2017, we have approximately $602.3 million of Federal tax loss carryforwards, which will expire between 2034 and 2037. The Company has approximately $1,189.6 million of state tax loss carryforward, which will expire between 2019 and 2037. In addition, we have foreign tax credit carryforwards of $11.9 million and research and development credit carryforwards of $4.2 million, which will expire between 2018 and 2027, and 2032 and 2036, respectively. The Company's Irish net operating losses of $26.1 million are not subject to expiration. The Canadian losses ($2.2 million federal and $1.2 million provincial) will expire between 2033 and 2037. The Puerto Rico alternative minimum tax credit carryforwards of $2.8 million are not subject to expiration.

Under Section 382 of the Internal Revenue Code of 1986, as amended, substantial changes in the Company's ownership may limit the amount of net operating loss carryforwards that could be utilized annually in the future to offset taxable income. Specifically, this limitation may arise in the event of a cumulative change in ownership of the Company of more than 50% within a three-year period. Any such annual limitation may significantly reduce the utilization of net operating loss carryforwards before they expire. The Company performed an analysis through December 31, 2016, and determined any potential ownership change under Section 382 during the year would not have a material impact on the future utilization of U.S. net operating losses and tax credits. However, future transactions in the Company's common stock could trigger an ownership change for purposes of Section 382, which could limit the amount of net operating loss carryforwards and other attributes that could be utilized annually in the future to offset taxable income, if any. Any such limitation, whether as the result of sales of common stock by our existing stockholders or sales of common stock by the Company, could have a material adverse effect on results of operations in future years.

U.S. income taxes on the undistributed earnings of the Company's non-U.S. subsidiaries have not been provided for as the Company currently plans to indefinitely reinvest these amounts and has the ability to do so. There are no cumulative undistributed and untaxed foreign earnings at December 31, 2017 and 2016.

Based on our assessment of historical pre-tax losses and the fact that we did not anticipate sufficient future taxable income in the near term to assure utilization of certain deferred tax assets, the Company recorded a valuation allowance at December 31, 2017 and 2016 of $571.7 million and $759.9 million, respectively. We have decreased our valuation allowance by $188.2 million in 2017 with $186.7 million of benefit as a component of continuing operations and $1.5 million of benefit as a component of other comprehensive income.

9. Retirement and Postretirement Benefit Plans

Retirement Plan

We have a noncontributory, qualified defined benefit pension plan (the "Retirement Plan"), which covers certain employees. The Retirement Plan is a cash balance plan, which accrues benefits based on pay, length of service, and interest. The funding policy is to contribute amounts subject to minimum funding standards set forth by the Employee Retirement Income Security Act of 1974 and the Internal Revenue Code. The Retirement Plan's assets consist principally of common stocks, fixed income securities, investments in registered investment companies, and cash and cash equivalents. We also have a nonqualified defined benefit plan, or nonqualified plan, that previously covered employees who earned over the qualified pay limit as determined by the Internal Revenue Service. The nonqualified plan accrues benefits for the participants based on the cash balance plan calculation. The nonqualified plan is not funded. We use a December 31 date to measure the pension and postretirement liabilities. In 2007, both the qualified and nonqualified pension plans eliminated participation in the plans for new employees hired after October 31, 2007.

We recognize the funded status of defined benefit pension and other postretirement plans as an asset or liability in the balance sheet and are required to recognize actuarial gains and losses and prior service costs and credits in other comprehensive income and subsequently amortize those items in the statement of operations.

The following table summarizes the Accumulated Benefit Obligations ("ABO"), the change in Projected Benefit Obligation ("PBO"), and the funded status of our plans as of and for the financial statement period ended December 31, 2017 and 2016:

	2017	2016
ABO at end of period	$176,444	$177,300
Change in PBO		
PBO at beginning of period	$177,300	$174,110
Interest cost on PBO	5,528	5,224
Actuarial loss	6,206	7,521
Benefits paid	(12,590)	(9,555)
PBO at end of period	$176,444	$177,300
Change in plan assets		
Fair market value at beginning of period	$148,344	$150,384
Actual return	16,477	7,408
Company contribution	80	107
Benefits paid	(12,590)	(9,555)
Fair market value at end of period	$152,311	$148,344
Unfunded status	$ (24,133)	$ (28,956)

Amounts recognized in the consolidated balance sheets at December 31, 2017 and 2016 consist of:

	2017	2016
Noncurrent liabilities	$(24,133)	$(28,956)

Additional year-end information for pension plans with ABO in excess of plan assets at December 31, 2017 and 2016 consist of:

	2017	2016
PBO	$176,444	$177,300
ABO	176,444	177,300
Fair value of plan assets	152,311	148,344

Weighted average assumptions used to determine the benefit obligations (both PBO and ABO) at December 31, 2017 and 2016 are:

	2017	2016
Discount rate	3.6%	4.0%
Increase in future compensation	N/A	N/A

Net periodic pension cost includes the following components:

	For the Year Ended December 31, 2017	For the Year Ended December 31, 2016	For the Year Ended December 31, 2015
Interest cost on projected benefit obligation	$ 5,528	$ 5,224	$ 6,719
Expected return on plan assets	(9,263)	(9,150)	(9,756)
Amortization of net loss	804	50	330
Net pension expense recognized for the period	$(2,931)	$(3,876)	$(2,707)

Significant actuarial assumptions used to determine net periodic pension cost at December 31, 2017, 2016 and 2015 are:

	2017	2016	2015
Discount rate	4.0%	4.3%	3.8%
Increase in future compensation	N/A	N/A	N/A
Expected long-term rate of return on assets	6.3%	6.3%	6.3%

Assumptions on Expected Long-Term Rate of Return as Investment Strategies

We employ a building block approach in determining the long-term rate of return for plan assets. Historical markets are studied and long-term relationships between equities and fixed income are preserved congruent with the widely accepted capital market principle that assets with higher volatility generate a greater return over the long run. Current market factors such as inflation and interest rates are evaluated before long-term capital market assumptions are determined. The long-term portfolio return is established via a building block approach and proper consideration of diversification and rebalancing. Peer data and historical returns are reviewed for reasonability and appropriateness. We regularly review the actual asset allocation and periodically rebalances investments to a targeted allocation when appropriate. The current targeted asset allocation is 34% with equity managers, 56% with fixed income managers, 6% with real-estate investment trust managers and 4% with hedge fund managers. For 2018, we will use a 5.5% long-term rate of return for the Retirement Plan. We will continue to evaluate the expected rate of return assumption, at least annually, and will adjust as necessary.

Plan Assets

Plan assets for the U.S. tax qualified plans consist of a diversified portfolio of fixed income securities, equity securities, real estate, and cash equivalents. Plan assets do not include any of our securities. The U.S. pension plan assets are invested in a variety of funds within a Collective Trust ("Trust"). The Trust is a group trust designed to permit qualified trusts to comingle their assets for investment purposes on tax-exempt basis.

Investment Policy and Investment Targets

The tax qualified plans consist of the U.S. pension plan and the U.K. pension scheme (prior to May 28, 2014). We fund amounts for our qualified pension plans at least sufficient to meet minimum requirements of local benefit and tax laws. The investment objectives of our pension plan asset investments is to provide long-term total growth and return, which includes capital appreciation and current income. The nonqualified noncontributory defined benefit pension plan is generally not funded. Assets were invested among several asset classes.

The percentage of assets invested in each asset class at December 31, 2017 and 2016 is shown below.

Asset Class	2017 Percentage in Each Asset Class	2016 Percentage in Each Asset Class
Equity	32.9%	32.9%
Fixed income	55.3	53.6
Real estate investment trust	6.5	6.4
Other	5.3	7.1
	100.0%	100.0%

Fair Value Measurements

The fair value of our pension plan assets by asset category at December 31 were as follows:

	December 31, 2017	Not subject to leveling(1)
Cash and cash equivalents	$ 835	$ 835
Equity securities		
U.S. equity	29,749	29,749
Non-US equity	14,306	14,306
Emerging markets equity	6,004	6,004
Fixed income		
Government bonds	24,203	24,203
Corporate bonds	42,909	42,909
Mortgage-backed securities	8,621	8,621
Asset-backed securities	1,782	1,782
Commercial mortgage-backed securities	2,070	2,070
International fixed income	4,738	4,738
Alternatives		
Real estate	9,848	9,848
Hedge funds	7,246	7,246
	$152,311	$152,311

	December 31, 2016	Not subject to leveling(1)
Cash and cash equivalents	$ 862	$ 862
Equity securities		
U.S. equity	30,727	30,727
Non-U.S. equity	12,797	12,797
Emerging markets equity	5,311	5,311
Fixed income		
Government bonds	19,511	19,511
Corporate bonds	43,156	43,156
Mortgage-backed securities	7,987	7,987
Asset-backed securities	2,101	2,101
Commercial mortgage-backed securities	1,931	1,931
International fixed income	4,881	4,881
Alternatives		
Real estate	9,472	9,472
Hedge funds	8,518	8,518
Other	1,090	1,090
	$148,344	$148,344

(1) Investments that are valued using the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy.

We recognize that risk and volatility are present to some degree with all types of investments. However, high levels of risk are minimized through diversification by asset class, by style of each fund.

Estimated Future Benefit Payments

The following benefit payments are expected to be paid.

Fiscal Year Ended	Pension
2018	$14,473
2019	12,774
2020	12,660
2021	14,912
2022	13,171
2023—2027	63,716

Expected Contributions

We do not expect to contribute in 2018, however, the actual funding decision will be made after the 2017 valuation is completed.

Postretirement Benefit Plan

We also provide postretirement medical benefits to retired full-time, nonunion employees hired before April 1, 1992, who have provided a minimum of five years of service and attained age 55.

The following table summarizes the Accumulated Postretirement Benefit Obligation ("APBO"), the changes in plan assets, and the funded status of our plan as of and for the financial statement periods ended December 31, 2017 and 2016.

	2017	2016
Change in APBO		
APBO at beginning of period	$ 24,012	$ 25,567
Service cost (benefits earned during the period)	134	163
Interest cost on APBO	771	876
Employee contributions	89	253
Plan amendments	—	594
Actuarial (gain)	(1,248)	(1,131)
Benefits paid	(1,855)	(2,310)
APBO at end of period	$ 21,903	$ 24,012
Change in plan assets		
Fair market value at beginning of period	$ —	$ —
Company contributions	1,766	2,057
Employee contributions	89	253
Benefits paid	(1,855)	(2,310)
Fair market value at end of period	$ —	$ —
Unfunded status	$(21,903)	$(24,012)

Amounts for postretirement benefits accrued in the consolidated balance sheets at December 31, 2017 and 2016 consist of:

	2017	2016
Current liabilities	$ (1,618)	$ (1,928)
Noncurrent liabilities	(20,285)	(22,084)
Net amount recognized	$(21,903)	$(24,012)

Amounts not yet reflected in net periodic benefit cost and recognized in accumulated other comprehensive income at December 31, 2017 and 2016 consist of:

	2017	2016
Net (loss)	$(1,328)	$(2,588)
Prior service cost	222	1,561
Accumulated other comprehensive income (loss)	$(1,106)	$(1,027)

Weighted average actuarial assumptions used to determine APBO at year-end December 31, 2017 and 2016 are:

	2017	2016
Discount rate	3.6%	4.1%
Health care cost trend rate assumed for next year	6.3%	6.6%
Rate to which the cost trend rate is assumed to decline (ultimate trend rate)	4.5%	4.5%
Year that the rate reaches the ultimate trend rate	2038	2038

Net periodic postretirement benefit cost included the following components:

	2017	2016	2015
Service cost	$ 134	$ 163	$ 205
Interest cost on APBO	771	876	1,081
Amortization of unrecognized prior service cost	(1,339)	(1,339)	(1,381)
Amortization of net loss	13	86	220
Net periodic postretirement benefit (income) expense	$ (421)	$ (214)	$ 125

Significant actuarial assumptions used to determine postretirement benefit cost at December 31, 2017, 2016 and 2015 are:

	2017	2016	2015
Discount rate	4.1%	4.4%	3.9%
Health care cost trend rate assumed for next year	6.6%	6.9%	6.9%
Rate to which the cost trend rate is assumed to decline (ultimate trend rate)	4.5%	4.5%	4.5%
Year that the rate reaches the ultimate trend rate	2038	2038	2027

Assumed health care trend rates have a significant effect on the amounts reported for the health care plans. A one-percentage-point change in assumed health care cost trend rates would have the following effects on the expense recorded in 2017 and 2016 for the postretirement medical plan:

	2017	2016
One-percentage-point increase		
Effect on total of service and interest cost components	$ 7	$ 8
Effect on postretirement benefit obligation	117	182
One-percentage-point decrease		
Effect on total of service and interest cost components	(6)	(7)
Effect on postretirement benefit obligation	(104)	(160)

The following table presents the change in other comprehensive income for the year ended December 31, 2017 related to our pension and postretirement obligations.

	Pension Plans	Postretirement Benefit Plan	Total
Sources of change in accumulated other comprehensive loss			
Net gain arising during the period	$(1,008)	$(1,248)	$(2,256)
Amortization of prior service credit	—	1,339	1,339
Amortization of net (gain) loss	(804)	(13)	(817)
Total accumulated other comprehensive income recognized during the period	$(1,812)	$ 78	$(1,734)

Estimated amounts that will be amortized from accumulated other comprehensive income (loss) over the next fiscal year.

	Total Pension Plans	Total Postretirement Plan
Prior service credit (cost)	$ —	$690
Net gain (loss)	(1,420)	—
	$(1,420)	$690

Amounts not yet reflected in net periodic benefit cost for pension plans and postretirement plan and recognized in accumulated other comprehensive income at December 31, 2017 and 2016 consist of:

	2017	2016
Net loss	$(33,456)	$(35,190)
Accumulated other comprehensive loss	$(33,456)	$(35,190)

Estimated Future Benefit Payments

The following benefit payments, which reflect expected future service, are expected to be paid:

Fiscal Year Ended	Postretirement Plan
2018	$1,617
2019	1,605
2020	1,573
2021	1,546
2022	1,517
2023-2027	7,094

Expected Contribution

We expect to contribute approximately $1.6 million in 2018.

Defined Contribution Retirement Plan

We maintain a defined contribution retirement plan, the Houghton Mifflin 401(k) Savings Plan, which conforms to Section 401(k) of the Internal Revenue Code, and covers substantially all of our eligible employees. Participants may elect to contribute up to 50.0% of their compensation subject to an annual limit. We provide a matching contribution in amounts up to 3.0% of employee contributions. The 401(k) contribution expense amounted to $8.0 million, $7.7 million and $6.9 million for the years ended December 31, 2017, 2016 and 2015, respectively. We did not make any additional discretionary contributions in 2017, 2016 and 2015.

10. Stock-Based Compensation

Total compensation expense related to grants of stock options, restricted stock, restricted stock units, and purchases under the employee stock purchase plan recorded in the years ended December 31, 2017, 2016 and 2015 was approximately $10.8 million, $10.6 million and $12.5 million, respectively, and is included in selling and administrative expense.

2015 Omnibus Incentive Plan

Our Board of Directors adopted the 2015 Omnibus Incentive Plan ("Plan") in February 2015, which became effective on May 19, 2015 following stockholder approval. The Plan provides to grant up to an aggregate of 4,000,000 million shares of our common stock plus 2,615,476 million shares of our common stock that were reserved for issuance under the 2012 Management Incentive Plan ("2012 MIP") as of May 19, 2015 but were not issuable pursuant to any outstanding awards. There were 10,604,071 million additional shares underlying outstanding awards under the 2012 MIP as of May 19, 2015 that could have otherwise become available again for grants under the 2012 MIP in the future (by potential forfeiture, withholding or otherwise) which will instead become reserved for issuance under the Plan in the event such shares become available for future grants.

Our Compensation Committee may grant awards of nonqualified stock options, incentive (qualified) stock options or cash, stock appreciation rights, restricted stock awards, restricted stock units, performance compensation awards, other stock-based awards or any combination of the foregoing. Certain employees, directors, officers, consultants or advisors who have been selected by the Compensation Committee and who enter into an award agreement with respect to an award granted to them under the Plan are eligible for awards under the 2015 Omnibus Incentive Plan. The stock option awards will be granted at a strike price equal to or greater than the fair value per share of common stock as of the date of grant. The stock related to award forfeitures and stock withheld to cover tax withholding requirements upon vesting of restricted stock units remains outstanding and may be reallocated to new recipients. The purpose of the Plan is to help us attract and retain key personnel by providing them the opportunity to acquire an equity interest in our Company.

As of May 19, 2015, there were 6,615,476 shares authorized and available for issuance under the Plan plus any amount that could have otherwise become available again for grants under the 2012 MIP in the future by forfeiture, withholding or otherwise. As of December 31, 2017, there were 7,166,644 shares authorized and available for future issuance under the Plan. The vesting terms for equity awards generally range from 1 to 4 years over equal annual installments and generally expire seven years after the date of grant.

Stock Options

The following table summarizes option activity for certain employees in our stock options:

	Number of Shares	Weighted Average Exercise Price
Balance at December 31, 2016	5,499,837	$14.13
Granted	1,289,375	11.17
Exercised	(39,200)	13.06
Forfeited	(2,978,664)	13.73
Balance at December 31, 2017	3,771,348	$13.45
Vested and expected to vest at December 31, 2017	3,387,771	$13.56
Exercisable at December 31, 2017	2,048,934	$13.72

As of December 31, 2017, the range of exercise prices is $9.60 to $22.80 with a weighted average remaining contractual life of 4.0 years for options outstanding. The weighted average remaining contractual life for options vested and expected to vest and exercisable was 3.8 years and 2.2 years, respectively. The intrinsic

value of a stock option is the amount by which the current market value of the underlying stock exceeds the exercise price of the option as of the balance sheet date. The intrinsic value of options outstanding, vested and expected to vest and exercisable was zero at December 31, 2017 and 2016.

We estimate the fair value of stock options using the Black-Scholes valuation model. Key input assumptions used to estimate the fair value of stock options include the exercise price of the award, the expected volatility of our stock over the option's expected term, the risk-free interest rate over the option's expected term, and our expected annual dividend yield.

The fair value of each option granted was estimated on the grant date using the Black-Scholes valuation model with the following assumptions:

	For the Year Ended December 31, 2017	For the Year Ended December 31, 2016	For the Year Ended December 31, 2015
Expected term (years) (a)	4.75	4.75	4.75
Expected dividend yield	0.00%	0.00%	0.00%
Expected volatility (b)	25.22%-25.50%	23.86%-24.26%	20.52%-23.50%
Risk-free interest rate (c)	1.94%-1.99%	1.20%-1.31%	1.53%-1.72%

(a) The expected term is the number of years that we estimate that options will be outstanding prior to exercise. We have used the simplified method for estimating the expected term as we do not have sufficient stock option exercise experience to support a reasonable estimate of the expected term. The simplified method represents the best estimate of the expected term.

(b) We have estimated volatility for options granted based on the historical volatility for a group of companies (including our own) believed to be a representative peer group, and were selected based on industry and market capitalization.

(c) The risk-free interest rate is based on the U.S. Treasury yield for a period commensurate with the expected life of the option.

We estimate forfeitures at the time of grant and periodically revise those estimates in subsequent periods if actual forfeitures differ from those estimates. Stock-based compensation expense is recorded only for those awards expected to vest using estimated forfeiture rates based on historical forfeiture data.

As of December 31, 2017, there remained approximately $3.6 million of unearned compensation expense related to unvested stock options to be recognized over a weighted average term of 3.3 years.

The weighted average grant date fair value was $2.85, $4.25 and $4.82 for options granted in 2017, 2016 and 2015, respectively.

Restricted Stock and Restricted Stock Units

The following table summarizes restricted stock activity for grants to certain employees and independent members of the board of directors in our restricted stock and restricted stock units:

	Restricted Stock		Restricted Stock Units	
	Numbers of Units	Weighted Average Grant Date Fair Value	Numbers of Units	Weighted Average Grant Date Fair Value
Balance at December 31, 2016	322,559	$20.10	857,787	$18.26
Granted	—	—	1,649,236	11.65
Vested	(21,890)	20.10	(314,555)	16.08
Forfeited	(27,014)	20.10	(364,552)	13.56
Balance at December 31, 2017	273,655	$20.10	1,827,916	$13.37

During 2017 and 2016, we granted market-based restricted stock units to certain members of our senior management team. The number of shares ultimately issued to the recipient is based on the total shareholder return (TSR) of our common stock as compared to the TSR of the common stock of a peer group comprised of each member of the Russell 2000 Small Cap Market Index over a three-year performance measurement period. In addition, award recipients must remain employed by us throughout the three-year performance measurement period to attain the full amount of the market-based units that satisfy the market performance criteria. We determined the fair value of the 2017 and 2016 market-based restricted stock units to be approximately $2.7 million and $3.0 million, respectively. We determined the fair value based on a Monte Carlo simulation as of the date of grant, utilizing the following assumptions: the stock price on the date of grant of $11.05 and $12.95 for 2017, and $19.57 for 2016, a three-year performance measurement period, and a risk-free rate of 1.45% and 0.96% for 2017 and 2016, respectively. We recognize the expense on these awards on a straight-line basis over the three-year performance measurement period.

As of December 31, 2017, there remained approximately $12.2 million of unearned compensation expense related to unvested restricted stock units to be recognized over a weighted average term of 1.9 years. There was approximately no unearned compensation expense related to unvested restricted stock. The restricted stock and restricted stock units include a combination of time-based and performance-based vesting.

Employee Stock Purchase Plan

Our Board of Directors adopted an Employee Stock Purchase Plan (“ESPP”) in February 2015, which became effective on May 19, 2015 following stockholder approval. The ESPP provides for up to an aggregate of 1.3 million shares of our common stock may be made available for sale under the plan to eligible employees. At the beginning of each six-month offering period under the ESPP each participant is deemed to have been granted an option to purchase shares of our common stock equal to the amount of their payroll deductions during the period, but in any event not more than five percent of the employee’s eligible compensation, subject to certain limitations. Such options may be exercised only to the extent of accumulated payroll deductions at the end of the offering period, at a purchase price per share equal to 85% of the fair market value of our common stock at the beginning or end of each offering period, whichever is less. As of December 31, 2017, there were approximately 1.0 million shares available for future issuance under the ESPP.

Information related to shares issued or to be issued in connection with the ESPP based on employee contributions and the range of purchase prices is as follows:

	December 31, 2017	December 31, 2016
Shares issued or to be issued	165,145	178,112
Range of purchase prices	$7.91—$9.22	$9.22—$13.29

We record stock-based compensation expense related to the discount provided to participants. Also, we use the Black-Scholes option-pricing model to calculate the grant-date fair value of shares issued under the employee stock purchase plan. We recognize expense related to shares purchased through the employee stock purchase plan ratably over the offering period. We recognized $0.5 million in expense associated with our ESPP for the years ended December 31, 2017 and 2016, respectively.

Warrants

Following our emergence from Chapter 11 on June 22, 2012 and in accordance with the plan of reorganization, after giving effect of the 2-for-1 stock split, there were 7,368,422 shares of common stock reserved for issuance upon exercise of warrants under the 2012 MIP. Each existing common stockholder prior to bankruptcy received its pro rata share of warrants to purchase 5% of the common stock of the Company, subject to dilution for equity awards issued in connection with the 2012 MIP. The warrants have a term of seven years. As of December 31, 2017, there were warrants outstanding for the purchase of 7,297,909 shares of common stock at a strike price of $21.14.

11. Fair Value Measurements

The accounting standard for fair value measurements among other things, defines fair value, establishes a consistent framework for measuring fair value and expands disclosure for each major asset and liability category measured at fair value on either a recurring or nonrecurring basis. The accounting standard establishes a three-tier fair value hierarchy which prioritizes the inputs used in measuring fair value as follows:

Level 1 Observable input such as quoted prices in active markets for identical assets or liabilities;
Level 2 Observable inputs, other than the quoted prices in active markets, that are observable either directly or indirectly; and
Level 3 Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

Assets and liabilities measured at fair value are based on one or more of three valuation techniques identified in the tables below. Where more than one technique is noted, individual assets or liabilities were valued using one or more of the noted techniques. The valuation techniques are as follows:

(a) Market approach: Prices and other relevant information generated by market transactions involving identical or comparable assets or liabilities;

(b) Cost approach: Amount that would be currently required to replace the service capacity of an asset (current replacement cost); and

(c) Income approach: Valuation techniques to convert future amounts to a single present amount based on market expectations (including present value techniques).

On a recurring basis, we measure certain financial assets and liabilities at fair value, including our money market funds, short-term investments which consist of U.S. treasury securities and U.S. agency securities, foreign exchange forward contracts, and interest rate derivatives contracts. The accounting standard for fair value measurements defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. In determining fair value, we utilize valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible as well as consider counterparty and its credit risk in its assessment of fair value.

Financial Assets and Liabilities

The following tables present our financial assets and liabilities measured at fair value on a recurring basis at December 31, 2017 and 2016:

	2017	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Valuation Technique
Financial assets				
Money market funds	$115,464	$115,464	$ —	(a)
U.S. treasury securities	16,065	16,065	—	(a)
U.S. agency securities	70,384	—	70,384	(a)
Foreign exchange derivatives	351	—	351	
	$202,264	$131,529	$70,735	
Financial liabilities				
Interest rate derivatives	$ 1,159	$ —	$ 1,159	(a)
	$ 1,159	$ —	$ 1,159	

	2016	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Valuation Technique
Financial assets				
Money market funds	$184,968	$184,968	$ —	(a)
U.S. treasury securities	14,457	14,457	—	(a)
U.S. agency securities	66,384	—	66,384	(a)
	$265,809	$199,425	$66,384	
Financial liabilities				
Foreign exchange derivatives	$ 816	$ —	$ 816	(a)
Interest rate derivatives	6,108	—	6,108	(a)
	$ 6,924	$ —	$ 6,924	

Our money market funds and U.S. treasury securities are classified within Level 1 of the fair value hierarchy because they are valued using quoted prices in active markets for identical instruments. Our U.S. agency securities are classified within level 2 of the fair value hierarchy because they are valued using other than

quoted prices in active markets. In addition to $115.5 million and $185.0 million invested in money market funds as of December 31, 2017 and 2016, respectively, we had $33.5 million and $41.1 million of cash invested in bank accounts as of December 31, 2017 and 2016, respectively.

Our foreign exchange derivatives consist of forward contracts and are classified within Level 2 of the fair value hierarchy because they are valued based on observable inputs and are available for substantially the full term of our derivative instruments. We use foreign exchange forward contracts to fix the functional currency value of forecasted commitments, payments and receipts. The aggregate notional amount of the outstanding foreign exchange forward contracts was $15.8 million and $16.2 million at December 31, 2017 and 2016, respectively. Our foreign exchange forward contracts contain netting provisions to mitigate credit risk in the event of counterparty default, including payment default and cross default. At December 31, 2017 and 2016, the fair value of our counterparty default exposure was less than $1.0 million and spread across several highly rated counterparties.

Our interest rate derivatives are classified within Level 2 of the fair value hierarchy because they are valued based on observable inputs and are available for substantially the full term of our derivative instruments. Our interest rate risk relates primarily to U.S. dollar borrowings, partially offset by U.S. dollar cash investments. We have historically used interest rate derivative instruments to manage our earnings and cash flow exposure to changes in interest rates by converting floating-rate debt into fixed-rate debt. The aggregate notional amount of the outstanding interest rate derivative instruments was $400.0 million as of December 31, 2017. We designate these derivative instruments either as fair value or cash flow hedges under the accounting guidance related to derivatives and hedging. We record changes in the value of fair value hedges in interest expense, which is generally offset by changes in the fair value of the hedged debt obligation. Interest payments made or received related to our interest rate derivative instruments are included in interest expense. We record the effective portion of any change in the fair value of derivative instruments designated as cash flow hedges as unrealized gains or losses in other comprehensive income (loss), net of tax, until the hedged cash flow occurs, at which point the effective portion of any gain or loss is reclassified to earnings. In the event the hedged cash flow does not occur, or it becomes no longer probable that it will occur, we reclassify the amount of any gain or loss on the related cash flow hedge to interest expense at that time.

We believe we do not have significant concentrations of credit risk arising from our interest rate derivative instruments, whether from an individual counterparty or a related group of counterparties. We manage the concentration of counterparty credit risk on our interest rate derivatives instruments by limiting acceptable counterparties to a diversified group of major financial institutions with investment grade credit ratings, limiting the amount of credit exposure to each counterparty, and actively monitoring their credit ratings and outstanding fair values on an ongoing basis. Furthermore, none of our derivative transactions contain provisions that are dependent on our credit ratings from any credit rating agency.

We also employ master netting arrangements that reduce our counterparty payment settlement risk on any given maturity date to the net amount of any receipts or payments due between us and the counterparty financial institution. Thus, the maximum loss due to counterparty credit risk is limited to the unrealized gains in such contracts net of any unrealized losses should any of these counterparties fail to perform as contracted. Although these protections do not eliminate concentrations of credit risk, as a result of the above considerations, we do not consider the risk of counterparty default to be significant.

Non-Financial Assets and Liabilities

Our non-financial assets, which include goodwill, other intangible assets, property, plant, and equipment, and pre-publication costs, are not required to be measured at fair value on a recurring basis. However, if

certain trigger events occur, or if an annual impairment test is required, we evaluate the non-financial assets for impairment. If an impairment did occur, the asset is required to be recorded at the estimated fair value. There were no non-financial liabilities that were required to be measured at fair value on a nonrecurring basis during 2017 and 2016.

The following table presents our nonfinancial assets and liabilities measured at fair value on a nonrecurring basis during 2017 and 2016:

	2017	Significant Unobservable Inputs (Level 3)	Total Impairment	Valuation Technique
Nonfinancial assets				
Property, plant and equipment	$—	$—	$ 9,119	(c)
Pre-publication costs	—	—	3,980	(c)
	$—	$—	$13,099	

	2016	Significant Unobservable Inputs (Level 3)	Total Impairment	Valuation Technique
Nonfinancial assets				
Other intangible assets	$65,400	$65,400	$139,205	(a)(c)

The carrying amounts of software development costs, included within property, plant, and equipment, are periodically compared to net realizable value and impairment charges are recorded, as appropriate, when amounts expected to be realized are lower. During the year ended December 31, 2017 in connection with our 2017 Restructuring Plan, we recorded an impairment charge of approximately $9.1 million related to a certain long-lived asset included within property, plant, and equipment as the carrying amount of the asset is no longer recoverable based on projected cash flows, which was classified as Level 3 due to significant unobservable inputs. There was no impairment of property, plant, and equipment for the year ended December 31, 2016.

Pre-publication costs recorded on the balance sheet are periodically reviewed for impairment by comparing the unamortized capitalized costs of the assets to the fair value of those assets. For the year ended December 31, 2017, we recorded an impairment charge of $4.0 million as the products will no longer be sold in the marketplace. There was no impairment of pre-publication costs for the year ended December 31, 2016.

In evaluating goodwill for impairment, we first compare our reporting unit's fair value to its carrying value. We estimate the fair values of our reporting units by considering market multiple and recent transaction values of peer companies, where available, and projected discounted cash flows, if reasonably estimable. There was no impairment recorded for goodwill for the years ended December 31, 2017 and 2016.

We perform an impairment test for our other intangible assets by comparing the assets fair value to its carrying value. Fair value is estimated based on recent market transactions, where available, and projected discounted cash flows, if reasonably estimable. There was no impairment of other intangible assets for the year ended December 31, 2017. There was a $139.2 million impairment recorded for the year ended December 31, 2016 for intangible assets due to the carrying value of four specific tradenames within the Education business segment exceeding the implied fair value, primarily due to the Company making the strategic decision to gradually migrate away from specific imprints, primarily the Holt McDougal and

various supplemental brands, and to market our products under the corporate Houghton Mifflin Harcourt and HMH names. In connection with the tradename impairment test, we performed a discounted cash flow analysis using a relief from royalty method on a specific tradename basis. We used a weighted average royalty rate of 4.1%, weighted average discount rate of 9.1% and maximum long-term growth rates of 2.0%. The $65.4 million presented in the table above represents the net book value of the other intangible assets that were subject to impairment immediately after the $139.2 million impairment was recorded. The fair value of goodwill and other intangible assets are estimates, which are inherently subject to significant uncertainties, and actual results could vary significantly from these estimates.

Fair Value of Debt

The following table presents the carrying amounts and estimated fair market values of our debt at December 31, 2017 and 2016. The fair value of debt is deemed to be the amount at which the instrument could be exchanged in an orderly transaction between market participants at the measurement date.

	December 31, 2017		December 31, 2016	
	Carrying Amount	Estimated Fair Value	Carrying Amount	Estimated Fair Value
Debt				
Term Loan	$768,194	$710,579	$772,738	$732,169

The fair market values of our debt were estimated based on quoted market prices on a private exchange for those instruments that are traded and are classified as level 2 within the fair value hierarchy at December 31, 2017 and 2016. The fair market values require varying degrees of management judgment. The factors used to estimate these values may not be valid on any subsequent date. Accordingly, the fair market values of the debt presented may not be indicative of their future values.

12. Commitments and Contingencies

Lease Obligations

We have operating leases for various real property, office facilities, and warehouse equipment that expire at various dates through 2022 and thereafter. Certain leases contain renewal and escalation clauses for a proportionate share of operating expenses.

The future minimum rental commitments under all noncancelable leases (with initial or remaining lease terms in excess of one year) for real estate and equipment are payable as follows:

	Operating Leases
2018	$ 38,854
2019	36,819
2020	28,641
2021	28,963
2022	27,172
Thereafter	209,485
Total minimum lease payments	$369,934
Total future minimal rentals under subleases	$ 11,803

For the years ended December 31, 2017, 2016 and 2015 rent expense, net of sublease income, was $40.2 million, $32.1 million and $26.3 million, respectively. For the years ended December 31, 2017, 2016 and 2015, the rent expense included $6.6 million, $3.3 million and $0.4 million charge, as additional real estate was vacated.

Commitments and Contingencies

We are involved in ordinary and routine litigation and matters incidental to our business. Litigation alleging infringement of copyrights and other intellectual property rights is common in the educational publishing industry. Specifically, there have been various settled, pending and threatened litigation that allege we exceeded the print run limitation or other restrictions in licenses granted to us to reproduce photographs in our textbooks. During 2016, we settled all such pending or actively threatened litigations alleging infringement of copyrights, and made total settlement payments of $10.0 million, collectively. We received approximately $4.5 million of insurance recovery proceeds during the first quarter of 2017.

While management believes that there is a reasonable possibility we may incur a loss associated with other pending and threatened litigation, we are not able to estimate such amount, but we do not expect any of these matters to have a material adverse effect on our results of operations, financial position or cash flows. We have insurance over such amounts and with coverage and deductibles as management believes is reasonable. There can be no assurance that our liability insurance will cover all events or that the limits of coverage will be sufficient to fully cover all liabilities.

In connection with an agreement with a development content provider, we agreed to act as guarantor to that party's loan to finance such development. Such guarantee is expected to remain until 2020. Under the guarantee, we believe the maximum future payments to approximate $14.0 million. If in the unlikely event that we were required to make payments on behalf of the development content provider, we would have recourse against the development content provider.

We were contingently liable for $2.5 million and $4.1 million of performance-related surety bonds for our operating activities as of December 31, 2017 and 2016, respectively. An aggregate of $25.2 million and $31.7 million of letters of credit existed each year at December 31, 2017 and 2016 of which $0.1 million and $2.4 million backed the aforementioned performance-related surety bonds each year in 2017 and 2016, respectively.

We routinely enter into standard indemnification provisions as part of license agreements involving use of our intellectual property. These provisions typically require us to indemnify and hold harmless licensees in connection with any infringement claim by a third party relating to the intellectual property covered by the license agreement. The assessment business routinely enters into contracts with customers that contain provisions requiring us to indemnify the customer against a broad array of potential liabilities resulting from any breach of the contract or the invalidity of the test. Although the term of these provisions and the maximum potential amounts of future payments we could be required to make is not limited, we have never incurred any costs to defend or settle claims related to these types of indemnification provisions. We therefore believe the estimated fair value of these provisions is inconsequential, and have no liabilities recorded for them as of December 31, 2017 and 2016.

13. Stockholders' Equity

Accumulated Other Comprehensive Loss

Accumulated other comprehensive loss consisted of the following at December 31, 2017, 2016 and 2015:

	2017	2016	2015
Net change in pension and benefit plan liabilities	$(39,501)	$(41,235)	$(31,298)
Foreign currency translation adjustments	(5,753)	(5,862)	(4,642)
Unrealized loss on short-term investments	(108)	(90)	(147)
Net change in unrealized loss on derivative instruments	(1,160)	(6,108)	(3,641)
	$(46,522)	$(53,295)	$(39,728)

Amounts reclassified from accumulated other comprehensive loss for the years ended December 31, 2017, 2016 and 2015 relating to the amortization of defined benefit pension and postretirement benefit plans totaled approximately $(0.7) million, $0.5 million and $1.2 million, respectively, and affected the selling and administrative line item in the consolidated statement of operations. These accumulated other comprehensive loss components are included in the computation of net periodic benefit cost.

Stock Repurchase Program

Our Board of Directors has authorized the repurchase of up to $1.0 billion in aggregate value of the Company's common stock. As of December 31, 2017, there was approximately $482.0 million available for share repurchases under this authorization. The aggregate share repurchase program may be executed through December 31, 2018. Repurchases under the program may be made from time to time in the open market (including under a trading plan) or in privately negotiated transactions. The extent and timing of any such repurchases would generally be at our discretion and subject to market conditions, applicable legal requirements and other considerations. Any repurchased shares may be used for general corporate purposes. There was no share repurchase activity for the year ended December 31, 2017.

The Company's share repurchase activity was as follows:

	Year Ended December 31, 2017	Year Ended December 31, 2016	Year Ended December 31, 2015
Cost of repurchases	$—	$ 55,017	$ 463,013
Shares repurchased	—	2,903,566	21,591,446
Average cost per share	$—	$ 18.95	$ 21.44

In connection with the Company's stock repurchase program, during the year ended December 31, 2015, the Company repurchased shares of its common stock from certain of its stockholders who (through affiliates of such stockholders) each beneficially owned more than 5% of the Company's common stock at certain points during 2015. On May 20, 2015, the Company repurchased an aggregate of 6,521,739 shares from affiliates of Paulson & Co. Inc. ("Paulson"), for an aggregate purchase price of approximately $150.0 million. On June 30, 2015, the Company repurchased an aggregate of 1,306,977 shares from affiliates of Anchorage Capital Group, L.L.C., for an aggregate purchase price of approximately $33.5 million. On September 11, 2015, the Company repurchased an aggregate of 439,560 shares from affiliates of Paulson, for an aggregate purchase price of approximately $10.0 million. The purchase prices for these shares were based on negotiated fair values which approximated either the closing prices of the shares or a modest discount to the closing price. The purchase prices from these share repurchases are included within repurchases of common

stock under cash flows from financing activities in the accompanying consolidated statements of cash flows for the year ended December 31, 2015 and within treasury stock under stockholders' equity in the accompanying consolidated balance sheets.

14. Related Party Transactions

A company controlled by an immediate family member of our former Chief Executive Officer performed web-design services for the Company in 2015. For the year ended December 31, 2015, we were billed $0.1 million for those services.

Pursuant to the terms of the Investor Rights Agreement, we paid approximately $10.5 million in underwriting fees and commissions and other offering expenses on behalf of Paulson for a secondary public offering of 12,161,595 shares of our common stock sold by affiliates of Paulson on May 20, 2015, which is included in the selling and administrative line item in our statement of operations for the year ended December 31, 2015. Prior to giving effect to the sale of the common stock in such offering, Paulson was the beneficial owner of more than 15% of our outstanding common stock.

For a description of the repurchases of common stock from certain stockholders, and the effects of these repurchases on our financial statements, refer to Note 13, "*Stockholders' Equity—Stock Repurchase Program.*"

There were no related party transactions during 2017 and 2016.

15. Net Loss Per Share

The following table sets forth the computation of basic and diluted earnings per share ("EPS"):

	For the Year Ended December 31, 2017	For the Year Ended December 31, 2016	For the Year Ended December 31, 2015
Numerator			
Net loss attributable to common stockholders	$ (103,187)	$ (284,558)	$ (133,869)
Denominator			
Weighted average shares outstanding			
Basic	122,949,064	122,418,474	136,760,107
Diluted	122,949,064	122,418,474	136,760,107
Net loss per share attributable to common stockholders			
Basic	$ (0.84)	$ (2.32)	$ (0.98)
Diluted	$ (0.84)	$ (2.32)	$ (0.98)

As we incurred a net loss in each of the periods presented above, all outstanding stock options, restricted stock, restricted stock units, and warrants for those periods have an anti-dilutive effect and therefore are excluded from the computation of diluted weighted average shares outstanding. Accordingly, basic and diluted weighted average shares outstanding are equal for such periods.

The following table summarizes our weighted average outstanding common stock equivalents that were anti-dilutive attributable to common stockholders during the periods, and therefore excluded from the computation of diluted EPS:

	For the Year Ended December 31, 2017	For the Year Ended December 31, 2016	For the Year Ended December 31, 2015
Stock options	2,977,550	5,322,266	7,637,005
Restricted stock and restricted stock units	1,429,816	715,504	537,266
Warrants	—	—	7,326,884

16. Segment Reporting

As of December 31, 2017, we had two reportable segments (Education and Trade Publishing). Our Education segment provides educational products, technology platforms and services to meet the diverse needs of today's classrooms. These products and services include print and digital content in the form of textbooks, digital courseware, instructional aids, educational assessment and intervention solutions, which are aimed at improving achievement and supporting learning for students that are not keeping pace with peers, professional development and school reform services. Our Trade Publishing segment primarily develops, markets and sells consumer books in print and digital formats and licenses book rights to other publishers and electronic businesses in the United States and abroad. The principal distribution channels for Trade Publishing products are retail stores, both physical and online, and wholesalers. Reference materials are also sold to schools, colleges, libraries, office supply distributors and other businesses.

We measure and evaluate our reportable segments based on net sales and segment Adjusted EBITDA. We exclude from our segments certain corporate-related expenses, as our corporate functions do not meet the definition of a segment, as defined in the accounting guidance relating to segment reporting. In addition, certain transactions or adjustments that our Chief Operating Decision Maker considers to be non-operational, such as amounts related to goodwill and other intangible asset impairment charges, derivative instruments charges, acquisition-related activity, restructuring/integration costs, severance, separation costs and facility closures, equity compensation charges, debt extinguishment losses, legal settlement charges, amortization and depreciation expenses, as well as interest and taxes, are excluded from segment Adjusted EBITDA. Although we exclude these amounts from segment Adjusted EBITDA, they are included in reported consolidated net loss and are included in the reconciliation below.

(in thousands)	Year Ended December 31,		
	Education	Trade Publishing	Corporate/ Other
2017			
Net sales	$1,222,971	$184,540	$ —
Segment Adjusted EBITDA	253,600	16,060	(50,658)
2016			
Net sales	$1,207,070	$165,615	$ —
Segment Adjusted EBITDA	225,672	6,255	(48,506)
2015			
Net sales	$1,251,122	$164,937	$ —
Segment Adjusted EBITDA	269,386	7,703	(42,110)

Reconciliation of Adjusted EBITDA to the consolidated statements of operations is as follows:

(in thousands)	Years Ended December 31,		
	2017	2016	2015
Total Segment Adjusted EBITDA	$ 219,002	$ 183,421	$ 234,979
Interest expense	(42,805)	(39,181)	(32,254)
Interest income	1,338	518	209
Depreciation expense	(75,494)	(79,825)	(72,639)
Amortization expense	(203,024)	(218,344)	(223,551)
Non-cash charges—stock compensation	(10,828)	(10,567)	(12,452)
Non-cash charges—loss on derivative instruments	1,366	(614)	(2,362)
Non-cash charges—asset impairment charges	(3,980)	(139,205)	—
Purchase accounting adjustments	—	(5,116)	(7,487)
Fees, expenses or charges for equity offerings, debt or acquisitions	(1,464)	(1,123)	(25,562)
2017 Restructuring Plan	(40,653)	—	—
Restructuring/Integration	—	(14,364)	(4,572)
Severance, separation costs and facility closures	(713)	(15,650)	(4,767)
Loss on extinguishment of debt	—	—	(3,051)
Legal reimbursement (settlement)	3,633	(10,000)	—
Loss from operations before taxes	(153,622)	(350,050)	(153,509)
Provision (benefit) for income taxes	(50,435)	(65,492)	(19,640)
Net loss	$(103,187)	$(284,558)	$(133,869)

Segment information as of December 31, 2017 and 2016 is as follows:

(in thousands)	2017	2016
Total assets—Education segment	$2,121,647	$2,206,309
Total assets—Trade Publishing segment	173,395	183,356
Total assets—Corporate and Other	268,549	341,806
Total consolidated assets	$2,563,591	$2,731,471

The following represents long-lived assets (property, plant, and equipment) outside of the United States, which are substantially in Ireland. All other long-lived assets are located in the United States.

(in thousands)	2017	2016
Long-lived assets—International	$7,593	$498

The following is a schedule of net sales by geographic region:

(in thousands)	
Year Ended December 31, 2017	
Net sales—U.S.	$1,335,438
Net sales—International	72,073
Total net sales	$1,407,511
Year Ended December 31, 2016	
Net sales—U.S.	$1,284,562
Net sales—International	88,123
Total net sales	$1,372,685
Year Ended December 31, 2015	
Net sales—U.S.	$1,337,897
Net sales—International	78,162
Total net sales	$1,416,059

17. Valuation and Qualifying Accounts

	Balance at Beginning of Year	Net Charges	Utilization of Allowances	Balance at End of Year
2017				
Allowance for doubtful accounts	$ 3,576	$ 400	$ (1,378)	$ 2,598
Reserve for returns	18,971	43,688	(41,673)	20,986
Reserve for royalty advances	85,562	18,116	(36)	103,642
Deferred tax valuation allowance	759,887	(187,480)	(754)	571,653
2016				
Allowance for doubtful accounts	$ 8,459	$ 734	$ (5,617)	$ 3,576
Reserve for returns	24,288	54,059	(59,376)	18,971
Reserve for royalty advances	70,014	16,270	(722)	85,562
Deferred tax valuation allowance	664,730	98,949	(3,792)	759,887
2015				
Allowance for doubtful accounts	$ 5,625	$ 4,109	$ (1,275)	$ 8,459
Reserve for returns	22,159	67,764	(65,636)	24,288
Reserve for royalty advances	55,000	15,240	(226)	70,014
Deferred tax valuation allowance	550,660	116,935	(2,865)	664,730

18. Quarterly Results of Operations (Unaudited)

	Three Months Ended			
	March 31,	June 30,	September 30,	December 31,
2017:				
Net sales	$ 221,917	$393,051	$532,040	$ 260,503
Gross profit	73,406	176,733	277,602	89,692
Operating income (loss)	(96,103)	(31,166)	90,210	(76,462)
Net income (loss)	(120,658)	(46,867)	90,506	(26,168)
Net income (loss) per share attributable to common stockholders				
Basic	$ (0.98)	$ (0.38)	$ 0.74	$ (0.21)
Diluted	$ (0.98)	$ (0.38)	$ 0.73	$ (0.21)
2016:				
Net sales	$ 205,816	$392,042	$533,021	$ 241,806
Gross profit	54,224	172,848	278,368	64,936
Operating income (loss)	(122,204)	(21,152)	83,371	(250,788)
Net income (loss)	(165,148)	(28,391)	90,022	(181,041)
Net income (loss) per share attributable to common stockholders				
Basic	$ (1.34)	$ (0.23)	$ 0.74	$ (1.48)
Diluted	$ (1.34)	$ (0.23)	$ 0.73	$ (1.48)

Our net sales, operating profit or loss and net cash provided by or used in operations are impacted by the inherent seasonality of the academic calendar. Consequently, the performance of our businesses may not be comparable quarter to consecutive quarter and should be considered on the basis of results for the whole year or by comparing results in a quarter with results in the same quarter for the previous year.

During the six months ended June 30, 2017, we recorded out-of-period corrections of approximately $4.0 million increasing net sales and reducing deferred revenue that should have been recognized previously. Management believes these out-of-period corrections are not material to the current period financial statements or any previously issued financial statements.

During the six months ended June 30, 2016, we recorded out-of-period corrections of approximately $2.9 million increasing net sales and reducing deferred revenue that should have been recognized previously. Management believes these out-of-period corrections are not material to the current period financial statements or any previously issued financial statements.

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

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer ("CEO") and our Executive Vice President and Chief Financial Officer ("CFO"), evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2017 pursuant to Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934 (as amended, the "Exchange Act"). Based on that evaluation, our CEO and CFO have concluded that our disclosure controls and procedures as of December 31, 2017 were effective to provide reasonable assurance that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and the information required to be disclosed by us is accumulated and communicated to our management, including our CEO and CFO, to allow timely decisions regarding required disclosure.

In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Management's Report on Internal Control over Financial Reporting

Management of the Company is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) or 15d-15(f) promulgated under the Securities Exchange Act of 1934. 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 and includes those policies and procedures that:

- Pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and disposition of the assets of the Company;
- 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
- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or dispositions 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.

The Company's management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2017. In making this assessment, the Company's management used the criteria established in *Internal Control-Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

Based on our assessment and the aforementioned criteria (and subject to the aforementioned exclusion), management concluded that, as of December 31, 2017, the Company's internal control over financial reporting was effective.

The effectiveness of the Company's internal control over financial reporting as of December 31, 2017 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which appears herein in Item 8 of this Annual Report.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting in the quarter ended December 31, 2017 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

Item 10. Directors, Executive Officers and Corporate Governance

Except to the extent provided below, the information required by this Item shall be set forth in our Proxy Statement for our 2017 Annual Meeting of Stockholders, to be filed with the SEC within 120 days of December 31, 2017, and is incorporated into this Annual Report by reference.

We have adopted a Code of Conduct that applies to our principal executive officer, principal financial officer and principal accounting officer or any person performing similar functions, which we post on our website in the "Corporate Governance" link located at: ir.hmhco.com. We intend to publish any amendment to, or waiver from, the Code of Conduct on our website. We will provide any person, without charge, a copy of such Code of Conduct upon written request, which may be mailed to 125 High Street, Boston, MA 02110, Attn: Corporate Secretary.

Item 11. Executive Compensation

The information required by this Item shall be set forth in our Proxy Statement for our 2018 Annual Meeting of Stockholders to be filed with the SEC within 120 days of December 31, 2017, and is incorporated into this Annual Report by reference.

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

The information required by this Item shall be set forth in our Proxy Statement for our 2018 Annual Meeting of Stockholders to be filed with the SEC within 120 days of December 31, 2017, and is incorporated into this Annual Report by reference.

Item 13. Certain Relationships and Related Transactions

The information required by this Item shall be set forth in our Proxy Statement for our 2018 Annual Meeting of Stockholders to be filed with the SEC within 120 days of December 31, 2017, and is incorporated into this Annual Report by reference.

Item 14. Principal Accounting Fees and Services

The information required by this Item shall be set forth in our Proxy Statement for our 2018 Annual Meeting of Stockholders to be filed with the SEC within 120 days of December 31, 2017, and is incorporated into this Annual Report by reference.

Item 15. Exhibits, Financial Statement Schedules

(a) Documents filed as part of the report.

(1) Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm	61
Consolidated Balance Sheets as of December 31, 2017 and 2016	63
Consolidated Statements of Operations for the years ended December 31, 2017, 2016 and 2015	64
Consolidated Statements of Comprehensive Loss for the years ended December 31, 2017, 2016 and 2015	65
Consolidated Statements of Cash Flows for the years ended December 31, 2017, 2016 and 2015	66
Consolidated Statements of Stockholders' Equity for the years ended December 31, 2017, 2016 and 2015	67
Notes to Consolidated Financial Statements	68
(2) Financial Statement Schedules.	113
Schedule II—"Valuation and Qualifying Accounts" is included herein as Note 17 in the Notes to Consolidated Financial Statements.	
(3) Exhibits.	118
See the Exhibit Index.	

EXHIBIT INDEX

Exhibit No.	Description
2.1	Prepackaged Joint Plan of Reorganization of the Debtors Under Chapter 11 of the Bankruptcy Code by and among Houghton Mifflin Harcourt Publishing Company, Houghton Mifflin Harcourt Publishers Inc., HMH Publishers, LLC, Houghton Mifflin Holding Company, Inc., Houghton Mifflin, LLC, Houghton Mifflin Finance, Inc., Houghton Mifflin Holdings, Inc., HM Publishing Corp., Riverdeep Inc., A Limited Liability Company, Broderbund LLC, RVDP, Inc., HRW Distributors, Inc., Greenwood Publishing Group, Inc., Classroom Connect, Inc., Achieve! Data Solutions, LLC, Steck-Vaughn Publishing LLC, HMH Supplemental Publishers Inc., HMH Holdings (Delaware), Inc., Sentry Realty Corporation, Houghton Mifflin Company International, Inc., The Riverside Publishing Company, Classwell Learning Group Inc., Cognitive Concepts, Inc., Edusoft And Advanced Learning Centers, Inc. (incorporated herein by reference to Exhibit No. 2.1 to Amendment No. 1 to the Company's Registration Statement on Form S-1, filed September 13, 2013 (File No. 333-190356)).
2.2	Stock and Asset Purchase Agreement dated as of April 23, 2015, by and among Houghton Mifflin Harcourt Publishing Company, as Purchaser, Scholastic Corporation, as Parent Seller, and Scholastic Inc., as Seller (incorporated herein by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K, filed April 24, 2015 (File No. 001-36166)). Certain schedules and similar attachments to this Exhibit 2.1 have been omitted in accordance with Regulation S-K Item 601(b)(2). The Company agrees to furnish supplementally a copy of all omitted schedules and similar attachments to the SEC upon its request.
3.1	Amended and Restated Certificate of Incorporation (incorporated herein by reference to Exhibit No. 3.1 to Amendment No. 4 to the Company's Registration Statement on Form S-1, filed October 25, 2013 (File No. 333-190356)).
3.2	Certificate of Amendment to Amended and Restated Certificate of Incorporation (incorporated herein by reference to Exhibit No. 3.2 to Amendment No. 4 to the Company's Registration Statement on Form S-1, filed October 25, 2013 (File No. 333-190356)).
3.3	Amended and Restated By-laws (incorporated herein by reference to Exhibit No. 3.1 to the Company's Current Report on Form 8-K, filed November 19, 2013 (File No. 001-36166)).
4.1	Investor Rights Agreement, dated as of June 22, 2012, by and among HMH Holdings (Delaware), Inc. and the stockholders party thereto (incorporated herein by reference to Exhibit No. 4.1 to Amendment No. 1 to the Company's Registration Statement on Form S-1, filed September 13, 2013 (File No. 333-190356)).
4.2	Specimen Common Stock Certificate (incorporated herein by reference to Exhibit No. 4.3 to Amendment No. 4 to the Company's Registration Statement on Form S-1, filed October 25, 2013 (File No. 333-190356)).
4.3	Form of Warrant Certificate (incorporated herein by reference to Exhibit No. 4.4 to Amendment No. 2 to the Company's Registration Statement on Form S-1, filed October 4, 2013 (File No. 333-190356)).
4.4	Warrant Agreement, dated as of June 22, 2012, among HMH Holdings (Delaware), Inc., Computershare Inc. and Computershare Trust Company, N.A. (incorporated herein by reference to Exhibit No. 4.5 to Amendment No. 2 to the Company's Registration Statement on Form S-1, filed October 4, 2013 (File No. 333-190356)).

Exhibit No.	Description
10.1	Nomination Agreement, effective December 21, 2016, by and among Houghton Mifflin Harcourt Company and certain affiliates of Anchorage Capital Group, L.L.C. (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed December 22, 2016 (File No. 001-36166)).
10.2†	Form of Indemnification Agreement (incorporated herein by reference to Exhibit No. 10.12 to Amendment No. 1 to the Company's Registration Statement on Form S-1, filed September 13, 2013 (File No. 333-190356)).
10.3	Amended and Restated Term Loan Credit Agreement, dated as of May 29, 2015, by and among Houghton Mifflin Harcourt Company, Houghton Mifflin Harcourt Publishers Inc., HMH Publishers LLC, Houghton Mifflin Harcourt Publishing Company, certain other subsidiaries of Houghton Mifflin Harcourt Company, as subsidiary guarantors, the lenders party thereto and Citibank, N.A., as administrative agent and collateral agent (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed May 29, 2015 (File No. 001-36166)).
10.4	Amended and Restated Term Facility Guarantee and Collateral Agreement, dated as of May 29, 2015, by and among Houghton Mifflin Harcourt Company, Houghton Mifflin Harcourt Publishers Inc., HMH Publishers LLC, Houghton Mifflin Harcourt Publishing Company, the subsidiaries of Houghton Mifflin Harcourt Company from time to time party thereto and Citibank, N.A., as collateral agent (incorporated herein by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K, filed May 29, 2015 (File No. 001-36166)).
10.5	Amended and Restated Revolving Credit Agreement, dated as of July 22, 2015, by and among Houghton Mifflin Harcourt Company, Houghton Mifflin Harcourt Publishers Inc., HMH Publishers LLC, Houghton Mifflin Harcourt Publishing Company, certain other subsidiaries of Houghton Mifflin Harcourt Company, as subsidiary guarantors, the lenders party thereto and Citibank, N.A., as administrative agent and collateral agent (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed July 23, 2015 (File No. 001-36166)).
10.6	Amended and Restated Revolving Facility Guarantee and Collateral Agreement, dated as of July 23, 2015, by and among Houghton Mifflin Harcourt Company, Houghton Mifflin Harcourt Publishers Inc., HMH Publishers LLC, Houghton Mifflin Harcourt Publishing Company, the subsidiaries of Houghton Mifflin Harcourt Company from time to time party thereto and Citibank, N.A., as collateral agent (incorporated herein by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K, filed July 22, 2015 (File No. 001-36166)).
10.7†	HMH Holdings (Delaware), Inc. Change in Control Severance Plan (incorporated herein by reference to Exhibit No. 10.5 to Amendment No. 1 to the Company's Registration Statement on Form S-1, filed September 13, 2013 (File No. 333-190356)).
10.8†	Houghton Mifflin Harcourt Publishing Company ELT Severance Plan (incorporated herein by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q, filed November 5, 2015 (File No. 001-36166)).
10.9†	Houghton Mifflin Harcourt Severance Plan, amended and restated as of March 31, 2016 (incorporated herein by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q, filed May 4, 2016 (File No. 001-36166)).
10.11†	Form of Director Compensation Letter (incorporated herein by reference to Exhibit No. 10.11 to Amendment No. 1 to the Company's Registration Statement on Form S-1, filed September 13, 2013 (File No. 333-190356)).

Exhibit No.	Description
10.12†	Houghton Mifflin Harcourt Company Non-Employee Director Deferred Compensation Plan (incorporated herein by reference to Exhibit No. 10.50 to the Company's Annual Report on Form 10-K, filed February 25, 2016 (File No. 001-36166)).
10.13†	Houghton Mifflin Harcourt Company Employee Stock Purchase Plan (incorporated herein by reference to Exhibit 10.1 to the Company's Registration Statement on Form S-8, filed May 29, 2015 (File No. 333-204519)).
10.14†	HMH Holdings (Delaware), Inc. 2012 Management Incentive Plan (incorporated herein by reference to Exhibit No. 10.1 to Amendment No. 1 to the Company's Registration Statement on Form S-1, filed September 13, 2013 (File No. 333-190356)).
10.15†	HMH Holdings (Delaware), Inc. 2012 Management Incentive Plan Form of Stock Option Award Notice (incorporated herein by reference to Exhibit No. 10.2 to Amendment No. 1 to the Company's Registration Statement on Form S-1, filed September 13, 2013 (File No. 333-190356)).
10.16†	HMH Holdings (Delaware), Inc. 2012 Management Incentive Plan Time-Based Restricted Stock Unit Award Notice (incorporated herein by reference to Exhibit No. 10.32 to the Company's Annual Report on Form 10-K, filed February 26, 2015 (File No. 001-36166)).
10.17†	HMH Holdings (Delaware), Inc. 2012 Management Incentive Plan Performance-Based Restricted Stock Award Notice (incorporated herein by reference to Exhibit No. 10.33 to the Company's Annual Report on Form 10-K, filed February 26, 2015 (File No. 001-36166)).
10.18†	HMH Holdings (Delaware), Inc. 2012 Management Incentive Plan Performance-Based Restricted Stock Unit Award Notice (incorporated herein by reference to Exhibit No. 10.34 to the Company's Annual Report on Form 10-K, filed February 26, 2015 (File No. 001-36166)).
10.19†	HMH Holdings (Delaware), Inc. 2012 Management Incentive Plan Time-Based Restricted Stock Award Notice (incorporated herein by reference to Exhibit No. 10.35 to the Company's Annual Report on Form 10-K, filed February 26, 2015 (File No. 001-36166)).
10.20†	Houghton Mifflin Harcourt Company 2015 Omnibus Incentive Plan (incorporated herein by reference to Exhibit 10.2 to the Company's Registration Statement on Form S-8, filed May 29, 2015 (File No. 333-204519)).
10.21†	Houghton Mifflin Harcourt Company 2015 Omnibus Incentive Plan Form of Time-Based Restricted Stock Unit Award Notice (*Employees*) (incorporated herein by reference to Exhibit 10.3 to the Company's Registration Statement on Form S-8, filed May 29, 2015 (File No. 333-204519)).
10.22†	Houghton Mifflin Harcourt Company 2015 Omnibus Incentive Plan Form of Performance-Based Restricted Stock Unit Award Notice (*Employees*) (incorporated herein by reference to Exhibit 10.4 to the Company's Registration Statement on Form S-8, filed May 29, 2015 (File No. 333-204519)).
10.23†	Houghton Mifflin Harcourt Company 2015 Omnibus Incentive Plan Form of Time-Based Restricted Stock Unit Award Notice (*Directors*) (incorporated herein by reference to Exhibit 10.9 to the Company's Quarterly Report on Form 10-Q, filed August 6, 2015 (File No. 001-36166)).
10.24†	Houghton Mifflin Harcourt Company 2015 Omnibus Incentive Plan Form of Stock Option Award Notice (incorporated by reference to Exhibit 10.10 to the Company's Quarterly Report on Form 10-Q, filed August 6, 2015 (File No. 001-36166)).
10.25†	Houghton Mifflin Harcourt Company Form of Restricted Stock Unit Award Notice (*with Deferral Feature—Directors*) (incorporated herein by reference to Exhibit No. 10.51 to the Company's Annual Report on Form 10-K, filed February 25, 2016 (File No. 001-36166)).

Exhibit No.	Description
10.26†	Houghton Mifflin Harcourt Company Form of Performance-Based Restricted Stock Unit Award Notice (*TSR/Billings—Employees*) (incorporated herein by reference to Exhibit No. 10.1 to the Company's Current Report on Form 8-K, filed May 4, 2016 (File No. 001-36166)).
10.27*†	Houghton Mifflin Harcourt Company 2015 Omnibus Incentive Plan New Hire Stock Option Award Notice dated May 9, 2017 by and between Houghton Mifflin Harcourt Company and John J. Lynch, Jr.
10.28*†	Houghton Mifflin Harcourt Company 2015 Omnibus Incentive Plan New Hire Time-Based Restricted Stock Unit Award Notice dated May 9, 2017 by and between Houghton Mifflin Harcourt Company and John J. Lynch, Jr.
10.29†	William Bayers Offer Letter dated April 10, 2007, as amended on May 14, 2009 (incorporated herein by reference to Exhibit No. 10.9 to Amendment No. 1 to the Company's Registration Statement on Form S-1, filed September 13, 2013 (File No. 333-190356)).
10.30†	Lee R. Ramsayer Offer Letter dated January 25, 2012 (incorporated herein by reference to Exhibit No. 10.29 to the Company's Annual Report on Form 10-K, filed March 27, 2014 (File No. 001-36166)).
10.31†	Joseph Abbott Offer Letter dated as of March 10, 2016 (incorporated herein by reference to Exhibit No. 201-5 10.3 to the Company's Current Report on Form 8-K, filed March 10, 2016 (File No. 001-36166)).
10.32†	Letter Agreement, effective September 22, 2016, by and between Houghton Mifflin Harcourt Company and L. Gordon Crovitz (incorporated herein by reference to Exhibit No. 10.1 to the Company's Quarterly Report on Form 10-Q, filed November 3, 2016 (File No. 001-36166)).
10.33†	John J. Lynch Offer Letter dated February 10, 2017 (incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K filed on February 15, 2017 (File No. 001-36166)).
10.34*†	Rosamund Else-Mitchell Offer Letter dated April 22, 2015.
10.35*†	Rosamund Else-Mitchell Promotion Letter dated August 27, 2015.
10.36*†	Rosamund Else-Mitchell Promotion Letter dated August 3, 2017.
10.37†	Mary Cullinane Offer Letter dated October 21, 2011 (incorporated herein by reference to Exhibit No. 10.28 to the Company's Annual Report on Form 10-K, filed March 27, 2014 (File No. 001-36166)).
10.38†	Mary Cullinane Letter Agreement dated as of May 24, 2017 (incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K filed on May 25, 2017 (File No. 001-36166)).
10.39*†	Confidential Severance Agreement and General Release dated as of October 1, 2017, by and between Mary Cullinane and Houghton Mifflin Harcourt Company.
21.1*	List of Subsidiaries of the Registrant.
23.1*	Consent of PricewaterhouseCoopers LLP, independent registered public accounting firm.
31.1*	Certification of CEO Pursuant to Rule 13a-14(a) or 15d-14(a) of the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of CFO Pursuant to Rule 13a-14(a) or 15d-14(a) of the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

Exhibit No.	Description
32.1**	Certification of CEO Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2**	Certification of CFO Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document.
101.SCH	XBRL Taxonomy Extension Schema Document.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.

† Identifies a management contract or compensatory plan or arrangement.

* Filed herewith

** This certification shall not be deemed "filed" for the purposes of Section 18 of the Securities Exchange Act of 1934 or otherwise subject to the liabilities under that section. Furthermore, this certification shall not be deemed to be incorporated by reference into the filings of the Company under the Securities Act of 1933 or the Securities Exchange Act of 1934, regardless of any general incorporation language in such filing.

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Houghton Mifflin Harcourt Company
(Registrant)

By: /s/ John J. Lynch, Jr.
John J. Lynch, Jr.
President, Chief Executive Officer
(On behalf of the registrant)

February 22, 2018

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

Signature	Title	Date
/s/ John J. Lynch, Jr. John J. Lynch, Jr.	President, Chief Executive Officer (Principal Executive Officer) and Director	February 22, 2018
/s/ Joseph P. Abbott, Jr. Joseph P. Abbott, Jr.	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 22, 2018
/s/ Michael J. Dolan Michael J. Dolan	Senior Vice President and Corporate Controller (Principal Accounting Officer)	February 22, 2018
/s/ Lawrence K. Fish Lawrence K. Fish	Chairman of the Board of Directors	February 22, 2018
/s/ Daniel M. Allen Daniel M. Allen	Director	February 22, 2018
/s/ L. Gordon Crovitz L. Gordon Crovitz	Director	February 22, 2018
/s/ Jill A. Greenthal Jill A. Greenthal	Director	February 22, 2018
/s/ John F. Killian John F. Killian	Director	February 22, 2018
/s/ John R. McKernan, Jr. John R. McKernan, Jr.	Director	February 22, 2018
/s/ E. Rogers Novak, Jr. E. Rogers Novak, Jr.	Director	February 22, 2018
/s/ Tracey D. Weber Tracey D. Weber	Director	February 22, 2018

BOARD OF DIRECTORS

CHAIRMAN

Lawrence K. Fish
Retired Chairman and Chief Executive Officer, Citizens Financial Group, Inc.

DIRECTORS

Daniel Allen
President and Partner, Anchorage Capital Group, L.L.C.

L. Gordon Crovitz
Co-Founder and Co-Chief Executive Officer of Newsguard Technologies Inc. and retired Publisher of *The Wall Street Journal*

Jean S. Desravines
Chief Executive Officer of New Leaders, Inc.

Jill A. Greenthal
Senior Advisor, Blackstone Group

John F. Killian
Retired Executive Vice President and Chief Financial Officer, Verizon Communications, Inc.

John J. Lynch, Jr.
President and Chief Executive Officer

John R. McKernan, Jr.
Chief Executive Officer of McKernan Enterprises, Inc. and former Governor of Maine

E. Rogers Novak, Jr.
Founder and Managing Member of Novak Biddle Venture Partners

Tracey D. Weber
Vice President of Digital Platforms for IBM

HMH EXECUTIVE OFFICERS

John J. Lynch, Jr.
President and Chief Executive Officer

Joseph P. Abbott, Jr.
Executive Vice President and Chief Financial Officer

William F. Bayers
Executive Vice President, General Counsel and Secretary

Ellen Archer
President, Houghton Mifflin Harcourt Trade Publishing

Amy L. Dunkin
Senior Vice President and Chief Marketing Officer

Rosamund Else-Mitchell
Executive Vice President, Chief Learning Officer

Matthew Mugo Fields
Executive Vice President and General Manager, Supplemental and Intervention Solutions

James P. O'Neill
Executive Vice President and General Manager, Core Solutions

Lee R. Ramsayer
Executive Vice President, Global Sales

Alejandro Reyes
Senior Vice President, Chief People Officer

Corporate Headquarters

Houghton Mifflin Harcourt
125 High Street
Boston, MA 02110
Phone: 617.351.5000

Website

hmhco.com

Transfer Agent

Computershare Trust Company, N.A.
250 Royall Street
Canton, MA 02021
Phone: 781.575.2000

Independent Registered Public Accounting Firm

PriceWaterhouseCoopers LLP
101 Seaport Boulevard, Ste. 500
Boston, MA 02210
Phone: 617.530.5000

Outside Legal Counsel

WilmerHale
60 State Street
Boston, MA 02109
Phone: 617.526.6000

Annual Meeting

Date: May 22, 2018
Time: 8:00 a.m.
Location: HMH Corporate HQ
125 High Street
9th Floor
Boston, MA 02110

Ticker Symbol

NASDAQ:HMHC

Investor Relations

Brian Shipman
Senior Vice President,
Investor Relations
Phone: 212.592.1177

Form 10-K

A copy of the Company's Form 10-K filed with the Securities and Exchange Commission is available on the Company's website hmhco.com and also available without charge upon written request to: Houghton Mifflin Harcourt, Investor Relations, 125 High Street, Boston, MA 02110; by calling 212.592.1177; or by emailing Brian Shipman at brian.shipman@hmhco.com.

This Annual Report contains forward-looking statements that involve risks and uncertainties that could cause results to differ materially from those projected. These forward-looking statements can be identified by the use of forward-looking terminology, including the terms "believe," "estimate," "project," "anticipate," "expect," "could," "intend," "may," "will" or "should," "forecast," "plan," "potential," "project," "target" or, in each case, their negative, or other variations or comparable terminology. Factors that may cause actual results to differ materially from those contemplated by the statements in this Annual Report can be found in our Annual Report on Form 10-K for the year ended December 31, 2017, under the heading "Special Note Regarding Forward-Looking Statements." Accordingly, you are cautioned not to place undue reliance on any of our forward-looking statements. We disclaim any intention or obligation to publicly update or revise any forward-looking statements. This cautionary statement is applicable to all forward-looking statements contained in this document.

We are The Learning Company.™

Learning is a journey. It starts with curiosity and builds. Learning is the driving force behind transformation. It has the power to rewrite the way we think, feel, and act. Each of us are learners and every day we encounter new learning moments. What we do with those moments is the difference between failure and flight. For when we embrace the process, what we learn about ourselves may surprise us—we discover our own potential and grow. So, what does it ultimately mean to be The Learning Company? It's about activating students' curiosity, elevating their teachers' potential, and transforming leaders into visionaries. Together, we are shaping the future of education, one learning moment at a time. It starts here.

Houghton Mifflin Harcourt™

hmhco.com

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